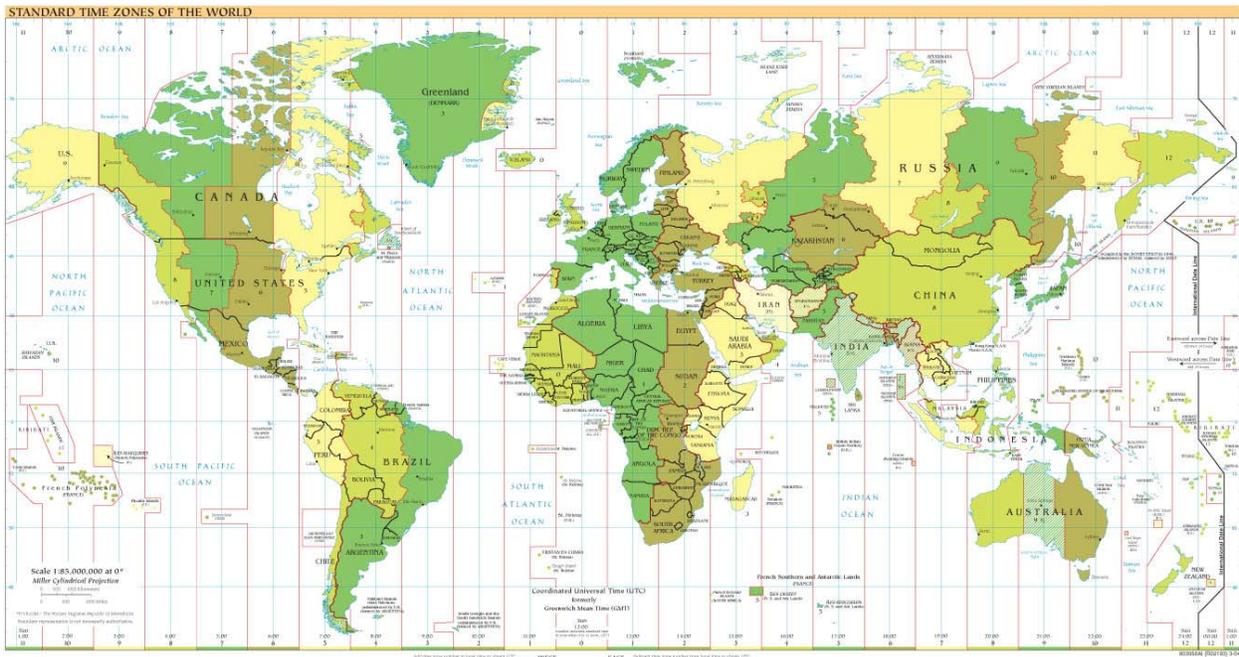


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Warmest regards,

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October 18, 2009
Las Vegas, Nevada, USA

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THE FOUNDATIONS OF JAMES BUCHANAN'S WORK: EXCHANGE AND GAINS FROM TRADE IN ALL ASPECTS OF LIFE, INCLUDING MARKETS AND POLITICS

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ABSTRACT

James Buchanan won the Nobel Prize for economic sciences in 1986. This paper sketches the foundations of his work and how it developed over time. By the 1960s he saw exchange as the key to the whole discipline of economics. Gradually he shifted the focus from 'gains from trade' in regular markets to politics. Contracts regarding goods and services were broadened to constitutional contracts. Always the approach was to start from the status quo and look for Pareto gains. Especially in his early work, Buchanan was a strong advocate of positivism. Over time this softened. The paper starts by listing his foundational assumptions. It then discusses Buchanan's early methodological views on how economics should be understood. Next, it shows his understanding of the ethics of markets, exchange, private property and the minimal state. Finally, it shows how this approach logically leads to constitutional political economy. Even though the focus was on formal rules, over the years Buchanan became increasingly aware that these rules were merely substitutes for cultural norms.

Keywords: James Buchanan, gains from trade, exchange, contract, methodology, constitutional political economy

1. INTRODUCTION

James Buchanan won the Nobel Prize for economic sciences in 1986. This paper sketches the foundations of his work and how it developed over time. Although he began as 'a regular public finance economist' (Buchanan, 1995), he became part of the movement which sought to broaden the boundaries of economics which had narrowed after 1870. Buchanan has been a leader in new sub-disciplines, such as Public Choice, Constitutional Political Economy, and to some extent New Institutional Economics. He is interesting because, unlike others in the economic imperialist camp (see Duhs, 2005), throughout his *oeuvre* he shows a serious interest in the relationship between economics and ethics. At various times Buchanan has addressed what Sen calls 'the ethics-related view of motivation' (Sen, 1987, p. 4). A comprehensive treatment of his work is beyond the scope of this paper.

Buchanan's early specialization led him to think about how the state was understood. Even in the late 1940s he discussed the fundamental difference between the 'organismic' view of the state and the 'individualistic' theory of the state (Buchanan, 1949, 496). In later work Buchanan developed a theory of social contract and a whole research programme called constitutional political economy. The germ of this work was evident in 1949.

Around the same time he began to advocate understanding markets in a 'gains from trade' framework; gains, of course, had to be secured by enforced contracts (1959, p. 129; 1975b, p. 229). By the mid 1960s Buchanan was calling for economics to focus on catallactics, or exchange (1964, p. 214). The gains-from-trade/contracting approach, he discovered, could be integrated into his constitutional economics programme by considering politics as a sort of exchange. In markets, and in politics, Buchanan's approach was to start from the *status quo* and look for Pareto gains.

Much of Buchanan's work is positive analysis. In the 1960s, he claimed that economic theory, for example public goods theory, 'can be, and should be, wholly *wertfrei* [value free] in an explicit sense' (1967, p. 197). Buchanan was methodologically self-aware in his writings and he tried to make clear when he ventured into normative analysis. Buchanan's understanding of positivism may have led to a strong preference for the 'ivory tower' (Buchanan, 1995). In any event, while Buchanan did make policy recommendations, he was content to write articles and books, staying largely clear of the 'fury of policy argument' (1967, p. 193). I contend that Buchanan's positivism softened over time.

Buchanan has written on many topics over a long career but the Nobel Prize was awarded 'for his development of the contractual and constitutional bases for the theory of economic and political decision-

making.' He makes it clear in his Nobel Lecture that economic policy must be considered within the context of the political decision-making framework and that a model of the state and politics is needed *before* considering the effects of different policy choices (1987a). Somewhat surprisingly given his earlier views, Buchanan admitted frankly that in investigating the relation of the individual to the state, his goal was 'ultimately normative'; he added that economists investigating this central topic must place their discussion within the 'more comprehensive realm of discourse' of political philosophy (Buchanan, 1987a, p. 335; see also 1991, p. 4). By the 1990s, Buchanan went so far as to call for a closer relationship between economics and ethics (Buchanan, 1994, pp. 82-3). While his particular conclusions differ greatly from Aristotle's, the call for a thorough engagement with political philosophy and ethics is thoroughly consistent with Aristotle. At least in his mature views, Buchanan seems to be very much at odds with those who claim that anything worthwhile in 'economics' is value-free engineering.

The remainder of the paper comprises seven more sections. Section 2 presents Buchanan's fundamental assumptions. Section 3 discusses some methodological themes in his early work, especially his definitions of economics and political economy. Section 4 presents Buchanan's views of the ethics of markets and exchange. Section 5 presents six visions of the social contract presented by leading social contract theorists. Section 6 presents Buchanan's view of the ethical minimal state. Section 7 presents his view of constitutional political economy. Section 8 provides some concluding remarks.

2. FOUNDATIONAL ASSUMPTIONS

On many questions, Buchanan says that the starting point for him in economic analysis is classical political economy and especially the work of Adam Smith (Buchanan, 1964a, pp. 213-4; 1994, p. 12). While I may disagree with his interpretations of Smith (and others) I can appreciate that other interpretations are possible. In any event, Buchanan adopts several assumptions, some of which can be traced to the classical economics tradition. Some assumptions underpin all of his work; others are adapted to the particular context. The following eleven assumptions I take to be Buchanan's fundamental assumptions. They fall into two groups. The first six relate to the individual in isolation or in the interactions in markets. The remaining five assumptions refer to the individual in a market or social choice setting.

The first and second assumptions seem joined together in Buchanan's mind: he is 'profoundly individualistic, in an ontological-methodological sense' ([1975] 2000, p. 3). First, Buchanan's ontological view of strict subjectivism means that there is no distinction between the individual's utility function and his behaviour (1991, p. 225). Individual choice is all that there is. The notion that there is an objectively correct bundle which maximizes an individual's utility function is meaningless (1991, p. 226). Buchanan is skeptical about theological claims; he does consider human beings as a species, although it is a very thin conception. Second, Buchanan adopts methodological individualism, which assumes only autonomous 'individuals choose and act'; while he concedes that some social influence is possible, his concession does not go nearly as far as the 'communitarians' claim (1987c, p. 586; 1991, p. 14). Third, he says that a 'philosophical complement' to methodological individualism is that 'the ultimate sources of value' lies 'exclusively in individuals' (1987c, p. 586). This is important because these 'ultimate normative criteria ... inform the choices among institutions,' including rules, in constitutional economics (1987c, p. 586). (See also assumption eight below.) Buchanan adopts a more nuanced view in his recent work on culture (see 1994). Fourth, he puts supreme value on freedom, although the formulation varies. Buchanan sometimes says that the primary goal of each human is to maximize his liberty, understood in the 'negative sense' of not being coerced 'by someone else' (1984, p. 107); at other times he propounds the more subtle view that the goal is maximal freedom within the constraints one gives oneself individually or by agreement with others (the incorporation of ethical constraints consistent with one's interests tends to be the focus of some of his later works). Fifth, he assumes *homo economicus*, meaning that individuals 'seek their own interests' defined in a 'non-tautological' way (1987c, p. 587). Sixth, Buchanan assumes rational choice, by which he means that all economic agents are able to choose between alternatives in an 'orderly manner' (1991, p. 15).

Seventh, in group settings, cooperative behaviour can secure mutual gains (1964a, p. 218). What Buchanan has in mind by cooperation is trade in various forms, starting with the trade of goods between

individuals. This is one of the main themes of his economics: gains from trade. Markets achieve individual goals not national goals (1964a, p. 219). Eighth, Buchanan holds 'normative individualism,' the 'normative premise that individuals are the ultimate sovereigns in matters of social organization'; while individuals can delegate, they remain the principals (1991, pp. 225, 227). Ninth, the political unit is construed as a manifestation of a social contract. This contract is analogous to other contracts. Buchanan calls himself a 'contractarian' ([1975] 2000, p. 11). Here is another major theme in his work. Tenth, the political counterpart to the rationality and methodological individualist assumptions in social decision making is the 'equal weighting' to 'individual evaluations'; Buchanan and his constitutional economics has a 'democratic foundation' (1991, p. 16). Finally, he does not want abuses by democratic majorities; this leads Buchanan to adopt constitutional democracy (1987c, p. 586). Particularly in public goods provision, he stresses unanimity (or, failing that, consensus or near unanimity) (1959, pp. 127-8, 135, 137; 1991, p. 47).

Some important implications follow from these assumptions. In much of the period after World War II, economic discussions, especially in Welfare Economics, were conducted in terms of utility. Not using this language may have led to being ignored. Buchanan did not want that to happen with his writings. Hence, when he wrote for the mainstream journals (as he did on various occasions), following Robbins, Buchanan made it clear that interpersonal comparison of utilities cannot be made; 'utility' is purely subjective (1959, p. 126). Further, he opposes all utilitarian projects which attempt to construct social aggregates by adding up utilities. No "'social" aggregates' have meaning, properly speaking (1964a, p. 215). This whole aggregative approach Buchanan says assumes an organic understanding of the state and he opposes that to his own individualistic approach (1949). The distinction between these two paradigms shows up frequently in his work over the next fifty years.

Aspects of Welfare Economics, such as the Social Welfare Function of various types (the simple version aggregates utility functions of individuals) are ruled out by Buchanan's individualist approach. Even worse than constructing such a social welfare function is attempting to use it. Social 'maximization' he says is absurd (1975b, p. 226). Time and time again Buchanan says that 'better' or 'worse' must be measured in terms of 'the individuals' own preferences'; 'better off' is equated with observed voluntary choice or revealed preference (1994, p. 1; 1959, p. 125). Obviously, this constrains Welfare Economic analysis to the very narrow boundaries marked out by Robbins. His alternative to social 'maximization' is Pareto improvement (using their own evaluation at least one person is made better of and no one is made worse off). While Buchanan admits that Pareto improvement is an 'ethical proposition,' it is a 'relatively neutral ethics' and 'it is one which requires a minimum of premises and one which should command wide assent' (1959, pp. 125, 129). Given this standard, to consider implementing any economic policy which harms anyone (which is frequently the case), 'full compensation' must not only be feasible but *actually* paid (1959, p. 128; see pp. 129, 136).

Buchanan thought that Keynesian economics was a disaster for many reasons. One important reason was that it focused on aggregates rather than individuals. Secondly, Keynesians seemed to think in organic terms that the economy had a 'purpose.' In Buchanan's view, the economy, being an aggregate of individual decisions, is 'purposeless.' The whole field of macroeconomics was a huge waste of time as far as Buchanan was concerned (1991, pp. 29, 33-4). It suffered from the same aggregation flaw as much of Welfare Economics.

3. METHODOLOGY IN BUCHANAN'S EARLY WORK, ESPECIALLY THE DEFINITION OF ECONOMICS AND POLITICAL ECONOMY

On various occasions starting in the late 1950s, Buchanan defines economics and distinguishes it from political economy. He also explains what economists do and what they *should* do. Buchanan also contrasts his vision of economics with that of the mainstream. Given the length of time over which these views were presented, it is not surprising that his discussions are not perfectly consistent. Over the next thirty-five years he shifted considerably away from that view. Indeed, by 1994 he was calling for a reintegration of economics and ethics (1994, pp. 82-3). In this section I will discuss Buchanan's methodology in his early work, especially his definitions of economics and political economy.

In the late 1950s Buchanan distinguished economics from political economy, apparently on the basis that the former deals with theory and the latter with policy (Buchanan, 1959). The former is positivistic and the latter can be made so, to a very large degree. His goal was consistent with the 'positivist revolution' (1959, p. 124).

Buchanan declared that the subject matter of economics is exchange. Economists, Buchanan suggests, must try to be scientific and hence positive economics is a core element of what economists do. In addition, there are normative areas of economic policy and here he argues that 'political economists' can play a role (1959, pp. 127-8). That role is severely constrained, however, by the fundamental assumptions that Buchanan makes (see above). Indeed, especially in his early work, Buchanan's goal seems to have been to make that role as narrow and positivistic as possible (1959, pp. 127, 138).

By the mid 1960s Buchanan clearly saw exchange as the key to the whole discipline of economics. The subject matter for the economist Buchanan traces back to Adam Smith. Buchanan says that the starting point is Smith's view that the 'propensity to truck, barter and exchange one thing for another' causes the division of labour and, in turn, opulence (Buchanan, 1964a, p. 213 quoting Smith, [1776] 1976, p. 25).

Economists 'should' concentrate their attention on a particular form of human activity, and upon the various institutional arrangements that arise as a result of this form of activity. Man's behaviour in the market relationship, reflecting the propensity to truck and to barter, and the manifold variations in structure that this relationship can take; these are the proper subjects for the economist's study (Buchanan, 1964a, pp. 213-4).

Following Robbins, mainstream economists focused on efficient allocation of scarce resources. This approach shows how competition yields a certain 'unique "optimum" or "equilibrium"' (1964a, p. 218). According to Buchanan this approach is misguided. The focus should be exchange, and the markets as means of delivering Pareto gains. Over the years, Buchanan construed exchange very widely, even to the point where the relationship between citizens and the state was viewed as contractual.

Is there any ethics here? Exchange requires agreement and agreement in Buchanan's view means that the parties to the exchange are improved or not made worse off. Exchange for him means Pareto improvement. All allegations about exploitation which have been raised in the past are silently dismissed. This exchange-Pareto improvement model is the paradigm for much of Buchanan's work.

Now let us shift to political economy (the study of economic policy and ultimate recommendation of policy choices). The political economist must remain 'ethically neutral' (1959, p. 127); his role is very limited. He or she first invents 'tentative hypotheses' about areas where Pareto gains are possible (1959, p. 128; see 1975b, p. 227). Second, the economist proposes these hypotheses for consideration in the political decision-making process in order to test if 'consensus' exists as to their beneficial (or non-harmful) effects (1959, p. 128). In order to realize Pareto gains, the group may need collective action by the government. Buchanan admits that an 'implicit' theory of the state is assumed (the state is based on a social contract) and that he assumed the group is composed of 'reasonable men' (1959, 134). The assumption that everyone is reasonable may be violated in reality and hence Buchanan is prepared to allow that some slightly lower standard; this consensus he calls 'relative unanimity' (1959, p. 135). Agreement of the participants in the collective decision-making process is the only measure of success (1959, p. 128).

By 1975 Buchanan's mature view had emerged. In 'A Contractarian Paradigm for Applying Economic Theory' he reiterated his old methodological themes: gains from trade, social changes that are Pareto improvements, and opposition to the Social Welfare Function (1975b). The third point was summarized in this statement "The economy" does not maximize, and we may substitute "the polity" here without change in my emphasis' (1975b, p. 225). Now some new points emerged due to the welcome arrival of game theory. Buchanan says that the preferred type of mathematics is game theory rather than maximization or minimization (1975b, p. 229). It is preferred for two reasons: the external observer in a game-theory exercise focuses on *rules* rather than imposing particular outcomes; and there is no unique solution in games (1975b, pp. 226-7). Finally, Buchanan says that collective or group decision must also be seen in 'contractarian' framework (1975b, p. 228). To the extent that 'collective-governmental institutions' are needed, these institutions or 'rules' must be 'preselected at some constitutional stage of

“trade” (1975b, p. 227). Clearly, the ‘contractarian paradigm’ is extended from goods in regular markets to political institutions, such as those that provide public goods (1975b, p. 228).

The stage was set by 1975 for the emergence of several features in his work: the working out of a full-scale theory of social contract (see Section 6); and the start of his research programme called constitutional political economy (see Section 7). The Nobel Prize was awarded to him on the basis of the latter (plus his work on Public Choice more generally). The development of constitutional political economy seems to represent a blurring of the distinction between economics (facts) and political economy (values) discussed in his 1959 article. By necessity, his early enthusiastic embrace of positivism must have waned by the mid-1970s.

4. THE ETHICS OF MARKETS AND EXCHANGE

Buchanan’s understanding of the definition of economics and the role of the economist, is closely related to his understanding of the economy. Exchange is fundamental. So is contract. Buchanan’s main interest is in a *mature* economy where exchange and contracts occur regularly, but as we will see in Section 6, he is prepared to discuss the origins of these from a state of nature. In a mature economy, markets are an important institution; they link together buyers and sellers and provide the framework for bargaining and contracting. Even the exchange-contract-market framework is insufficient. Private property is needed. Once this set of linkages is created, specialization can occur. Also the state must enter somewhere along the way. Contracts must be enforced by the state, private property boundaries must be clarified, and so on. How does this specialization-market-exchange-private property chain relate to the ethics of economics?

Recall assumption 7. The ‘mutuality of advantage that may be secured by different organisms as a result of cooperative arrangements ... is the one important truth’ in economics (1964a, p. 218). This simple truth was expanded into a spontaneous order theory by the classical economists, who are Buchanan’s inspiration. ‘Classical political economy contains the important principle of spontaneous coordination, the great discovery of the 18th century. This principle states that, within the legal umbrella of the minimal state and given certain conditions, the market “works”’ (1987c, p. 586).

Markets are not a ‘morally free zone’; on the contrary, ‘the market relationship offers the exemplar of rational morality’ (1991, p. 209). ‘The market takes persons as they are, differences and all, and allows mutual gains to be secured’; indeed, ‘the market process itself insures mutuality of gain’ (1977, p. 70). While ‘bargaining power and ... bargaining skills’ vary, the surplus ‘that trade makes possible is shared among all traders, and certainly no trader finds himself made worse off in absolute terms in his post-trade position than in his pre-trade position’ (1977, pp. 70-1). Buchanan repeatedly refers to ‘gains from trade’ made possible by specialization, and exchange in the market (see 1964a, p. 218; 1975b, p. 229; 1991, pp. 109-23). These arrangements provide Pareto gains and are in the common good.

Buchanan’s market-friendly approach is largely consistent with mainstream economics. Nevertheless, unlike the mainstream approach, Buchanan’s ‘gains from trade’ approach focuses on *process* rather than outcomes (1991, pp. 109-23). For Buchanan, markets, exchange and private property can deliver gains from trade; they are ‘good.’ This ‘goodness’ is extended by him to the political contract and I will elaborate later on his ‘contractarian’ approach to politics in Sections 6 and 7. In addition to the minimal state mentioned above, private property must enter the ‘gains from trade’ picture. In Section 6, I will turn to Buchanan’s response to the great social contract theorists, including his view on how private property emerges historically in the state of nature *before* the social contract occurs. A little background on some of the social contract theorists is presented next.

5. SIX VISIONS OF CONSTITUTIONAL CONTRACT

Buchanan’s Nobel citation referred to his contribution to the ‘contractual and constitutional bases for ... decision-making.’ Several accounts have been given as to the origin of the state and the conditions under which one can describe the state as legitimate. I will consider six social contract theorists. These

writers advanced a theory of the state based on compact or contract. The original agreement provides the ethical framework within which the state operates over time.

First, in *Leviathan*, Thomas Hobbes described a conjectural history of the world in order to justify the power of the state. The pre-political state of nature is a state of war; there is no morality and no property (Hobbes, 1968, pp. 183-8). It is from this unpleasant anarchy that people seek to flee. They compact with a sovereign for security; no *mutual* contract exists (Hobbes, 1968, pp. 190-201). This Leviathan must be all-powerful to provide security. Once that security is provided, the state should permit scope for autonomous action (including commerce) providing that this liberty does not undermine the state (1968, pp. 294-302). Buchanan is fascinated by Hobbes *and at times presents himself as a Hobbesian* ([1975] 2000, pp. 32, 87; 1979; see 1991, p. 234).

Second, John Locke in the *Two Treatises of Government* provides an alternative conjectural history to Hobbes and uses this to justify both (limited) state power and revolution. He provides a genuine social contract theory. Private property exists in the state of nature (one mixes one's labour with that which is common to privatize it) but it is somewhat insecure; a state of war is never far away (1988, pp. 285-99, 350, 352). Individuals enter into a contract with the sovereign to protect their property and provide security to permit further acquisition (1988, pp. 276-7, 301, 324, 331, 329, 350-2, 381, 412). Failure to provide these things leads to the illegitimacy of the state and the right to revolution can be exercised (1988, pp. 406-12). Buchanan accepts aspects of Locke's approach (see also [1975] 2000, pp. 80, 107; see also pp. 79, 121n., 187).

Third, in the *Second Discourse* Jean-Jacques Rousseau sets out to correct certain details in the conjectural histories of Hobbes and Locke (Rousseau, 1964, pp. 76-248). In *The Social Contract* Rousseau sets out his own social-contract framework (Rousseau 1978). In this work he developed his doctrine of the general will, among other things. It is the general will which wills the social contract. This is more than the sum of individual narrow self-interest (particular wills). Clearly, Rousseau imposed a highly restrictive set of conditions for legitimacy to be granted to a regime. Buchanan says that he adopts aspects of Rousseau's approach to law (Buchanan, [1975] 2000, p. 140n.; see also pp. 16 n., 86 n., 119 n., cf. p. 34).

Fourth, in the union of a number of works, primarily the *Groundwork for the Metaphysics of Morals* and the *Metaphysics of Morals*, Immanuel Kant developed a social compact theory of the state. The compact is a hypothetical rational defence of state power, where the state provides freedom, equality and independence of the individual; it cannot impose a view of happiness on the citizenry (1996, pp. 290-1). Stress is placed on maximizing freedom, understood as freedom from constraint by others (1996, p. 393). The social compact is a construct of reason, where the rules are those that *could* have arisen from universal consent (1996, pp. 296-7). Legitimate laws must be universally applicable (1996, p. 387). Buchanan frequently refers to Kant's universalization or generalization principle, and recently co-wrote a book, *Politics by Principle, Not Interest*, devoted to working out applications of the Kantian 'generality norm' of personal ethics and 'its institutional embodiment in the idealized rule of law' (Buchanan and Congleton, 1998, p. xix; see 1962, p. 22; [1975] 2000, pp. 150, 155).

In the 1970s, a revival of social contract theory began. Two major contributors were John Rawls and Buchanan himself; these two round out my survey of the social contract theorists. Rawls's very influential book, called *A Theory of Justice* (Rawls, 1971), was developed on Kantian foundations. Rawls considers a pre-contract environment, the method of creating a social contract consistent with Kant's universality principle, and the possible content of the final contract. The 'original position' is Rawls's equivalent of the state of nature (1971, pp. 17-22). Rawls uses a device called the 'veil of ignorance' to derive two general rules for the social contract: maximal equal liberty and the difference principle (1971, pp. 60-5, 136-42). The later is an egalitarian principle of distributive justice and this aspect drew a great deal of attention to the book. Rawls's book is discussed, sometimes at length, by Buchanan.

Buchanan's own social contract theory (see assumption 9) developed in *The Limits of Liberty*, was a defence of the minimal state and is discussed at length in the next section. His book was not widely accepted. Nevertheless, Buchanan never abandoned the substance of the work. Over the years, due to

the wide acceptance of Rawls's theory of social contract, Buchanan increasingly used aspects of Rawls's book in his own contributions. The 'veil of ignorance' approach is used by Buchanan to consider situations when issue of public debt might be agreed to and this conclusion is integrated as one element in what is now called 'the economic constitution' (1987d). Buchanan also uses the 'veil of ignorance' approach in a range of other contexts. In addition, he uses the first Rawlsian Principle (maximal equal liberty) to establish the ethical limits of taxation; when the 'liberty of session' is recognized within the Rawlsian framework of liberty, clear limits to taxation emerge (Buchanan, 1984). In the next section, we will see one example of how Buchanan builds on the work of the social contract theorists (another example can be found in Buchanan, 1993).

6. BUCHANAN'S ETHICAL (MINIMAL) STATE

The state is the final link in the specialization-market-exchange-private property chain. For the whole ethical chain to hold together, there must be an ethical state. Buchanan's most philosophical work is *The Limits of Liberty*, which discusses the origins of the state and private property, and much more (Buchanan, [1975] 2000). Here, he provides a brief conjectural history of the origins of private property but he is not wedded to any specific 'conjectural history' (p. 140). It is in *The Limits of Liberty* that Buchanan gives his deepest response to the great social contract theorists, especially Hobbes; he specifically compares his work to Rawls's *A Theory of Justice* (see Buchanan, [1975] 2000, pp. 10n., 221-2). It is because of the grandness of the project that, throughout the book, the reader is constantly looking for Buchanan's hints as to what constitutes a 'good society' and a legitimate state (further hints are provided in some of Buchanan's other writings). The general impression that Buchanan gives is that *The Limits of Liberty* is 'relativistic' (p. 112). A careful reading of his book, however, shows that this is not the case. Somewhat like Aristotle, Buchanan holds that there are three levels of what can be called 'best': an unattainable ideal; an ideal that was achieved once (but is almost impossible to achieve); and an ideal that is attainable by most (Aristotle, 1984, pp. 119, 133, 203). What is important to note is that Buchanan has retained throughout his life an unchanged understanding of the first two ideals but he has shifted his ground on the third (what is currently attainable). A full discussion of his subtle and multi-layered work in *The Limits of Liberty* is impossible here but some insights into his view of these ethical states are needed. 'Individual freedom' is given the dominant role in the book because of Buchanan's 'individualist-democratic methodology' (see assumptions 2, 4, and 10)(p. 5). Due to his emphasis on freedom, it is not surprising that Buchanan is attracted to anarchy. 'Anarchy works' in many areas, providing 'mutual tolerance' is observed, namely, that 'no one man or group of men coerces another' (pp. 7, 117). In anarchy, the only criterion of goodness is process; Buchanan likes that and he says that this criterion 'also applies when nonanarchistic principles of order are considered' (p. 9). Anarchy is 'the ideal or utopian world' (p. 5; see pp. 7, 117).

In the end, however, 'anarchy remains tolerable only to the extent that it' produces 'an acceptable degree of order'; order is a 'necessity' (p. 8; see p. xv). In the real world, where some human beings want to 'constrain others' freedom,' and where there are busybodies, 'any equilibrium attainable under anarchy is, at best fragile' (pp. 6, 8). Anarchy is actually a 'mirage'; it is 'ideal for ideal men' (pp. xv, 5). In reality, it breaks down into a Hobbesian 'war of each against all' (p. 8; see p. 165). So that leads Buchanan to concede the need for *both* anarchy and order, but restrictions on anarchy must be kept to the minimum; this combination he calls 'ordered anarchy' (p. xvi). At this point, the first of many ambiguities emerges in this work.

"Ordered anarchy" ...[is] the objective'; by this he means it is the second-best (p. xvi; see p. 45). Actually the term actually covers a wide range of possibilities. Buchanan mentions 'ordinary conversation,' a 'walk along city pavements' where pedestrians must interact, 'queues in supermarkets, in banks, and in airports,' 'economic interchange' in markets, and the system of 'laissez-faire' established in nineteenth-century Britain (pp. 7, 8, 23-4, 214-5; see also pp. 149, 228; 1991, p. 234). These usages of the term are confusing and they lead to the impression of relativism.

Although earlier periods of ordered anarchy may have occurred, the first episode that Buchanan mentions occurred in nineteenth-century Britain. As far as I can tell, the period of 'minimal government,' of *laissez faire*, in Britain was Buchanan's second-best regime (p. 215). It came into being because of the work of

Adam Smith and his followers. According to Buchanan, it was because Adam Smith attacked mercantilism in 'a comprehensive and constitutional sense,' and Smith and his followers were persuasive with the general public and politicians, that a '*genuine constitutional revolution* in Britain' occurred; the new principle of social order following the revolution was 'ordered anarchy' (pp. 214-5 emphasis added). In the context of the 1970s in the US, he also called for a 'genuine revolution' (p. xvi; see p. 20). We will return to this revolutionary call later.

Was ordered anarchy in nineteenth-century Britain a unique experience? No. It can occur again in other places and at other times. Certain conditions are needed (see below). The thing that made nineteenth-century Britain unique was that ordered anarchy was achieved with such a *small state*. The *quantity of freedom* remaining in nineteenth-century Britain was extremely large. The various states that can be classified as 'ordered anarchy' ultimately will be judged (according to Buchanan's framework) by how much freedom remains once order is achieved.

So let us return to what is needed for 'ordered anarchy.' It requires mutual acceptance of 1) 'ethical constraints' (or 'informal precepts'), or 2) 'formal laws' or 'formal rules' that are enforced, or 3) some combination of these (p. 150). Buchanan's focus is on law because he is interested in the large-number social context (see Buchanan, 1965; Buchanan, 1978). In that context, the individual 'who limits his own freedom of choice because of built-in ethical standards, who acts in accordance with something like a Kantian generalization principle,' is in a similar position to 'the potential free rider in public-goods theory' (p. 150; see p. 49). Once some 'critically large minority of persons, are observed to violate' previously accepted 'ethical precepts,' and 'act on self-interest grounds,' the non-violators 'find themselves subjected to what may seem to be exploitation' (p. 151). Thereafter, there may be rapid erosion of ethical standards (p. 151). Buchanan often discusses similar ethics-related problems (usually within game-theoretic models); the moral is that while ethical norms can be sustained in small groups, self-interest tends to dominate in large-number ethical contexts (pp. 85, 153-5; see also Buchanan, 1965; Buchanan, 1978). Hence, law, properly enforced, must be relied upon. This is where the social contract and other sorts of post-constitutional contracting enter (see below).

What about the condition in which Buchanan found himself? It was bad. He refers to 'sickness,' 'sociopolitical malaise,' 'constitutional anarchy,' and so on ([1975] 2000, pp. 10, 11, 21). Buchanan spends considerable space in his book deploring the condition of the times: excesses of the executive, legislative and judicial branches of government; the breakdown of law-abidingness, and so on (pp. 7-8, 10, 19-21, 26, 108, 116-7, 126-7, 134-5, 152 n., 156, 205, 207-8, 210, 212-4, 217-8, 223). Can the US (in the mid 1970s) turn itself into a *laissez-faire* regime like nineteenth-century Britain? No (pp. 116-35, 162, 220, 227). There are several reasons and these will be discussed below. There is a certain melancholy in Buchanan's work.

If one cannot go back to *laissez-faire* Britain, is there *any* hope of improvement to some third-best situation? Yes. What Buchanan offers is a set of processes for improvement but no vision of the shape of a third-best regime achievable from where he was, in the US in the mid-1970s. Buchanan believed, and still believes, that improvement can be made from almost any *status quo* position by adopting certain *processes*. 'Politics is a process'; it is a 'means through which group differences are reconciled' (p. 3). He puts particular emphasis on starting from the *status quo* and looking for Pareto gains.

When Buchanan wrote *The Limits of Liberty*, however, he thought that some sort of dramatic shift was needed in the US. Once again there is an ambiguity. When Buchanan calls for a 'genuine revolution in constitutional structure, through generalized rewriting of [the] social contract,' he admits that he seems 'quasi-utopian' or 'visionary' (p. xvi; see also 1978, pp. 367-8). The reality is that the shift to some new 'ordered anarchy' may be a very long way from nineteenth-century Britain, with the total quantity of freedom greatly reduced. Any achievable third-best position seemed to require a big (i.e. revolutionary) shift from where he stood.

Against this background sketch of Buchanan's 'ideal' states, let us go back in order to make a few additional points about the book. Chapters 1 to 4 essentially spell out his response to Hobbes; they show how 'social order might emerge contractually' from individuals acting on utility maximization ([1975] 2000,

p. 96). Buchanan accepts that there will be 'perpetual Hobbesian conflict' until rights are defined (p. 13). In *The Limits of Liberty* his conjectural history is as follows. After initial chaos, a sort of equilibrium is reached, called the 'natural distribution,' which permits something 'akin to "property"' to emerge (pp. 75-6). Next, a disarmament agreement is mutually agreed to, which permits the emergence of "'law" of a sort' (p. 77). This is followed by the constitutional contract in which genuine property rights are established; the state is established to provide order and enforce rights (pp. xv, xvii, 86-8; see p. 165). '[S]ome "redistribution" of goods or endowments' may be needed in order to establish the initial constitutional agreement over property rights (p. 83; see pp. 78-83). This constitutional stage is fundamentally distinct from the 'postconstitutional contract' which permits 1) exchanging of rights through markets and 2) the creation of non-market contracts which provide public goods as the need arises (pp. xv, 23-4, 36-41, 43-4, 46-68, 88-90). Once 'well defined and nonarbitrary' rights are established and these are 'recognized and accepted by participants,' the conditions are established for 'economic interchange'; market exchange is actually 'the archetype of ordered anarchy' (p. 23). Contracting over public goods is complex and we cannot discuss the details here (see Chapter 3). Overall, Buchanan thinks that there are two stages in the social/political contracting process and a categorical distinction must be made between them: the social contract and the postconstitutional contract.

Let me now return to the reasons why one cannot go back to *laissez faire*. Buchanan presents three arguments. First, pragmatism rules the day (p. 220). It was hard to see anything but very minor adjustments from the *status quo* before the Thatcher and Reagan eras. Second, the public does not understand 'the simple principle of *laissez-faire*'; the results from *laissez-faire* are usually better than what is achieved by 'political interference' (p. 117). The 'loss of [economic] wisdom' relative to the 'eighteenth century levels' is profound (p. 117). 'Modern economics must stand condemned in its failure to' keep that wisdom alive (p. 117). There has been a massive forgetting and a need for relearning. Third, the core argument is presented in Chapter 6. He argues that the state has two roles: enforcer of rights and provider of public goods. Buchanan calls the former the 'protective state' and the latter the 'productive state' (pp. 88-9). The former is 'ideally' viewed as 'external' to the 'individuals ... whose rights are involved' and decisions should be based on 'truth judgments' as to whether rights have been breached or not; the latter is 'internal to the community' and choices are based on the values of the citizens, participation, and compromise (pp. 121-3; see p. 90). Buchanan says that the productive state tends to overly expand, especially under unconstrained majority rule (as the logic of Public Choice theory shows) (pp. 128-9, 206). As the productive state grows, it requires the protective state to enforce its expansion, including extraction of additional taxation to fund it (even if not fully) (pp. 130-1). The expansion of the state (both functions) tends to undermine the whole social contract (p. 133). (Winding back government is full of difficulties.) Buchanan admits that '[i]n practice' some overlap between the two roles of the state is inevitable but that overlap must be 'minimized' (p. 134). Further, this doctrine of 'separation' of the two roles of the state (p. 134) needs to be supplemented by his view that severe limits *must* be placed on supplying additional public goods through postconstitutional contracting.

There is a fascinating discussion in Chapter 7, 'Laws as Public Capital.' Legally imposed norms are a substitute for ethical norms (pp. 149-50). In the large-number context, however, ethical norms tend to break down (pp. 153-5). Law and law-abiding behaviour are like capital that must be maintained over time. Departures from 'traditionally honoured limits for behaviour' are like 'eating up' capital (p. 160; see pp. 21, 159). This discussion foreshadows much more substantial investigations of ethical norms that he was to undertake a decade or so later (see 1994). Throughout the book Buchanan has reminded us that the state helps to end disorder but it is also a threat to freedom; this theme reaches a peak in Chapter 9, 'The Threat of Leviathan.' Drawing on conclusions from Public Choice theory, he says that 'budgetary excess will emerge from democratic process' ([1975] 2000, p. 206). Buchanan is concerned with the tendency of the government sector (especially under democratic rule) to expand, thus crowding out space for anarchy. His book ends, as I stated, in Chapter 10 with a call for a 'renegotiated social contract' that puts 'the Leviathan that threatens ... within new [tighter] limits' (p. 228). Both Public Choice and Buchanan's Constitutional Political Economy (see Section 7) are insistent on the need to roll back the state.

Also spread throughout the book is Buchanan's stress on process rather than outcomes. A defining example of this is his view of distributive justice. Unlike Aristotle, Rawls, and many others, Buchanan

rejects the notion of distributive justice, where this is defined as some sort of predetermined outcome that differs from what the original endowments, assigned rights (including property rights), and exchange delivered through market processes. For Buchanan, the whole notion of distributive justice represents a confusion between the constitutional and the postconstitutional contract (pp. 67-8, 101, 111).

In *The Limits of Liberty* Buchanan writes in a range of voices: quasi-utopian, melancholic and reformist. Nevertheless, he retains throughout his long life his melancholic view of nineteenth-century Britain as the golden age. Buchanan also retains his 'constructivist' desire to engineer some improvement (1991, pp. 100, 231-6; Buchanan and Wagner, 1978, p. 634; cf. Hayek, 1973, 1976, 1981). He held that some sort of third-best but ethical state can be constructed through rewriting the social contract.

7. CONSTITUTIONAL POLITICAL ECONOMY

As stated earlier, *The Limits of Liberty* failed to gather much support. Nevertheless, Buchanan built on that foundation. He developed a related research programme called constitutional political economy. This approach to economics focuses on evaluating the rules of the game, the constitutional rules, in which regular politics and markets operate. It is, in Buchanan's view, a restoration of the interest in the comparison of institutional constraints evident in Adam Smith, and more recently in the socialist calculation debates 'in the decades before World War II' (1987c, pp. 585). In some works Buchanan presents what he takes to be the broadly held positions within the field that he created and at other times he states his own (idiosyncratic) view. This is confusing. Let me start by commenting on what the field is and why rules matter.

Buchanan says that rules are the product of chance, social evolution and deliberate choice or constructivism (1991, pp. 4-5). Buchanan's constructivism is focused on the 'choice among constraints,' or the 'selection of rules, or institutions, that will, in turn, limit the behaviour of persons who operate within them' (1991, pp. 5, 8). This seems to be the general view of those in the field. He thinks that 'institutions of both the economy and the polity' belong 'to an inclusive constitutional order' (1991, p. 40). Buchanan's focus on institutions is consistent with his long established preference for focusing on processes (recall discussion in Section 6). It is here where Buchanan may differ from some others in his own field. Buchanan sees the economy as a potential type of ordered anarchy; his view of 'the economy as an order of interaction constrained within a set of rules or constraints leads more or less directly to a normatively preferred minimal intervention with the results of such interaction' (1991, p. 36). Once the constitutional order is seen in this way, focusing on processes (on means), there appears to be complete indifference to outcomes.

Undesirable outcomes, however, can lead to examination of different rules and 'constitutional-institutional change' (1991, p. 40). The choice of institutions must allow individuals 'to live in social order without conflict while at the same time achieving tolerably acceptable levels of well-being' (1991, p. 231). Similarly, in presenting a case for constitutional reform, Buchanan argued that he is an institutionalist to a degree because he thinks that 'arrangements or rules do affect outcomes'; irreparable damage due to government budget deficits can be prevented if action is undertaken soon (Buchanan and Wagner 1978, p. 636). Thus, outcomes do matter but changes in the rules (designed to improve outcomes) must be rare (otherwise the rationale for rules collapses). I will return to the economic constitution shortly but now let me turn to *how* we choose.

Buchanan says that we can only choose by agreement. '[T]here is no external standard' from where we are now; there is no set of constraints that is "objectively" best' i.e. in the third-best world (1991, p. 240). One approach to promoting agreement that Buchanan advocates is Rawls's: one must choose behind the Rawlsian 'veil of ignorance.' Recall that one general rule that Rawls derived from the 'veil of ignorance' approach was maximal equal liberty.

Next, I will turn to some results from Buchanan's work on the choice of rules, starting with his evaluation of four grand institutional types --socialism, mercantilism, minimal government (close to *laissez-faire*), and the modern welfare state. Like many 'classical' liberals after World War II, Buchanan spent some time analyzing and critiquing state socialism. Recall Buchanan's view that constitutional political economy

leads to a preference for minimal intervention once processes are selected. State socialism rejects the whole focus on ordered anarchy, minimal intervention, constitutional processes, and so on. In a relatively recent work, Buchanan defended private property as a means of securing freedom (Buchanan, 1993). Toward the end of that work, Buchanan explicitly considers socialism. By denying legitimacy to private property, socialism undermined freedom. 'There is no exit option' from 'exploitation by collectivized authority' (1993, p. 47). The encroachments of socialism exhaust freedom. Hence, it is morally bad.

Buchanan also provides some insights into his evaluation of commercial/capitalist systems in historical perspective. It is well known that Adam Smith described the system of regulation evident in his time as 'mercantilist.' Buchanan calls mercantilism a 'highly politicized' economy, by which he means that it was a highly regulated system where considerable 'rent seeking' (i.e. activity to achieve special privilege through various aspects of politics) occurred (1987c, p. 585). Buchanan says that, 'in the late 18th and early 19th centuries,' the British economy 'was effectively depoliticized,' meaning that a period of limited government, or *laissez-faire*, began. As stated above, this is a sort of golden age in Buchanan's view. Then 'from the mid-19th through the mid-20th century, control over economic decision making was transferred to the public sector without an understanding of how politics works'; 'politicization proceeded apace' for a century (1987e, pp. 1, 6). Finally, in the period after World War II, in various capitalist countries, the welfare state emerged. This type of system, of course, Buchanan discusses at length. He regards it as a sort of reincarnation of the mercantilism of Smith's day (see 1976, pp. 277-9; 1991, p. 35 n.9). This cycle of varieties of commercial/capitalist societies is also an ethical cycle.

Although constitutional economics does discuss these grand institutional types, the focus is on contemporary capitalism (especially the US type). In his entry in *The New Palgrave*, Buchanan mentions a range of applications of constitutional political economy, the most relevant of which can be grouped together under the heading 'the economic constitution' (1987c, pp. 587-8). Such a constitution must include a monetary rule (ensuring stability in the purchasing power of money), limits on welfare payments and on government spending above its revenue (Buchanan and Wagner, [1977] 2000, pp. 9, 182-93; Buchanan and Wagner, 1978, pp. 634-5; Buchanan, 1986, pp. 193-4; 1987c, pp. 587-8; 1993, pp. 44-5, 56, 59).

In the remainder of the section I will focus on the balanced-budget provision because it was probably the primary policy goal of his life (see 1995). A full discussion of Buchanan's views on debt-financed deficits requires perhaps eight steps. I am in broad agreement with the analysis of Tempelman (2007), who lists seven propositions that emerge from Buchanan's work on public debt. I have split Tempelman's fourth proposition on Keynesian macroeconomics into two.

In what follows I will state three preliminary propositions and then jump to the final one. Apart from the these four propositions discussed in the text, there are four others: Victorian Britain had an effective fiscal norm that held budget deficits to be immoral; Keynesianism undermined this norm; public debt will be permanent without a replacement for the Victorian norm; and public debt financing is immoral because it places a burden on later generations, even though they could not participate in the deliberations leading up to the imposition of the burden (see Tempelman, 2007). I hope to discuss the ethics of public debt on another occasion.

The first proposition, deriving from positive analysis, is that *future* rather than current taxpayers bear the burden of today's public debt (1958, pp. 31-47, 114-22; 1964b, pp. 486-7; 1964c, p. 49; 1964d, pp. 60-2; Buchanan and Wagner, 1978, p. 629; Buchanan, 1987b, p. 182; 1987d, p. 372; see Tempelman, 2007, pp. 436-40). The second positive proposition is that, given that most of the public expenditure since World War II has been used for consumption rather than for infrastructure (and other capital), public debt has a negative effect on capital accumulation and on the net wealth (1986, pp. 180-5, 192-3; [1986] 2000, p. 447; see Tempelman, 2007, pp. 438-9). Debt is 'equivalent to "eating up" of capital' (1987b, p. 182; see 1986, p. 180). The third proposition is that people suffer from 'fiscal illusion' and prefer debt to taxation (1964e, p. 161; Buchanan and Wagner, 1978, p. 629; see Tempelman, 2007, p. 440).

Given these propositions, and the Public Choice conclusion that democratic politicians are biased towards public deficits (1986, pp. 179; Buchanan and Wagner, [1977] 2000, pp. 4, 26, 95-6), restraints must be imposed on the actions of politicians. Buchanan believes that the prohibition on deficits is

another of those rules of the game that people would support behind a Rawlsian 'veil of ignorance.' As he stated in his Nobel Prize address, '[i]t is almost impossible to construct a contractual calculus in which representatives of separate generations would agree to allow majorities in a single generation to finance currently-enjoyed public consumption through the issue of public debt that insures ... utility losses on later generations of taxpayers' (1987a, p. 343; see 1987d, pp. 368-9, 372).

As he develops his constitutional research programme, Buchanan builds on the observations made in *The Limits of Liberty* that legal approaches to problems are really only substitutes for unwritten, cultural norms. This 'turn' in his work to cultural norms begins in 1986 (see 1994, p. 91). While Buchanan's work continued on constitutional legal rules, his focus gradually shifted to culture (although some work contained both elements).

8. CONCLUSION

Buchanan sees everything in terms of exchange and potential gains from trade. It is *the* paradigm within which he thinks. Buchanan recognizes at least five types of economists: socialists, Keynesians, regular neoclassicals and two types of classical liberals (allocationists and gains from trade types). His approach to economics is to focus on processes (gains from trade). Buchanan says that many of his opponents focus on outcomes (efficient resource allocation, maximizing utility, etc). Buchanan denies that there can be any such thing as what Sen calls 'social achievement' which is based on outcomes (Sen, 1987, p. 4). At times, exchange (and 'gains from trade') becomes a sort of fetish in Buchanan's work. Contracts, private property, and an enforcing agency are three of the means needed to secure the gains from trade. While Buchanan's vision of the market seems to be just a different emphasis from mainstream economists, it is clear that he does not accept that there are any social aggregates to maximize. This difference becomes clearer when Buchanan applies his frame of reference to politics. Buchanan's focus on exchange in politics inevitably leads to constitutional contract.

The contract must provide benefits to the principals, the citizens. The constitutional rules are designed to ensure benefits are delivered by the state and costs of running the state are minimized (limits on the power of the state must be set). Constitutional political economy is the embodiment of Buchanan's work. The focus is on written, formal constraints on behaviour, such as the balanced-budget constitutional proposal. This was the one policy on which he actively campaigned during his career. His one entry into the 'fury' of policy debate has been a failure. Formal, written rules are alternatives to customs and other informal constraints. These also are addressed by Buchanan in his later work. I hope to address these ethical norms more fully soon.

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ROYALTY RATE AND INDUSTRY STRUCTURE: SOME CROSS-INDUSTRY EVIDENCE

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ABSTRACT

This paper continues where Kemmerer and Lu (2008) left off, and explores the relationship between royalty rates and market structure among industries. Economists have studied innovation, R&D, and market structure for decades, and also have investigated patent licensing methods across industries. However, there is very little research on the relationships between market structure and royalty rates. In this paper, we first show that royalty rates are positively associated with price markup, a market power and market performance measure, and then move to explore the relationship between royalty rates and market structure. Two complementary sets of market structure factors are discussed. The first one is technology intensiveness or technology opportunity, on which we demonstrate that technology intensive sectors tend to have higher royalty rates than other sectors. The second set covers the traditional measures of barriers of entry. Regression analysis reveal that royalty rates exhibit a negative linear relationship with two measures of barriers to entry, the ratio of sales to capital invested and the ratio of sales to operating costs. Finally, cluster analysis is conducted to reveal group pattern among the industries studied, using royalty rate, markup, and the ratio of sales to capital invested as variables. The analysis yields four distinguishable groups of industries, and the characteristics of each group are discussed. Cluster analysis also corroborates our conclusion that while both traditional barriers of entry and technology intensiveness contribute to determining market power, one set of factors can exert more dominant and pronounced impact than the other one in a specific industry, as evidenced by media and internet/software sectors, in which market power is mainly created by their technology and know-how embedded in legally-protected IP.

Keywords: *Royalty rate, market structure, market performance, market power, markup, barriers to entry, regression analysis, cluster analysis*

1. INTRODUCTION

Economists over the past decades have conducted comprehensive studies on R&D, innovation, and patent licensing. They created versions of models to address strategic issues in patent licensing and fee structuring. They also tried to identify the determinants of R&D activity and quantify the contribution of R&D outcomes to economic growth and profitability. These research efforts, through empirical studies or theoretical modeling, demonstrated that R&D activities in general, and patenting and licensing specifically, are clearly associated with the market structure and industry characteristics.

In contrast with the vast amount of the research devoted to the economic studies in R&D and innovation, there is surprisingly little research on royalty rates, especially on how royalty rates behave across a wide range of industries. The lack of such research is likely due to the scarcity of the required data. First, there is limited publicly-available data on royalty rates as the terms of licensing transactions are typically kept confidential. Second, significant challenges remain with the actual use of the available royalty rate data.

While the data issues continue to pose hurdles for comprehensive empirical research on royalty rates, data vendors and practitioners have in recent years developed several fairly consistent royalty rate databases that cover a wide range of industries. For example, in Kemmerer and Lu (2008), we analyzed the royalty rate data from one such vendor, RoyaltySource, and reached some meaningful results on royalty rates and profitability across 14 industries.

This paper extends the work presented in Kemmerer and Lu (2008) and addresses a more general topic of royalty rate and market structure across industries. The major question we try to answer is, "To what extent can the variation in royalty rates across industries be explained by the differences in market structure?" As shown in Kemmerer and Lu (2008), royalty rates across industries reflect the profitability of the industry, one of several possible market performance measures. Using the same royalty data and

industry classification, coupled with newly calculated financial data from CompuStat, Section 3 of this paper shows that royalty rates are also positively associated with price markup, another important measure of market performance. Section 3 also discusses the relationship between royalty rates and one of the important industry characteristics, technology intensiveness or technology opportunity.

We further explore the relationship between the royalty rates and market structure in Section 4. There we analyze royalty rates, price markup and barriers to entry. Although the statistical significance level did not reach 5%, the coefficients on two indicators have the expected negative signs, implying that royalty rates increase with the higher barriers to entry.

In Section 5, cluster analysis shows that royalty rate, markup, and sales to capital ratio have the discriminating power in revealing the group pattern among 14 industries. Based on the three variables, cluster analysis reveals a significant structural difference between the software-based and IP-intensive media and Internet/software industries and the 12 other industries studied. The cluster analysis reveals 3 distinguishable groups within these remaining 12 industries. The implications of these groupings and the characteristics of each group are discussed in Section 5.

Finally, Section 6 includes conclusive comments and a list of issues for further research.

2. THE LITERATURE, RESEARCH SCOPE, AND DATA

2.1 Related Literature

There is very little literature in addressing royalty rates and market structure or industry characteristics across industries. However, economists have long recognized the importance of industrial characteristics and market structure in structuring licensing transactions, determining R&D activities, and facilitating innovation's contribution to output and performance. Relevant research has been conducted in various fields. A comprehensive literature review, however, is beyond the scope of this paper. The following brief review highlights the major conclusions reached by the majority of the literature.

Economic studies in R&D, innovation and patent licensing

First, economists have shown that market structure and competition play an important role in strategic decision-making regarding patent licensing and fee structuring. Since Katz and Shapiro (1985, 1986) and Kamien and Tauman (1986), economists have applied industry organization theory and game theory to model licensing strategy and methods, as well as to determine fee structure such as fixed fee vs. running royalty rate under various market structure assumptions. For a detailed review of research, see Kamien (1992).

Second, competition, especially firm size and market concentration, affect R&D activity and innovation, although economists still disagree with the nature and direction of the causality and with the sign (positive or negative) of the effects. Schumpeter first discussed the issue and implied that innovation might increase with the firm size and industry concentration, resulting in a negative relationship between competition and innovation. However, Arrow (1962) found a positive relationship, meaning that competition bolsters innovation. Since then, generations of economists have generated a large pool of literature in this area. A detailed review of research up to 1980s can be found in Cohen and Levin (1989).

Third, industrial characteristics account for the majority of differences in R&D activity across industries. Economists basically agree that technology opportunity, appropriability condition, and demand level can explain a significant portion of inter-industry difference in R&D and patenting activity (Levin and Reiss 1984). For example, Bound et al (1984) found that R&D intensity and patenting activity were higher in sectors that had large sales or more science-based sectors such as drug, chemical, engines, and computer industries.

Finally, Patents and other R&D contribute to output and performance, but marginal effects vary across industries. Economists have recognized that R&D capital and patents contribute to company's market

valuation and output growth (Pakes, 1984; Griliches, 1984). The econometric models adopted by economists make them easy to incorporate industry-specific dummy variables to capture the industry characteristics. A typical example is Hall (2005), in which he used Tobin's q as a measure of market valuation. He reported that among six sectors covered by his model, drugs and computer sectors enjoyed a higher premium.

Empirical studies on licensing methods and structure

Empirical studies on licensing methods and structure have revealed common patterns across industries. One of the major observations from such studies is that certain licensing methods are more commonly seen in some industries than in others. For example, chemical and pharmaceutical industries tend to have more exclusive licensing contracts while others such as computer, software, communications and semiconductor industries tend to have non-exclusive licensing contracts. (Anand and Khanna, 2000; Bessen and Maskin, 1999; Kim and Vonortas, 2006, and Benoit et al, 2000). The studies tended to attribute such differences in exclusivity to the appropriability condition. These studies further proposed that the harder to define the boundary of IP rights, the weaker the IP protection, leading to lower use of exclusive contracts.

Another major observation concerns the practice of cross-licensing. According to the studies cited above, the industries such as computer, electronics, semiconductors, and communications usually have larger share of contracts in cross-licensing than others. One of the factors that may have caused such industry patterns is the nature or characteristics of innovations. Innovations in these industries are characterized as more cumulative or sequential in nature, which makes it more difficult to specify the content and boundary of the innovations. To avoid expensive patent auditing, tedious negotiations over the quality of patents, and the high costs associated with patent litigation, the industries may find cross-licensing more effective and efficient.

Studies in royalty rates and market structure

While the literature clearly demonstrates the importance of market structure in determining R&D, forming licensing strategy, and facilitating innovation's contribution to output growth, very little has been done to address the royalty rates across industries. Kemmerer and Lu (2008) is one of the few papers devoted to this issue. Kemmerer and Lu (2008) concluded that royalty rates across industries are positively associated with profitability. More specifically, industrial characteristics appear to be the driver of the observed relationship, with sectors that are technology-intensive and produce differentiated products generally having high margins and hence being able to afford higher royalty rates.

Another published study along this line is Nagaoka (2004) which analyzed licensing transactions from Japan's technology import contracts in nine industries and 39 sub-sectors. The price of technology is defined as the share of licensing contracts with the royalty rate of 8% or more in all royalty based contracts. Their descriptive statistics shows that nearly 63% of the contracts in computer industries are high royalty contracts, while drug and medicines, precision machinery and precious metal products also have large share in high-royalty contracts. By contrast, prime mover, radio and TV products, and other electric machinery has the lowest share of high-royalty contracts in the range of 2% to 4%.

Nagaoka (2004) used regression analysis to explore the determinants of high-royalty licensing contracts. The analysis indicated that types of IP, and especially R&D intensity and share of exclusive contracts have a significant positive impact on higher incidence of high-royalty contracts. The study also shows that the inclusion of initial payment or upfront payment tends to lower such incidence.

2.2 Research Scope and Data Description

Based on the literature, it is clear that market structure plays an important role in determining R&D and in converting innovation to output growth and market value. Royalty pricing is an integrated part of the life cycle from R&D to the commercial use of technology and represents a mechanism for the licensor and licensee to share the benefits and risks during the course. As a result, we hypothesize that royalty rates across industries will tend to reflect the market structure and industrial characteristics, just as prior research has demonstrated that R&D, innovation, and patent counts reflect such characteristics.

The purpose of this paper is to test our hypothesis, through analyzing royalty rates and a set of indicators of market structure. When doing this, we follow the classical approach of structure-conduct-performance analysis to measure effects in both performance and structure dimensions. This paper extends Kemmerer and Lu (2008) and moves beyond profitability and into several broad measures of market power and market structure.

This paper differs from Nagaoka (2004) in three important aspects. First, while Nagaoka (2004) used share of high-royalty (higher than 8%) contracts as a pricing indicator, we use actual average royalty rates for each of the industries. Second, Nagaoka (2004) collected the royalty data from the contracts in Japanese technology imports, and as a result, the conclusions reflect mainly the situation of technology imports and domestic industries in Japan. Our royalty rate data is from RoyaltySource, with financial data from CompuStat. These sources consist predominantly of US content with some global entities. Finally and most importantly, Nagaoka (2004) focuses on explaining the pricing of technologies embedded in Japanese technology imports, and we are more interested in revealing the relationship between the royalty rates and market structure.

As in Kemmerer and Lu (2008), the royalty rate data for 14 industries studied in this paper is from RoyaltySource and is current as of December 2007. The data for calculating indicators of market structure and performance was retrieved from CompuStat Research Insight North America Data. Industry classification data from RoyaltySource was matched with CompuStat's SIC-based classification. For detailed description of industrial classifications, royalty rates, and CompuStat data, please refer to Kemmerer and Lu (2008).¹

3. ROYALTY RATES AND INDUSTRY PERFORMANCE

3.1 Regression Analysis on Royalty Rate and Price Markup

To pick up where Kemmerer and Lu (2008) left off, we first examine the relationship between royalty rates and various measures of market performance. In structure-conduct-performance analysis, the most commonly-used performance indicators are profitability measures and price markup, among several others. (Carlton and Perloff, 2000). In this section, we will address the issues using profitability and especially markup.

As shown in Kemmerer and Lu (2008), royalty rates across industries do increase with various profitability measures. In other words, the higher the profitability, the higher royalty rate. We also show that the linear relationship was associated with the degree of technology intensiveness, similar to technology opportunity as referred in economics literature. Basically, royalty rates are higher for the industrial sectors with higher profit margins such as pharmaceutical, medical, software, and computers. By contrast, in traditional sectors such as food, auto and consumer sectors, profit margins are lower and so are royalty rates.

For an industry with perfect competition, price would be same as marginal cost, yielding a zero profit. Profitability, hence, is an important measure of market performance with the presence of some degree of market power. Another indicator economists use to gauge market power and market performance is price markup ratio, which reflects both the demand elasticity for the company's products or services and the technology's comparative advantage in charging price premium or saving costs. Economists have created two major indicators for this purpose. The first one is Lerner Index, which is the difference between price

and marginal cost as a share of price. Mathematically, the Index is simply the inverse of the absolute value of demand elasticity.

The other one is defined as a ratio of the difference between price and marginal cost to marginal cost. A variant of such index is simply the ratio of price to marginal cost. Some economists and analysts favor this index, because it intuitively reflects the meaning of markup, but can still be formulated as a simple function of demand elasticity. Due to the difficulty in measuring marginal costs, most empirical studies use a measure of average cost as a proxy of marginal cost when calculating the Lerner Index and marginal cost markup variables. For simplicity, we define and calculate price markup for each of the 14 industries as the ratio of revenue to cost of goods sold (COGS).

Regression analysis was conducted to test the relationship between royalty rates and markup ratios. As shown in Table 1, the coefficients for both specifications are significant, and the models explain 41% of the variations in royalty rates across industries.

**TABLE 1: REGRESSION ANALYSIS
ROYALTY RATES AGAINST PRICE MARKUPS**

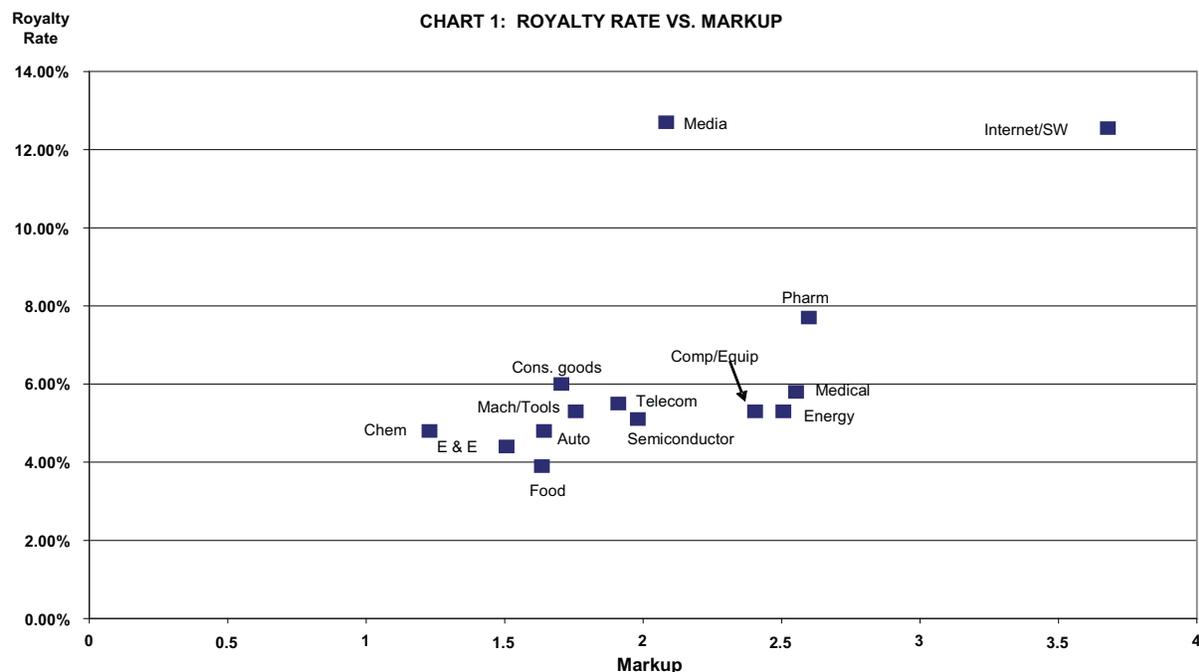
Dependent Variable and P-value	Intercept	Independent Variable Markup	R²
Royalty Rate	0.004	0.029	0.412
P-value	86.2%	1.3%	
Royalty Rate	0	0.03	0.411
P-value	NA	0.0%	

This relationship is also clearly demonstrated by Chart 1. This confirms the conclusions reached in Kemmerer and Lu (2008) and demonstrates that royalty rates are positively associated with the market power measures of profitability and markup.

3.2 Technology Intensiveness, Industry Performance, and Royalty Rate

While regression analysis does demonstrate that royalty rates increase with the measures of market power and performance, the analysis does not address the sources of market power. Obviously, there are many factors that can contribute to the formation of market power, as shown in the literature review. For example, market power can be granted by superior technology, especially technologies embedded with IP rights such as patents. This is consistent with observations from the literature that technology opportunity is among the major factors accounting for the industrial R&D activity. Since R&D intensive sectors generally have higher propensity to seek legally-protected intellectual property rights, they are also more IP-intensive as compared to traditional sectors. The purpose of IP laws, by design, is to grant an innovation owner the monopoly rights to use the technology, and to protect such monopoly for a fixed period of time. As a result, the intensiveness and superiority of technologies in a sector has an impact on the market power and profitability of the sector, because the superior technology can give a licensee comparative advantage in charging price premium or reducing costs.

The observation above is corroborated by Chart 1, as well as the earlier evidences presented in Kemmerer and Lu (2008). As shown in the chart, technology-intensive sectors such as software, semiconductor, medicals/health, and pharmaceuticals/bio-tech do have higher price markups and higher royalty rates than traditional sectors such as food and auto sectors



More interestingly, two sectors, media and internet/software, stand out as outliers in Chart 1. Both sectors have high markups and royalty rates as compared to their peers in the chart. According to the analysis above, it is highly plausible that it is the technology-intensiveness and IP-richness in the two sectors that distinguish them from all others. First of all, software technology plays dominant role in both sectors. More importantly, the two sectors are IP-intensive due to the critical role played by patents, copyrights, subscription lists, distribution rights, and many other forms of know-how and trade secrets. As a result, the high markups in these industries could be mainly from the market power granted by the legal protection of such rights.

Nakaoga (2004) provides empirical evidences to our hypothesis above. According to the study, patent licenses accompanied by other IP licenses such as trademark licenses usually have higher royalty rates than pure patent licenses. In practice, most patent licensing agreements in media and internet/software sectors either contain or are supported by licensing transactions with other IPs and know-how. This may explain why the two sectors have the highest royalty rates among all industries we studied.

This said, the pricing power and profitability an industry enjoys could well come from more “traditional” sources of barriers to entry such as capital intensity. Under this scenario, high barriers of entry determines market power and leads to higher market performance, which in turn is associated with increased royalty rates. The next section of this paper addresses the role of traditional barriers of entry.

4. ROYALTY RATES AND MARKET STRUCTURE

In this section, we move to explore the relationship between royalty rates and the market structure. There are various indicators to measure market structure. One way is to detect whether barriers to entry exist. The ability for firms to enter an industry is an important structural factor in determining market power and industry performance. The higher the barriers to entry the more market power an industry has. Measures used by economists to detect barriers to entry typically include advertising intensity and fixed capital required, among many other industry-specific measures.

Using the data from CompuStat, we calculate two ratios as proxies for the barriers to entry. The first one is sales to capital ratio, calculated as average sales over the average capital invested. Capital invested

includes long-term debt plus common and preferred equity. The ratio measures the dollars of capital that must be committed to generate each dollar of sales. Lower sales to capital ratio would imply that the sector is more capital-intensive and with higher barriers to entry, which, in turn, implies higher market power in the industry.

The second ratio is sales to operating costs. Operating costs is approximated by selling, general and administrative expenses, which include a long list of cost items, but mainly outlays in advertising, marketing, R&D, and general administration. Like sales to capital ratio, sales to operating cost ratio measures the level of operating expense that must be funded for each dollar of sales. The lower the ratio is, the more marketing and advertising expenditure the industry needs to compete in the market. Since higher marketing and advertising expenses represents a barrier to entry, a lower ratio of sales to operating expenses would mean higher market power.

Results from regression analysis are shown in Table 2. Sales to capital and sales to operating cost ratio explain 21% and 15% of total variation in royalty rates across 14 industries, respectively. The coefficients for both ratios are not significant at 5% level, with that of sales to capital ratio at 10% and sales to operating cost 17%. However, both coefficients have the negative signs as expected. In other words, lower ratios or equivalently higher capital invested and operating costs are associated with higher the royalty rates.

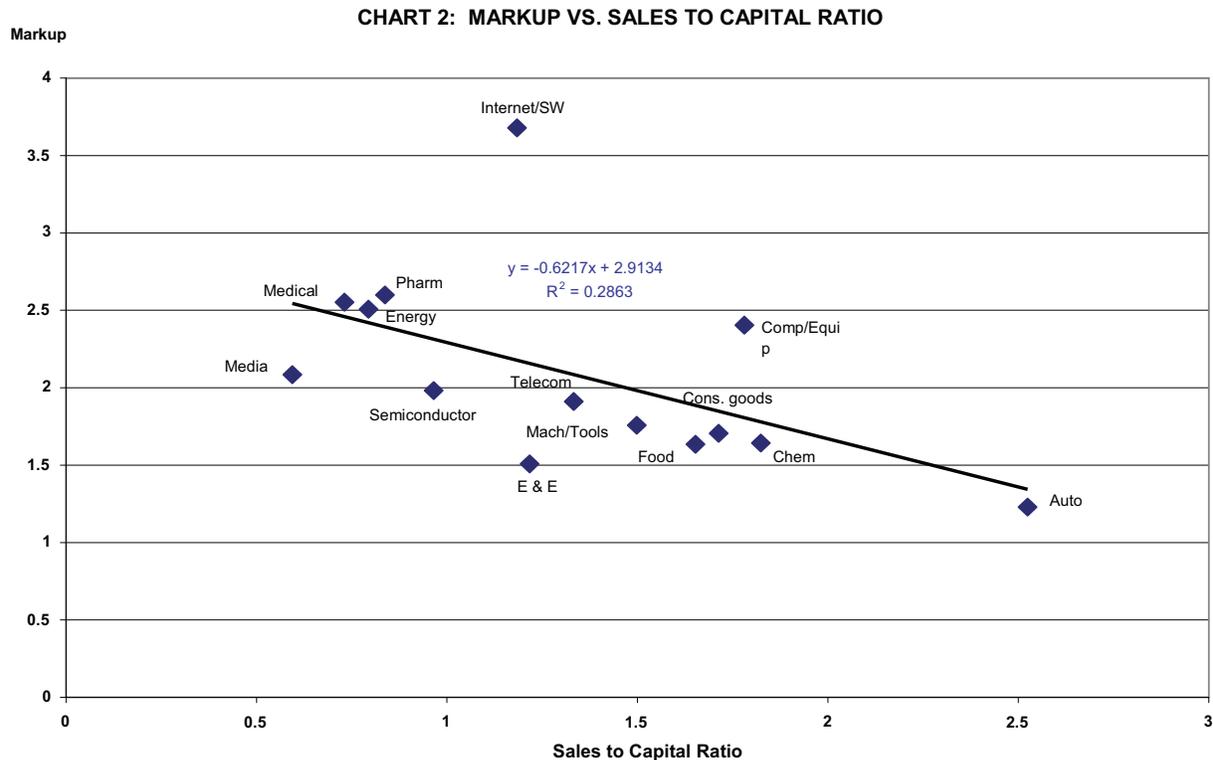
TABLE 2: REGRESSION ANALYSIS **ROYALTY**
RATES AGAINST BARRIERS TO ENTRY MEASURES

Dependent Variable and P-value	Intercept	Independent Variables		R ²
		Sales to Capital Invested Ratio	Sales to OPEX Ratio	
Royalty Rate	0.095	-0.0237		0.207
P-value	0.0%	10.2%		
Royalty Rate	0.081		-0.0034	0.150
P-value	0.0%		17.1%	

Table 2 lends further evidence to the conclusions we draw from the market performance analysis in Section 3 and confirms that market power and market structure are among the determinants of royalty rates across industries. High capital invested and operating costs indicate high the barriers to entry, high pricing power, and profitability, which eventually would raise the royalty rate to what the industry can afford.

Although the coefficients in Table 2 are not statistically significant (and thus the results need to be taken with caution), the regression analyses tend to complement the conclusion we reached in Section 3. In other words, based on the regression analysis on the measures of barriers to entry, market structure and market power help explain royalty rate levels across industries.

To further illustrate this relationship, we plot the price markup against the ratio of sales to capital invested in Chart 2. As seen in the chart, pricing power has a negative linear relationship with sales to capital ratio. In other words, the lower the ratio or the higher capital invested required, the higher the ability in price markup. Another way to interpret the relationship is through the link of capital invested to market concentration ratio. Early studies cited by Carlton and Perloff (2000) indicated that higher capital invested is associated with higher concentration ratio, which in turn, leads to higher market power.



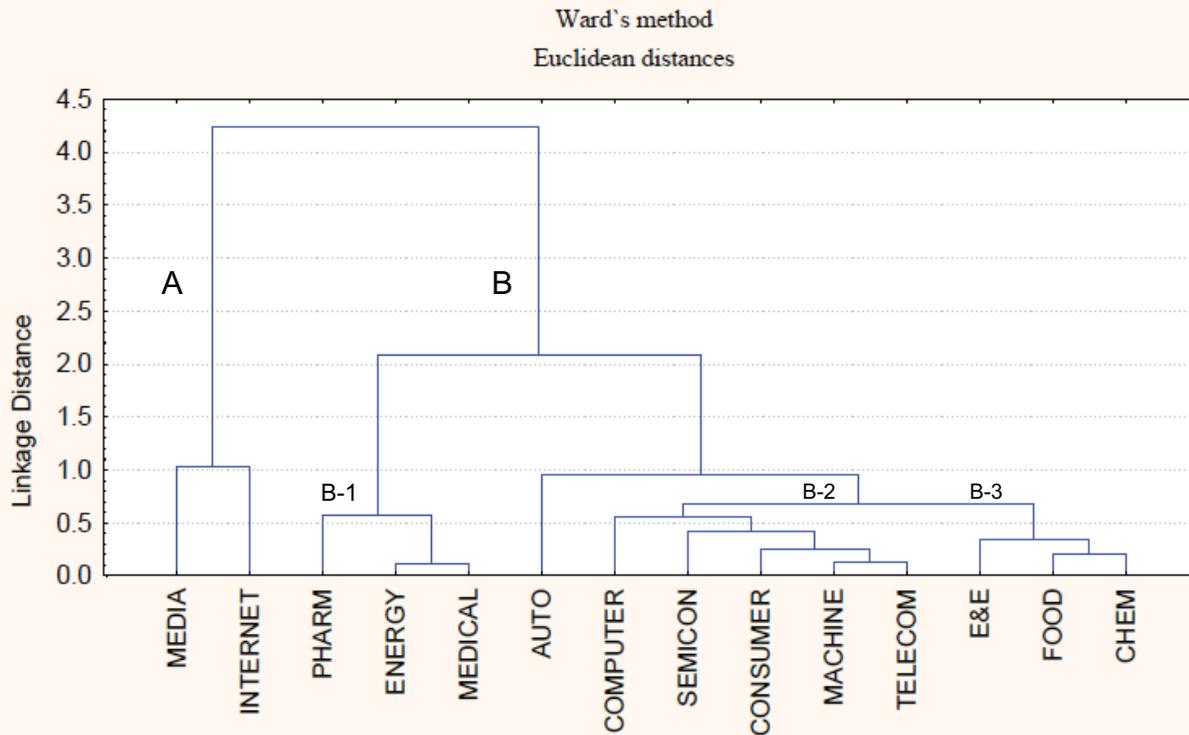
5. CLUSTER ANALYSIS ON ROYALTY RATES, MARKET POWER AND MARKET STRUCTURE

So far in this paper we have illustrated that royalty rates are positively associated with market power and market structure. In Section 2, the literature review shows that licensing methods and structures vary among industries, and that certain methods are more commonly seen in some industries than in others. Following such an approach of exploring industrial patterns, our next step is to try to reveal potential patterns among industries based on royalty rate, market power measure and market structure measures. For example, which industries have similar royalty rates and similar measures in market power and market structure? How does a specific group of industries differ from all others?

To answer these questions, we conducted cluster analysis on 14 industries, using royalty rate, market power measure and market structure as variables. Cluster analysis is a multivariate statistical method traditionally used to classify objects based on a set of certain characteristic indicators. The similarity of the objects is measured by some distance metric such as Euclidean Distance. The shorter the distance the more similar the objects on the dimensions tested. Cluster analysis computes these Euclidean distances between and within the groups of objects, which in our case are industries. Objects within each cluster are more like other objects in the same cluster than those objects in other clusters on the dimensions of royalty rate, market power and market structure. For a detailed discussion on applying cluster analysis to economic data, please refer to Galbraith and Lu (2001).

Chart 3 shows the grouping pattern yielded by the cluster analysis. Several important observations can be made. First and foremost, there is a clear and significant grouping of Media and Internet on the one hand (indicated as cluster "A" on Chart 3) and the other 12 industries on the other hand (indicated as "B" on Chart 3). Within cluster B, we see three additional meaningful clusters, labeled "B-1" through "B-3" in the chart. The auto sector appears to be an outlier on the royalty rate and market structure dimensions.

CHART 3 CLUSTER ANALYSIS: TREE DIAGRAM FOR 14 INDUSTRIES



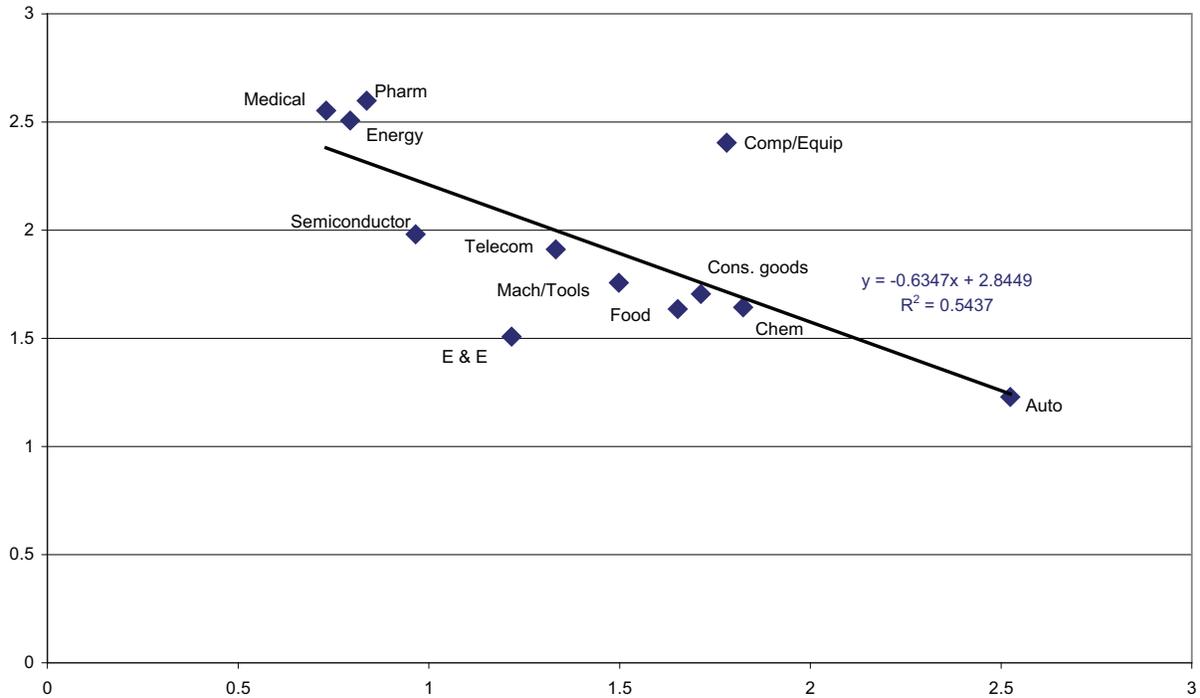
The first group (Cluster A) includes only two sectors, media and internet/software. These two sectors have very high royalty rates (around 13%), high pricing power, and relatively low ratios of sales to capital invested. These sectors are “light” in the sense that they do not require large physical capital commitment. However, as we point out in Section 3.2, the two sectors are IP-intensive due to the critical role played by patents, copyrights, subscription lists, distribution rights, and many other forms of know-how and trade secrets. In other words, the cluster analysis lend further support to what we discussed in Section 3.2, that is, while both capital intensiveness and technology intensiveness exert market power across industries, technology intensiveness – especially IP-richness – plays a more dominant and pronounced role in these two Cluster A sectors than in the others.

The distinguishing pattern between Cluster A and other groups can also be seen intuitively in Chart 4, which basically redraws Chart 2 by dropping the two sectors in Cluster A. Essentially, after excluding media and internet/software sectors, the negative relationship between price markup and sales to capital ratio becomes much more significant. The regression analysis shown in Chart 4 also indicates that the sales to capital ratio explains nearly 54% of the variation in markup, nearly twice as much as that in Chart 2.

The second group (Cluster B-1) consists of pharmaceutical/biotech, medical/health, and energy sectors. These sectors are characterized by relatively high royalty rates, high markups, and low ratios of sales to capital invested or equivalently, high capital invested. It is not quite intuitive to see energy being included in the same group with medicals/health and pharmaceutical/biotech. However, these industries do have certain important common features, at least judged from the three variables used for cluster analysis. First, these sectors typically have low demand elasticity and are relatively less sensitive to economy cycle. This explains their high markups. Second, all sectors in this group required large capital invested in specialty equipment, which lowers the ratio of sales to capital ratio. Finally, these sectors have relatively

high risks in product developments, with energy sectors facing high dry-hole risks, while the other two usually having to tolerate risks in prolonged clinic trial and FDA approval.

CHART 4: MARKUP VS. SALES TO CAPITAL RATIO



The third compact group (Cluster B-2) includes computer, semiconductor, consumer goods, machine tools and telecommunications industries. Compared to the other three groups, this cluster (really a group of clusters) is less clear in its similarities. They all have medium royalty rates, medium to high markup, and a wide dispersal in the ratios of sales to capital. It is this last measure that appears to be driving the distances between the industries. Within the group, consumer goods, machinery tools, and telecommunications are closer to each other than to others due to their relatively high royalty rates, high price markups, and medium ratios of sales to capital invested. Computer and semiconductor, as expected, have very similar royalty rates and markup, but very different ratios in sales to capital invested, which reflects the larger capital investment in sophisticated and expensive equipment in semiconductors.

The fourth compact group (Cluster B-3) includes food, electrical and electronics, and chemicals. The chemical sectors as defined by RoyaltySource include a large chunk of industrial and consumer products in addition to raw materials and chemical matters. These sectors have low royalty rates, low markup, and medium ratios of sales to capital. The low royalty rates appear to be the result of low pricing power present in these sectors

The automotive industry stands out as an outlier, mainly because of its lower royalty rate and low markup coupled with significant capital investment requirements. The fact that the industry exhibits low royalty rates and low markups in the face of high barriers to entry suggests that intense competition within the automotive industry effectively limits the market power of any one participant.

6. CONCLUSIONS

This paper continues where Kemmerer and Lu (2008) left off and explores the relationship between royalty rates and market structure among industries. Economists have studied innovation, R&D, and market structure for decades, and also discussed patent licensing methods across industries. However, there is very little research in royalty rate and market structure. In this paper, we first show that royalty rates are positively associated with price markup, a market power and market performance measure. The relationship among royalty rates, market power and technology intensiveness is discussed subsequently, which demonstrates that technology intensiveness, especially technologies embedded in legally-protected IP, plays an important role in determining market power.

We also address the issues how royalty rates are associated with traditional barriers of entry. Regression analysis indicates that royalty rates exhibit a negative linear relationship with two measures of barriers to entry, the ratio of sales to capital invested and the ratio of sales to operating costs.

Finally, cluster analysis is conducted to reveal group pattern among the industries studied, using royalty rate, markup, and the ratio of sales to capital invested as variables. The analysis yields four distinguishable groups of industries, and the characteristics of each group are discussed. Most importantly, cluster analysis corroborates a major conclusion reached by this paper, that is, while both traditional barriers of entry and technology intensiveness contribute to determining market power, one set of factors can exert more dominant and pronounced impact than the other one in a specific industry, as evidenced by media and internet/software sectors, in which market power is mainly created by their technologies and know-how embedded in legally-protected IP.

Several issues arising from this paper merit further research effort. First, more data needs to be collected and more industries need to be included in this type of analysis. A sample of 14 industries is certainly not sufficient for us to reach any comprehensive and systematic conclusions regarding the issues we are addressing. Special attention needs to be paid to matching industry classification among various data sources and vendors.

Second, with a larger and reliable data sample, more research can be done to explore the two-way causality between market power or market performance and royalty rates. Economists have proven that there is a two-way causality between innovation and market structure, measured mainly by firm size and concentration rate. These interactions merit further study, especially within the context of royalty rates and intellectual property licensing practices.

NOTES:

1. Please direct comments and questions regarding this paper to Jiaqing Lu at jqlu@aecgi.com.

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2. We do want to repeat our appreciation to Mr. David Weiler of AUS Consultants for helping us understand RoyaltySource's industrial classifications. However, any errors or mistakes in matching the companies with RoyaltySource classification are ours.

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ACCOUNTABILITY, RATIONALISM, AMBIGUITY AND UNCERTAINTY IN DECISION AND POLICY MAKING

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ABSTRACT

This paper considers the rational activities and accountability processes that control decision-making. It recognizes that decision makers need to be held accountable for the decisions they make and the policies they enact. They utilize 'rational' goal directed activities controlling their organizations and recognize that 'rationality' has a different dimension in public administration from that of private and non-government organizations.

In nonergodic environments decision and policymakers need to be more inventive in their approaches to their tasks. As ambiguities and uncertainties make the task of decision and policy making more difficult, the applicability of rational choice theory appears to have little applicability in most types of organizations. However, it does have greater relevance in government organizations.

Keywords: *Accountability, ambiguities, decision and policymaking, public administration, rational choice theory, uncertainties*

1. INTRODUCTION

Perhaps one of the earliest tasks of any new executive or policymaker is to establish how he/she is going to make decisions. For instance, J.W. Payne, J.R. Bettman and E.J. Johnson (1993) outlined a repertoire of strategies executives/policymakers can employ at the beginning of the decision or policymaking process. As decision tasks are different from other tasks, each strategy needs to assess the advantages and disadvantages of applying it to particular decision tasks. Then individual policymakers can select from these strategies through the trading of their relative advantages and disadvantages. The anticipated degree of accuracy embedded in a proposed strategy is a major consideration that managers employ in summing up the advantages of one particular strategy over another. On the other hand they will need to take account of the cognitive effort required in the strategy. Thus in the final analysis the *'selection of a decision strategy will be a function of the emphasis placed on maximizing accuracy versus saving effort'* (Payne et al., 1993, pp. 115-116). To this effect Payne et al theorized that:

An individual's use of multi decision strategies in different situations, including various simplifying methods of choice heuristics, is an adaptive response of a limited-capacity information processor to the demands of complex decision tasks (Payne et al., 1993, p. 1).

This paper emphasizes processes of accountability that government and corporate policy makers face in their respective roles. The need for accountability extends to other organizations such as Non Government Organizations (NGOs). Gray et al. (2006, p. 321), for instance, address this matter as they link NGOs to civil society.

Accountability is linked with the concept of authority that Simon claims *"enforces responsibility of the individual to those who wield authority; secures expertise in making decisions; permits coordination of activity"* (Simon, 1997, p. 187). Mulgan claims that: *"Accountability' is most simply elucidated by the broader concept of 'responsibility'"* (Mulgan, 1997). 'Accountability' and 'responsibility' are generally linked either as *"virtually interchangeable synonyms"* (eg. Corbett, 1992, p. 19; Emy & Hughes, 1991, p. 350) or, perhaps more accurately, as *"closely related but distinct terms"* (eg. Thynne & Goldring, 1987, Ch. 1; Uhr, 1993, pp. 3 - 5).

The paper also considers the rational activities controlling decision and policymaking in the various types of organizations, and, specifically, in public administration. In an examination of rational choice models the preferences of individuals engender preference orders that have the propensity to bring ambiguities into the decision making process. As ergodic theory (see Billingsley, 1965; Peterson, 1983; and Samorodnitsky, 2004) does not appear to be relevant to real life situations, thus for nonergodic environments, Davidson (1988) claims that economic decision-makers are aware that *"they face an*

uncertain - statistically unpredictable and hence uninsurable - future, and behave accordingly” (p. 336). Dunn (2001) claims that even in an uncertain world decisions still need to be made without relying on past experiences to direct the course of future events as one might in situations in which there is a zero probability that uncertainties will occur. He cites Davidson and Davidson (1984) who claim that in nonergodic situations *“human beings will have to invent or create the future by themselves by their actions within evolving and existing organizations”* (pp. 339-330 or reprint). Dunn proposes a strategy whereby top decision-makers attempt to form the future as they endeavour to minimize uncertain impacts of their decisions. They could achieve this by attempting to control as many matters as possible that affect the production process. Thus strategic decision making takes *“a creative step into the unknown”* by linking decisions *“to the nature of the environment, of time, and not to ‘market structure’”* (Dunn, 2001, p. 38).

Given that such situations need to be addressed by senior decision and policymakers, it is suggested that they and their organizations, with an ever increasing momentum, will need to be held accountable for the impact their decisions have on their stakeholders, including the general public. They need to be held accountable not only for the financial and economic impact but also for the social and ecological impact of such decisions. Thus the question of accountability, scientific management and rationalism, within public and private organizations is examined in this paper. Such an examination also involves rational choice theory and ambiguity and uncertainty.

2. ACCOUNTABILITY

Although ‘accountability’ is something to be cherished it is, by nature, a complex concept. It may be defined in many different ways. For instance Sinclair likens ‘accountability’ to the chameleon and her many varieties of definitions include legalistic models (see Thynne & Goldring, 1987, p. 8) and concern about control of government agencies (see O’Loughlin, 1990, p. 281). She claims that *“important dimensions of meaning are sacrificed in generic definitions of accountability”* (Sinclair, 1995, p. 221). Birkett identifies such a generic definition of accountability as *“types of control that are operative when there is some possibility of autonomy”* (Birkett, 1988, p. 5).

The concept of accountability is often applied to democratic government in that periodically elected members must give account of their administration to their constituency. In this respect Finer (1941) outlines three doctrines for politicians and officeholders, exercising their responsibility to the people, to take into account. They need to work for what the public wants rather than what they consider the public needs. The second doctrine recognizes the need to establish institutions for the elected government to exercise its responsibility to its masters. Finer considers the third doctrine to be most important, namely:

... the function of the public and of its elected institutions is not merely the exhibition of its mastership by informing government and officials of what it wants, but the authority and power to exercise an effect upon the course which the latter are to pursue, the power to exact obedience to orders (Finer, 1941, p. 337).

Redford proposes an ‘overhead democracy’ model for accountability in which control would *“run through a single line of control from the representatives of the people to all those who exercised power in the name of the government”*. In the United States political system the hierarchical line of control would proceed:

... from the people to their representatives in the Presidency and the Congress, and from there to the President as the chief executive, then to the departments, then to bureaus, then to lesser units, and soon to the fingertips of administration (Redford, 1969, pp. 70 - 71).

Deleon (1998) argues *“that accountability mechanisms can be matched to public problems and agency structures”*, and proposes her four types of accountability as are outlined in Figure 1.

FIGURE 1
FOUR TYPES OF ACCOUNTABILITY

Degree of Control	Source of Control	Source of Control
	Internal	External
High	Bureaucratic	Legal
Low	Professional	Political

(Deleon, 1998, p. 544).

These are similar to those Romzek and Dubnick detail in their article about accountability in the Challenger Tragedy. To Romzek and Dubnick, bureaucratic accountability systems are “widely used mechanisms for managing public agency expectations”. Legal accountability “involves the frequent application of control to a wide range of public activities”. Professional accountability is required when dealing with technical and complex problems and political accountability is central to democratic processes (Romzek & Dubnick, 1987, pp. 228 - 229).

Spann et al (1973) claim that government agencies are subjected to controls that enforce certain ‘values’ including economy and efficiency, values embodied in policies, and community values such as the ‘rule of law’, equality of access, and honesty (p. 341). As well as being subjected to political and legal controls that ensure accountability, government agencies are subjected to other forms of control that are both formal and informal. Whereas a minister formally controls his department he needs to rely on the advice and information from his public servants and thus needs to be responsive to them if he wishes to retain their loyalty. Thus he might need to apply the concept of responsibility in a subjective way and to incorporate increased staff participation in the management of his department (see Spann et al., 1973, pp.342 - 347).

Day and Klein (1987) assert that legal accountability must be seen as a method of undertaking a legal audit just as a financial audit measures fiscal accountability. Control methods need to ensure that ministers and officials do not exceed their legal authority and that their decisions adhere to natural justice guidelines. Also political power needs to be controlled to ensure that governments uphold basic human rights (pp. 24 -25). Top management often employs control systems such as Accounting Information Systems (AISs) “to increase the probability that individuals will behave in a manner that will enable organization goals to be achieved efficiently and effectively” (Abernethy & Vagnoni, 2004, p. 209). See also Flamholtz et al. (1985).

As well as being responsible to electors, executives, managers and shareholders, policymakers are also accountable to their own value systems and community expectations of justice. These need to be examined and the ambiguities or uncertainties they exhibit explored. But before this is examined there is a need to establish modern and scientific methods of managing the decision and policymaking processes and their execution.

3. SCIENTIFIC MANAGEMENT

Positivist science, as a means of solving problems, has been criticized by Susman and Evered, because research methods and techniques have become very sophisticated and less useful in solving practical organizational problems. They claim that the findings reported in modern academic management journals have little relevance to the findings in the real world. They concede that unlike recent organizational research, the work of early researchers such as Fayol (1923; 1937) (functions of management), Barnard (1938) (functions of the executive), Urwick (1943) (integration of the ideas of earlier theorists), Roethlisberger (1968) (management and morale) and Taylor (1916) (principles of scientific management) were grounded in practical problems faced by organizational members (Susman & Evered, 1978).

Some scholars, such as Sergiovanni and Carver (1980) attribute the rise of scientific methods of solving problems to the American nineteenth and twentieth century philosopher, John Dewey. His scientific model of decision making was based on concepts of rationality and was expressed in (1) the delineation and clear definition of problems; (2) the provision of clear alternatives that have been discovered and

described through research; (3) the attachment of a set of consequences for each alternative; (4) weighting consequences attached to each alternative; and (5) cardinal ordering of alternatives through the use of the weighting procedure (Sergiovanni & Carver, 1980, p. 307). Dewey considered that knowledge must have its base in experience and that this is not merely passive. To Dewey experience is “*primarily a process of undergoing; a process of standing something; of suffering and passion, of affection, in the literal sense of these words*” (Dewey, 1981[1917], p. 63). West (1989) examined Dewey’s metaphysics in which the concept of ‘critical intelligence’ is emphasized. The aim of such critical intelligence is “*to overcome obstacles, resolve problems, and project realizable possibilities in pressing predicaments*” (West, 1989, p. 97). Despite praising the application of rigorous scientific models to problem solving and the provision of good information about the functioning of the world, Dewey realized that science was the only way to know the world (Evans, 2000, p. 315). Dewey is lauded as a visionary and a critical pragmatist whose radical concepts of democracy were opposed by the democratic realists in the 1940s and 1950s, with the popular concepts of logical positivism and analytical philosophy which effectively replaced his socially critical philosophy (Westbrook, 1991, pp. 537-538). Thus a most respected public philosopher was almost completely forgotten in America (Evans, 2000, p. 309). However, Lowery and Evans have affirmed, along with Evans and others (Evans, 2000, p. 309; McSwite, 1997, p. 16; Shields, 1996; Snider, 2000; Stever, 1993), that there was a renewal of interest in Dewey’s philosophies during the decade up to 2004 (Lowery & Evans, 2004, p. 321, End Note 2).

Despite this, Stever (1993) claims that scholars of more recent times, such as, Westbrook (1991) do not link the pragmatism of Dewey with administrative theory and such disconnection could be because of Dewey’s failure to use the language of administrative theorists (Stever, 1993, p. 419). However, like Weber (1978, pp. 956-963), Dewey saw modern organizations as good examples of rationality. An apparent paucity of articles of Dewey’s decision making theories in recent Academic Journals has not prevented his concepts being promulgated in American Academic circles (see Woolever, 1979) and in educational curriculum development on thinking skills where as Dewey observed, “*the artistic thought becomes embodied in the object, even emerges with it*” (see Aikens et al., 2001).

Whether or not, we accept links between Dewey and rational decision making, there still remain societal norms on rationality that have the propensity to legitimize the activities of organizations. Thus the concept of rationalism begs examination in so far as it affects decision and policymaking by organizations and their leaders.

4. RATIONALISM IN ORGANIZATIONAL DECISION AND POLICYMAKING

In reflecting upon the suggestions of writers, such as Edelman (1985), Meyer and Rowan (1977) and Feldman and March (1981), Langley (1989) proposes that formal analysis may be used by leaders as a means of survival by legitimizing their activities. They justify their position, rationally, to obtain information and their analyses become symbolic of the rational decision making techniques they adopt (p. 607). As managers in organizations make multitudinous decisions daily it is doubtful that their decision-making is a “*comprehensive formal analysis*” in all but, perhaps, the most important decisions. In fact researchers such as Lindblom (1959), who claims that most decisions are made by a process of ‘muddling through’, and Quinn (1980) who also proposes an extension of Lindblom’s theory that decisions involving change are taken best in a number of incremental stages.

Incrementalism is a formal title given to a ‘science’ of ‘muddling through’. It amounts to moving away from trouble rather than towards a goal. The decision makers try this or that small manoeuvre without an overarching plan or even any ultimate purpose. In theory incremental decisions are small steps in the right direction when the current course proves to be wrong. Theoretically they are tentative and remedial. According to Etzioni (1989) when decision makers realize that they need to correct their course of action they must refer to broader guidelines that were not formulated incrementally (pp. 123-124). Some public administrators have challenged rational decision-making and claim that disjointed incrementalism’ (muddling through) is not only the way most decisions are made but are also the way that they are best made (Etzioni, 1985a; and 1985b, pp. 383f). See also Braybooke and Lindblom (1963).

However, Langley (1990) claims that even though few researchers have attempted to employ formal analysis to incremental usage in the decision-making process such analysis methods are employed by organizations for a variety of purposes. She identified three distinct patterns in the three organizations she studied. These were employed in decision implementation control and to ensure successful enactment outcomes; were used as a key tool of persuasion and verification in negotiations between different hierarchical levels about actions to be adopted; and they were unproductive when people put forward contradictory positions. She hypothesized that there is a relationship between patterns of decision making and “*organizational structure, leadership style, the nature of the issues faced by the organization, and whether or not the organization is protected from market forces*” (p. 37). It appears from Langley’s (1989) research that undertaking extensive formal analysis could make an organization more pluralistic even though it might not necessarily increase the level of rationality in the decision making processes. Formal analysis may not be necessary if the decisions are taken by individuals rather than in interacting groups (p. 626).

If, in fact, decisions are taken by individuals then it could enrich the romanticism that the business media has with the concept of a chief executive officer (CEO) being, as Meindl et al (1985) and Denis, Langley and Pineault (2000, p. 1063) conceive, “*the all powerful, all-knowing, controller of the destiny of a complex enterprise* “. However, observations of political leaders, in particular, indicate that the level of infatuation the media has with individual leaders, no matter how charismatic they are, is not sustainable unless these are supported by a large team of public relations experts. Even if a complex organization has been able to meet all of what Denis et al claim are the challenges of appointing the right leader, it is extremely unlikely that such a leader will be able to make all of the decisions him/herself. Then, if an organization does not have a coherent structure and is merely a large collection of small time decision makers, it is likely to adopt, possibly by default, a decision making model similar to what Cohen et al (1972) termed “*the garbage can model of organizational choice*” (p. 2). Such a collective approach could be the result of: (1) ideas or choices in search of a problem; (2) feelings and issues trying to find decision opportunities; (3) solutions looking for questions or issues to answer; or (4) the makers of decisions seeking work (see also Musselin, 1996, p. 57; and Owens, 1981, p. 31).

Such a situation opens up the way for decisions to be made to accommodate the personal whims of individuals in decision making groups in a way that Langley et al (1995) envisage. They do propose, however, that decisions be opened up to ambiguities of commitment and action, to history and experience and to linkages that place individual decisions within “*interwoven networks of issues*” (p. 260). On the other hand, if decisions are made by individuals rather than by organizations, Langley (1991) claims that there are three consecutive phases in individual decision making processes. Individuals commence with being indifferent or uninterested in the issue and then, having been made aware of the issue and uneasy about it they progress to a state of ‘uncertainty’. During this stage the individual decision maker collects relevant information and makes up his/her mind before progressing to a state of ‘conviction’ and then the decision making process has been completed (Langley, 1991, p. 85; see also van den Munckhof, 2006, p. 14).

Academic research on decision-making encompasses many fields including economics, psychology and management sciences. Cabantous and Gond (2006) claim that economists place rational decision making within a normative framework whilst management and psychology researchers try to understand individual and collective decision-making processes and so they adopt a descriptive perspective in their research. They argue that, whilst discovering more about strategic decision-making, managerial and psychology researchers have deconstructed a rational approach to decision-making through a gradual rejection of ‘rational choice theory’ (Cabantous & Gond, 2006, p. 3; see also Czarniawska, 2003; Elster, 1989a; and Langley et al., 1995, pp. 355-356). Cabantous and Gond suggest that “*the discrepancy between rationality and organizational life can indeed lead to in-depth investigations of the efforts academics, managers and consultants deploy to construct rational decisions*” (p. 25). This apparent divide or cleavage within the social sciences is identified by Elster (1989b) as two opposing ways of thinking. The first way, identified earlier by Elster (1986) as ‘*homo economicus*’ (economic man) is associated with Adam Smith and the second way ‘*homo sociologicus*’ (social man) is associated with Emile Durkheim. It is claimed that the first way is guided by instrumental rationality and the second by the dictates of social norms (Elster, 1989b, p. 99). See also Smith (1976 [1776]) and Durkheim (1958).

Freeman (1999) claims that there are two basic ideas advanced in the economics of organizations. These are that:

human behavior is fundamentally rational, in the sense that people seek to maximize utilities as they go about their organizational business, and that organizations are set up the way they are because it is more efficient to organize that way (p. 164).

This supposes that rational man will make rational choices and it may be deducted from the above that economic organizations will also make rational choices and seek to maximize economic benefit from their choices. In doing so they will make, according to March (1978), two distinct kinds of guesses: “*guesses about future consequences of current actions and guesses about future preferences for those consequences*” (March, 1978, p. 589; see also Savage, 1954; and Thompson, 1967). It is unclear where Langley’s uncertainty stage fits into this configuration but it may be supposed that the ultimate decisions will be plagued with ambiguities or uncertainties.

5. AMBIGUITY, UNCERTAINTY AND RATIONAL CHOICE IN DECISION AND POLICYMAKING

March (1978) claims that ambiguity is a problem, to some extent, when individuals disagree about goals but it is more significant when it relates to “*relevance, priority, clarity, coherence, and stability of goals in both individual and organizational choice*” (p. 595). However, it may be a significant advantage as well, in a group policy or decision-making situation when a number of the members endeavour to develop support for a particular policy or decision outcome. As March and Heath (1994) propose, it provides “*for a healthy level of selective interpretation on the part of not-quite-natural allies*” (p. 170).

‘Rational choice models’ of decision-making are prescriptive and assume that rational individuals and organizations have preference orders that are not only explicit, but may be derived from evaluation procedures. Such models depart, as van den Munckhof (2006) claims “*from the idea that decision making processes require a complete search of available alternatives, reliable information about consequences, and consistent preferences in order to evaluate outcomes*” (p. 2). As an outcome of this it might be reasonable to suppose that these new models could produce outcomes that are ambiguous or uncertain.

Academics, such as Ellsberg, and Zadeh, have proposed definitions of ‘ambiguity’. Ellsberg (1961), in regard to a person’s information about certain events, or the ‘ambiguity’ of information, defined ‘ambiguity’ as “*a quality depending on the amount, type, reliability and ‘unanimity’ of information, and giving rise to one’s degree of ‘confidence’ in an estimate of relative likelihoods*” (p. 657). Becker and Brownson (1964) claim that Ellsberg’s theories imply that “*ambiguity is a subject variable intervening between the antecedent condition, ‘quality and quantity of information’ and the consequent psychological event, ‘degree of confidence in estimates of probabilities’*” (p. 63). They criticize Ellsberg’s concept of ambiguity as it is “*a useful construct only if the antecedent conditions are quantifiable and only to the extent that ambiguity has an impact on decisions*” (p. 63).

Ellsberg was concerned with Savage’s axioms (see Savage, 1954) but proposed that these may be improved by not applying them to specific circumstances that might appear to be unacceptable. In such situations, he thought that rules of uncertainty of a less probabilistic format might be applicable (Ellsberg, 1961, p. 646). Most people act in ways inconsistent with perception of choice behaviour and so, as Raiffa (1961) claims, this stresses the need to employ decision-making models that do not require the establishment of a set of preferences and it demands theories that might be applied when decisions are made under uncertainty. Scholars, such as Slovic and Tversky (1974), question if decisions can be made in accordance with rational choice axioms, similar to principles of logic, because the actions of individuals in a state of uncertainty often violate such principles (p. 368).

Zadeh’s (1965) philosophical definition of ‘ambiguity’ was “*ambiguity has to do with classes of objects with no sharp or exact boundaries between what ‘is’ and what ‘is not’*” (quoted in Gutiérrez & Carmona, 1995, p. 215; and van den Munckhof, 2006, p. 18). As decision-making is generally not undertaken in insular settings, but in real world environments, limitations and outcomes of the application of possible

decisions cannot be determined with any degree of precision. In an effort to understand this problem Zadeh developed a system of 'fuzzy sets' (see Zadeh, 1965, 1968a, 1968b, 1969). Fuzziness is one type of imprecision to be found in fuzzy sets so it is one of the "classes in which there is no sharp transition from membership to nonmembership" (Bellman & Zadeh, 1970, p. B141). As fuzziness is distinguishable from vagueness, Bellman and Zadeh's prime concern is with the goals, constraints and decisions that are 'fuzzy'.

These definitions suggest that the language used by Ellsberg, Zadeh and other social scientists is, of itself, intrinsically ambiguous as other human realities tend to be. To Levine (1985) such a phenomena is a "*pathos of ambiguity*". However, he distinguishes between the "*ambiguities of life or experiences*" and the "*ambiguities of language and thought*"(p. 8). He claims that academic literature distinguishes between the various types of ambiguity such as polysemy, vagueness, inconsistency and instability (p. 256). Words and terms that are context dependent may be ambiguous and very confusing to organizational members, particularly in multicultural settings. Williamson (2001) claims that whereas a term with more than one meaning may be ambiguous, a term with a single vague meaning may not be ambiguous even though it is vague (p. 62). Vagueness, therefore would be applied to decision making processes that are indeterminate whilst processes that cannot be supported with stable logic are said to be inconsistent. When a process is consistently unsteady it is said to be unstable. Decisions that are developed during such processes tend to be susceptible to more than one interpretation and are said to be ambiguous (see van den Munckhof, 2006, p. 22).

Uncertainty is not the same as ambiguity for whereas ambiguity may refer to misinterpretation, the DEFRA Report (Sayers et al., 2002) defines 'uncertainty' as "*a general concept that reflects the lack of sureness about something, from just a sort of complete sureness to almost complete lack of conviction about an outcome*". Uncertainty may be epistemic, relating to knowledge of a physical system and the ability to model it, or aleatory, relating to the natural variety that may be observed in nature. For example, Lange and Treich (2007) claim that considerable uncertainty affects decisions about climate policy. Unknowns include the affect of increasing levels of greenhouse gases in the atmosphere and the social and economic consequences of changes in the climate. Economic uncertainties in valuation assessments of possible damages could be mitigated through the development of learning programmes directed at establishing new premises for the development of abatement policies (p. 2).

Recent scholars of decision-making under uncertainty tend to concentrate their efforts on theories of 'expected utility' and its near correlate 'subjective expected utility'. These were developed and manifested by von Neumann and Morgenstern (1944) and Savage (1954), and have been ranked very highly in twentieth-century social science. As well as influencing the way behavioural scientists deal with the subject of choice under uncertainty, Einhorn and Hogarth (1986) claim that it enabled other scientists to analyze the decision process itself (see Keeney & Raiffa, 1976; Raiffa, 1968; and Schoemaker, 1982). The 'utility theory' that comprises both expected utility and subjective utility theory has been only partially successful. Schoemaker's review of the expected utility model revealed descriptive and normative insights about decisions made under risk but concluded that "*people perceive and solve problems differently*" (p. 556) and therefore this explains, to some extent, why decision-making might be ambiguous and, possibly, uncertain.

Von Neumann and Morgenstern's (1944) assertion, that the expected utility rule originated from simple principles of rational choice, that did not deliberate on long-term factors, led to Tversky and Kahneman's (1986) claim that analyses of expected utility theory have unearthed "*the substantive assumptions of cancellation, transitivity, dominance, and invariance – besides the more technical assumptions of comparability and continuity*"(p. S252). 'Cancellation' involves the disregard of any condition that produces the same outcome no matter how a decision-maker chooses. It is evident in von Neumann and Morgenstern's substitution axiom as well as the extended sure-thing principle (Savage, 1954) and Luce and Krantz's (1971) independence condition. The maximization of expected utility depends on 'cancellation' to establish preferences between prospects.

'Transitivity' requires that each decision option has a value that is not dependent on other options. As Tversky and Kahneman (1986) claim it is likely to have validity in separately evaluated options only if the

consequences of these options are not dependent on alternative options to which they are compared, as implied, “by *considerations of regret*”. ‘Dominance’ is employed “as the cornerstone of the normative theory of choice” because ‘cancellation’ and ‘transitivity’ are more complex and less imperative than it is (p. S253).

The ‘principle of invariance’ requires that “*the preference between options should be independent of their description*’. Termed ‘extensionality’, by Arrow (1982), it is assumed as an option, rather than being specifically stated as a principle, and so “*decision models that describe the objects of choice as random variables all assume that alternative representations of the same random variables should be treated alike*” (Tversky & Kahneman, 1986, p. S253). ‘Consequentialism’ is a related concept (see Hammond, 1985, 1988).

Of the above four principles it would appear that invariance and dominance are indispensable but transitivity is doubtful and many scholars have moved away from cancellation. The move away from ‘cancellation’ seems to have been generated by Ellsberg’s (1961) clever counterexamples and by a paradox named after the French economist, Maurice Allais. This paradox indicates that decision-making generally attracts responses that do not conform to the expected utility theory (see Allais, 1953, 1979). Researchers, such as Hansson (1975); Allais (1979); Machina (1982); Quiggin (1982); Fishburn (1983); and Luce and Narens (1985) utilize models that assume transitivity, dominance, and invariance. Other researchers, such as Bell (1982); Fishburn (1982; 1984); and Loomes and Sugden (1982), in dispensing with transitivity, whilst maintaining invariance and dominance, respond to violations of cancellation and transitivity by reducing its status in normative theory in order to retain its status as a descriptive model.

Tversky and Kahneman (1986, p. S275) claim that some people argue that the effects of the market make failures of rationality in individual decision-making inconsequential (see Knez et al., 1985). However, in larger organizations including government and political organizations, in particular, the scope for ambiguities and uncertainties to impinge upon rational choice in decision and policymaking is increased dramatically. In positive political theory use is made of analytical models to understand how outcomes are achieved in the way they are. These models take into account phenomena involving political parties, the election of candidates, the passing of bills and the nature of inter-country conflicts. Austen-Smith and Banks (1998) claim that:

Most of the models begin with the presumption that these phenomena result from decisions made by relevant individuals, be they voters and candidates in the first example, elected representatives and appointed ministers in the second, or heads of state in the third (p. 260).

To Austen-Smith and Banks, one class of models of individual decision-making is driven by what they, and Zey (1998, p. 1) claim is the canonical rational choice theory. There are, however, no clear criteria “*for delimiting the axiomatic tenets of the theory*” and it is given a variety of labels by different social science disciplines. For instance, the term ‘expected utility theory’ is the label psychologists give to ‘rational choice theory’. On the other hand economists employ the term ‘neoclassicism’ or ‘economic rationalism’ as well as ‘rational choice theory’; sociologists adhere to the term ‘social choice theory’; and political scientists employ the concept of ‘public choice’ (Zey, p. 1). Austen-Smith and Banks see some linkages in the two main approaches of:

rational actor model-building in political science: direct preference aggregation (social choice theory) and indirect preference aggregation through the aggregation of choices in strategic settings (non-cooperative game theory)” (p. 284).

Zey claims that “*the basic principals of rational choice theory (RCT) are derived from neoclassical economic theory, libertarian theory and game theory*” (p. 2).

The core assumptions of modern political doctrines, theories about economic organizations and rational core models advocate “*minimal government such as libertarianism and anarchism*”. Thus the authors undertake further discussions about rationality on political organizations and public administration in the next section of this paper and of economic rationalism in other existing (for example Gates & Steane,

2007) papers and, after further research, in future articles. The significance of this is illustrated in Zey's claims about what 'rational choice' assumes, i.e.:

If individuals behave rationally, the collective will benefit; therefore individuals should not be interfered with by the collective, except when individual behavior undermines collective interest (p. 1).

6. RATIONALISM AND PUBLIC ADMINISTRATION

Rationalism had its origins in many sources. First there is the enlightenment, where rationality was seen as a revolutionary influence (Foucault, 1984) and was associated with liberalism. Liberalism is linked to Burke and Mill (see Burke, 1839; and Mill, 1962) and the emergence of rational self-interest. It was Mill's theory of utility that stated that "*individuals participate in political activities because their personal wealth is at stake*" (Stimson & Milgate, 1993, p. 1). Second, there was the association of reason to human behaviour (Kirchgaessner, 2004), where the utility of behaviour is "*orientated toward the (potential) consequences of the various possible actions, one also speaks of a 'consequentialist' approach in this context*" (Sen, 1990, p. 3). Third, in more recent decades rationalism has been classified as an 'ideal type' of decision-making and policy (Hulme, 2005). Although, in theory, the concept of 'ideal type' relies on perceptions of '*rational social actions*' (Cahnman, 1965, p. 268), in Weber's methodology it referred to "*the construction of certain elements of reality into a logically precise conception*". The term '*ideal*' had no connection with evaluations (Gerth & Wright Mills, 1991, p. 59). The concept was developed, by Weber (1922, pp. 148 ff.), in support of his argument with Carl Menger (Cahnman, 1965, p. 268). In his '*Protestant Ethic and the Spirit of Capitalism*', Weber employed the term 'ideal type/s' when discussing capitalistic entrepreneurs and religion (Weber, [1904-5]1971, pp. 71, 98, 200).

In the area of public administration Schreurs (2000b) traces rationality concepts to the commencement of the classical or orthodox period and the writings of Taylor, Weber and Fayol, when rationality was supreme. However, she claims that these authors theorized "*in favour of instrumental rationality and efficiency*" and argues, for example, the context in which Taylor discusses 'efficiency', is often neglected by scholars. She claims that "*efficiency is mainly a condition for realizing prosperity, not an aim in itself*" (Schreurs, 2000b, pp. 743 -744). Of recent years some scholars have been concerned about the way instrumental rationality has taken a dominant position in discussions on public administration. For instance, Tenbessel (2002) argues that if rationality is a 'meta-value' of public administration then it is important that the term be interpreted in a variety of ways. Increased demands of accountability for public expenditures and other commitments as well as for countless numbers of other programmes and policies administered by governments has contributed to the dominance of instrumental rationality over other forms of rationality (Tenbessel, 2002, p. 300). As an aftermath of Schreurs' (2000a) identification of "*a standard interpretation of rationality*" that requires others to establish clear goals or objectives, Tenbessel claims that this entails a concentration of the rational processes upon the most appropriate way to meet established goals and objectives. The common denominator for challenges to this interpretation, from a variety of disciplines, "*is the enforced separation between means and ends, which in turn establishes other separations between facts and values, politics and administration*" (Tenbessel, 2002, p. 301). Tenbessel uses the term 'instrumental rationality' when referring to this interpretation. Particular types of knowledge in the policy process tend to be privileged when the instrumentalist approach is employed.

Other scholars tend to employ a different approach to rationality in public administrations to those in other organizations. For instance, Snellen (2002) adds six more propositions of rationality to the five that are generally employed. He also sees public administration in a multi-rational context underlying government policymaking. These rationalities are: economic rationality, political rationality, legal rationality and professional rationality. Fox (2002) employs Habermasian concepts of 'discursive redemption' in his review of rationality in public affairs. In the third of his three goals in endeavouring to understand what being rational means, Fox seeks "*a positive and more constructive ... understanding of the underlying rationality of even the supposed irrationalists*" (Fox, 2002, p. 347). Habermas, who sometimes considered discourse to be a 'reflective medium' (Rehg, 2003, p. 127), had introduced a comprehensive notion of rationality and advocated "*the purposive function of reason is to bring about social ends in social and cultural systems*" (Matusnik, 1989, p. 158). See also Habermas (1984; 1989; and 1998).

Even though Ventriss (2002) seeks the development of what he terms 'public rationality', Schreurs (2002) supports her claim that "*rationality is at the heart of public administration*" with examples from the writings of Waldo (1955), Simon (1997) and Weber (1972) that speak about rational action, rational decision-making and the rational organization of the bureaucracy. This would suggest that concepts of rationality are ambiguous and therefore efforts to assign a meaning to the term are unending and have led Friedland and Boden (1994) to conclude that scholarly research on rationality is mostly "*going nowhere, not because modern actors are irrational but because there are many rationalities, at both individual and institutional levels*" (p. 43). Despite this Ventriss suggests that, "*public rationality is an attempt to integrate Socrates' maieutic process with Gramsci's concept of hegemony to expose and delimit the socializing influences of the instrumentality on public life*" (p. 287).

If we are to accept rational choice models of decision and policymaking and incorporate Jones' (2003) four principles of bounded rationality i.e. intended rationality; adaptation; uncertainty and trade-offs (pp. 397 - 399) into our equation then we might also incorporate Snellen's four areas of rationality that were discussed earlier. Thus, for public administration, rationality has some new dimensions that may not be found in smaller organizations. For example as Batten et al (2006) suggest a public administration rationality model may have to provide for professional influences or as Landau (1969) contends the model may also need to incorporate a 'rationality of redundancy'. In public administration political rationalities arise "*from the fact that a system can be more reliable (more responsive, more predictable) than any of its parts*" (p. 354) but, in a reliable system, they cannot be greater than the sum of reliable components. Such situations may involve a rationality of redundancy and encounter problems of duplication and overlap.

These uncertainties of rationalism suggest that the whole question of scientific management, incorporating, as it does, notions of decision and policymaking, is very complex. Thus it also suggests that in public administration, in particular, efficient accountability procedures have to be put in place. Concepts of accountability have been discussed specifically in Section 2 of this paper.

There are some academics, such as Hulme (2005), who claim that every concept and theory of decision-making is based on the notion of rationality. Decision makers exercise control over their respective organizations through the pursuit of 'rational' goal directed activities. This practice is applicable to decision and policy makers whether they are members of the Australian cabinet or a private business board. Rational decision makers are expected to be 'cool' and dispassionate managers who are not influenced by ideology, self-interests and other people's values. In organizational contexts rationality implies "*adopting a scientific rather than a metaphysical approach to problems*" (Hulme, 2005). Such attributes align with fiduciary duty obligations expected by leaders in standards of governance.

7. CONCLUSION

Decisions and policies are not made in a vacuum and the real world is not an ergodicity. Thus decision and policymakers need to devise strategies to grapple with the uncertainties of modern life and those that succeed will be inventive in the way they approach their tasks. Many of the decisions they make will be misinterpreted and such ambiguities together with numerous uncertainties are a cause of concern for social analysts who employ rational choice models and theories of decision making.

Such problems of ambiguity and uncertainty highlight the need for executives and organizations to be made more accountable for the processes and outcomes their decisions and policies engender. Realities in the nonergodic environment of the real world place great strain upon the applicability of rational choice theory to decision and policymaking and so more inventive approaches need to be applied to management, in general, and to the way decisions and policies are made and applied, in particular.

The scope for the utilization of rational choice appears to be greater in public administration than in other types of organizations. Greater expectations of accountability, uncertainties generated by the electoral cycle, ambiguities including misinterpretations of motive and intent, drive political opponents and the media to apply greater scrutiny to governmental decision and policymaking, in particular and to public administration, in general.

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US GAAP AND IFRS CONVERGENCE IN THE AREA OF REVENUE RECOGNITION

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ABSTRACT

In 2001 the IASB was given a strong mandate by major constituents of the worlds capital markets to develop a single set of high-quality accounting standards. The effort was aimed at spreading of IFRS around the world and the FASB – IASB Convergence Program. The most significant difference between the US GAAP and the IFRSs is in the area of the general approach. IFRSs are based on basic accounting principles¹ with limited application guidance, US GAAPs are based especially on rules with specific application guidance. The FASB and IASB initiated their joint project on revenue recording to converge the IFRS and the US GAAP in this area. The main objective of paper is a comparative analysis of revenue recognition under both systems and evaluation of the most significant differences in revenue recognition and measurements as a starting point for the preparation of the new general standard for revenue recognition.

Key words: Revenue, earning process, assets and liabilities approach

1. INTRODUCTION

There are two significant systems of financial reporting for world capital market use. These are the IFRS and the US GAAP. The U.S. and the EU cannot go alone in the development of accounting standards and on the other hand the development of international standards across the world's major capital markets requires that the U.S.A. be an active participant in the process. This is the main reason why the two most significant organizations in the field of financial reporting regulation setters in the world - the Financial Accounting Standard Board (FASB) and the International Accounting Standards Board (IASB) have recognized that in order for international capital markets to function properly, a single set of high-quality international accounting standards designed especially for listed companies around the world must exist. The IASC (the predecessor of the IASB) was strongly criticized. McKinnon, Janel (1984) concluded, that the IASC had not succeeded in changing the existing standards or in setting new standards and by Evans and Taylor (1982). Doupnik, Taylor (1985) found some compliance by nations with IASC standards. Weetman et al. (1998) found disharmony between the US GAAP and the IAS. Despite these facts, in 2001 the IASB was given a strong mandate by the major constituents of the worlds capital markets to develop a single set of high-quality accounting standards. This effort should be especially aimed at spreading the IFRS around the world and the FASB – IASB Convergence Program.

Several events were also inspired in the USA that ultimately resulted in the FASB linking its agenda and priorities more closely with the IASB during the year 2002. In October 2002, both organizations jointly issued a Memorandum of Understanding. It was a significant step toward formalizing their commitment to the convergence of the US GAAP and the International Financial Reporting Standards (formerly the IAS – International Accounting Standards). In February 2006 was published the new document (Memorandum of Understanding) was published, which reaffirms the objective of developing high quality, common accounting standards for use in the worlds capital markets. The new document demands the elimination of existing major differences in focused areas and identification of other areas where accounting practices under the US GAAP and IFRSs are regarded as candidates for improvement, because numerous of insignificant differences between the US GAAP and IFRS can result in significant differences in the reported numbers.

The most significant difference between the US GAAP and IFRSs is in the area of the general approach. The IFRSs are based on basic accounting principles with limited application guidance, US GAAPs are based especially on rules with specific application guidance.

Revenue is a significant part of an entity financial reporting. The FASB and IASB initiated their joint project on revenue recording to converge the IFRS and US GAAP in this area. The main objectives of this project are as follows:

¹ Basic accounting principles used in IFRS: accrual basis, going concern, true and fair view, understandability, relevance, reliability, comparability.

- provide a single, revenue recognition model applicable to a range of industries,
- develop a model based on changes in specific assets and liabilities to eliminate weaknesses and inconsistencies in existing concepts and standards,
- converge IFRSs and US requirements.²

The main reason for this project is the fact that there are more than a hundred standards in the US GAAP and two standards in the IFRS. Some of the US GAAP standards are industry-specific and can produce conflicting results for economically similar transactions. The main revenue recognition standards are IAS 11 – Construction Contracts and IAS 18 Revenue in IFRS. The principles of both standards are not consistent and could be difficult to apply beyond simple transactions.

2. METHODOLOGY

The structure of the paper is divided into three parts. The theoretical background presents the historical development of the IAS/IFRS and US GAAP convergence efforts in general. The second part of the paper is aimed at the comparative analysis of revenue recognition and measurement under the IAS/IFRS and US GAAP. At the end, based on the results of the comparative analysis, the basic principles for revenue recognition, which could be applicable consistently to all industries, are clarified. Also the principles for initial measurement of revenue are set.

The paper uses the standard methods of scientific work. Firstly, the method of description is used to describe the development in the area of IAS/IFRS and US GAAP convergence. Then, a comparative analysis is used to discuss the differences in revenue recognition and measurement under the IAS/IFRS and US GAAP. At the end the method of synthesis, deduction and induction is used. Possible principles for the initial measurement of revenue are suggested as well.

The aim of the paper is to perform the comparative analysis in the area of revenue recognition and measurement under the IAS/IFRS and under the US GAAP. It is also to clarify the basic principles for revenue recognition applicable consistently to all industries and to develop principles for initial measurement and recording of revenue for new general standard development.

3. THEORETICAL BACKGROUND

The main reason for the REVENUE RECOGNITION PROJECT is the fact that there are more than a hundred standards in the US GAAP and two standards in the IFRS. Some US GAAP standards are industry-specific and can produce conflicting results for economically similar transactions. The main revenue recognition standards are IAS 11 – Construction Contracts and IAS 18 Revenue in IFRS. The principles of both standards are inconsistent and could be difficult to apply beyond simple transactions.

3.1 Revenue Recognition under the US GAAP

Revenues are defined by FASB Concepts Statement No. 6 (CON 6) Elements of Financial Statements as inflows or other enhancements of the assets of an entity or settlements of its liabilities from delivering or producing goods, rendering services, or other activities that constitute the entity's ongoing major or central operations. For revenue recognition the two criteria must be met. Revenue recognition criteria are defined in the FASB Concepts Statement No. 5 (CON 5) Recognition and Measurement in Financial Statements of Business Enterprises. The criteria require that revenue must be realized or realizable and must be earned. The application of the earning process for revenue recognition seems not be consistent for application in different industries. There are more than 100 standards for revenue recognition in the US GAAP and many of which are industry-specific and some can serve conflicting results for economically similar transactions because an earning process is not precisely defined. The existence of different requirements for economically similar transaction reduces the comparability of revenues across entities and industries. There are specific rules relating to the recognition of software revenue, sales of real estate or services provided by cable television in the US GAAP. The detailed rules often contain exceptions for particular types of transactions.

Problems in revenue recognition under the US GAAP

² IASB: Revenue Recognition Project

- More than 100 standards for revenue can produce conflicting results for economically similar transaction,
- There is no general standard for revenue recognition,
- Application of earning process could lead to misrepresentation of an entity's contractual rights and obligation in financial statements

3.2 Revenue recognition under the IAS/IFRS

Incomes and expenses are defined in the conceptual framework of the IAS/IFRS. The definition of income encompasses both revenues and gains. Revenue arises in the course of the ordinary activities of an enterprise and is referred to by a variety of different names including sales, fees, interest, dividends, royalties and rent³. There are two IAS standards for revenue recording (IAS 18 – Revenue, IAS 11 – Construction Contracts).

3.2.1 Revenue – IAS 18

Revenue is recognized when it is probable that future economic benefits will flow to the enterprise can be measured reliably. Revenue is defined in IAS – 18 as the gross inflow of economic benefits during the period arising in the course of the ordinary activities of an enterprise when those inflows result in increases in equity, other than increases relating to contribution from equity participants.

Revenue is recorded in fair value. Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties at an arm's length transaction. IAS 18 - Revenue identifies separate criteria for each transaction when revenue will be recognized. IAS 18 should be applied in these cases:

- the sale of goods and products,
- the rendering of services,
- the use by others of enterprise assets yielding interest, royalties and dividends.

3.2.2 Construction Contracts – IAS 11

Revenue relating to long-term contracts recording is a special area of revenue recording in the IAS/IFRS. The IFRS have the IAS 11 – Construction Contracts. Revenue and costs associated with construction contracts are determined in IAS 11 Construction Contracts. The nature of the activities undertaken in construction contracts is based on the situation when the date on which the contract activity was entered into and the date when the activity was completed usually fall in different accounting periods. The main issue is to match the contract costs and revenue to the accounting periods in which construction work is performed. This is the accrual basis application, the effects of transactions and other events are recognized when they occur and they are recorded in the period to which they relate. The IAS 11 is used for recording the costs and revenue of construction contract in the contractors' financial statement.

Specific guidance (IFRIC 13 – Customer Loyalty Program) exists on accounting for customer loyalty programs. Customer loyalty programs are used by entities to provide customers with incentives to buy their goods or services. The entity grants the customer award credits such a free or discounted goods or services. IFRIC 13 addresses accounting by the entity that grants award credits to its customers. It is accounted for as multiple elements arrangements revenue is allocated to the separate elements of the transaction (by the reference to the fair value). Specific guidance (IFRIC 15 – Agreement for the Construction of Real Estate) was issued for entities involved in the construction of real estate. The interpretation provides guidance on whether a transaction should be accounted for under construction – contract or broader revenue guidance.

Problems in revenue recognition under IAS/IFRS

- Entities could recognize amount of revenue in the financial statements that do not faithfully represent economic phenomena (revenue recognition for sale of goods depends on when the risk and rewards of ownership are transferred),
- Lack of guidance for multiple-elements arrangement,
- The principles of IAS 11 and IAS 18 are inconsistent.

³ IAS/IFRS Framework paragraph 74

Table 1: Comparison of revenue recognition under the US GAAP and IAS/IFRS

Item	US GAAP	IAS/IFRS	Difference
Revenue definition	Actual or expected cash inflows that have occurred or will result from the entity ongoing major operations (CON 5)	The gross inflow of economic benefits during the period arising in the course of ordinary activities of an entity	Similar
Revenue recognition criteria	Must be realized or realizable must be earned (CON 5), many different sources of revenue recognition guidance	When it is probable that future economic benefits will flow to the enterprise, can be measured reliably	Different
Revenue measurement	At fair value of the consideration received or receivable – cash or cash equivalents	At fair value	Similar
Sale of goods	Delivery must have occurred, risks and rewards are transferred, the price is fixed or determinable, collectibility is reasonably assured, persuasive evidence that an arrangement exists (SAB 104)	Significant risks and rewards of ownership have been transferred (IAS 18)	Similar
Rendering Services	Services must have been rendered to customers, reliable measures based on contractual prices established in advance are available, revenues may be recognized as earned as time passes. There are many specified guidance in US GAAP	Only when the outcome of a transaction involving the rendering of services can be estimated reliably	Similar
Deferred payment	Discounting to present value is not required	Value of revenues to be recognized is determined by discounting	Different
Multiple elements	Specific criteria are outlined for dividing multiple deliverable into separate units (ETIF 00-21), Specific criteria for software services	Recognition criteria are applied to the separately identifiable components of a transaction in order to reflect the substance of the transaction	Similar
Long-term contracts revenue recognition	ARB 45 allows percentage of completion method, completed contract method	IAS 11 allows percentage of completion method, zero profit method	Different
Long term contracts	Certain criteria must be met	Certain criteria must be met	Similar

4. POSSIBLE APPROACHES TO REVENUE RECOGNITION

There are two possible approaches to revenue recognition. The earning process model is used in FASB CON 5 – the revenue is recognized when payment is realized or realizable and the earning process is complete. The application of this model has led to over 200 pieces of guidance on revenue recognition in the US GAAP. This is because the earning process is not defined precisely. The earning process model is applied inconsistently across similar transactions. This model attempts to account for revenue directly without considering how assets and liabilities arise and change throughout the exchange with the customer. Because assets and liabilities are ignored, deferred debits and credits sometimes arise that do not meet the definition of assets and liabilities. The earning process is a product of the US GAAP.

An asset and liability model is the second possible approach to the revenue recognition. This model is consistent with the existing definitions of revenue in the IFRS and US GAAP. The model focuses on

the changes in assets and liabilities themselves to determine how much revenue to recognize, because the revenue itself is not measured directly. Under this model deferred debits and credits that do not meet the definitions of assets and liabilities are not recognized. In opinions of IASB and FASB, this model lead to more faithful and more consistent depiction of the underlying economics of transactions than the earning process model.

There is a problem in the asset and liability model application – which asset and liabilities affect revenue. The existing definitions of revenue provide few clues in this area. There is no conceptually right or wrong answer about which assets or liabilities should affect revenue. It depends on the point of view and on the industry.

The FASB and IASB can only select the set of an assets and liabilities that are most likely to result in recognized revenue that is decision-useful to user of financial statements. The definition of revenue recognition could focus only on the assets and liabilities that arise from a contract with customers.

By the IASB and FASB the general revenue definition based on an asset and liability model that focuses on the contract with the customer could be: **Revenue is an increase in a contractual asset or a decrease in a contractual liability that results from providing goods and services to a customer.** The change in an asset or in liability is related to providing goods or services to customers and it is distinguished revenue-generating contracts from other contracts.

Revenue arises because goods or services are provided, which leads to an increase in a contract asset or decrease in a contract liability. It is important to understand when goods or services are provided or transferred to a customer. Certain criteria to identify when goods or services have been transferred to the customer must exist:

- In the case of goods – an entity has transferred assets when the customer obtains control of them,
- In the case of service – when the customer has received the promised service,
- In the case of a long-term construction contract – an entity satisfies a performance obligation during construction only if assets are transferred to the customer throughout the construction process (the customer controls the partially constructed asset).

Revenue is recognized when:

- An entity obtains a contract and the rights exceed the obligations,
- The entity subsequently satisfies its obligations in the contract by the entity's performance.

4.1 Measurement of revenue

Revenue is measured at the fair value of the consideration received or receivable and it is usually determined by agreement between the entity and the buyer or user of the asset. Determining the fair value in cash transactions does not usually present a problem, but where the transaction involves a non-monetary exchange, or where payment is only received at a later date, the measurement of the fair value is not as straightforward. The main similarities and differences in revenue measurement are described in the following table.

When the entity uses the asset and liability approach revenue arises from recognizing and measuring increases in specified assets and decreases in specified liabilities. This means that the amount of revenue to be recognized is determined by considering how much specified assets and liabilities change in a period. The assets and liabilities are those that arise from contracts with customers. A contract with customers is defined by the IASB and FASB (2008) as an agreement between two or more parties that creates enforceable obligations. The combination of the rights and obligations in the contract gives rise to a net contract position. The net contract position could be contract asset, contract liability or nil. In this approach, revenue is recognized when a contract asset increases or contract liability decreases by an entity's performance.

Table 2: Comparison of two possible approaches to revenue recognition

Item	Asset and liability approach (it is based on asset and liability measurement)	Earning process approach	Notes
Revenue recognition definition	Revenues are inflows or other enhancement of specified assets of an entity or liability settlement (the contract assets and liability) from the sale of goods, service rendering, or other activities that constitute the ongoing major or central entity's operations (CON 6), Revenue is the gross inflow of economic benefits during the period arising in the course of the ordinary activities of an entity when those inflows result in increases in equity, other than increases relating to contributions from equity participants (IAS 18)	The revenue is recognized when payment is realized or realizable and the earning process is complete (CON 5)	Asset and liability approach can be applied more consistently
Characteristics of models	Asset and liability model: <ul style="list-style-type: none"> Relies on the recognition and measurement of assets and liabilities, Does not recognize deferred debit and deferred credits, Lead to a faithful and consistent depiction of transactions 	Earning process model: <ul style="list-style-type: none"> leads to the recognition of deferred debit and deferred credits that do not meet the definition of assets and liabilities, attempts to account for revenue directly without consideration how assets and liabilities arise and change throughout the exchange with the customer 	

Source: Own research

There are two changes in a contract position that could lead to revenue recognition:

- when an entity enters into a contact with customer and the contractual rights exceed the contractual obligation (the net contract position is an asset – it depends on measurement of rights and obligations)
- when an entity satisfies an obligation in the contract – the net contract position changes by entity's performance

Table 3: Changes in a net contract position and revenue recognition

Item	Net contract position	Contract asset	Contract liability	Revenue recognition
Customer pays	Decreases	Decreases	Increases	Revenue is not recognized (change is not involved by entity's performance)
Entity provide goods or services	Increases	Increases	Decreases	Revenue is recognized

Source: Own methodology based on the FASB and IASB approach

The measurement of a contract is fundamental to revenue recognition under this approach, because it affects how the entity depicts its financial position and financial performance in a contract, the measurement of a contract depends on the rights and the entity's performance obligations. The rights could be measured by cash or cash equivalents promised for provision by customer to the entity. The performance obligations measurement is more difficult than measuring the rights.

Generally two approaches to an entity's performance obligation measurement could be used:

1. current exit price
2. original transaction price

The current exit price is the price that the entity would be required to pay for its obligations to an independent third party. The original transaction price reflects the amount an entity requires in exchange for taking on the related performance obligations. The amount includes expected costs to transfer promised goods or services to the customer, the timing if those cost and the margin required for providing those assets. The second approach is preferred.

Table 4 Comparison of the earning process approach and an asset and liability approach

Item	Present approach	New approach
Revenue recognition model	Earning process model	Asset and liability model
Revenue measurement	Fair value	Transaction price
Construction contract revenues	Special methods for construction contracts revenue recognition	No special method for construction contract revenue recognition

Source: Own research

4.2 Application of the asset and liability approach

The application of this approach could be a great simplification of revenue recognition in the US GAAP, and filling the gaps in revenue recognition under the IAS/IFRS. This approach is quite a consistent approach for many kinds of revenue generating transaction recording under both system. The application is not a fundamental change for majority of transactions.

4.2.1 Application of the asset and liability approach for the sale of goods and rendering of services

The sale of goods and the rendering of services are the simplest revenue generating transactions. A contract is the basic assumption for the asset a liability model application for revenue recording. The entity enters upon the contract inception into a situation, in which it has the right to receive consideration from the customer and imposes obligations on the entity to transfer assets to the customer. If upon the contract inception an entity measures its performance obligations at the transaction price, then neither a contract asset nor revenue is recognized upon the contract inception. The table 5 demonstrates revenue recording in case of the sale of goods and rendering of services: The entity has incepted contract with the customer. The contract concerns the sale of goods for 100.000 currency units (CU). The customer pays after the delivery of the goods. The table demonstrates the asset and liability approach for revenue recognition.

Table 5: Possible approach to revenue recording

Transaction	Debit	Amount (CU)	Credit	Amount (CU)
Contract inception	The right arises for the entity to receive consideration from the customer	100.000	Arises entity obligation to transfer goods or to render service	100.000
Delivery of goods	Decrease of a contract liability by delivery of goods	100.000	Change of the net contract position by entity performance - revenue	100.000
Customer payment	Customer payment	100.000	Decrease of receivables	100.000

Source: Own methodology

The same method is applied in the case of a multi-elements arrangement, when the delivery of all elements is realized at the same time, as well. When the delivery of individual elements differs in time, it is necessary to use the methodology described in following section.

4.2.2 Application of the asset and liability approach for multi-elements arrangements

By application of the asset and liability approach for multi-elements arrangement the area is covered in which there are gaps in the IAS 18 and the US GAAP is significantly simplified in this area.

The application of this approach is demonstrated in the following example in the case of multi-elements arrangement. The entity enters into a contract with a customer to provide, deliver and install equipment for 120.000 CU, the entity sells separately equipment for 100.000 CU and installation for 20.000 CU. The contract was incepted in September, the delivery of the equipment was realized in September and installation was realized in October. The table 6 describes the suggested methodology of recording contract revenue.

Table 6: Possible approach to multi-elements arrangement revenue recording

Transaction	Debit	Amount (CU)	Credit	Amount (CU)
Contract inception (September)	The entity's right arises to receive consideration from the customer (in the form of payment for delivered and installed equipment)	120.000	The entity's obligation arises to transfer goods or to render service in a form of delivered and installed equipment	120.000
Delivery of equipment (September)	Decrease of a contract liability by equipment delivery	100.000	Change of net contract position by entity performance - revenue	100.000
September	Change of the net contract position by the entity's performance - revenue			100.000
Installation (October)	Decrease of a contract liability by equipment installation	20.000	Change of net contract position by entity performance - revenue	20.000
Customer payment	Customer payment - cash	120.000	Decrease of receivables (in the form of payment for delivered and installed equipment)	120.000
October	Change of the net contract position by entity's performance - revenue			20.000
Contract Total	Change of the net contract position by entity's performance - revenue (September, October)			120.000

4.2.3 Application of the asset and liability approach for long-term contracts

The most significant changes in revenue recording arise in case of construction contracts. The current approach to revenue recording for construction contracts is consistent neither with the basic principles for revenue recognition under the US GAAP, nor the IFRS. Revenue is recognized and recorded despite the fact that the earning process is not completed and the control and risk are not transferred to the customer.

The suggested approach to revenue recognition eliminates this disharmony. It does not use special treatment for long term contracts. Revenue is not recognized and recorded until the basic criteria of the asset and liability approach are met. In the case of a construction contract a great amount of revenue would be recognized after the contractual liability's decrease upon the transfer of the constructed asset to the customer, which could take several years. However, this methodology protects the construction contract to affect profit or loss during the construction of the asset.

On the other hand, there are not any obstacles to segment contracts into individual components and record them separately. Revenue will be recognized at the moment of transfer of the asset to the customer as a decrease of the contractual liability.

A new approach to revenue recording is demonstrated on the following example:

- Transaction price 10.000.000 CU,
- Calculated costs 8.000.000 CU,

- Term of construction 3 years,
The construction contracts is not segmented, the assets and risk are transferred after completion.

Table 7: Possible approach to long-term contracts revenue recording

Transaction	Debit	Amount (CU)	Credit	Amount (CU)
Contract inception	The entity's right arises to receive consideration from the customer (in the form of payment for the constructed asset)	10.000.000	The entity's obligation arises in the a form of a completed constructed asset	10.000.000
1 st and 2 nd years	construction costs incurred	20.000.000	Decrease of the entity's assets	20.000.000
1 st and 2 nd years	Increase of work-in-process	20.000.000	Construction contract was not completed – costs reduction ⁴	20.000.000
3 rd year	construction costs incurred	40.000.000	Decrease of entity's assets	40.000.000
3 rd year	Increases of work-in-process	40.000.000	Construction contract was not completed – costs reduction	40.000.000
3 rd year completion of constructed asset and transfer to the customer	Decrease of a contract liability by the transfer of the completed construction to the customer	10.000.000	Change of the net contract position by entity's performance – revenue	10.000.000
3 rd year - derecognition	Costs of goods sold - derecognition	80.000.000	Decrease of assets	80.000.000
3 rd year - customer payment	Customer's payment	10.000.000	Decrease of receivable to the customer	10.000.000

Source: Own methodology

From the development of this methodological approach outflows, that the this way of revenue recording is similar to the zero-profit method application under IAS 11, is not used under US GAAP similar way of construction contract revenue recording. Until the transfer of asset and risk are not recognized any revenue. Profit or loss is reported after transfer when the construction contract is completed. Segmentation is possible if the entity requests more equal construction contract revenue recording.

4.3 Evaluation of an application developed approach to revenue recording

As shown by previous examples, it wouldn't significantly change the moment of recognition and amount recognized revenue by replacing the current rules for revenue recognition and recording. Presenting assets and liabilities arising from the construction contract inception is the most significant change in comparison with the current approach. This change influences the entity's financial position. On the other hand, information on changes in assets and liabilities caused by a contract inception could be relevant for financial statements users for future cash-flows planning. This change should be tied to the change in IAS1 – Presentation of Financial Statement. In the Statement of Financial Position assets and liabilities arising from contracts with customer should be presented separately.

The change in long-term construction contract is the other difference from present way of revenue recognition and recording. There is no longer possibility to record revenue from the construction contract before the moment of transfer of the constructed asset and risks to the costumer any more. The most significant benefit of the developed approach is the fact that this approach is based on principles and not on detailed guidance. This approach makes it possible to reach appropriate

⁴ It depends on a used model of costs recording model

solution for nearly all revenue generated transactions. No detail knowledge is necessary and judgments are used for logical conclusion under this approach.

5. CONCLUSIONS

Revenue is a significant part of financial reporting. There are two different approaches to revenue recording. The former is represented by the IAS/IFRS, the latter is represented by the US GAAP. The IASB and FASB have initiated a joint project on revenue recognition. A quite new common standard on revenue recognition should be a result of this project.

In this paper, the current approaches to revenue recognition under both systems are compared. The most significant difference is the general approach to revenue recognition. There is the Conceptual Framework where revenue is defined, two standards on revenue recognition and interpretations concerning revenue recognition and measurement in the IAS/IFRS. On the other hand, there are many standards and guidance concerning revenue in the US GAAP. Revenue is defined in the Statements of Financial Accounting concepts (CON 5, CON 6). There is not any general standard for revenue recognition under the US GAAP. The most significant differences in revenue recognition concern the long-term contracts and deferred payments. Despite this difference, there are many similarities between both systems.

Based on the results of the comparative analysis which was done in the paper, a new approach for revenue recognition based on principles for the new general standard for revenue recognition common for both systems is being developed.

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IOS USAGE AND BENEFITS: THE INFLUENCES OF INTERORGANIZATIONAL, ORGANIZATIONAL, AND TECHNOLOGICAL FACTORS

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ABSTRACT

To properly manage supply chains, firms need to exchange information with their trading partners more frequently. Therefore, how to properly implement IOSs becomes a key to successful supply chain management. This study investigates the influences of interorganizational factor, organizational factor, and technological factor on the extent of IOS usage and on both long-term relationship and IOS performance. From the literature review, we consider the interorganizational, organizational, and technological factors to be made up of exercised power, top management support, and perceived complexity. In order to examine the relationships in the research model, this study uses several quantitative methods, such as Structural Equation Model (SEM), factor analysis and cluster analysis. Finally, our results indicate that exercised power and top management support are important factors influencing extent of IOS usage. Furthermore, this study also discovered that the extent of IOS usage is positively associated with IOS performance and long-term relationship.

Keywords: *Inter-organizational system (IOS), IOS usage, IOS performance, Long-term relationship*

1. INTRODUCTION

Effective supply chain management (SCM) becomes an important issue to today's managers. Once strong relationships with their trading partners have been established, firms can enjoy many benefits such as higher level of sales growth, higher profitability, and lower discretionary expense (Kalwani and Narayandas, 1995). Because of this demand, inter-organizational system (IOS) such as electronic data interchange (EDI), electronic trading systems, electronic market, web-based procurement systems, and supplier relationship management systems are created to help managers to well manage their supply chain. According to Saeed et al. (2005), they argued that IOS can facilitate the information exchange between companies, and availability of precise and timely information through IOS can enable production scheduling to correspond to actual usage. Thus, they argued that IOS can help firms to achieve diverse objectives and performances such as lower inventory costs, reducing coordination costs and transaction risk, and shorter, more reliable response times. Therefore, how to properly use and implement IOSs is a key to successful SCM. Because of this reason, this study started to find out the factors affecting IOS implementation. As to implementations of IOSs, there are three major perspectives affecting IOS implementation including inter-organizational, organizational, and technological perspectives (Chwelos, Benbasat, and Dexter, 2001).

In the inter-organizational perspective, inter-organizational factors are sought as important determinants of implementation of IOS. Relevant literature concerning IOS indicate that better establishment of relationship plays an important role on the usage of IOS. For instance, Powell (1987) argued that partnership allows firms to adopt new technologies. In the organizational perspective, Iacovou, Benbasat, and Dexter (1995) argued that organizational factors are sought as measurements of the availability of needed organizational resources for adoption. If a firm has higher organizational support, it means that the firm owns sufficient resources to implement IOSs. In the technological perspective, because the diffusion of innovations (DOI)-based research is focused on the perceived characteristics of the particular technology, Chwelos, Benbasat, and Dexter (2001) labeled this perspective "technological". They argued that the technological perspective undoubtedly explains a portion of the IOS adoption decision (Chwelos et al. 2001). As a result, realizing the influences of these three perspectives on implementations of IOSs can help managers to understand how to increase and promote the extent of IOS usage and thus increase performance and establish better relationships with their trading partners. Furthermore, although many researches have already mentioned that using IOSs can enhance the relationship between firms (Heide and John, 1990; Saeed et al., 2005), however, fewer researches verified its impact on long-term relationship. Hence, this study not only seeks to determine the relationships between these three

perspectives and extent of IOS usage, but also aims to further understand the relationships between extent of IOS usage and performance and long-term relationship.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESES

2.1 Introduction of Inter-Organizational Systems (IOS)

Based on Kumar and van Dissel (1996), IOSs are technologies designed and implemented to operationalize the relationships between the partners in the alliance. Furthermore, they distinguish three categories of IOSs by adapting Thompson's (1967) classification of three kinds of technologies. Three categories include **pooled information resource IOS**, **value/supply-chain IOS**, and **networked IOS**. The first type of IOS, pool information resource IOS, is an inter-organizational sharing of common IS/IT resources including shared databases, shared application, and electronic market (Kumar and van Dissel, 1996). According to Kumar and van Dissel (1996), the primary forces leading to such cooperation include economic of scale (Clemen, 1990), participation externalities, and the partners in the alliance could either be competitors within an industry. The second type of IOS, value/supply-chain IOS, such as and EDI-based order and invoice systems, supports the sequential activities of supplier-customer relationships (Vokoff, Chan, and Peter Newson, 1999). According to Manheim (1993), these systems are called pipeline management systems and are becoming strategic necessities rather than strategic advantage. The primary motives behind these collaborations are the reduction of uncertainties in the supply chain, thereby gaining cost, cycle time, and quality advantages over competing supply chain in the industry (Kumar and van Dissel, 1996). The third type, networked IOS, operationalizes and implements reciprocal interdependencies between organizations including CAD/CASE systems, video-conferencing, and integrated health networks. According to Kumar and van Dissel (1996), the networked IOS typically represents joint ventures between various partners, and each partner provides a different specific advantage. Among these three kinds of IOSs, this study focuses on the second type of IOS, value/supply-chain IOS, because this type of IOS can help firms manage supply chain effectively and thus enhance the collaboration between firms. As a result, this study focuses on the extent of value/supply-chain IOS usage.

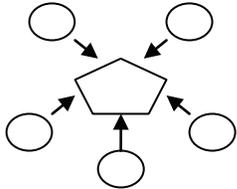
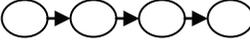
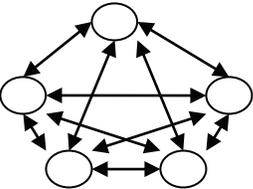
Type	Pool Information Resource IOS	Value/Supply-Chain IOS	Networked IOS
Structure			
Example	<ol style="list-style-type: none"> 1. Shared Databases 2. Shared Application 3. Electronic Market 	<ol style="list-style-type: none"> 1. EDI Applications 2. Order, order-tracking, invoice and payment systems 	<ol style="list-style-type: none"> 1. CAD/CASE Systems 2. Video-conferencing 3. Integrated Health Networks

FIGURE 2-1: A TYPOLOGY OF INTERORGANIZATIONAL SYSTEMS (ADAPTED FROM KUMAR AND VAN DISSEL, 1996)

2.2 Three Perspectives on IOS Researches

Because this study focuses on the factors affecting the extent of IOS, a review of the relevant literature indicates that there are three major perspectives affecting the usage of IOS. These three perspectives

include *inter-organizational*, *organizational*, and *technological* perspectives.

(1) Inter-Organizational Perspective:

In the content of EDI adoption, Premkumar and Ramamurthy (1995) found that *competitive pressure* and *exercised power* are related to reactive adoption of EDI. Moreover, Premkumar, Ramamurthy, and Crum (1997) examined EDI adoption in European trucking industry, and found that *competitive pressure* and *customer support* were playing important roles on EDI adoption and usage. Hart and Saunders (1998) examined the impact of *customer power* and *supplier trust* on the use of EDI, and found that increased supplier trust leads increased EDI use and increased customer power leads to decreased EDI use. Moreover, Lee and Lim (2005) found that partnership attributes such as *trust*, *interdependence*, and *commitment* are important determinants of EDI implementation, especially integration and utilization, and EDI performance.

(2) Organizational Perspective

Except for inter-organizational perspective, a lot of research had placed emphases on the organizational characteristics such as *top-management support*, *IS infrastructure*, and *organizational size*. Grover (1993) found that *top-management support* and *organizational size* are good predictors of customer based inter-organizational system (CIOS) adoption. Chwelos, Benbasat, and Dexter (2001) found that three sub-constructs of readiness (*financial resource*, *IT sophistication*, and *trading partner readiness*) positive and significantly influences the adoption of EDI.

(3) Technological Perspective:

Based on the diffusion of innovations (DOI) which has been considered as the foundation for IOS research (Rogers 1983; Rogers, 1995), the focus of this book is on the “perceived characteristics of innovation” that either support or inhibit implementation. For example, two variables- *relative advantage (perceived benefit)*, *complexity* -were found significantly related to adoption of innovation (Tornatzky and Klein, 1982). Because DOI-based research focuses on the perceived characteristic of particular technology, Chwelos et al. (2001) labeled this perspective as “technological”. In the summary mentioned above, each perspective explains a portion of the reasons why organizations adopt IOS, and Table 2-1 represents relevant constructs of these three perspectives on IOS researches. As shown in this table, we discovered that prior research has rarely adopted these three perspectives together in the study of the usage of IOS. Hence, this study tried to integrate these three perspectives to see the influences of these three perspectives on extent of IOS usage. Therefore, this study picked up important factors from these three perspectives. Based on previous researches mentioned above, in this study, there are three dimensions including *inter-organizational factors* (inter-organizational perspective), *organizational factors* (organizational perspective), and *technological factors* (technological perspective). In order to estimate extent of IOS usage, this research adopted measurement on EDI developed by Massetti and Zmud (1996). Finally, this research aims to discover the relationship between the extent of IOS usage and IOS performance, extent of IOS usage and long-term relationship. Furthermore, since Premkumar and Ramamurthy (1995) mentioned that typically, a firm based on certain internal and external motivations proactively initiates the action for adopting IOS for inter-organizational transactions with its trading partner, while the trading partner reactively responds to the request based on its own set of internal and external factors. Based on this viewpoint, this study also wants to figure out the differences of extent of IOS usage between proactive and reactive firm.

2.3 Interorganizational Factor

Research in marketing has found that exercised power has a significant influence on various aspects of interorganizational relationships such as decision making on transaction parameters (price, delivery schedule, etc.), channel conflict, satisfaction, and channel performance (Gaski, 1984; Gaski and Nevin, 1985). With regard to exercised power, for example, in the relevant EDI researches, more powerful firms seeking to benefit from EDI will influence their trading partner not only to adopt EDI, but to implement it in specific ways they wants (Hart and Saunders, 1998). Therefore, to these powerful firms, power plays an important role on influencing their trading partners to implement IOSs. Premkumar and Ramamurthy (1995) found that exercised power is an important predictor of EDI usage and proactive firms choose to exercise greater power to adopt EDI. They also discovered that firms exerting power on their trading partners are likely to be proactive in their decision to adopt EDI. Moreover, Jun, Cai, and Peterson (2000) also argued

that the relative power status of the buyer and supplier play a crucial role in the adoption decision of an EDI system. Therefore, it can be expected that firms exercising power on their trading partners act proactively to increase the extent of IOS usage.

Hypothesis 1: Firms which exercise greater power over its suppliers are likely to act proactively to increase the extent of IOS usage.

2.4 Organizational Factor

Top management recognizes strategy opportunities and provides long-term vision, attributes that are critical for successful adoption of innovation (Quinn, 1985). Premkumar and Ramamurthy (1995) also argued that IOS clearly requires top management support for cross organizational boundaries and gaining commitment from the firm's trading partners. Moreover, Premkumar et al. (1997) found that top management support is an important factor affecting the intent of EDI usage because it can provide resources needed for IOS implementation. In addition, even symbolic actions of actions of support by senior managers can contribute to successful implementation (Sharma and Yetton, 2003), because these actions legitimize technological innovations, signal management commitment to successful implementation, and serve to convince end users to expend the effort required to adopt the innovations (Leonard-Barton and Deschamp, 1988; Purvis et al., 2001; Sharma and Yetton, 2003). Moreover, management support is also considered critical for reconceptualizing work processes and for changing existing routines and processes that are critical for successful implementation (Purvis et al., 2001). As a result, it can be expected that if firms have higher management support on the IOS usage, they are likely to be proactive to increase the extent of IOS usage.

Hypothesis 2: Firms where top management enthusiastically supports IOS are likely to be proactive to increase the extent of IOS usage.

2.5 Technological Factor

Although IOS is useful, the firm may not have the expertise to understand and use it. Just as Cragg and King (1993) found that to the relatively small size of firms in the transportation industry, complexity may become a critical variable, because they may not have enough technological know-how. Furthermore, Grover (1993) found that if the CIOS is perceived as a complex idea, with a complex development process, the firm would be less likely to adopt it. Teo, Tan, and Wei (1995) used innovation diffusion theory to predict intent of financial EDI, and found that complexity is a strong inhibitor. Moreover, organizational decision makers may base their own decision on its pattern of use and its effects on similar others to economize on search and experimentation costs, and to reduce associated risks (Teo et al., 2003). As a result, it can be expected that if firms perceive more complexity of using IOS, they are likely to reactive to increase the extent of IOS usage.

Hypothesis 3: Firms which have perceived more complexity of IOS is likely to be reactive to increase the extent of IOS usage.

2.6 Extent of IOS Usage and IOS Performance

Frohlich and Westbrook (2002) found that using Web-based technologies to support supply and demand integration enables firms to achieve higher level performance. Many researches agree that the higher the level of integrated upstream and downstream coordination, the greater the benefits are (Narasimhan and Jayaram, 1998; Johnson, 1999; Frohlich and Westbrook, 2001; Ahmad and Schroeder, 2001; Frohlich, 2002). Handfield (1993) argued that supplier integration is especially important in terms of frequent deliveries and reduced buffer inventories, and therefore many manufacturers want to strong upstream connections to gain these benefits in the supply chain (Ansari and Modarress, 1990; Krause, Handfield, and Scannell, 1998). Moreover, Saeed et al. (2005) argued that in order to gain process efficiency through collaborative or partnership-like relationship, firms need to expand information flows in the supply chain by instituting IOS that are integrated and facilitated exchanges of a comprehensive set of information. Hence, it can be expected that if firms have a higher extent of IOS usage, they are likely to have better IOS performance.

Hypothesis 4: Higher extent of IOS usage is positively related to the IOS performance.

2.7 Extent of IOS Usage and Long-Term Relationship

According to Saeed et al. (2005), the IOS breadth functionality can enable a firm to expand the search space and induce competitions among a large number of suppliers through the IOSs connections, hence, providing the focal buyer greater sourcing leverage. Moreover, by establishing electronic linkages with the suppliers, the buying firm can create an internalized market in which multiple suppliers can compete for its business. In addition, IOSs not only allow firms to simultaneously support collaborative relationships but also enable an internalized market by allowing firms to establish one-to-many links to retain competition (Saeed et al., 2005). Thus, Saeed et al. (2005) argued that the extent to which the IOS enables closely coordinated structures between the buyer and the supplier, and the extent to which it supports electronic linkages with a broad set of suppliers, constitute two characteristics of IOS that may impact performance differently. Therefore, it can be argued that when the buying firm establishes such electronic linkages with its suppliers, it would continue to enlarge the electronic linkages to gain greater sourcing leverage and try to enhance long-term relationships in order to let its suppliers preserve the state of competition. Heide and John (1990) found that close relationships emerge in response to the need for protecting relationship-specific assets. In the relevant EDI researches, Hill and Scudder (2002) argued that using EDI can facilitate frequent and automatic bidirectional information flows between supply chain partners, thus enhancing the degree of coordination between them. As to the depth, according to Johnston and Vitale (1988), IOS that facilitate comprehensive information flow through a system-to-system linkage can reduce inventory costs and provide the benefit of vertical integration, and they also argued that closely integrated systems increase switching cost from a buyer's perspective. Moreover, Saeed et al. (2005) found that operation management literature and information systems literatures are in agreement regarding the importance of IOS in facilitating collaborative relationships through improved information flow, and long-term relationships require coordination mechanisms that can facilitate extensive information sharing to optimize the efficiency of the linkages. As a result, it can be expected that if firms have a higher extent of IOS usage, they are likely to enhance the long-term relationship.

Hypothesis 5: Higher extent of IOS usage is positively related to the long-term relationship.

Figure 2-2 shows the research model of this study.

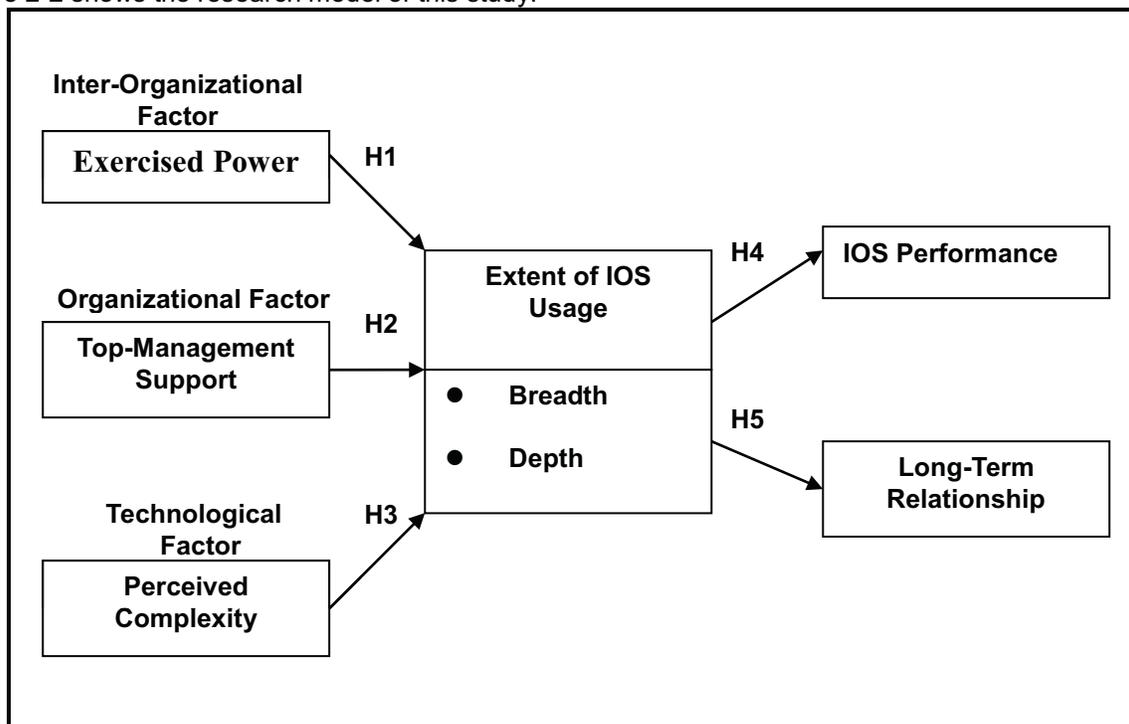


FIGURE 2-2: THE RESEARCH MODEL OF THIS STUDY

TABLE 2-1(A): RELEVANT CONSTRUCTS OF THREE PERSPECTIVES ON IOS RESEARCHES

Research Model	Grover, 1993					Premkumar et al., 1994					
	Proactive Technological Orientation	Internal Push	Market Assessment	Competitive Need	Impediment	Compatibility	Relative Advantage	Complexity	Cost	Commun icability	Elapsed Time
Inter-Organizational Perspective			<input type="radio"/>	<input type="radio"/>							
Organizational Perspective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
Technological Perspective				<input type="radio"/>	<input type="radio"/>		<input type="radio"/>				

Research Model	Premkumar et al., 1995					Icavou et al., 1995					Hart and Saunders, 1998	
	Dependence	Exercised Power	Transaction Climate	Competitive Pressure	Internal Need	Top Management Support	Champion	External pressure	Organizational Readiness	Perceived Benefit	Trust	Power
Inter-Organizational Perspective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>			<input type="radio"/>	<input type="radio"/>
Organizational Perspective					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
Technological Perspective										<input type="radio"/>		

Note: : The relevant constructs of these three perspectives on previous IOS researches

TABLE 2-1(B): RELEVANT CONSTRUCTS OF THREE PERSPECTIVES ON IOS RESEARCHES

		Premkumar et al., 1997									
Research Model		Compatibility	Complexity	Relative Advantage	Top Management Support	Champion	Competitive Pressure	Customer Support	Net-dependence	Climate	Size
		Inter-Organizational Perspective									
Organizational Perspective											
Technological Perspective											

		Chwelos et al., 2001					Lee and Lim, 2005		
Research Model		External Pressure	Readiness	Perceived Benefit	Trust	Interdependence	Commitment		
		Inter-Organizational Perspective							
Organizational Perspective									
Technological Perspective									

Note: ○ : The relevant constructs of these three perspectives on previous IOS researches.

3. SECOND SURVEY OF IOS: DATA ANALYSIS

3.1 Questionnaire Design and Test

This study has six constructs including exercised power, top-management support, perceived complexity, extent of IOS usage, IOS performance, and long-term relationship. The items of each construct were developed based on the relevant IOS literature, and this study modified some of the items in order to fit the reality.

The items were measured using a seven Likert-type scale which ranges from strongly disagree to strongly agree. For readability and objectivity of each item, this study revised the questionnaire by asking the opinions of interviewees of three case studies including Yulon Automobile, Fareastone, and China-steel. After revising the primary questionnaire, the questionnaire was pretest by pilot study by 34 part-time MBA students, and the reliability of this questionnaire is described in Table 3-1.

From this table, the Cronbach's α of each construct is above 0.6. As a result, this questionnaire exhibited sufficient reliability.

Finally, in the formal questionnaire, five items for exercised power, five items for top-management support, three items for perceived complexity, five items for extent of IOS usage, six items for IOS performance, and nine items for long-term relationship. After the pilot test, this study started to mail formal questionnaires and collect datum

TABLE 3-1: PILOT TEST (N=34)

Construct	Cronbach's α	Construct	Cronbach's α
Exercised Power	0.7239	Long-Term Relationship	0.6462
Top-Management Support	0.9179	IOS Performance	0.7708
Perceived Complexity	0.8145		
Extent of IOS usage	0.9217	The Whole Questionnaire	0.9120

3.2 Questionnaires Delivery and Collection

This study selected manufacturing industry as its research target. Data was collected from 1000 of the top 5000 Taiwanese manufacturing firms in 2005. These firms were selected from China Credit Information Service Ltd. Publications. In order to increase the samples of this study, this study also delivered questionnaires to EMBA students in National Cheng-Kung University (NCKU).

3.3 Descriptive Analysis

As mentioned above, 700 questionnaires were mailed to the sample firms. Finally, 79 questionnaires were completed and returned to this study. Out of 700 questionnaires, 70 questionnaires were usable. However, in order to perform structural equation model, this study also delivered 40 questionnaires to EMBA students in NCKU, and 30 questionnaires were usable.

Therefore, the response rate is 13.5 %. Table 3-2 represents the characteristics of the sample firms. From this table, 70 % sample firm had been operating more than 16 years, 25 % sample firms had capital more than \$170 millions, and 22 % sample firms had more than 2001 employees.

TABLE 3-2: THE CHARACTERISTICS OF SAMPLE FIRMS (N=100)

	Frequency	Percentage (%)
History		
Less than 1 year	0	0
1 to 5 years	3	3
6 to 10 years	19	19
11 to 15 years	8	8
More than 16 years	70	70
Capital (USD)		
Less than \$3 millions	10	10
\$3 to \$33 millions	31	31
\$37 to \$67 millions	10	10
\$70 to \$100 millions	14	14
\$103 to \$133 millions	8	8
\$137 to \$167 millions	2	2
More than \$170 millions	25	25
Number of Employees		
Less than 100	15	15
101 to 400	23	23
401 to 800	19	19
801 to 1200	12	12
1201 to 1600	5	5
1601 to 2000	4	4
More than 2001	22	22

3.4 Exploratory Factor Analysis and Reliability Test

In the Chapter 2, this study found that in the previous researches on IOS, each of the constructs of this study are not defined its factors clearly. Hence, this study is an exploratory study. Since it is an exploratory study, therefore, this study adopted exploratory factor analysis (EFA) to extract factors of each construct. Table 3-3 represents the result of exploratory factor analysis and reliability. The factors were extracted by using the rule of an eigenvalue greater than one. Finally, this study extracted 10 factors. The reliability of each factor was assessed by using item to total correlation and Cronbach's alpha. In each factor, it can be found that item to total correlation of each item is greater than 0.5, and Cronbach's alpha of each factor is greater than 0.6. Therefore, each factor can be considered to exhibit sufficient reliability.

3.5 Structural Equation Model (SEM) and Path Analysis

In order to test the hypotheses, first, this study adopted SEM performed by using LISREL 8.52 to identify the relationships among each construct. After completing SEM, this study adopted path analysis to test each hypothesis. According to Lee and Lim (2005), path analysis not only can validate the research model by estimating the magnitude of the linkage between variables, but it can examine a causal link rather than showing just an empirical association among variables to characterize real-world. As a result, this study chooses path analysis to test each hypothesis. Before performing structural the equation model, the latent constructs correlation is used to assess the discriminant validity. From table 3-4, no pair of measures exceeds 0.9 suggested by Hair and Anderson (1998) which means that no multicollinearity exists among the constructs of this study. This study adopted several indexes such as chi-square, goodness of fit (GFI), adjusted goodness of fit index (AGFI), normal fit index (NFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) to measure the overall model fit. Figure 3-1 represented the structural equation model of this study, and Table 3-5 represents the result of structural equation model.

Table 3-6 represent model fit statistics of SEM, the χ^2 value of 144.47 with 94 degrees of freedom is statistically significant ($P= 0.000$). A chi-square / D.F = 1.537 is smaller than 3 suggested by Bagozzi and Yi (1988). The normed fit index (NFI) exceeds the recommend level of 0.9 (Bentler and Bonnett, 1980). The comparative fit index (CFI) exceeds the recommend level of 0.9 (Bagozzi and Yi, 1988). Although the goodness of fit index (GFI) and the adjust goodness of fit index (AGFI) are below the recommend level

(GFI > 0.9; AGFI > 0.8) suggested by Bagozzi and Yi (1988), however the value of these two indexes are approximate to the recommend levels (GFI=0.85; AGFI=0.78). The root mean square error of approximation (RMSEA) is below the recommend level of 0.08 suggested by Browne and Cudeck (1993). The combination of these result indicate that the measurement model fits the data. After examining the structural equation model, this study further identified the significance of path structural coefficients to test each hypothesis. From Table 3-5, first of all, the results of path analysis indicate that exercised power and top-management support significantly influence extent of IOS usage ($\gamma_1=.21$, $\gamma_2=.77$). As a result, H1 and H2 are supported. Interestingly, this study discovered that perceived complexity also significantly influences the extent of IOS usage ($\gamma_3=.34$). That is a reverse relationship of original hypothesis. Therefore, H3 is not supported. Second, extent of IOS usage significantly influences the IOS performance ($\beta_1=.94$) and long-term relationship ($\beta_2=.91$). Hence, H4 and H5 are supported.

It is worth mentioning that the relationship of H3 is a reverse relationship of the original hypothesis. This is because that the majority of our sample is composed of large firms. Large firms possess the technological resources to overcome technological problems and may see perceived complexity as a barrier to prevent other competitors to compete with them. As a result, when the perceived complexity of certain IOS is high, these large firms will tend to implement it as a strategic weapon. Hence, this explains why perceived complexity positively influences the extent of IOS usage.

TABLE 3-3: THE RESULT OF FACTOR ANALYSIS AND RELIABILITY TEST (N=100)

Research Construct	Research Item	Factor Loading (>0.5)	Item to Total Correlation (>0.5)	Cronbach's α (>0.6)	Variance Explained
Exercised Power	Exercised Power			.8402	76.085%
	P5. The influence of the trading partners in deciding on the rules and regulations for using IOS in order processing is strong.	.928	.8109		
	P4. The influence of our company in deciding on the style and standard of IOS is strong.	.899	.7477		
	P3. The influence of our company in deciding on price, delivery schedule, etc is strong.	.783	.5759		
Top-Management Support	Top-Management Support			.9207	76.974%
	TS2. Top management considers IOSs as important to the organization.	.928	.8665		
	TS1. Top management is interested in the implementation of IOSs.	.897	.8115		
	TS3. Top management has effectively communicated its support for IOSs.	.892	.8057		
	TS4. Top management is willing to take the risk involved in the adoption of IOSs.	.877	.7839		
Perceived Complexity	Perceived Complexity			.7316	78.841%
	PC2. Our company believes that IOSs are complex to use.	.888	.5768		
	PC3. Our company believes that using IOS is difficult to trace and resolve transactional errors.	.888	.5768		
Extent of IOS usage	Breadth			.9203	92.615%
	B1. What percent does our company link with suppliers through IOSs?	.926	.8523		
	B2. What percent does our company's procurement department link with suppliers through IOSs?	.926	.8523		
	Depth			.7638	68.214%
	D2. What percent does our company attain "application-to-application exchanges" level?	.907	.7399		
	D3. What percent does our company attain "coupled work environments" level?	.796	.5508		
	D1. What percent does our company attain "file to file connections" level?	.769	.5131		
IOS Performance	Productivity			.8984	41.528%
	IP1. Our company believes that the usage of IOS can increase productivity.	.915	.8645		
	IP2. Our company believes that the	.872	.7650		

	usage of IOS can increase product quality.				
	IP3. Our company believes that the usage of IOS can increase ability to compete.	.848	.7688		
	Cost Saving			.7970	35.866%
	IP4. Our company believes that the usage of IOS can decrease paper work.	.852	.6695		
	IP5. Our company believes that the usage of IOS can decrease error rates.	.842	.6533		
	IP6. Our company believes that the usage of IOS can decrease communication cost.	.735	.6003		
Long-Term Relationship	Relationship Maintaining			.9015	31.713%
	LTR2. Our company believes that our relationships with suppliers are profitable in the long run.	.927	.8503		
	LTR1. Our company believes that maintaining long-term relationships with suppliers is important.	.917	.8168		
	LTR3. Our company expects present suppliers to be working with us in the long run.	.838	.7469		
	Concern with Suppliers			.7819	26.391%
	LTR7. Our company not only concerns with our goals but also concerns with suppliers' goals in this relationship.	.830	.6422		
	LTR9. Our company adopts an on-going proactive orientation to problem solving in this relationship.	.827	.6127		
	LTR8. Our company holds joint planning meeting with suppliers in this relationship.	.807	.6014		
	Willing to Sacrifice			.7242	19.779%
	LTR5. Our company believes that any concessions we make to help our suppliers will even out in the long run.	.894	.5677		
	LTR4. Our company is willing to make sacrifices to help suppliers from time to time.	.835	.5677		

TABLE 3-4: LATENT CONSTRUCTS CORRELATIONS

	1	2	3	4	5	6
1.Extent of IOS Usage	1.00					
2.IOS Performance	.90	1.00				
3.Long-Term Relationship	.78	.70	1.00			
4.Exercised Power	.63	.57	.49	1.00		
5.Top-Management Support	.90	.81	.71	.53	1.00	
6.Perceived Complexity	.09	.08	.07	-.27	-.18	1.00

TABLE 3-5: THE RESULT OF STRUCTURAL EQUATION MODEL (N=100)

Variables	Relations		Stand. Coefficient	C. R.
	Variables	Exercised Power	P5	.93*
P4			.88*	10.72
P3			.61*	6.70
Top-Management Support		TS2	.94*	a
		TS1	.90*	15.03
		TS4	.79*	11.13
		TS3	.81*	11.62
Perceived Complexity		PC2	.75*	a
		PC3	.77*	4.38
Extent of Usage		Breadth	.40*	a
		Depth	.37*	4.91
IOS Performance		Productivity	.91*	a
		Cost Saving	.64*	6.53
Long-Term Relationship		Relationship Maintaining	.57*	a
		Concern with Suppliers	.42*	3.45
	Willing to Sacrifice	.57*	4.05	
Paths	Exercised Power -> The Extent of Usage (γ_1)		.21*	2.11
	Top-Management Support -> The Extent of Usage (γ_2)		.77*	3.72
	Perceived Complexity -> The Extent of Usage (γ_3)		.34*	2.76
	Extent of Usage -> IOS Performance (β_1)		.94*	3.87
	Extent of Usage -> Long-Term Relationship (β_2)		.91*	3.33
Fit index	χ^2		144.47 (P=0.000)	
	Degree of Freedom		94	
	$\chi^2 / D.F$		1.537	
	GFI		.85	
	AGFI		.78	
	NFI		.90	
	CFI		.96	
	RMSEA		.074	

Note: 1. *: C. R.>1.96; using a significant level of 0.05, critical ratio exceeding 1.96 are significant.
 2. a: the parameter compared by other is set as 1, hence there is no C. R.

TABLE 3-6: THE MODEL FIT STATISTICS OF SEM

Fit Statistics	Conceptual Model	Criterion	Reference
$\chi^2 / D.F$	1.537	< 3	Bagozzi and Yi (1988)
GFI	.85	> .9	Bagozzi and Yi (1988)
AGFI	.78	> .8	Bagozzi and Yi (1988)
NFI	.9	> .9	Bentler and Bonnett (1980)
CFI	.96	> .9	Bagozzi and Yi (1988)
RMSEA	.074	< .08	Browne and Cudeck (1993)

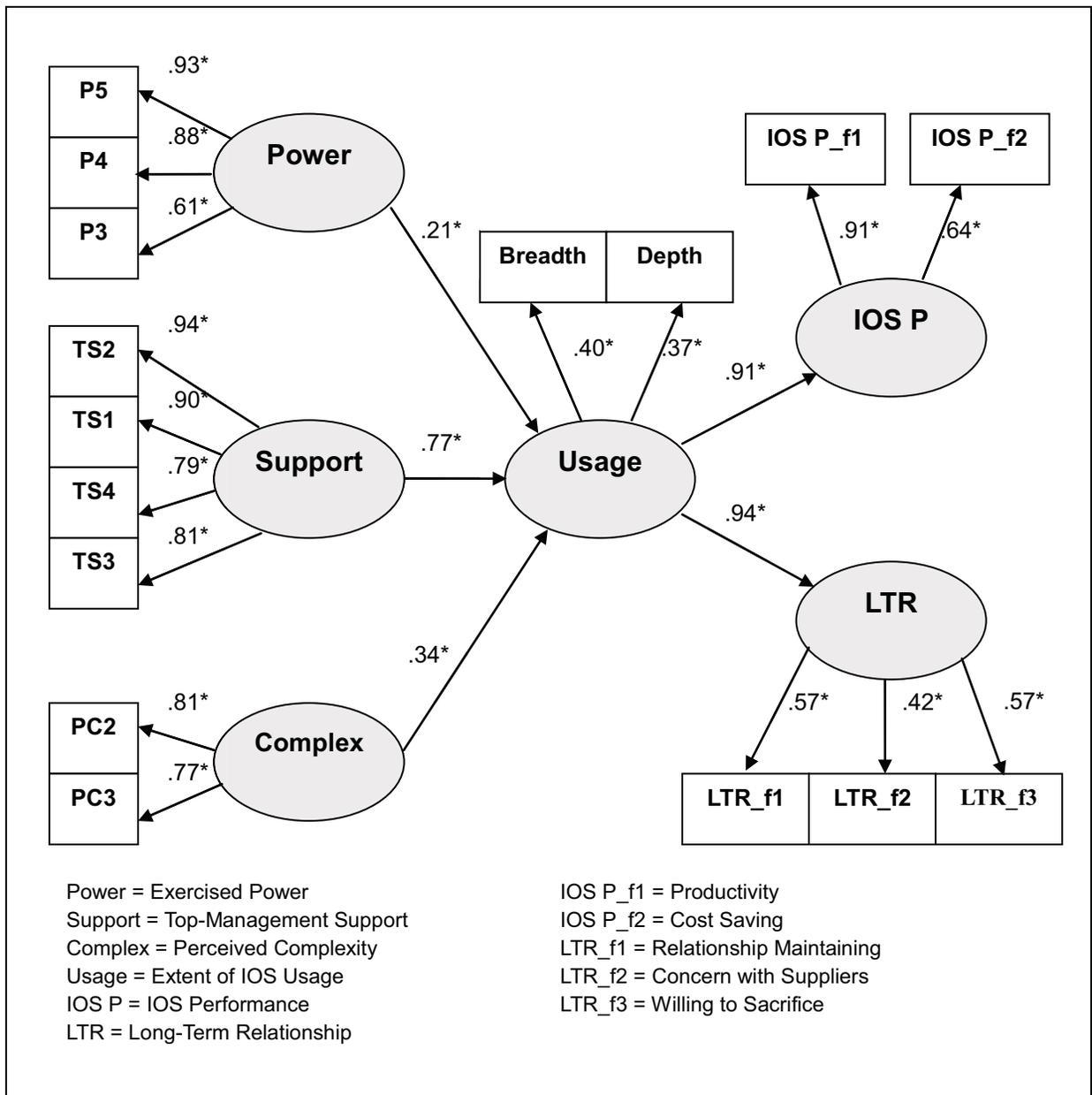


FIGURE 3-1: THE STRUCTURAL EQUATION MODEL OF THIS STUDY

3.6 Cluster Analysis and T-test

As mentioned in Chapter 2, since this study also wants to find out the differences between proactive firms and reactive firms in breadth and depth. As a result, this study adopted cluster analysis to identify proactive firms and reactive firms from exercised power, and top-management support. After distinguishing these two kinds of firms, this study adopted T-test to identify the differences between proactive firms and reactive firms in breadth and depth.

(1) Exercised Power

Table 3-7 lists the influences of different clusters of exercised power on breadth and depth. From this table, this study shows that different clusters have statistical difference in breadth ($p=.000^{***}$) and depth ($p=.000^{***}$). Moreover, regarding to breadth, this study discovers that the firms exercising more power on their suppliers (proactive firms) have broader IOS breadth (mean=4.3662) while the firms exercising less power on their suppliers (reactive firms) have narrower IOS breadth (mean=3.0345). With regard to the

depth, this study shows that proactive firms have deeper IOS depth (mean=4.0211) while reactive firm have shallower IOS depth (mean=2.6552).

(2) Top-Management Support

Table 3-7 also lists the influences of different clusters of top management support on breadth and depth. From this table, this study shows that different clusters have statistical differences in breath ($p=.002^{***}$) and depth ($p=.029^{**}$). Moreover, regarding to breadth, this study discovers that the firms attaining higher level of top management support (proactive firms) have broader IOS breadth (mean=4.2635) while the firms attaining with lower level of top management support (reactive firms) have narrower IOS breadth (mean=3.1731). With regards to depth, this study shows that proactive firms have deeper IOS depth (mean=3.8311) while reactive firms have shallower IOS depth (mean=3.0385). After identifying differences of proactive firms and reactive firms in breadth and depth, this study also wants to figure out the difference between high extent of IOS usage and low extent of IOS usage in IOS performance and long-term relationship.

TABLE 3-7: COMPARISON BETWEEN FIRMS WITH DIFFERENT LEVELS OF EXERCISED POWER AND TOP-MANAGEMENT SUPPORT

Construct	Research Variable	Proactive Firm (N=71)		Reactive Firm (N=29)		t-value	P-value
		Mean	S.D	Mean	S.D		
Exercised Power	Breadth	4.3662	1.5235	3.0345	1.1960	4.184	.000***
	Depth	4.0211	1.5776	2.6552	1.2478	4.192	.000***
Construct	Research Variable	Proactive Firm (N=74)		Reactive Firm (N=26)		t-value	P-value
		Mean	S.D	Mean	S.D		
Top-Management Support	Breadth	4.2635	1.5510	3.1731	1.3034	3.206	.002***
	Depth	3.8311	1.6475	3.0385	1.3033	2.219	.029*

Note: $p < .10$ $p^* < .05$ $p^{**} < .01$ $p^{***} < .005$

(1) Breadth:

Table 3-8 lists the influences of different clusters of breadth on IOS performance and long-term relationship. First of all, in the IOS performance, from this table, this study shows that different clusters have statistical difference on productivity ($p=.000^{***}$) and cost saving ($p=.019^*$). Moreover, as to productivity, this study discovered that firms attaining higher levels of breadth of IOS usage have higher levels of productivity (mean=5.9149) while the firms attaining with lower levels of breadth of IOS usage have lower levels of productivity (mean=5.2704). Second, in the long-term relationship, this study shows that different clusters have statistical difference in willingness to sacrifice ($p=.059^+$). Third, this study discovers that the firms attaining higher level of breadth of IOS usage have higher levels of willing to sacrifice (mean=5.0319) while the firms attaining with lower levels of breadth of IOS usage have lower level of willing to sacrifice (mean=4.6038). However, different clusters have no statistical differences on relationship maintaining ($p=.128$) and concern with suppliers ($p=.201$). Although different clusters have no statistical difference on relationship maintaining and concern with suppliers, this study discovers that have higher level of relationship maintaining (mean=6.2553) and concern with suppliers (mean=5.4539) while firms attaining lower levels of breadth of IOS usage have lower levels of relationship maintenance (mean=6.0126) and concern with suppliers (mean=5.2390).

(2) Depth:

Table 3-8 also lists the influences of different clusters of depth on IOS performance and long-term relationship. First of all, in the IOS performance, from this table, this study shows that different clusters have statistical differences in regards to productivity ($p=.019^*$). Moreover, as to productivity, this study discovers that the firms attaining higher level of depth of IOS usage have higher level of productivity (mean=5.8788), while the firms attaining with lower level of depth of IOS usage have lower level of productivity (mean=5.4229). However, this study finds that different clusters have no statistical differences on cost savings. Second, in the long term relationship, this study shows that different clusters have no statistical difference in relationship maintaining ($p=.754$), concern with suppliers ($p=.297$), and willing to sacrifice ($p=.408$). Although different clusters have no statistical difference on concern with suppliers and

willing to sacrifice, this study discovers that have higher level of concern with suppliers (mean=5.4646) and willing to sacrifice (mean=4.9394) while the firms attaining with lower level of breadth of IOS usage have lower level of relationship maintenance (mean=5.2786) and concern with suppliers (mean=4.7388).

TABLE 3-8: COMPARISON BETWEEN FIRMS WITH DIFFERENT LEVELS OF BREADTH AND DEPTH

Research Variable	High Breadth of IOS Usage (N=47)		Low Breadth of IOS Usage (N=53)		t-value	P-value
	Mean	S.D	Mean	S.D		
Productivity	5.9149	.7272	5.2704	.9675	3.727	.000***
Cost Saving	5.7234	.7133	5.3145	.9617	2.390	.019*
Relationship Maintaining	6.2553	.5393	6.0126	.9562	1.537	.128
Concern with Suppliers	5.4539	.7784	5.2390	.8780	1.288	.201
Willing to Sacrifice	5.0319	1.0342	4.6038	1.1863	1.912	.059 ⁺
Research Variable	High Depth of IOS Usage (N=33)		Low Depth of IOS Usage (N=67)		t-value	P-value
	Mean	S.D	Mean	S.D		
Productivity	5.8788	.8242	5.4229	.9295	2.391	.019*
Cost Saving	5.5354	.7903	5.4925	.9181	.229	.819
Relationship Maintaining	6.1443	.8252	6.0909	.7373	.315	.754
Concern with Suppliers	5.4646	.8496	5.2786	.8280	1.048	.297
Willing to Sacrifice	4.9394	1.0136	4.7388	1.1882	.832	.408

Note: p+<.10 p*<.05 p**<.01 p***<.005

4. RESEARCH CONCLUSION AND SUGGESTIONS

4.1 Research Conclusions

There are five hypotheses in this study, and the summary of hypotheses testing results are exhibited in Table 4-1. First of all, H1 is supported. It means that firms which exercise greater power over its suppliers are proactive to increase the extent of IOS usage. Second, this study discovered that H2 is also supported, and this result verifies that firms where top management enthusiastically supports IOS are proactive to increase the extent of IOS usage. Third, H3 is not supported. It indicates that firms with higher perceived complexity of IOS are not reactive to increase the extent of IOS usage. Reversely, this study discovered that perceived complexity is positively related to the extent of IOS usage. Fourth, H4 is supported. It verifies that firms with higher extent of IOS usage are positively related to the IOS performance. Lastly, H5 is supported. It indicated that firms with higher extent of IOS usage are positively related to the long-term relationship. In other words, regarding to the relationship between extent of IOS usage and long-term relationship, this study confirmed that extent of IOS usage positively influences the long-term relationship. Therefore, this result corresponds with the findings of Heide and John (1990), and indicates that using IOSs can enhance the relationship between firms.

TABLE 4-1: SUMMARY OF HYPOTHESE TESTING RESULTS

Hypotheses		Results
H1	Firms which exercise greater power over its suppliers are likely to be proactive to increase the extent of IOS usage.	Significantly Supported
H2	Firms where top-management enthusiastically supports IOS are likely to be proactive to increase the extent of IOS usage.	Significantly Supported
H3	Firms which have perceived more complexity of IOS is likely to be reactive to increase the extent of IOS usage.	Not Supported
H4	Higher extent of IOS usage is positively related to the IOS performance.	Significantly Supported
H5	Higher extent of IOS usage is positively related to the long-term relationship.	Significantly Supported

4.2 Limitations and Suggestions for Future Research

Several limitations in this study should be addressed, and the results of this study are partly limited by these limitations. Therefore, future researchers can try to avoid these limitations to get more precise results. First of all, there are still other factors influencing the extent of IOS usage. However, this study merely tests the influences of power, top management support, and perceived complexity over the IOS usage. As a result, future researches can focus on other factors such as competitive pressure, IS compatibility, etc. Second, with regard to the extent of IOS usage in Taiwan, the IOS usage is still in the emerging stage. There are a lot of firms which do not understand terms related to the extent of IOS usage such as breadth and depth. Hence, in this study, even large firms do not attain higher extent of IOS usage. Third, the measurements of breadth and depth are too complicated for respondent firms to understand. Therefore, because of this reason, these firms may incline to choose lower level of breadth and depth when they fill out questionnaires. Furthermore, except breadth and depth, the measurements of the extent of IOS usage also include "volume" and "diversity" (Masseti and Zmud, 1996). As a result, future researches can use these two factors or integrate four factors to measure the extent of IOS usage in order to measure extent of IOS more precisely. Fourth, regarding the data collection, there are only 100 questionnaires usable in this study, and the major portion of the sample in this study consists of large firms. Therefore, the results of this study may have the limited generalizability. The future researches can try to increase the sample size and focus on small firms in order to gain generalizability. Lastly, because this study was conducted in Taiwan, it may limit the generalizability of the results to Taiwan-based organizations. Hence, there might be the limited generalizability when we apply the results of this study to the organizations operating in different environments.

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A STUDY ON EASTERN-NORTHERN ASIAN ECONOMIC COOPERATION

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ABSTRACT

This is an exploratory study of the economic cooperation between Eastern-Northern Asia countries. The study found that trade dependence had increased in recent years. The results of this study suggest that Eastern-Northern Asia countries should find homogeneity products in order to improve its economic cooperation. ASEAN has been promoting economic cooperation between the Eastern-Northern Asia countries. In recent years the professional services in each Eastern-Northern country has changed from heterogeneity to homogeneity. This research also suggests that Eastern-Northern Asia countries should find a forum for cooperation in order to display the Eastern –Northern economic effectiveness.

Key words: *Eastern-Northern Asian, Economic cooperation*

1. INTRODUCTION

Chinag (2007) reported that in the fourteen year following the 1988 Olympic Games in Seoul the volume of East Asian business trade increased from 34% to 52%. During that period a number of institutions contributed to the increased trade in the Asian business area. Two of the key institutions were the Association of Southeast Asian Nations, ASEAN and the Asia-Pacific Economic Cooperation (APEC) which created opportunities to improve trade.

The Regional Trade Agreement (RTA) has also influenced trade opportunities throughout the world. In 2008, the World Economic Outlook database has shown that countries which joined institutions like IMF were able to boost trade. Although trade barriers are still a challenge for the building of a global market many countries involved in negotiations to reduce them.

Yu (2007) stated that In Asia the Association of Southeast Asian Nations has worked to build up, economic intuitions across the continent. Organizations like the 'Asia-Pacific Economic Cooperation and Middle East Regions have worked to build economic cooperation. To further regional trade the South Asian Free Trade Zone was created in 2005. Although it may seem Asia countries are an economic block there are a wide variety of economic problems that impact the different regions of Asia. In this paper we will look at the problems that impact the North Eastern Asia countries.

Huang (2005) has stated that there are very few studies focusing on Eastern-Northern economic cooperation. By comparison there are numerous of studies on other Asian 'economic zones', such as bohai economic zone, TRADP and Japanese sea economic zone among the East Asian countries. Lung (2005) believed that if one of the economic zones is successful in the Eastern-Northern area the others would be successful as well. Hence, in order to integrate the economic zone of northern East Asian countries China, Korea (North and south), Mongolia, Japan, Russia and the U.S.A have agreed upon a 'Northeast Asian Economic Summit'. Ma (2006) stated that 'Taiwan's problem' is one of the key problems for Eastern- Asia's economic integration.

Taiwan is located in the middle of East Asia and has a deep historic relationship with China. Taiwan has been called one of the 'East Asian Tigers' because of its strong economic relation with other Eastern-Northern countries. Recently, Taiwan has joined the 'Asia-Pacific Economic Cooperation' which under the name of 'Chinese Taipei'. This paper will cover the economic relation between each Eastern-Northern country and analyzes their role in East Asian economic development, additionally giving suggestions to Eastern-northern cooperation about their role in East Asia.

2. LITERATURE REVIEW

Numerous researchers have described the concept of Economic Integration. Many studies focused on

finding evidence of integration theory. Some elements of the theory were identified which represented that various models (e.g., Gravity model, trade indexes). In order to find the economic relationship trade indexes were used to reveal its value.

2.1 Economic Integration

Geoffrey (1977) found that economists were interested in the history of economic integration started during World War II. After that period, the research of trade separated into two approaches. The first is "the theory of integration". The theory of integration argues that as national economies are integrated they will move to reduce trade barriers between them (Fritz, 1977). Researchers use the theory of integration to discuss the economic relationship under region integration. Yen (2002) applied the theory of integration to the economic relationship between ASEAN and China. Huang (2005) surveyed the economic relationship between China, Taiwan and Hong Kong. The second approach is the literature research method. Researchers used the historic of economic statistics to analyze the trade trends to provide guidelines for governments and business. Both "Trade dependence" and "Gravity model" are applied on analyses of economic statistics. Han (2005) used "Gravity model" to find out what are the positive factors to influence the Economic relation. A limitation for using the gravity model is that listed transport areas, such as Taiwan, Hong Kong and Singapore, are not suitable for application to the Gravity model because it is difficult to determine their true economic power. Chang (2005) also found that trade dependence is also a way to analyze trade trends. The theory argues that if trade dependence reaches high level, the economic integration would be successful (Chang 2005).

2.2 Trade Indexes

Numerous studies have used different ways to calculate trade indexes. Milijkovic (2006) said that trade dependence applies to the relationship between economic trades partners. There are different techniques to calculate trade dependence. One useful method is based on countries executing the original processing of trade. The method requires calculation of the original material from the other country, and then calculates repetition of material when these countries export. Shen (2005) said that the rate of repetition is often too high to calculate. In this paper, the following formulas are used to calculate trade dependence:

$$(1) \text{ Trade dependence} = [(\text{the amount of import} + \text{the amount of export}) / \text{Gross Domestic Products}] * 100$$

$$(2) \text{ Imports and Exports structure} = [(\text{the amount of import} + \text{the amount of export}) / \text{total number of import} / \text{export}] * 100$$

$$(3) \text{ Coefficient of specialization} = SC_{ij} = (X_{ij} - M_{ij}) / (X_{ij} + M_{ij}); -1 \leq SC_{ij} \leq 1$$

2.3 The trade between Eastern-Northern Asia, China and Taiwan

There are three main points used of research to explore the trade of Eastern-Northern Asia, China and Taiwan. Wang (2006) determine that first it is necessary to analyze the economic framework of China and its influence with Taiwan. The second is to find the change of the economic framework between China and Taiwan. The third is to provide recommendations for Eastern-Northern Asia Economic integration or Chinese Economic integration.

2.4 Discussion

This paper will focus contribution of trade to successful Eastern–Northern Asian Economic Integration. The paper will focus on Japan, Korea, China, Mongolia and Taiwan, the imports and exports structure of Northern Asian countries, and then under the trade dependence, develop recommendations to government staff about what could they do to improve Taiwan economic and business through economic integration.

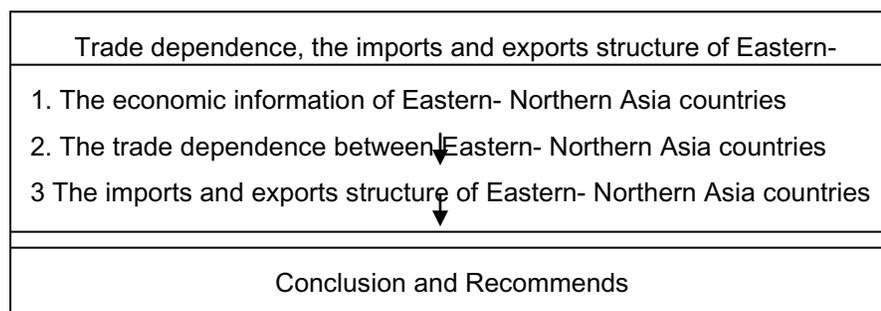


Figure 1 Study process

3. THE ECONOMIC IDEXES IN EASTERN-NORTHERN ASIA

This section will use trade dependence index and the imports and exports structure to show the relationships between each Eastern-Northern Asia countries. There is an increase in trade amount between each Eastern-Northern countries. Hence, this paragraph will show how a country focuses on the economic relationships between Eastern-Northern countries.

3.1 The economic information of Eastern-Northern Asia countries

Table 3.1 shows that the Eastern-Northern countries both export and import trade increased from 2005 to 2007. The descending rank of Eastern-Northern countries in 2007 was China (1541.70 billion USD), Japan (771.45), Korea (442.26), Taiwan (282.910) and Mongolia (No data). In 2007 the value of exports from China exceeded that of Japan. Imports in descending rank from Eastern-Northern countries in 2007 was China (1029.99 billion USD), Japan (696.67), Korea (434.50), Taiwan (254.16) and Mongolia (No data). After 2003, China surpassed Japan to become the biggest import market in the region. China, Japan, Korea and Taiwan had favorable balance of trade, only Mongolia had an unfavorable balance of trade, but it had a favorable balance of trade in 2006.

Table 3.1 the numerous of export and/ import in Eastern-Northern Countries

		2005		2006		2007	
Export	Import	Export	Import	Export	Import	Export	Import
China		833.93	708.73	1060.48	853.17	1541.70	1029.99
Japan		652.18	588.33	704.71	647.80	771.15	696.70
Korea		334.83	315.84	382.03	374.03	442.261	434.47
Taiwan		228.70	213.74	255.125	234.65	282.910	254.16
Mongolia		1.48	1.57	2.06	1.88	NA	NA

Source: ADB, WTO Unit: billion USD

3.2 The trade dependence between Eastern-Northern Asia countries

Table 3.2 shows how the trade dependence for each country increased significantly in each Eastern-Northern Asia countries during these three years. Although there was a decrease in the number of the Mongolia trade dependence index, it still had most high level of the trade dependence. Taiwan and Mongolia had higher trade dependence, and then, China and Korea in 2007 had a much higher trade

dependence index in 2006 than in 2005. Japan had a lower level of trade dependence; however, it had also increased the index number. Hence, the trade dependence had a stable increase; it means that these countries want to do trade with other countries between 2005 and 2007.

Table 3.3 & 3.3-1 shows the trade dependence in each country between 1997 and 2007. There were an increase number of trade dependence index between each Eastern-Northern country's. The trade dependence has increased almost five times' from 6.24 to 30.62 when Taiwan had contacted with China. It was actually Japan, Korea and Taiwan whom focused their economic trade with China. Additionally the trade dependence index strongly increased when Taiwan contacted with Japan. However, the number of growth rate between Japan and Korea has not increased sharply.

Table 3.2 the trade dependence in each Eastern-Northern Countries

	2005	2006	2007
China	69.00	72.00	78.40
Japan	27.09	30.90	33.50
Korea	82.20	85.10	90.40
Taiwan	124.20	134.00	140.10
Mongolia	132.21	124.84	NA

Source: WTO Unit: billion USD

Table 3.3 the trade dependence between each Eastern-Northern Countries in 2007

Independence Dependence	China	Japan	Korea	Taiwan	Mongolia
China	--	2.50	14.68	26.64	25.64
Japan	8.91	--	9.53	23.53	0.20
Korea	6.09	2.22*	--	9.21	0.40
Taiwan	3.16	1.23	2.22*	--	0.00
Mongolia	0.00	0.00	0.00	0.00	--

Source: Department of Investment Service, and WTO * 2006 Unit: billion USD

Table 3.3-1 the trade dependence between each Eastern-Northern Countries in 1997

Independence Dependence	China	Japan	Korea	Taiwan	Mongolia
China	--	1.46	4.45	6.24	0.00
Japan	6.50	--	8.02	14.33	0.00
Korea	1.37	0.93	--	2.6	0.00
Taiwan	2.39	0.90	1.35	--	0.00
Mongolia	0.00	0.00	0.00	0.00	--

Source: Department of Investment Service and WTO Unit: billion USD

3.3 The imports and exports structure of Eastern- Northern Asia countries

Table 3.4 & table 3.4-1 show the import relations between each country from 1997 to 2003. Korean and Taiwan opened their market because the import structure had strongly increased. There was a slight decrease when Japan traded with China and Taiwan. The number of Chinese imports decreased from Japan but increased from Taiwan and Korea. Table 3-5 & table 3.5-1 shows the number of Eastern-Northern Asia export with China increased. Additionally Eastern-Northern Asia exported more in its' area. Taiwan had changed its export partner from Japan to China. The amount of trade decreased slowly when China exported to Eastern-Northern Asia countries. However it was still a large market for them. Hence, if the number of trade is increased between each country, the cooperation should be successful.

Table 3.4 Imports structure in 2003

Imports structure	China	Japan	Korea	Taiwan	Mongolia
China	--	19.92	12.25	8.64	5.55
Japan	19.12	--	20.31	25.48	2.50
Korea	11.12	4.63	--	6.84	2.17
Taiwan	12.73	3.63	3.29	-	0.01
Mongolia	0.00	0.00	0.00	0.00	--

Source: Bureau of Foreign Trade, Department of Investment Service, and WTO Unit: billion USD

Table 3.4-1 Import structure in 1997

Imports structure	China	Japan	Korea	Taiwan	Mongolia
China	--	12.45	6.76	3.44	0.00
Japan	20.79	--	19.64	25.35	0.00
Korea	10.71	4.29	--	4.41	0.00
Taiwan	11.79	6.69	1.67	--	0.00
Mongolia	0.00	0.00	0.00	0.00	--

Source: Bureau of Foreign Trade, Department of Investment Service, and WTO Unit: billion USD

Table 3.5 Export structure in 2003

Imports structure	China	Japan	Korea	Taiwan	Mongolia
China	--	12.19	18.12	34.42	15.55
Japan	13.56	--	8.91	8.27	0.00
Korea	4.58	7.42	--	3.28	2.10
Taiwan	2.05	6.69	3.64	--	0.00
Mongolia	0.00	0.00	0.00	0.00	--

Source: Bureau of Foreign Trade, Department of Investment Service, and WTO Unit: billion USD

Table 3.5-1 Export structure in 1997

Imports structure	China	Japan	Korea	Taiwan	Mongolia
China	--	5.22	9.98	13.55	0.00
Japan	17.42	--	10.12	9.53	0.00
Korea	4.99	6.23	--	2.07	0.00
Taiwan	1.86	6.56	3.41	--	0.00
Mongolia	0.00	0.00	0.00	0.00	--

Source: Bureau of Foreign Trade, Department of Investment Service, and WTO Unit: billion USD

4. ECONOMIC RELATIONSHIPS IN EASTERN ASIA

Eastern-Southern countries should seek economic cooperation with the Eastern-Northern countries because Eastern-Northern countries provide a large number of trade opportunities. This section will use trade combination to analyze how strong are the relationships between ASEAN and Eastern-Northern countries.

4.1 The trade combination

Trade combination explains how strong the relationships is between two countries. If a trade combination index is over 1, the two countries have a stronger relationship than the global average. Table 4.1 shows that ASEAN and Eastern-Northern countries have a strong relationship. Additionally, ASEAN, Japan and Korea appear to do trade more with China than the world, therefore, there was an increase number of trade combination index for China. Hence, ASEAN and Eastern-Northern countries should have a strong economic relationship. It is the key point to improve the Eastern-Northern

countries' cooperation.

Table 4.1 the trade combination indexes, Source: Hong, C, 2008

2005	Japan	China	Korea	ASEAN
Japan	--	2.30	3.35	2.46
China	2.45	--	1.97	1.40
Korea	1.87	3.73	--	1.85
ASEAN	2.50	1.61	1.70	--
2000	Japan	China	Korea	ASEAN
Japan	--	1.91	2.82	2.49
China	3.14	--	1.99	1.21
Korea	2.23	3.23	--	2.03
ASEAN	2.53	1.16	1.61	--

5. THE ROLE OF EASTERN- NORTHERN ASIA COUNTRIES IN EASTERN ASIA

This study shows that Eastern-Northern imports and exports structure had strongly changed between 1993 and 2003. In order to understand whether the change applied to the roles for the Eastern-Northern countries, the study will use the Coefficient of specialization to analyze the Eastern-Northern countries' economic role. The data source is from the Taiwanese Council for economic planning and development (2004).

Table 5-1 Taiwan's Coefficient of specialization -

	China		Japan		Korea		ASEAN		Eastern Asia	
	1993	2003	1993	2003	1993	2003	1993	2003	1993	2003
Plants and Animals	-0.59	-0.55	0.92	0.80	-0.27	-0.34	-0.86	-0.83	-0.09	-0.18
Food Process	-0.03	-0.27	0.85	0.71	-0.53	0.05	-0.43	-0.50	0.56	0.15
Beverages and Tobacco	0.90	-0.87	-0.19	-0.94	0.20	0.25	-0.94	-0.76	-0.81	-0.88
Mining and Technology	-0.93	-0.95	-0.74	-0.68	-0.95	-0.56	-0.99	-0.99	-0.96	-0.98
building materials	0.15	-0.57	-0.88	-0.63	-0.87	-0.16	-0.47	-0.46	-0.76	-0.52
Intermediate goods- A	0.76	0.79	-0.59	-0.70	-0.38	-0.47	-0.12	-0.02	-0.14	0.16
Intermediate goods- B	0.94	0.71	-0.66	-0.35	-0.28	-0.21	0.29	0.09	-0.01	0.18
Nondurable goods	0.90	-0.10	0.22	-0.13	-0.15	0.17	0.24	-0.02	0.27	-0.06
Durable goods	0.80	-0.10	-0.08	-0.11	-0.40	-0.04	0.16	0.02	0.03	-0.06
Machine tool	0.98	0.60	-0.77	-0.65	0.00	-0.46	0.24	0.12	-0.01	0.01
Transportation	1.00	0.70	-0.76	-0.62	-0.75	-0.71	0.10	0.28	-0.45	-0.21

Table 5-2 China's Coefficient of specialization

	China		Japan		Korea		ASEAN		Eastern Asia	
	1993	2003	1993	2003	1993	2003	1993	2003	1993	2003
Plants and Animals	-0.92	-0.72	-0.99	-0.96	-0.81	-0.54	-0.98	-0.98	-0.96	-0.90
Food Process	-0.83	-0.60	-0.98	-0.93	-0.92	-0.72	-0.86	-0.89	-0.89	-0.87
Beverages and Tobacco	0.36	0.91	-0.94	-0.98	0.56	0.79	0.13	0.22	0.13	0.44
Mining and Technology	0.52	0.50	-1.00	-0.95	-0.24	0.41	-0.99	-1.00	-0.97	-0.98
building materials	0.83	0.46	-0.80	-0.88	-0.56	-0.34	0.82	0.24	0.06	-0.66
Intermediate goods- A	0.60	0.65	0.47	0.48	0.35	0.59	0.32	0.25	0.41	0.47
Intermediate goods- B	0.69	0.26	0.48	0.29	0.44	0.15	0.50	0.28	0.52	0.26
Nondurable goods	-0.24	0.10	-0.90	-0.92	-0.70	-0.10	-0.23	-0.37	-0.66	-0.73
Durable goods	-0.13	-0.34	0.30	-0.91	-0.45	-0.15	0.04	-0.77	0.00	-0.75
Machine tool	0.72	0.54	0.77	0.01	0.87	0.60	0.70	0.16	0.75	0.24
Transportation	0.74	0.63	0.97	0.60	0.64	0.83	0.99	0.91	0.95	0.79

Table 5-3 Japan's Coefficient of specialization

	China		Japan		Korea		ASEAN		Eastern Asia	
	1993	2003	1993	2003	1993	2003	1993	2003	1993	2003
Plants and Animals	0.16	0.53	0.96	0.96	0.97	0.95	0.07	-0.16	0.62	0.37
Food Process	0.26	0.37	0.92	0.92	0.86	0.81	0.20	0.08	0.76	0.73
Beverages and Tobacco	-0.67	0.85	0.74	0.94	0.89	0.45	0.90	0.94	0.86	0.89
Mining and Technology	0.83	0.92	0.99	0.91	0.98	0.97	-0.63	-0.70	0.52	0.19
Building materials	-0.20	0.58	0.66	0.81	0.30	0.95	0.79	0.94	0.62	0.85
Intermediate goods- A	-0.88	-0.82	-0.64	-0.58	-0.67	-0.57	-0.24	-0.59	-0.65	-0.64
Intermediate goods- B	-0.88	-0.73	-0.65	-0.47	-0.48	-0.54	-0.31	-0.23	-0.62	-0.46
Nondurable goods	-0.04	0.12	0.81	0.83	0.42	0.66	0.81	0.69	0.71	0.75
Durable goods	0.04	-0.13	-0.04	0.75	0.02	0.39	0.75	0.71	0.08	0.60
Machine tool	-0.91	-0.70	-0.82	-0.34	-0.75	-0.64	0.37	-0.17	-0.78	-0.44
Transportation	-0.98	-0.53	-0.99	-0.63	-0.94	-0.69	0.38	0.89	-0.88	-0.33

Table5-4 Korea 's Coefficient of specialization

	China		Japan		Korea		ASEAN		Eastern Asia	
	1993	2003	1993	2003	1993	2003	1993	2003	1993	2003
Plants and Animals	-	0.22	-0.99	-0.94	0.83	0.54	-0.88	-0.92	-0.47	-0.63
Food Process	-	-0.15	-0.87	-0.74	0.87	0.67	-0.58	-0.68	0.30	-0.24
Beverages and Tobacco	-	-0.28	-0.89	0.13	-0.50	0.41	0.44	0.03	-0.42	0.34
Mining and Technology	-	-0.32	-1.00	-0.98	0.01	-0.58	-1.00	-1.00	-0.95	-0.99
Building materials	-	0.05	-0.89	-0.98	0.51	0.15	0.91	-0.53	0.55	-0.72
Intermediate goods- A	-	0.40	0.52	0.52	-0.37	-0.62	0.37	0.20	0.04	0.06
Intermediate goods- B	-	0.01	0.11	0.45	-0.51	-0.21	0.49	0.19	-0.11	0.12
Nondurable goods	-	0.05	-0.36	-0.59	0.66	0.07	0.42	-0.06	0.54	-0.27
Durable goods	-	-0.34	-0.09	-0.60	0.43	-0.28	0.61	-0.06	0.44	-0.38
Machine tool	-	0.08	0.57	0.33	-0.86	-0.62	0.37	0.25	-0.55	-0.07
Transportation	-	0.72	0.98	0.78	-0.49	-0.85	0.97	0.92	0.76	0.57

6. CONCLSUION

Based on the secondary data the study found several basis for Eastern-Northern Asia cooperation. There is a numerous limitations to the study which is exploratory, but the study is able to provide several suggestions for Eastern-Northern Asia cooperation.

6.1 Practical Implications

This study analyzed the economic relationship between the different Eastern-Northern Asia countries, their imports and exports structure and their coefficient of specialization. The study explored role of Eastern -Northern countries' in Eastern Asia. This study focused on China, Japan, Korea, Mongolia and Taiwan and then generated several recommendations for future trade development.

First, Taiwan developed higher Trade dependence with China. While Taiwan and Korea developed higher trade dependence with Japan. Korea also increased trade dependence with other Eastern-Northern Countries, especially with China. Japan faced the same phenomenon as Korea.

China was likely to focus on Japan to become trade partner in Eastern-Northern Asia. During 2000-2005, the trade combination index with China had increased sharply. It means that most of Eastern-Northern countries want to develop their economic relationship with China.

The research also found that economic relations had improved in the Asia area. Additionally, the product of division in Eastern-Northern Asia had changed from heterogeneity to homogeneity. There are several changes in Eastern-Northern Asia. First, Taiwan did their Vertical Specialization with China, as well as horizontal division proliferation with Korea. Taiwan also had economic relation with Japan, which changed from the vertical specialization to the horizontal division proliferation. Second, China's manufacture Industry had changed from the vertical specialization to the horizontal division proliferation with Japan and Korea. Japan had changed from vertical specialization to the horizontal division proliferation with Korea and Taiwan. Third, Japan had the vertical specialization with China as well as the horizontal division proliferation. Fourth, Korea had changed the product points slightly from the vertical specialization to the horizontal division proliferation. It also had the horizontal division

proliferation with China and Taiwan.

6.2 Suggestions

In order to have economic influenced, the Eastern-Northern Asia countries should do economic cooperates. Because the index of trade dependence and the economic combination improved, this is an opportunity to have a good autonomy for economic cooperation. This study provides some suggestions to Eastern-Northern Asia countries based on the research findings:

1. Understand their heterogeneity to homogeneity products

The study found that trade between Eastern-Northern Asia countries had changed from heterogeneity to homogeneity. It is a key element for economic cooperation. The Eastern-Northern Asia countries should find what the homogeneity products are in their trade in order to do cooperation. The heterogeneity products could be a special issue to attract the other countries to develop trade relationships.

2. Improving the area cooperation

There are several benefits of cooperation. First, it provides access to foreign capability and their top technology. Secondly, it affect the comparative advantages in Eastern-Northern Asia. Additionally, Eastern-Northern Asia should find a forum, such as Northeast Asian Economic Summit to do their cooperation.

6.3 The research limitation and future research suggestion

The study also analyzed Eastern-Northern economic cooperation through the trends of trade between 1993 and 2007. However, the study encountered many limitations in terms of data within the study years among the Eastern-Northern Asia areas. Access to more complete data, for example the data within the three northeastern provinces in China, the quality of the analysis could be improved.

6.4 Summary

This study focused on Eastern-Northern Asia countries cooperation. The researchers used trade dependence, imports and exports structure, coefficient of specialization and the trade combination indexes to find the economic relationship between Eastern-Northern Asia countries. The researchers found that the trade dependence in each Eastern-Northern Asia countries had increased. Moreover, the researchers found that ASEAN increased their interest with the Eastern-Northern countries through the trade combination indexes. Furthermore, the study found that the professional services in each Northern-Northern country have changed from heterogeneity to homogeneity. Hence, the Eastern-Northern Asia countries should seek opportunities to do more economic cooperation.

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COMPETITION IN INTERNATIONAL MICRO-NICHE MARKETS: NEW ENGLAND HIGH-TECH SMEs

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ABSTRACT

Competitive Intelligence (CI) is reported in the literature as critical to the success of small to medium-sized enterprises (SMEs) engaged in international business activity. In prior studies the authors have surveyed high-tech US SMEs doing business internationally, with the surprising result that they did not favor internet-based information gathering for CI purposes. To better understand why respondents did not favor internet-based sources of CI we conducted semi-structured interviews with representatives of 30 companies from an earlier study who agreed to be interviewed regarding what they viewed as critical challenges for their international business activities as well as key competencies important for success. We found that these companies often operate in very small, micro-niche markets where much of the information regarding competitors is attainable through direct contact with customers, distributors, and others as part of normal business activity. The type of information available online is often too old and aggregated for their purposes. Thus they tend to rely on classic elements of informal CI gathering rather than information readily available on the internet.

Keywords: competitive intelligence, international niche markets, small to medium-sized enterprises

1. INTRODUCTION

Competitive Intelligence (CI), the collection and analysis of information about competitor capabilities and intentions (SCIP, 2008), can provide information critical to successful strategic decision-making as well as formal strategy development and implementation in organizations. In the increasingly competitive world in which businesses operate today, every company needs to understand its competition in order to survive. Large organizations can afford to expend significant resources in the pursuit of this essential information. Small to medium-sized enterprises (SMEs), on the other hand, seldom have dedicated resources to devote to CI, and thus they seldom engage in as thorough CI activity (Kula & Tatoglu, 2003; Li, Li & Dalgic, 2004). Yet their CI needs are no less urgent than the needs of larger organizations. Those SMEs that engage in international activities experience an additional dimension of information need, as they must sort through a mix of different laws, regulations, customs, and language. All these differences combine to create an extra layer of potential confusion or mistaken understanding about market and competitive conditions in international environments. But the development of the internet as a sophisticated and inexpensive source of information offers SMEs an opportunity to gain access to information quickly and inexpensively. Though it would make sense that SMEs, especially those with technological expertise, would quickly adopt the internet as a substantial contributor to their CI activities, they have in fact been surprisingly slow to do so (Groom & David, 2001). In a 1999 study one of the authors also found that high tech firms doing business internationally did not in fact utilize internet resources to any significant extent (Randall Haley, 2000). In attempting to interpret the results of the 1999 study, we theorized that this was an anomaly caused by the narrow sample of companies exclusively from the small state of Rhode Island as well as lack of development of the internet at that time. Compared to today, in 1999 there were fewer search engines, they were less powerful, there was less material available online, and the average non-expert individual had less familiarity with them. For example, many small businesses still did not engage in e-commerce, although they were beginning to utilize the internet for other purposes (Honeywill, 2001 and Czuchry, 2002). A 2001 survey of 500 Louisiana small businesses showed that while 88% were connected to the internet, only 36% had actually created their own sites. Of those, 42% used the Internet to "keep up with the competition." Overall, 73% used the Internet to find product information, and 58% looked for news and information (Waiker et al. 2002).

In 2006 we conducted a survey of 197 high tech New England based SMEs doing business internationally, similar to the 1999 survey, expecting to find substantial utilization of the internet for competitive intelligence gathering in this wider sample from a study conducted at a later date. Again, this

was not found. In the current study we report the results of semi-structured, open-ended interviews with individuals responsible for competitive intelligence gathering in 30 companies from the 2006 New England study whose representatives agreed to participate in this personal follow up. The interviews were designed to elicit respondent views on the challenges facing their international operations as well as the elements key to success in those activities, with a view to better understanding why responses in the prior surveys downgraded online sources of competitive intelligence.

2. COMPETITIVE INTELLIGENCE

The definition of competitive intelligence provided by the Society for Competitive Intelligence Professionals (SCIP) is “the legal and ethical collection and analysis of information regarding the capabilities, vulnerabilities, and intentions of business competitors” (SCIP, 2008). Historically, competitive intelligence has been seen as the utilization of publicly available information sources regarding aspects of a company’s environment to develop intelligence that supports an organization’s strategic and operational decisions. It is distinct from industrial or business espionage in that it is an activity that is conducted legally and ethically, utilizing publicly available information and/or legal investigative techniques (Hendrick, 1996). CI can be gathered through formal collection schemes such as scheduled alerts from selected online databases on particular firms or regularly scheduled patent or trademark searching online or informal means such as conversations with customers or competitors at trade shows or print subscriptions to general industry publications.

International usage has begun to incorporate the wider domain typified by the French concept of “economic intelligence” (Salles, 2006) as well as the systematic process of managing “business intelligence” (BI) described by Lonnqvist (2006). Interestingly, the majority of the French firms surveyed by Salles were more concerned with market information than with competitor intelligence. Most authors focus on a technological approach to the “systematic collection, evaluation, and organization of information ... in an analysis of the business environment for subsequent strategy formation.” (Hodges, 2005) Within this usage is included the concepts of market research, competitor and customer intelligence, and even strategic or technical intelligence. Most broadly interpreted, it could incorporate environmental scanning. Generally, North American authors focus on external environmental factors and information sources, looking critically at competitors and information pertaining to them, while Europeans seem to use BI as an “umbrella concept” for all CI-related activities, including internal technologies for managing knowledge obtained outside the organizations. Few organizations actually measure the value of business intelligence to their operations, however. (Lonnqvist, 2006)

Particularly useful is a recent special issue of the *European Journal of Marketing*, in which an article by Calof and Wright (2008) attempts to trace the origins of competitive intelligence and identify the practitioner, academic and inter-disciplinary views on CI practice. It supports the environmental scanning approach, and is particularly useful in that it is applicable to both scholars and managers. An earlier overview by Wright and Calof (2006) surveyed current international practices, comparing studies from Canada, the UK and Europe, and presented an extensive literature review of CI, BI and marketing intelligence (MI), particularly emphasizing definitions of each term. The overall conclusion is that the intelligence process is critical to the strategic capability of organizations.

Another relatively recent article expressly explores attitudes of decision-makers in Montreal firms representing varied industry areas in primarily small companies, and concentrates on the issues affecting the decision to undertake CI. Within this article is also a brief discussion of the literature on competitive intelligence as available through ProQuest’s ABI/Inform Global database, a limitation also mentioned in the 2008 Calof study. (Tarraf, 2006)

3. SMALL AND MEDIUM-SIZED FIRMS

Definitions of small business vary by country and by purpose. In the United States size standards for categorizing a company as a small business differ by industry, in some cases linked to number of employees and in others linked to revenues. Further, the actual number of employees or amount of average annual revenues necessary to qualify for the designation also varies. (Summary of Small

Business Size Standards, 2008; Frequently Asked Questions about Small Business Size Standards, 2008) The U.S. does not categorize mid-sized companies.

The European Union has a simpler approach, defining small to medium enterprises (SMEs) as enterprises of fewer than 250 employees, with an annual turnover not exceeding ECU 40 million or an annual balance sheet total not exceeding ECU 27 million. (Definition of SMEs in the European Union, 2004; SME definition, 2008) Because the term SME is widely recognized worldwide, and refers fairly broadly to relatively small firms, we will refer to the small to mid-sized firms in our study, with sales generally under \$50 million, as SMEs.

The governmental purpose of both the EU and the US definitions is to identify organizations in need of special consideration due to their size. Their categorizations create heterogeneous groupings with clear, size-related differences in capabilities. However the guiding principle is that an organization designated as a small business in the US or an SME in Europe is considered to be vulnerable relative to larger competitors. Thus they are generally eligible for preferential treatment in certain areas of business activity.

The Organization for Economic Cooperation and Development (OECD) notes that SMEs comprise about 95% of enterprises in a nation, and are responsible for employing 60-70% of the workforce. (OECD, 2000, 2002) Jerry Miller (2000) studied small businesses in the United States with respect to CI, surveying 43 firms in 28 industry areas for their CI practices. He has observed under-reliance on technology and the internet, and strong emphasis on personal contacts. His work profiles nine companies as case studies.

Theoretically, SMEs are interesting because of the specific challenges and capabilities that are related to size, such as greater flexibility and tighter resource constraints. Because of these differences, organizational understanding that is developed in the context of large firms may need modification when applied to these smaller organizations. One key knowledge management advantage for an SME is the rapid dissemination of information among fewer personnel than in very large organizations, and the speed and flexibility with which decisions can be taken. SMEs, however, have an additional set of intelligence gathering challenges to meet. Formalized structures for collecting and compiling competitor data, cataloging the data, analyzing the data, and communicating the resulting information may not exist within a given department or organization. As a result, and depending upon the specific methods, scope, and function adopted by a given company, both costs and benefits of CI vary widely.

4. THE CURRENT STUDY

The current study developed out of prior work of the authors in studying the CI gathering practices of small to mid-sized high technology US companies doing business internationally. Given the technologically demanding nature of the businesses involved we expected that these companies would embrace the internet as one significant source of competitor information. However, in 1999 when one of the authors conducted a study of how CI was gathered and used in strategic decision making in similar firms, she found that the surveyed firms did not use the internet to any significant extent for CI purposes (Randall Haley, 2000). We theorized that two factors may have contributed to these findings. First, the firms were from Rhode Island, the smallest state in the US, and one known for its strong web of interpersonal connections. We thought that perhaps firms operating in that home environment might develop a bias for relationship-based information sources. Second, the development of internet-based information sources has been so rapid and dramatic that the value of the resources available, and the familiarity with accessing them, may have been considerably less in 1999 than in subsequent years. Therefore in 2006 we conducted a study that included high tech companies from throughout the New England region of the US. We identified over 3,000 small to mid-sized companies from the CorpTech database of over 90,000 high-tech US organizations. Our selection was restricted to those companies located in the New England region of the US (the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont) that reported international sales. From this sample we got 197 usable completed surveys. Despite the greater reach of the 2006 New England sample, and the later date, we found that the high-tech SMEs in this sample continued to show little preference for utilizing internet resources for gathering CI. The thirty companies discussed in this analysis represent those of

the 197 companies that completed the New England survey which responded positively to our request for personal interviews. In our interviews, we tried to gain a greater understanding of what motivated these respondents when developing CI gathering strategies. We also hoped to gain a better understanding of the relative importance of other challenges related to international activities, such as cultural and language barriers.

Table 1 shows the total number of companies responding to the New England Survey as well as those personally interviewed, arranged by CorpTech primary industry areas. These industry areas are developed by CorpTech to describe the primary areas of activity in which the companies are engaged, and correspond to, but differ somewhat from North American Industry Classification System (NAICS) designations. As can be seen, the companies represent a wide variety of high tech industries. One thing that the companies share in common is that their business tends to involve small niche markets for high tech goods, in which there are a small number of customers and a small number of competitors, widely scattered geographically.

TABLE 1
Industries Represented in Original Survey and Interviews

CorpTech Industry Area	NE survey	Interviews
factory automation	23	1
biotechnology	7	2
chemicals	1	1
computer hardware	4	
defense		
energy	4	
environmental	7	
manufacturing equipment	15	5
advanced materials	22	1
medical	12	1
not high-tech	2	1
pharmaceuticals	2	
photonics	7	3
computer software	19	2
subassemblies & components	38	9
test & measurement	20	3
telecomms & Internet	7	0
transportation	7	1
	197	30

5. METHODS

We developed a semi-structured interview with eight open-ended questions designed to help us understand the perspective and motivations of the interviewees with respect to the requirements for success in their international business activity, the importance to them of competitive information, and the general means by which they sought that information. From the open-ended responses to these questions we hoped to gain information that would help us better understand the competitive environment faced by our respondents as well as to better interpret the responses to the New England survey, especially those relating to the perceived importance of CI and the reasons for preferences for informal

methods of CI over more formal approaches, including internet-based information. Table 2 lists the interview questions reported in this study.

TABLE 2
Interview Questions

1. How did your company get involved in international sales?
2. What have you found to be the most challenging aspect of international sales?
3. Have you encountered language or cultural challenges or barriers?
3a. For language challenges, have you/how did you solve them?
3b. For cultural challenges, have you/how did you solve them?
4. How frequently are there important changes in your business environment (changes in competitors, product characteristics, competitor strategies etc.) that you need to know about?
5. What are your favorite/preferred sources of information for market research?
6. What are your favorite/preferred sources for competitive intelligence?
7. Do you approach the research process differently for your company's international versus domestic business?
8. What are your personal insights into international business?

After completing and transcribing the interviews, we coded the answers and calculated frequency distributions for the coded answers. We thus have a set of rich, open-ended interview responses that have many insights embedded in them, and we also generated some preliminary quantitative measures of interview responses. For some questions, a small number of interviewees provided interesting but essentially nonresponsive answers that were not coded.

6. RESULTS

Our first question was very general – how did your company get involved in international activities. Table 3 presents the coded results.

TABLE 3
International Sales

1. How did your company get involved in international sales?

Coded Response	Number	Frequency
Long-standing involvement or since founded	12	.400
International customers found them	4	.133
Intentional international expansion	3	.100
Followed customers internationally	3	.100
Incremental process rather than deliberate decision	3	.100
Acquisition	3	.100
Uncoded	2	.067
Total coded responses	30	1.000

The largest number of companies (40%) had a **long standing involvement in international sales**, and for most the movement to international activities was essentially unplanned. **International customers found them** (10%), they **followed customers internationally** (10%), it happened as an incremental process (10%), or they got involved through an **acquisition** (10%). Only 10% indicated that they had made an intentional **international expansion decision**.

Table 4 presents the coded answers when interviewees were asked what was the most challenging aspect of international sales.

TABLE 4
Challenges of International Sales

2. What have you found to be the most challenging aspect of international sales?

Coded Response	Number	Frequency
Cultural differences	8	.267
Meeting regulations/standards of other countries	7	.233
Lack of personnel to support international activities	4	.133
Communication/language issues	3	.100
Finding the appropriate party to deal with	3	.100
No challenges/Same as domestic	3	.100
Meeting price demands	2	.067
Other (establishing credibility, diversity of markets, US tariffs)	3	.100
Total coded responses (3 responses fit two categories)	33	1.100

Only 10% indicated that there was **no challenge** beyond that for domestic operations involved with international activities. The remaining respondents cited a wide variety of issues. A large number cited technical challenges such as **meeting regulations/standards** of the other country (23%) or **meeting price demands** (7%). Others cited **cultural differences** (27%), **communication or language issues** (10%), or **finding the appropriate party to deal with** (10%).

Table 5 presents the coded responses to the questions about language or cultural challenges. Respondents who indicated that they had encountered language challenges were asked a follow-on question about how they resolved their language challenges. Those who indicated that they had encountered cultural challenges were asked a follow-on question about how they resolved their cultural challenges.

Slightly over one third of respondents indicated that they had encountered **language challenges**, and only one of the thirty respondents indicated that the company had been unable to solve the problem. Almost half of those that had encountered **language challenges** indicated that they had resolved them through **gaining in-house language ability through hiring**. One respondent's company approached the problem through careful attention to **written follow-up** communications, another through **conscious efforts at clarity**. Two respondents indicated that their company utilized **online translators or other technological solutions**.

Just under one quarter of respondents indicated that they had experienced cultural challenges. Of that group, 37% indicated that **experience and personal learning** was the mechanism by which the problem had been solved. Another 25% indicated that **hiring the right people** was key to solving the problem.

TABLE 5
Language and Cultural Challenges

3. Have you encountered language or cultural challenges?

Coded Response	Number	Frequency
Language challenges only	10	.333
Cultural challenges only	7	.233
Both language and cultural challenges	1	.033
Neither language nor cultural challenges	10	.333
Uncoded	2	.067
Total coded responses	30	1.000

3a. For language challenges, have you/how did you resolve them?

Coded Response	Number	Frequency
In-house language capability/hiring the right people	5	.454
Online translators/tech solution	2	.182
Diligent written follow-up	1	.091
Conscious efforts at clarity	1	.091
No solution	1	.091
Uncoded	1	.091
Total coded responses	11	1.000

3b. For cultural challenges, have you/how did you resolve them?

Coded Response	Number	Frequency
Experience/personal learning	3	.375
Hiring the right people	2	.250
More face-to-face meetings	1	.125
Follow-up	1	.125
Case-by-case	1	.125
Total coded responses	8	1.000

Table 6 presents the coded responses to a question regarding how often there were important changes in their company's business environment.

TABLE 6
Changes in Business Environment

4. How frequently are there important changes in your business environment (changes in competitors, in product characteristics, competitor strategies etc.) that you need to know about?

Coded Response	Number	Frequency
Very frequently	6	.200
Fairly frequently	4	.133
Fairly infrequently	5	.167
Very infrequently	4	.133
Different aspects, different speeds	6	.200
Stepwise, incremental change	3	.100
Uncoded	2	.067
Total coded responses	30	1.000

There was no clear pattern to the responses, with similar numbers of respondents indicating each of the four main categories from **very frequently** to **very infrequently**, and a large number indicating that there were **different rates of change for different aspects** of the business.

Table 7 presents the responses to questions about market and competitor research. For the two questions about favorite/preferred information sources, when respondents named more than one preferred source the multiple categories were coded. Thus the total number of responses is greater than 30 and the total frequency distribution is greater than 1.0.

TABLE 7
Market and Competitor Information

5. What are your favorite/preferred sources of information for market research?
(more than one response possible per respondent)

Coded Response	Number	Frequency
Trade shows/conferences	13	.433
Standard published sources	13	.433
Customers	10	.333
Internet	9	.300
Suppliers/distributors/sales reps	4	.133
Purchased reports	1	.033
Gut feeling	1	.033
Total coded responses	51	1.698

6. What are your favorite/preferred sources for competitive intelligence?
(more than one response possible per respondent)

Coded Response	Number	Frequency
Trade shows/conferences	14	.467
Trade journals	8	.267
Customers	7	.233
Internet	7	.233
Distributors/sales reps	4	.133
Already have good idea of competitors	4	.133
Competitor ads/press releases	3	.100
Routine contact with competitors	2	.067
Have no competitors	2	.067
Total Coded Responses	51	1.700

7. Do you approach the research process differently for your company's international and domestic business?

Coded Response	Number	Frequency
Significant difference	13	.433
Little or no difference	12	.400
Only international operations	1	.033
Do not do research	1	.033
Uncoded	3	.100
Total coded responses	30	1.000

There is significant overlap in the preferences for gathering market data and competitive intelligence. For both types of information, **trade shows/conferences** is cited by over 40% of respondents. Similarly, **standard published sources** for the market research and **trade journals** for the competitive intelligence

are both very popular. **Standard published sources** is tied with **trade shows/conferences** for the market research, and **trade journals** is the next most popular response for a source of competitive intelligence. **Customers** comes in third in preference for both lists, the **internet** comes in fourth, and **distributors/sales representatives** comes in fifth. Regarding whether the international context requires a different research approach, the companies seem split pretty evenly, with 43% of respondents indicating that there is a **significant difference**, 40% indicating that there is **little or no difference**, and the remaining responses not impacting that split result.

Table 8 presents the results of the question regarding personal insights into what makes for success in international business. We received a wide range of responses to this question. The most frequent response was **relationships** (27%).

TABLE 8
Insights into Success in International Business

8. What are your personal insights into success in international business?

Coded Response	Number	Frequency
Relationships	8	.267
Persistence	6	.200
Thorough understanding of region go there/good listener/understand culture/accommodate their business model	4	.133
Staff properly, especially in Asia	3	.100
Flexibility	3	.100
Well-known and respected in niche	3	.100
Product/price/service	2	.067
Don't listen when people say you have to do things differently	1	.033
Total coded responses	30	1.000

The next most frequent response was **persistence** at 20%. Various articulations of the concept that you have to really **understand the region** and its people thoroughly, through frequent visits and careful listening, came in third at 13%. In the next tier are **staffing properly**, **flexibility**, and **well-known and respected in niche** – each with 10%.

7. DISCUSSION

Most of the executives with whom we spoke had spent 20-30 years working within their respective industries. Thus it was not surprising that most of them had finely-honed ideas about their firms and the firms' positions within their industries. It is also logical to assume that internet-based information represents a technological innovation that lags behind "tried and true" methods that still work for them. The majority of respondents represented companies that operated in very small niche markets. They were aware of virtually all their potential customers and could identify all their current competitors. One interviewee described his company as operating in a "niche within a niche," with either only a very few or no actual competitors. It is important not to attribute this to a lack of competitive intelligence activity, but rather to describe it as a superior awareness by each firm of their products, capabilities, and competitors. These kinds of firms have taken differentiation to a very high degree. Those executives who did identify multiple competitors had product or service lines that did not involve complex or customized aspects, and did undertake more formal, structured CI and market research programs. It is, perhaps, further specific confirmation that formal CI is easy enough to dispense with when companies are in such niche markets that they truly KNOW their competitors, as do their customers, and consequently pick up competitive intelligence as a routine part of doing business.

One of the common motivators for conducting either CI or market intelligence is the need to grow or increase sales, either within existing markets or by developing new ones. Growth is reported as problematic by executives for only the smallest firms in our sample (<\$1M), although the development of adjacent markets by the slightly larger firms (from \$1M to \$5M) is similar and in most cases included early (and some current) failures. All report listening to their customers over choosing to perform market or competitor research. The smallest firms run the risk of being unable to support real growth; most of them discussed problems with developing adjacent markets, and have not sufficient staff to pursue the development required. The firms in the mid-range of our sample (\$10-25M) seem to have two choices: grow to flip, or grow for the long haul. One good example comes from a firm involved in specialized equipment manufacture (factory automation). The executive interviewed has worked internationally since 1963. The company has a captive market; their sales are <\$1M annually, and he described it as a "small niche within a niche;" otherwise, they would have "died." As he noted, they are engineers, not marketers. This niche works, but others did not, on the few times they attempted to break out, which was very infrequent. The other firms "ate their lunch."

Non-US markets are also challenging because they are not standardized across large areas and/or populations; in other words, selling in one South American country does not mean you can sell to all, or even to all regions of that individual country. The EU has had some impact, but not as much as the interviewees would have liked. They have to make the most of each sale, hence the emphasis on price. In this environment, firms are often struggling to understand the differences between customers and markets in very specific and specialized ways.

The majority of executives felt that they had to learn how to do business "their" way, meaning, to adopt or adapt to the customs and practices of the country or countries in which they wanted to do business. Only one firm, interestingly one of the larger ones, expressed strong satisfaction and success at doing business "the American way." Almost all discussed the personal relationship aspect as a key ingredient regardless.

One interesting quote, "Americans don't learn Chinese," sums things up from the cultural/language perspective. This executive, from a firm also involved in equipment manufacture, noted that "cultural issues can be a real challenge, because it takes a long time to establish relationships and trust." His contention was that resolution of issues comes mostly through experience. He believes that he may have actually read "How to do business in Asia," or something similar, but that he really learned how to conduct international business by actually doing it. He noticed that, when doing business in China, their English improves the longer the firms work together, but that "Americans don't learn Chinese."

Another aspect of why personnel "don't learn Chinese" is related to many high tech firms' greater need of staff who can understand the business, the industry, the product line(s), at near or actual engineer level. In such specialized manufacturing or high tech niches (micro-niches, in some cases), the executives interviewed noted that "they have a hard enough time finding competent staff to actually do the work, never mind communicate in another language." One executive remarked that staff who had been hired specifically for language and cultural capabilities did not grasp sufficiently the sales and marketing functions within the industry, and were eventually let go. Other firms hired native speakers within the country with expertise in industry areas to ameliorate this concern. While many executives mentioned that English was the "language of business," most indicated that they made an effort to create relationships on multiple levels.

After completing our interviews with these individuals from high tech manufacturing companies doing business internationally, we note that pricing, personal relationships, persistence, and personnel are the frequently mentioned factors for success in operating internationally, with particular emphasis given to personal relationships and persistence. Interviewees repeatedly suggested that identified challenges could be solved, in whole or in part, by the application of these factors. For example, one of the firms involved in equipment manufacture emphasized persistence. He noted, "It may take years to enter a given market, find the right partner." His firm operates both in France and Japan, and both were difficult at first. He insists, "You MUST go there, have personal relationships with your partners, especially for long

term results. Do not replace personal relations with technology.” This is in marked contrast to the lack of enthusiasm for the usefulness of information that could be obtained from the internet.

8. CONCLUSION

The interview data lend support to the theory that the high technology SMEs we have been studying do not put primary reliance on internet information because they do not need to. The particular type of company that we focused on – high tech manufacturers doing business internationally – also were predominantly operating in very small niche markets in which they were aware of all their customers as well as all their competitors. They exist in an environment that is dominated by interpersonal relationships, and they are involved in customized product offerings. For them meaningful competitive intelligence can in fact be obtained by talking with their customers during transactions, their peers at trade shows, and their distributors and representatives in the normal course of business. The reason for this is that, though the high tech SMEs we studied are often operating on several continents, they operate in very tight niche markets. Their customers and competitors are small in number and personally known to them. While some of these high tech SMEs are assiduously using the internet, as one test & measurement device firm does, to acquire new distributors and investigate competitors, most acknowledged that it was an area that needed improvement. In particular, SMEs interested in growing adjacent markets noted that internet-based data and more outside resources were essential in order to move from current, well-known environments.

8.1. Limitations and Next Steps

The personal interview data in this study is supplemented by the results of the New England survey. But both studies look at only SMEs. Furthermore, the niche market circumstance was not one we designed into the study; it just became apparent in our analysis. In order to better understand this phenomenon, we plan to revisit the survey data from the 2006 New England study, to compare results for SMEs with a sample of larger companies to see if there are actual measureable differences, and to compare companies operating in niche international markets with those operating in wider international markets. Thus we hope to be able to test whether the results we found are in fact the result of the niche market forces rather than the SME status of the studies' firms.

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VARIABLE ANNUITY AND ITS APPLICATION IN BOND VALUATION

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ABSTRACT

Other than the growing annuity that increases in equal percentage every period, we also know the variable annuity that grows in equal difference from one period to another period. Variable annuity can be used when a business owner plans to pay off his debt with decreasing installments every period. On the other hand, an employee may feel comfortable with the increasing installments of his home ownership or mortgage loan, which is in line with his growing salary. Last, variable annuity can be applied to value bonds of which the principal is paid off in equal amounts periodically, along with the diminishing periodic interest so that the amount paid declines from period to period. Without the present value equation for variable annuity, we have to do it one by one and sum them all. This procedure is intricate and impractical. This paper tries to explain the logics and application of the variable annuity formula in the financial world. A set of illustrations with gradual difficulty are given. Because it is time-saving, the equation is very valuable for the scholars and the financial practitioners as well.

Keywords: present value, annuity, bond, variable annuity

1. INTRODUCTION

Having worked as an administration supervisor for almost 30 years in a private company, Andy has to prepare for his retirement. His company offers him two alternatives for his retirement pension. The first alternative is one lump-sum payment amounted Rp 200 million paid today and the second alternative is to receive Rp 1.5 million monthly for the whole life. Which one should he choose?

To decide which pension fund is more attractive, one must understand the concepts of annuity and perpetuity. As a matter of fact, what should be done in this case is to make the two alternatives have the same time horizon namely at present time (Frensidy, 2006). The first alternative is already in the present time, so we need to convert or to calculate only the present value of the second alternative which is Rp 1,500,000 every month for the whole life (perpetuity) and compare the result with the first alternative.

The above case can be extended to the third choice such as a pension fund of Rp 5,000,000 every year that grows 5% yearly for the whole life (growing perpetuity), the fourth alternative to receive Rp 1,000,000 every month starting today that grows at 1% monthly for only ten years (growing annuity due), the fifth option Rp 10,000,000 every year for 30 years starting 8 years from now (deferred annuity). The schemes for the retirement pension can further be continued that we can list at least 12 different cash flow patterns because we have more than 12 present value equations for annuity and perpetuity (Frensidy, 2008).

Growing annuity and growing perpetuity, whether ordinary, due, or deferred, require that the growth rate be the same (in percentage). Another pattern which is typical and almost similar to the growing annuity is variable annuity. In variable annuity, the growth is not stated in percentage but in nominal value e.g. Rp 1 million. In both the growing annuity and variable annuity, the growth rate and the difference amount, albeit rare, can be negative such as -10% or -Rp 100,000 (Tzur et al, 2007).

Like the growing annuity, we also have a specific equation, albeit longer, to calculate the present value of the cash flows growing at a certain nominal amount every period. The equation for variable annuity is undoubtedly the hardest of all present value equations.

Example 1

A Rp 60 million loan with 10% interest can be paid off in three annual installments. The payment for the principal is the same for each installment that is one third of the initial loan or Rp 20 million. Make the schedule of the loan installments.

Interest expense for the first year = $10\% \times \text{Rp } 60 \text{ million} = \text{Rp } 6 \text{ million}$

The first installment = Rp 20 million + Rp 6 million = Rp 26 million
 The loan balance after the first installment = Rp 60 million – Rp 20 million = Rp 40 million

Interest expense for the second year = 10% x Rp 40 million = Rp 4 million
 The second installment = Rp 20 million + Rp 4 million = Rp 24 million
 The balance after the second installment = Rp 20 million

Interest expense for the third year = 10% x Rp 20 million = Rp 2 million
 The third installment = Rp 20 million + Rp 2 million = Rp 22 million

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Amount of installment	Rp 26 million	Rp 24 million	Rp 22 million
	⌒		⌒
Difference	Rp 2 million		Rp 2 million

The above schedule for loan payment actually fulfils a variable annuity with $n = 3$, interest rate $(i) = 10\%$, beginning installment or first payment $(a_1) = \text{Rp } 26 \text{ million}$, and nominal difference (d) of $-\text{Rp } 2 \text{ million}$. The last installment contains the interest expense of Rp 2 million, the second installment includes the interest expense twice as much as the last installment, and the first has interest expense three times as much as the last installment.

This constant difference is the key to prove that the present value of the cash flows is Rp 60 million namely:

$$(\text{Rp } 22 \text{ million} - \text{Rp } 2 \text{ million}) + (\text{Rp } 24 \text{ million} - 2 \times \text{Rp } 2 \text{ million}) + (\text{Rp } 26 \text{ million} - 3 \times \text{Rp } 2 \text{ million}) = 3 \times \text{Rp } 20 \text{ million}.$$

Example 2

Calculate the present value of the following annual cash flows if the discount rate is 10% p.a.: Rp 46 million, Rp 44 million, and Rp 42 million.

The schedule of the cash flows can be divided into two series:

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Series 1	Rp 20 million	Rp 20 million	Rp 20 million
Series 2	<u>Rp 26 million</u>	<u>Rp 24 million</u>	<u>Rp 22 million</u>
	Rp 46 million	Rp 44 million	Rp 42 million

Thus, the present value of the above cash flows is the present value of series 1 which is Rp 49,737,039,8 and the present value of the second series which is Rp 60 million, based on the computation in Example 1. The total present value becomes Rp 109,737,039,8. The present value of series 1 can be computed using the present value equation for the ordinary annuity with the periodic payment or PMT or $A = \text{Rp } 20 \text{ million}$, $n = 3$, and $i = 10\%$ (Frensidy, 2008).

Notice that our example above is actually a payment schedule of Rp 120 million loan with 5% p.a. interest in 3 yearly installments. The loan principal is paid in equal amounts for each installment at a discount rate of 10% p.a. If the discount rate is 5%, the present value will exactly be Rp 120 million because Rp 6 million is $5\% \times \text{Rp } 120 \text{ million}$, Rp 4 million is $5\% \times \text{Rp } 80 \text{ million}$, and Rp 2 million is $5\% \times \text{Rp } 40 \text{ million}$.

$$(\text{Rp } 46 \text{ million} - 3 \times 5\% \times \text{Rp } 40 \text{ million}) + (\text{Rp } 44 \text{ million} - 2 \times 5\% \times \text{Rp } 40 \text{ million}) + (\text{Rp } 42 \text{ million} - 1 \times 5\% \times \text{Rp } 40 \text{ million}) = \text{Rp } 120 \text{ million}.$$

2. DECREASING VARIABLE ANNUITY

Continuing the above two simple examples, let us discuss two longer and more comprehensive examples before we come to the general equation of present value for variable annuity. Unlike the other annuities,

variable annuity requires that we divide the cash flows between series 1 and series 2. To help us understand it, we had better go to the examples.

Example 3

Calculate the present value of the following cash flows, if it is known that $i = 10\%$.

<u>Year</u>	<u>Installment</u>
1	Rp 360,000
2	Rp 350,000
3	Rp 340,000
4	Rp 330,000
5	Rp 320,000
6	Rp 310,000
7	Rp 300,000
8	Rp 290,000
9	Rp 280,000
10	Rp 270,000
11	Rp 260,000
12	Rp 250,000
13	Rp 240,000
14	Rp 230,000
15	Rp 220,000
16	Rp 210,000

We can divide the above cash flows into 2 series, like the previous example, with the cash flow for the first series is Rp 100,000 and with the nominal difference of -Rp 10,000 for series 2.

<u>Year</u>	<u>Installment</u>	<u>Series 1</u>	<u>Series 2</u>
1	Rp 360,000	Rp 100,000	Rp 260,000
2	Rp 350,000	Rp 100,000	Rp 250,000
3	Rp 340,000	Rp 100,000	Rp 240,000
4	Rp 330,000	Rp 100,000	Rp 230,000
5	Rp 320,000	Rp 100,000	Rp 220,000
6	Rp 310,000	Rp 100,000	Rp 210,000
7	Rp 300,000	Rp 100,000	Rp 200,000
8	Rp 290,000	Rp 100,000	Rp 190,000
9	Rp 280,000	Rp 100,000	Rp 180,000
10	Rp 270,000	Rp 100,000	Rp 170,000
11	Rp 260,000	Rp 100,000	Rp 160,000
12	Rp 250,000	Rp 100,000	Rp 150,000
13	Rp 240,000	Rp 100,000	Rp 140,000
14	Rp 230,000	Rp 100,000	Rp 130,000
15	Rp 220,000	Rp 100,000	Rp 120,000
16	Rp 210,000	Rp 100,000	Rp 110,000

The present value of the above cash flows is the sum of the present value of cash flows in series 1 and the present value of cash flows in series 2. The present value of the series 1 cash flows is Rp 782,370.86 which is an ordinary annuity with $A = \text{Rp } 100,000$, $n = 16$, and $i = 10\%$. While the present value of series 2

cash flows is $\frac{-nd}{i}$ namely $\frac{-16(-\text{Rp}10,000)}{10\%} = \text{Rp}1,600,000$.

$$\text{PV Variable Annuity} = \text{PV Series 1} + \text{PV Series 2} \quad (1)$$

$$\text{PV} = \text{Rp } 782,370.86 + \text{Rp } 1,600,000$$

$$\text{PV} = \text{Rp } 2,382,370.86$$

Example 4

Using series 1 and 2, calculate the present value of the following variable annuity at 5% discount rate.

<u>Year</u>	<u>Cash Flow</u>
1	Rp 2,000,000
2	Rp 1,950,000
3	Rp 1,900,000
4	Rp 1,850,000
5	Rp 1,800,000
6	Rp 1,750,000
7	Rp 1,700,000
8	Rp 1,650,000
9	Rp 1,600,000
10	Rp 1,550,000

$$d = -\text{Rp } 50,000$$

$$n = 10$$

$$i = 5\%$$

The amount of series 1 cash flow is $a_1 + \frac{d}{i} + nd$

$$= \text{Rp } 2,000,000 + \left(-\frac{\text{Rp } 50,000}{5\%} \right) + 10 (-\text{Rp } 50,000)$$

$$= \text{Rp } 2,000,000 - \text{Rp } 1,000,000 - \text{Rp } 500,000$$

$$= \text{Rp } 500,000$$

Based on this result, we can construct the series 1 and series 2 schedule of the cash flows as follows:

<u>Year</u>	<u>Cash Flow</u>	<u>Series 1</u>	<u>Series 2</u>
1	Rp 2,000,000	Rp 500,000	Rp 1,500,000
2	Rp 1,950,000	Rp 500,000	Rp 1,450,000
3	Rp 1,900,000	Rp 500,000	Rp 1,400,000
4	Rp 1,850,000	Rp 500,000	Rp 1,350,000
5	Rp 1,800,000	Rp 500,000	Rp 1,300,000
6	Rp 1,750,000	Rp 500,000	Rp 1,250,000
7	Rp 1,700,000	Rp 500,000	Rp 1,200,000
8	Rp 1,650,000	Rp 500,000	Rp 1,150,000
9	Rp 1,600,000	Rp 500,000	Rp 1,100,000
10	Rp 1,550,000	Rp 500,000	Rp 1,050,000

PV Variable Annuity = PV Series 1 + PV Series 2

$$PV = \left(\frac{1 - (1 + 5\%)^{-10}}{5\%} \right) \text{Rp } 500,000 + \left(\frac{-10(-\text{Rp } 50,000)}{5\%} \right)$$

$$PV = \text{Rp } 3,860,867.5 + \text{Rp } 10,000,000$$

$$PV = \text{Rp } 13,860,867.5$$

The general formula to find out the amount of periodic cash flow or A of series 1 is:

$$A = a_1 + \frac{d}{i} + nd \quad (2)$$

where a_1 = the payment in period 1
 d = nominal difference between two successive periods
 i = periodic discount rate
 n = number of payments

Whereas the formula to get the present value of series 2 is:

$$\text{PV Series 2} = \frac{-nd}{i} \quad (3)$$

If we combine the two, then we will get the present value formula for variable annuity:

$$\text{PV} = \left(\frac{1-(1+i)^{-n}}{i} \right) \left(a_1 + \frac{d}{i} + nd \right) - \frac{nd}{i} \quad (4)$$

3. INCREASING VARIABLE ANNUITY

So far, we have discussed the examples of variable annuities with $d < 0$. What if $d > 0$? The division of cash flows into series 1 and 2, fortunately, can still be done for the increasing variable annuity.

Example 5

Calculate the present value of the cash flows Rp 22 million next year that rises Rp 2 million every year for 4 times if the relevant discount rate is 10% p.a.

$i = 10\%$
 $n = 4$
 $d = \text{Rp 2 million}$
 $a_1 = \text{Rp 22 million}$

First, we will find out the periodic cash flow for series 1:

$$A = a_1 + \frac{d}{i} + nd$$

$$A = \text{Rp 22 million} + \left(\frac{\text{Rp 2 million}}{10\%} \right) + 4 (\text{Rp 2 million})$$

$$A = \text{Rp 22 million} + \text{Rp 20 million} + \text{Rp 8 million}$$

$$A = \text{Rp 50 million}$$

So, the series 1 and series 2 cash flows become:

<u>Year</u>	<u>Cash Flows</u>	<u>Series 1</u>	<u>Series 2</u>
1	Rp 22 million	Rp 50 million	-Rp 28 million
2	Rp 24 million	Rp 50 million	-Rp 26 million
3	Rp 26 million	Rp 50 million	-Rp 24 million
4	Rp 28 million	Rp 50 million	-Rp 22 million

PV of series 1 cash flows is PV of ordinary annuity with $A = \text{Rp 50 million}$ namely Rp 158,493,272.3. Whereas, PV of series 2 is -Rp 80 million because:

$$(-\text{Rp 20 million} - 4 \times 10\% \times \text{Rp 20 million}) + (-\text{Rp 20 million} - 3 \times 10\% \times \text{Rp 20 million}) + (-\text{Rp 20 million} - 2 \times 10\% \times \text{Rp 20 million}) + (-\text{Rp 20 million} - 1 \times 10\% \times \text{Rp 20 million}) = 4 \times (-\text{Rp 20 million}) = -\text{Rp 80 million}$$

Thus, PV of the above cash flows is Rp 158,493,272.3 + (-Rp 80,000,000) = Rp 78,493,272.3.

Example 6

Calculate the present value of pension payment of Rp 30 million next year that increases Rp 2 million every year for ten times if the relevant discount rate is 8% p.a.

$i = 8\%$
 $n = 10$

$$d = \text{Rp } 2 \text{ million}$$

$$a_1 = \text{Rp } 30 \text{ million}$$

$$A = a_1 + \frac{d}{i} + nd$$

$$A = \text{Rp } 30,000,000 + \left(\frac{\text{Rp } 2,000,000}{8\%} \right) + 10 (\text{Rp } 2,000,000)$$

$$A = \text{Rp } 75,000,000$$

$$PV = \left(\frac{1 - (1+i)^{-n}}{i} \right) A - \frac{nd}{i}$$

$$PV = \left(\frac{1 - (1+8\%)^{-10}}{8\%} \right) \text{Rp } 75,000,000 - \frac{10(\text{Rp } 2,000,000)}{8\%}$$

$$PV = \text{Rp } 503,256,104.9 - \text{Rp } 250,000,000$$

$$PV = \text{Rp } 253,256,104.9$$

4. THE APPLICATION ON BOND VALUATION

One of the applications of variable annuity is to value the fair price of bonds. The valuation of a bond always involves two kinds of interest rates i.e. the bond coupon rate and the investor's expected yield. The cash flow patterns for bond repayment are also two. First, bonds that pay only the coupon periodically and the principal at the maturity date. Second, bonds that pay off the principal in equal amounts every period, plus the accrued periodic interest. The principal balance of the bond payable in the second group will decline from one period to another period and the amount of the accrued periodic interest decreases as well.

Example 7

A corporation issues a US\$ 100,000 bond with 4% annual coupon. The bond will be repaid in 20 equal principal payment every year-end, \$ 5,000 each plus the accrued interest. Calculate the fair price of the bond if an investor requires 10% yield for this bond.

$$n = 20 \quad i = 10\% \quad d = 4\% \times \$ 5,000 = \$ 200$$

$$a_1 = \$ 5,000 + 4\% (\$ 100,000) = \$ 9,000$$

Year	Principal Payment	Interest Expense	Total
1	\$ 5,000	\$ 4,000	\$ 9,000
2	\$ 5,000	\$ 3,800	\$ 8,800
3	\$ 5,000	\$ 3,600	\$ 8,600
4	\$ 5,000	\$ 3,400	\$ 8,400
5	\$ 5,000	\$ 3,200	\$ 8,200
6	\$ 5,000	\$ 3,000	\$ 8,000
7	\$ 5,000	\$ 2,800	\$ 7,800
8	\$ 5,000	\$ 2,600	\$ 7,600
9	\$ 5,000	\$ 2,400	\$ 7,400
10	\$ 5,000	\$ 2,200	\$ 7,200
11	\$ 5,000	\$ 2,000	\$ 7,000
12	\$ 5,000	\$ 1,800	\$ 6,800
13	\$ 5,000	\$ 1,600	\$ 6,600
14	\$ 5,000	\$ 1,400	\$ 6,400
15	\$ 5,000	\$ 1,200	\$ 6,200
16	\$ 5,000	\$ 1,000	\$ 6,000
17	\$ 5,000	\$ 800	\$ 5,800
18	\$ 5,000	\$ 600	\$ 5,600
19	\$ 5,000	\$ 400	\$ 5,400
20	\$ 5,000	\$ 200	\$ 5,200

$$PV = \left(\frac{1 - (1+i)^{-n}}{i} \right) \left(a_1 + \frac{d}{i} + nd \right) - \frac{nd}{i}$$

$$PV = \left(\frac{1 - (1+10\%)^{-20}}{10\%} \right) \left(9,000 + \frac{-200}{10\%} + 20(-200) \right) - \frac{20(-200)}{10\%}$$

$$PV = \left(\frac{1 - 1.1^{-20}}{0.1} \right) (3,000) + 40,000$$

$$PV = \text{US\$ } 65,540.69$$

Schedule of series 1 and series 2 of the bond

<u>Year</u>	<u>Series 1</u>	<u>Series 2</u>	<u>Total</u>
1	\$ 3,000	\$ 6,000	\$ 9,000
2	\$ 3,000	\$ 5,800	\$ 8,800
3	\$ 3,000	\$ 5,600	\$ 8,600
4	\$ 3,000	\$ 5,400	\$ 8,400
5	\$ 3,000	\$ 5,200	\$ 8,200
6	\$ 3,000	\$ 5,000	\$ 8,000
7	\$ 3,000	\$ 4,800	\$ 7,800
8	\$ 3,000	\$ 4,600	\$ 7,600
9	\$ 3,000	\$ 4,400	\$ 7,400
10	\$ 3,000	\$ 4,200	\$ 7,200
11	\$ 3,000	\$ 4,000	\$ 7,000
12	\$ 3,000	\$ 3,800	\$ 6,800
13	\$ 3,000	\$ 3,600	\$ 6,600
14	\$ 3,000	\$ 3,400	\$ 6,400
15	\$ 3,000	\$ 3,200	\$ 6,200
16	\$ 3,000	\$ 3,000	\$ 6,000
17	\$ 3,000	\$ 2,800	\$ 5,800
18	\$ 3,000	\$ 2,600	\$ 5,600
19	\$ 3,000	\$ 2,400	\$ 5,400
20	\$ 3,000	\$ 2,200	\$ 5,200

Example 8

Calculate the fair price of a bond if an investor expects to get annual 3% yield for the above bond and construct the series 1 and series 2 schedule.

$$n = 20$$

$$i = 3\%$$

$$d = 4\% \times \$ 5,000 = \$ 200$$

$$a_1 = \$ 5,000 + 4\% (\$ 100,000) = \$ 9,000$$

$$PV = \left(\frac{1 - (1+i)^{-n}}{i} \right) \left(a_1 + \frac{d}{i} + nd \right) - \frac{nd}{i}$$

$$PV = \left(\frac{1 - (1+3\%)^{-20}}{3\%} \right) \left(9,000 + \frac{-200}{3\%} + 20(-200) \right) - \frac{20(-200)}{3\%}$$

$$PV = \left(\frac{1 - 1.03^{-20}}{0.03} \right) (-1,666.667) + 133,333.333$$

PV = US\$ 108,537.54

Schedule of series 1 and series 2 of the bond

<u>Year</u>	<u>Series 1</u>	<u>Series 2</u>	<u>Total</u>
1	-\$ 1,666.667	\$ 10,666.667	\$ 9,000
2	-\$ 1,666.667	\$ 10,466.667	\$ 8,800
3	-\$ 1,666.667	\$ 10,266.667	\$ 8,600
4	-\$ 1,666.667	\$ 10,066.667	\$ 8,400
5	-\$ 1,666.667	\$ 9,866.667	\$ 8,200
6	-\$ 1,666.667	\$ 9,666.667	\$ 8,000
7	-\$ 1,666.667	\$ 9,466.667	\$ 7,800
8	-\$ 1,666.667	\$ 9,266.667	\$ 7,600
9	-\$ 1,666.667	\$ 9,066.667	\$ 7,400
10	-\$ 1,666.667	\$ 8,866.667	\$ 7,200
11	-\$ 1,666.667	\$ 8,666.667	\$ 7,000
12	-\$ 1,666.667	\$ 8,466.667	\$ 6,800
13	-\$ 1,666.667	\$ 8,266.667	\$ 6,600
14	-\$ 1,666.667	\$ 8,066.667	\$ 6,400
15	-\$ 1,666.667	\$ 7,866.667	\$ 6,200
16	-\$ 1,666.667	\$ 7,666.667	\$ 6,000
17	-\$ 1,666.667	\$ 7,466.667	\$ 5,800
18	-\$ 1,666.667	\$ 7,266.667	\$ 5,600
19	-\$ 1,666.667	\$ 7,066.667	\$ 5,400
20	-\$ 1,666.667	\$ 6,866.667	\$ 5,200

5. SUMMARY

Like ordinary annuity, annuity due, deferred annuity, both growing and not growing, we know the specific formulae to solve ordinary perpetuity, perpetuity due, and deferred perpetuity of equal amounts or growing amounts. Other than the above formulae, we still have a short-cut formula to calculate the present value of a variable annuity. A variable annuity is defined as an annuity that grows at a certain nominal amount (d) every period. The difference (d) between two successive periods can be positive or negative. Compared to the other twelve formulae, the present value equation for the variable annuity is the hardest and the longest. The total present value is the sum of two series of cash flows, series 1 and series 2.

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YOUNGER VS. OLDER COUPLES: IS HOME PRODUCTION STILL AN ISSUE?

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ABSTRACT

Evidence shows that the earnings gender gap is narrowing in a majority of societies. However, this movement is not constant along different personal characteristics. One explanation for this is that the economic notion of family biases women's choices and limits them in such ways that they do not feel that they are as productive as their partners. This study uses Brazilian data in order to understand the influence of economic power on family decisions, especially on the division of housework between couples. Our results indicate that economic power has a strong impact on the prospects for greater equality between the genders.

1. INTRODUCTION

The last thirty years have been very significant in terms of labor market changes for women. For instance, in Brazil, during the nineteen-seventies, women's participation in the labor market was approximately 20 percent, while by 2006 it had risen to about 50 percent¹. All other Latin American countries present similar statistics, except Paraguay, where the trend is not so obvious (see Dureya, Edwards and Ureta 2006). At the same time, the wage gap between men and women has shown a dramatic reduction. Galarza, Medina and Diaz (2006) studied six Latin American countries² from the beginning of the nineteen-eighties to the end of the nineteen-nineties and concluded that the gender wage gap was as great as 46,55 percent in 1981 (Brazilian data) and had fallen to 5,91 percent in 1998 (Colombian data³). Using the quantile regression method, Madalozzo and Martins (2007) conclude that the gap reduction was not in the same proportion for all women. The most qualified and remunerated women, those in the highest wage quantile distribution, were those where the gender wage gap stayed constant more often.

These results can be matched with models of household production, because latter models use the home production responsibility to understand earning and market opportunities differentials between genders. Following Becker (1965), if two members of a couple have different abilities, each one will specialize in the labor for which he/she has comparative advantage. Usually, men have a comparative advantage in the labor market, and women on housework. This model explains why female labor participation was naturally lower and perpetuated the traditional division of labor in and outside the home by gender. Folbre (1994) analyses different patterns of evolution among nations and shows that patriarchal power is sustained by the female being more concerned with greater responsibility for family well-being, as compared to men. Even when both work full time outside the home, women continue to be responsible for most of the housework (see Álvarez and Miles 2006; Hersch and Stratton 1994; Madalozzo, Martins and Shiratori 2008). Some aspects regarding decreasing fertility rates and welfare programs directed mostly towards women have the aim of achieving more equal distribution of power within families. Intra-household bargaining models (as in Manser and Brown 1980; or Lundberg and Pollak 1993) are another way to model those internal decisions, including decisions of continuing or breaking of marriages, i.e., divorce.

In this study, we use Brazilian data on wages, incomes, and hours of work inside and outside the home to better understand how distribution of power between women and men within Brazilian families impacts the division of housework between husbands and wives. Our hypothesis is that economic power is a good proxy for intra-household power. Applying this variable to men and women in our sample, we model the housework distribution using ordinary least squares regression and Oaxaca decomposition. Our results show that economic power and successful careers have a strong impact on greater equality in the family.

¹ See IBGE (Instituto Brasileiro de Geografia e Estatística), the Brazilian official Bureau of Statistics, at <http://www.sidra.ibge.gov.br/bda/emprego>.

² They were: Argentina, Brazil, Colômbia, Costa Rica, Honduras and Uruguay.

³ These values represent the bigger and the smaller for all sample. Brazilian results are: 46,55 percent in 1981 and 30,57 percent in 1998. Other statistics available in Galarza, Medina and Diaz (2006).

This paper is organized as follows: the first section uses the theoretical model of the economic foundations of family and housework division; the following section explores the Brazilian data and empirically models the behavior; while section three offers conclusions.

2. THEORETICAL MODELS OF DISTRIBUTION OF POWER WITHIN FAMILIES

Family decisions are clearly not exclusively made for rational economic reasons. Not only are individuals unable to evaluate all the possible strategies and actions at every moment, they do not consider only income maximization when deciding on their actions. The utility maximization model helps to solve this dilemma between maximizing income and the broader ones by employing a utility function that considers total well being of the individuals concerned. However, utility functions have specific characteristics that are much appropriated to individuals. Aggregating utility function means choosing among different approaches in order to diminish the theoretical problems, as they fail to accept transitivity except in very specific cases (Sen 1966).

One possible approach is to assign distinct utility functions to each family member, however summing them with different weights. The collective model of decision-making inside the household is one possible solution. In Chiappori (1992), family members decide about the problem according to the following model:

$$\begin{aligned}
 & \text{Max } U^m(L^m, C^m) \\
 & \text{subject to :} \\
 & \mu : U^f(L^f, C^f) \geq \bar{u}_f \\
 & \lambda : w_m L^m + w_f L^f + C^m + C^f \leq (w_m + w_f)T + y
 \end{aligned} \tag{1}$$

Where the subscripts m and f are respectively male (husband) and female (wife), L^i represents the labor participation of individual i , C^i is the consumption of individual i , and w^i is that individuals wage rate; T is time dedicated to the labor market, and y is non-labor income. The first restriction is related to the weight each family member carries in its household. The second is the consumption restriction; i.e., family members can consume at most the aggregate value of their labor and non-labor incomes.

In these models, as seen in Lundberg (2008), decision can be simplified to:

$$\begin{aligned}
 & \text{Max } \mu U^m(L^m, C^m) + (1 - \mu)U^f(L^f, C^f) \\
 & \text{subject to :} \\
 & w_m L^m + w_f L^f + C^m + C^f \leq (w_m + w_f)H_i + y
 \end{aligned} \tag{2}$$

and a sharing rule:

$$\mu = \mu(y_i, w_i, H_i, \alpha_i)$$

Where the unique difference from equation (1) is the existence of α , that means the opportunities the individual has outside his/her marriage⁴.

Power inside family is related to variable μ , as well as to α . On the one hand, the μ variable indicates to what extent the utility of each individual is important for defining the maximization of family well-being. On the other hand, α also indicates 'power' because it allows each individual to bargain within the household since he/she has a viable alternative to staying married.

⁴ This opportunity can be, for example, re-marriage.

We cannot directly observe the values either of μ or of α . However, some proxy variables may indicate their approximate value. In this paper, we will use the impact of individual on the family income, i.e.:

$$power = \frac{individual\ income}{family\ income} \quad (3)$$

For both variables, income is not only labor income, but also other sources (such as savings' interest, or social insurance, for instance). The more the individual income represents as a proportion of the total family income, the more power he/she has on deciding where and how this money will be spent.

Considering that each individual may allocate his/her time into labor market or housework, and the labor market pays a certain amount of money, w , while housework produces a public good not remunerated by money, giving utility only to the family members as whole, each individual faces the problem specified by equation (2) and considers his/her options.

In order to empirically estimate the effects of power on the totality of work, an available alternative is to consider a model of housework hours explained by several aspects that affect this result, including economic power as expressed in equation (3). The proposed model follows equation (4):

$$housework\ hours = \beta_0 + \sum_{i=1}^n \beta_i (demographics) + \sum_{j=n+1}^m \beta_j (labor\ market) + \gamma power + \varepsilon \quad (4)$$

or:

$$percentual\ housework = \beta_0 + \sum_{i=1}^n \beta_i (demographics) + \sum_{j=n+1}^m \beta_j (labor\ market) + \gamma power + \varepsilon \quad (5)$$

The difference between the two models is the dependent variable. Equation (4) proposes a model of the number of hours that each individual spends on housework, conditional on their characteristics, based on Álvarez and Miles (2006). However, a feminist economics approach critiques this kind of model, because it affirms that the additional income that a woman receives usually goes to pay for help with housework. Therefore, increasing economic power would not mean more equally distributed home production between husbands and wives. In this paper we test this alternative using equation (5). This second approach, using the share of housework done by each partner, is close to the one used by Gupta and Ash (2006). The next section offers the results for both models.

2. DATA AND EMPIRICAL RESULTS

We apply the preceding model to Brazilian data available from the Brazilian Institute of Geography and Statistics (IBGE). The National Research for Sampling Domiciles (PNAD, '*Pesquisa Nacional por Amostra de Domicílios*') is a source of microdata concerning individuals for the country, except for some sparsely populated areas. PNAD is the most complete Brazilian dataset that includes information on demographic variables (migration and education, for example), labor market variables (wages, hours of work), and some additional subjects such as fertility and hours of housework. While it has these positive characteristics, it is conducted only once per year and it does not follow families through time. Therefore, its cross-sectional aspect does not allow an analysis through time for the same individuals so as to control for fixed effects.

In the present study, we selected only couples between ages 20 and 65 years, inclusive. Because our main concern is with the housework hours and economic power, we only considered married individuals⁵.

Another important limitation of our sample is that we chose to analyze only couples consisting of employed wives and husbands. Different approaches could be followed in order to avoid selection

⁵ It is important to notice that Brazilian law is very particular concerning marriage. The informal union is considered as having the same status as the formal one depending on duration and stability of the union. PNAD does not ask about marital status. We call 'married' all persons that are heads of the household and have a declared partner. Both kinds of individuals are in our sample.

bias – especially when dealing with only one breadwinner in the family -, but we preferred to keep to ‘working couples’ only⁶. However, these persons may have different and very diverse labor work hours very diverse. Table 1 presents the main characteristics of our sample.

Columns 1 and 2 in Table 1 provide information for the whole sample. Columns 3 to 6 show data for partitioned samples between the age intervals of 20 to 40 years and 41 to 65 years, in order to test for cohort effects. In all of the samples, women are younger than their husbands, and housework is very unequally distributed. Women spend far more hours engaged in home production than men: on average, four times more than do husbands.

Using the data for labor income, it is clear that men, on average, have higher wages than their wives. In another way, variable ‘power’ – defined by equation (3) - also measures this difference; however, now it takes into account other income besides wages. Although it appears that the power distribution is more unequal for the younger sample than for the older one, statistical tests show that the differences are not significant.

Contrary to the results concerning housework hours, men work longer hours in the labor market than do women. At least 80 percent of men work full time (40 hours per week) or more, while even among younger couples, where female participation in the labor market is more intense, only 61 percent of women work full time or more, no doubt because women have more responsibility for the family, and especially children. Therefore, their work effort outside the home during their reproductive years is sometimes well below optimal because they spend more time on housework and taking care of young children.

Another interesting characteristic to notice is the different patterns of presence of children 10 years of age or less at the time of the interview. Young couples – the ones where partners age varies between 20 and 40 years old - have on average 1 child per domicile⁷, while only one in five older couples - partners are 41 to 65 years old - have a young child at home.

Forty percent of the population resides in the southeast, the richer region in Brazil, followed by 25 percent in the northeast, one of the poorest one. The regional population distribution pattern is not significantly different among the partitioned samples.

Tables 2 to 4 present the results from estimations of equations (4) and (5). In equation (4) the dependent variable is the number of hours spent on housework for each partner. Equation (5), on the other hand, shows the division of housework between the partners, using the percentage of total housework performed at home that was the responsibility of each partner as the dependent variable. The difference between these Tables is the sample. Table 2 contains the result for the whole sample of married persons, living with the partner, and both participating in the labor market. Table 3 restricts the age of these couples to a minimum of 20 and maximum of 40 years. Finally, Table 4 shows the results for what we call ‘older couples’, where both are 41 to 65 years old. Results for the three Tables are very similar, only the significance varies among them.

Men do increasingly less housework with increasing age, while education and number of children increases the number of hours they spend on home production. Among older couples age and education do not have the same significance, because their effects are reduced and few have young children. For women, age and children increase their housework, but more education reduces it because as women are better educated other family members participate more in the housework. Again, older couples’ sample does not have the same significance for all the variables. Only education is still important in reducing the time women spend on home production and the share of housework they do.

In all of the Tables, the most interesting variable is the one related to economic power. For both men and women, increasing their share of family income significantly reduces hours and share of

⁶ When the family has only one breadwinner the housework usually is wife’s responsibility. Because the goal of this paper is analyze couples with more alike feature between partners, it is more adequate to keep only couples where both partners work.

⁷ Latest data in Brazil shows that the fertility rate in 2007 was approximately 2 children per couple. See IBGE at <http://www.ibge.gov.br> for more information.

housework⁸. The importance of this result is that, even if women do less housework as a result of increasing their income, it is not necessarily because home production was becoming more equal: they could be achieving this reduction in housework hours by hiring help for home tasks. By running equation (5), we confirm that women reduce their share in percentage of total housework through their economic success.

As a final test, we ran a comparison between husbands and wives following the Oaxaca decomposition method. Oaxaca (1973) suggests the use of the statistic D – for differential – to compare the results between two different categories. For example, using *h* for husbands and *w* for wives, the D statistic will be:

$$D = \frac{\frac{HW_h}{HW_w} - \left(\frac{HW_h}{HW_w}\right)^0}{\left(\frac{HW_h}{HW_w}\right)^0} \quad (6)$$

where $\left(\frac{HW_h}{HW_w}\right)$ represents the observed husband-wife housework division and $\left(\frac{HW_h}{HW_w}\right)^0$ represents the husband-wife housework division without the existence of gender inequity.

We use the estimated results for equations (4) and (5) separately for husbands and wives. They comprise a vector of individual characteristics of the sample. Applying them to the estimated coefficients, we calculate the differential between estimated housework for all individuals as if they were men and compare this with the estimated housework for all individuals as if they were women⁹, as shown in equation (7):

$$\hat{D}_i = \sum_j \hat{\beta}_j^h X_i - \sum_j \hat{\beta}_j^w X_i \quad (7)$$

Table 5 presents the results for all the models and different samples. There is a difference of 14 hours of home production between partners that is totally explained by gender differences¹⁰. We also have the two samples divided by the couples' ages. The result of comparing them is that roles inside the home are becoming more equal. Younger couples still show a strong difference in home labor profiles by gender; but there is a significant difference between younger and older couples. This result suggests that the greater labor force participation, together with the more feminist attitudes of the last thirty years, have had an effect.

The second part of Table 5 shows the results for the division of housework. As the hours of work have shown, the division is still far from egalitarian; however the younger couples' results show that the difference among husbands and wives has declined over time. If the younger generation continues this pattern through their lives, which appears likely; the story to be told by economists dedicated to the study of home economics will become a different one.

3. CONCLUSION:

Our motivation for this study was to investigate the relative role of women in family decisions. Feminist economists say that the way economics was conceived and the orthodox framework in which is conducted bias the findings to ends other than the choices actually made in real life (Ferber 1995). One important feature is the division of housework and its impact on the labor market, as well on

⁸ Same results were found in a nonparametric approach to US data. See Gupta and Ash (2008).

⁹ Another possible alternative was to compare the results for equation (7) separately to husbands and wives. Because the aim of this paper is to estimate the home production gap between genders, we prefer to use all individuals at each sample to calculate the statistic.

¹⁰ There is a discussion about gender issues and gender profiles. In this paper, we only use heterosexual couples, therefore, when using the term 'gender' we are considering the social expectation of men as husbands and women as wives. See more about this in England (2003).

individual well being. In order to understand the economic objectives of families through their time allocation within and outside the home, we chose to analyze Brazilian data on housework by couples that participate in the labor market.

Our findings confirm the hypothesis that choices in Brazilian families still have a strong paternalist bias. Division of work – in terms of time and percentage – favours labor force participation for men and home production for women. The consequences of these choices are not the subject of this paper; but there is evidence that bargaining decisions inside marriage are balanced according to economic power (Bennet, 1988; Crittenden, 2001; Rasul, 2008).

Analysis of husbands' and wives' division of housework shows that women devote a significantly greater number of hours to home production than men do. Even when one analyses the time evolution for only two different cohorts, it is striking that younger women are dedicating more time to their professional development – education, for example – and that younger couples are sharing home duties in a more equal way. By no means does this suggest that there is equality of participation in housework among younger couples; but the present trend is in that direction.

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Table 1: Demographic Characteristics

	All Sample		Restricted to 20 to 40 year old couples		Restricted to 41 to 65 year old couples	
	Male (1)	Female (2)	Male (3)	Female (4)	Male (5)	Female (6)
Age	40.73 (10.18)	37.66 (9.73)	32.21 (5.09)	30.08 (5.23)	51.15 (6.08)	48.37 (5.51)
Housework weekly hrs	5.44 (7.08)	23.14 (16.63)	5.92 (7.25)	22.52 (13.50)	4.87 (6.73)	23.85 (13.77)
Education (years)	8.42 (4.50)	9.25 (4.46)	9.07 (4.12)	10.00 (3.94)	7.66 (4.86)	8.34 (4.91)
Power	0.590 (0.21)	0.338 (0.19)	0.614 (0.19)	0.362 (0.18)	0.554 (0.23)	0.306 (0.21)
Labor Hours:						
< 15	1.17	8.74	0.88	8.14	1.57	9.58
15 to 39	10.71	32.79	9.15	30.23	12.92	36.43
40 to 44	37.47	32.29	39.09	34.49	35.98	29.83
45 to 48	19.27	11.72	21.01	13.41	16.91	9.42
49 or +	31.38	14.46	29.87	13.72	32.62	14.75
Labor income (R\$ monthly)	1,243.04 (2,120.88)	695.46 (1,368.79)	1,073.21 (1,495.04)	621.42 (910.06)	1,457.38 (2,789.43)	775.45 (1,426.50)
# of young children	0.701 (0.90)		1.037 (0.95)		0.205 (0.53)	
Region (%):						
North	7.24		7.82		5.88	
Northeast	24.79		24.98		24.45	
Southeast	41.82		40.88		43.23	
South	18.82		18.37		20.16	
Centre	5.85		6.31		5.10	
#Observations	66,482		31,790		21,846	

* Standard deviation between brackets.

Table 2: Estimation Results for Equations (4) and (5) – All Sample*

	Housework Hours		% of Housework by each Partner	
	Husband	Wife	Husband	Wife
Age	-0.0366	0.051	-0.002	0.001
Education	0.073	-0.347	0.006	-0.004
# Children	0.371	1.641	-0.005	0.007
Power	-2.608	-6.654	-0.124	-0.153
Constant	10.211	35.107	0.336	0.903
Labor hours	Yes	Yes	Yes	Yes
Regional Effects	Yes	Yes	Yes	Yes
# Observations	33,241	33,241	32,312	32,312

Table 3: Estimation Results for Equations (4) and (5) – Sample with couples 20 to 40 years of age*

	Housework Hours		% of Housework by each Partner	
	Husband	Wife	Husband	Wife
Age	-0.0359	0.038	-0.001	0.001
Education	0.0920	-0.370	0.007	-0.005
# Children	0.394	2.131	-0.009	0.007
Power	-3.385	-6.649	-0.170	-0.155
Constant	9.574	34.658	0.316	0.906
Labor hours	Yes	Yes	Yes	Yes
Regional Effects	Yes	Yes	Yes	Yes
# Observations	15,895	15,895	15,491	15,491

Table 4: Estimation Results for Equations (4) and (5) – Sample with couples 41 to 65 years of age*

	Housework Hours		% of Housework by each Partner	
	Husband	Wife	Husband	Wife
Age	-0.00001 [†]	-0.133 [†]	-0.0002 [†]	-0.0003 [†]
Education	0.025 [†]	-0.347	0.005	-0.003
# Children	0.172 [†]	0.193 [†]	-0.002 [†]	0.003 [†]
Power	-1.914	-5.910	-0.080	-0.135
Constant	7.985	38.400	0.250	0.960
Labor hours	Yes	Yes	Yes	Yes
Regional Effects	Yes	Yes	Yes	Yes
# Observations	10,923	10,923	10,590	10,590

*All the results are significant at 5 percent level, except when marked by †

Table 5: Oaxaca decomposition and results for equation (7)

	As wives	As husbands	Difference
<i>Housework hours (Equation 4)</i>			
All sample	20.909 (0.021)	6.117 (0.006)	14.793 (0.017)
Younger Couples	20.448 (0.030)	6.629 (0.009)	13.819 (0.025)
Older couples	21.485 (0.037)	5.413 (0.008)	16.072 (0.031)
<i>Percentage of housework (Equation 5)</i>			
All sample	0.794 (0.0002)	0.210 (0.0002)	0.584 (0.0003)
Younger Couples	0.776 (0.0003)	0.232 (0.0003)	0.545 (0.0004)
Older couples	0.816 (0.0003)	0.181 (0.0003)	0.635 (0.0004)

* Standard Error between Brackets.

A FRAMEWORK FOR ASSESSING STUDENT OUTCOMES FROM THE SERVICE-LEARNING EXPERIENCE IN A CAPSTONE MARKETING COURSE

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ABSTRACT

Volunteerism is consistent with the mindset, value system, and motivation of the Millennials or Generation Y, a demographic that gravitates toward companies with corporate cultures that stress social responsibility and diversity. Civic responsibility and service-learning (a pedagogical method that integrates community service with academic study) are inextricably intertwined. Consequently, an important issue surrounds the impact of service-learning on the academic development and life skill development of undergraduate students, and ultimately, their preparedness for the professional arena. The purpose of this paper is to present a framework and advance hypotheses for an empirical exploration of the intellectual and personal outcomes that accrue to undergraduate students from the service-learning experience in a capstone marketing course.

Keywords: *Service-Learning, Marketing Pedagogy, Experiential Education, Civic Engagement, Strategic Marketing*

1. INTRODUCTION

Volunteerism is consistent with the mindset, value system, and motivation of the Millennials or Generation Y segment (born in or after 1992), representing about 80 million or roughly 30% of the American population (Gerdes, 2006). Upon graduation, they gravitate towards companies with corporate cultures that stress social responsibility, diversity, and environment (Gerdes, 2006). Further, community service and serving the greater good are among their top priorities (Gerdes, 2008). In short, they strive to “do good, while doing well” (Gerdes, 2008, p. 1).

Blending civic engagement with academia is one of the challenges facing higher education during the 21st century. Colleges and universities are under pressure to revisit their historic commitment to service (Hinc and Brandell, 2000). Indeed, developing partnerships between the campus and external organizations is at the heart of renewing community engagement (W.K. Kellogg Foundation, 1999), and advancing civic responsibility (Gronski and Pigg, 2000). The Richard Stockton College of New Jersey (hereafter referred to as “Stockton”) has embraced this initiative; in fact, service-learning has been incorporated into the curriculum for over a decade.

Strategic Marketing, the capstone course for business students with a concentration in marketing at Stockton, has been designed to weave a service-learning component into the curriculum since the Fall 2004 semester. Real-world problems and applications are taught in a real-world context; specifically, the course is used as a platform to explore, craft, and implement projects for a multitude of service-learning partners including United Way of Atlantic County, the Boys and Girls Club of Atlantic City, Family Services Association, and the School Peacemaker (an anti-bullying organization). In essence, the class establishes a bridge between the college and non-profit community so students can garner valuable experience in the field while simultaneously gaining an appreciation for civic engagement.

Student teams in the capstone course apply their marketing, business, and technology skills to conceptualizing, researching, refining, and ultimately launching projects for the non-profit agencies. In accordance with Kolb’s experiential learning model, Petkus (2000) noted that advanced-level marketing courses “...can make an even greater contribution to the marketing efforts of a non-profit organization. Students at this level have a greater breadth and depth of marketing knowledge and skills... (from other course projects, internships, etc.) to draw on for reflection” (p. 65).

The process is mutually beneficial. The teams lend their skill set to the service-learning partners, completing a quality project for their portfolio in the process. And the non-profit organizations are able to reap the benefits of much-needed resources in the areas of human talent and time, yielding important

finished work (e.g., video brochures, annual reports, website development, etc.) that may otherwise not have come to fruition. It has been noted that service-learning is particularly relevant to marketing courses given the discipline's interest in social causes. Unfortunately, business faculty have been less inclined to incorporate the experiential method into their coursework than their social sciences and liberal arts counterparts (Klink and Athaide, 2004), although a review of the business literature noted that the field of marketing, among others, has numerous service-learning applications relative to course-earning objectives (Andrews, 2007).

Another significant outcome of the capstone course is that students experience firsthand the resource shortage and lack of formal marketing training at most non-profits. This further reinforces the importance of filling such a void through a service-learning component in the course curriculum. And a surprising anecdotal observation has been the degree of empathy and bonding developed by the students for their respective service-learning partners during the semester. Many have opted to volunteer outside the realm of the course, and, in some cases, continue to engage in such work once the semester has ended. The purpose of this paper is to establish a framework and advance hypotheses for an empirical investigation that assesses the benefits that accrue to students from the service-learning experience in the capstone marketing course, as well as the specific factors that contribute to such an outcome. A void exists in the literature relative to empirical explorations of service-learning in specific marketing courses. This was validated by Petkus (2000) in a review that examined the service-learning literature in marketing, and reiterated by Hagenbuch (2006).

Initially, a review of the service-learning literature is undertaken. It focuses on a definition of the service-learning construct, a brief overview of the foundations of service-learning, and empirical investigations that link the service-learning experience with desired outcomes such as satisfaction, enhanced sense of civic responsibility, and academic and life skill development. Then, a discussion ensues about the structure and evolution of the capstone marketing course. Finally, a framework is presented for an empirical investigation to evaluate the effectiveness of service-learning in an undergraduate capstone marketing course.

2. LITERATURE REVIEW

2.1 The Service-Learning Construct

The service-learning construct encompasses a teaching method that integrates community service with academic study. Service or experiential learning projects expand teaching and learning beyond traditional classroom activities into a real-world forum (Berson, 1994; Giles and Eyster, 1998; Kinsley, 1994). Service-learning is defined as a course-based, credit-bearing educational experience in which students participate in an organized service activity that meets identified community needs while simultaneously gaining a broader understanding of course content within a given discipline and an enhanced sense of civic responsibility (Bringle and Hatcher, 1995).

Fertman (1994) proposed that the historical roots of service-learning may be traced to the philosophy of John Dewey. The seminal work of Dewey (1967) addressed the challenges associated with providing quality education in a democratic society. In drawing a connection between professional and public lives, he argued that education for a democratic way of life was essential for advancing society. Dewey's (1967) theories focused on experiential and citizenship education relative to community service and volunteerism.

Almost three decades later, The Wingspread Report (Wingspread Group on Higher Education, 1993) noted that a gap continued to exist between societal needs and the offerings of higher education institutions. The Wingspread Report recommended that colleges and universities collectively endorse three basic objectives: taking values seriously, putting student learning first, and creating a nation of learners.

Building on the Wingspread Report (Wingspread Group on Higher Education, 1993), Boyer (1994) reaffirmed the need for the higher education community to serve American society. Boyer encouraged

research and discovery of new knowledge in addition to integrating, communicating, and applying knowledge through professional service (Coye, 1997). He called on members of the faculty to adopt a “reflective practitioners” mindset, oscillating between theory and practice to bring the daily problems of real people in real neighborhoods into the university classroom. Service “is not just something students do in their spare time; it connects back to the core curriculum and the search for shared values” (Boyer, 1990, p. 26). The growth of service-learning on college campuses during the 1990s is indicative of a renewed emphasis on campus-community partnerships (Bringle and Hatcher, 2004a).

2.2. The Foundations of Service-Learning

The notion of civic responsibility is intertwined with a service-learning perspective. Civic engagement initiatives have awakened renewed interest in promoting institutional citizenship, building new campus-community programs, and promoting a broad sense of civic responsibility in higher education (Bringle and Hatcher, 2002).

A literature review undertaken by Hervani and Helms (2004) indicated that service-learning has been applied in a wide variety of disciplines and courses including writing and composition, finance, engineering, psychology, science and mathematics, accounting, nursing, Spanish, political science, and liberal arts. Service-learning projects have also been developed for economics (Hervani and Helms, 2004), management (Angelidis et al., 2004; Madsen and Turnbull, 2006); marketing (Easterling and Rudell, 1997; Petkus, 2000; Klink and Athaide, 2004; Barr, 2008a; Barr 2008b), personal selling (Hagenbuch, 2006), and advertising (Lopez and Lee, 2005) courses.

Easterling and Rudell (1997) provided the first examination of service-learning in a marketing context. The authors developed an extensive background and justification for integrating service-learning into the marketing curriculum as well as the benefits that accrue to all parties. A specific program is suggested for a marketing internship. Petkus (2000) extended the work of Easterling and Rudell (1997) into other facets of marketing including principles of marketing, marketing/management strategy, marketing research, personal selling/sales management, integrated marketing communications, and consumer behavior. It is noteworthy to mention that Petkus (2000) provided a general framework for the design and implementation of service-learning courses in marketing, and Hagenbuch (2006) and Barr (2008a, 2008b) advanced specific pedagogical models for personal selling, marketing research and strategic marketing courses, respectively.

2.3. Empirical Investigations of the Service-Learning Experience

As noted earlier, the number of empirical investigations undertaken in marketing has been sparse. So a review of the empirical service-learning literature is warranted to determine the impact of the experiential technique on the academic and personal development of students, as well as other desired outcomes. It is noteworthy to mention that Gelmon (2000) stressed the need to establish a comprehensive research program to gain knowledge about service-learning assessment, including a conceptual framework of best practices principles (and necessary refinement), and operationalization of variables.

Service-learning outcomes have focused on two broad areas: 1) student outcomes related to intellectual skills; and, 2) student personal outcomes (Rama et al., 2000). The first taxonomy includes an assessment of cognitive competencies including traditional textbook knowledge, as well as critical-thinking and decision-making skills. Students engaged in service-learning projects are more inclined to resolve “real” problems that they consider significant and personally relevant. Moreover, they gain a greater understanding of course material due to the contextual relevance of the service-learning experience. And, ultimately, students are challenged to reevaluate or reaffirm their own perspectives as a result of interfacing with people from diverse backgrounds. The second classification, student personal outcomes, include an evaluation of various values-related qualities that may be enhanced due to the service-learning experience including honesty, ethical conduct, and a desire to foster constructive social change. Heightened self-awareness, appreciation of and tolerance for individuals from diverse backgrounds are potential positive personal outcomes. Likewise, students feel a stronger connection to the broader community, establishing relationships with site supervisors, faculty and peers (honing teamwork and

communication skills). Finally, as students become more aware of social issues and recognize that their own actions can make a difference, it is likely that their leadership skills will improve (Rama et al., 2000).

A comprehensive, longitudinal study of 22,236 students, culled from a national sample of baccalaureate-granting colleges and universities, explored the effects of service-learning and community service on the cognitive and affective development of participants during their undergraduate years. It was found that service participation had significant positive effects on all 11 outcome measures including academic performance, values, self-efficacy, leadership, choice of a service career, and plans to participate in service following college. Moreover, students conveyed a heightened sense of civic responsibility as a result of their service experience (Astin et al., 2000). The findings of two cross-sectional studies mirrored the results of the large-scale exploration; specifically, undergraduate students who participated in service-learning experienced improved academic development and life skill development, a greater sense of civic responsibility (Astin and Sax, 1998), stronger values, and a stronger understanding of social issues (Eyler et al., 1997). Likewise, a qualitative analysis of ten in-depth student interviews supported the premise that service-learning in a management course is effective and beneficial (Madsen and Turnbull, 2006).

Research on the impact of service-learning on students' moral development has been inconsistent. An examination of the relationship among service-learning, moral development, and moral orientation did not reveal significant findings. However, students reported becoming more compassionate and sensitive, gained a greater appreciation of and ability to solve social problems, and were more motivated to make the world a better place (Bernacke and Jaeger, 2008).

3. THE SERVICE-LEARNING PROJECT

Strategic Marketing is a requirement for Stockton business students earning a bachelor's of science degree with a concentration in marketing. The primary objective of the course is to present students with the tools necessary to make competent decisions in the business world as marketing professionals. Students apply the skill set acquired through a culmination of prior business coursework, work experience, internships, etc. as well as the fundamental theories and techniques learned in the capstone course to a unique task for a service-learning agency. The civic engagement forum piques student interest and the textbook and case analysis components are crystallized through application, making the course more digestible and manageable for students. Consequently, the classroom experience becomes more relevant, interesting, and understandable.

In order to earn academic credit, students are obligated to complete a number of forms for the service-learning office at the college. Minimally, they invest about 30 hours per semester in their projects, including about six on-site visits at their respective service-learning agency. The service-learning portion of a student's grade is 50 percent. Grading criteria includes submission of all status reports, quality of the final product(s), and feedback from the non-profit organization.

Service-learning projects undertaken by student teams have been varied and are often dictated by the needs of the respective service-learning partners. Such needs are influenced by national (vs. regional or local) affiliation, size and structure of organization, age of organization, etc. For example, United Way is well-entrenched and offers more resources to students than the School Peacemaker, run by one individual.

Each team elects a project manager, identifies broad goals for the semester (as well as each week), and delivers a written and oral report to the class every other week. The latter is particularly important because the instructor wants the entire class to be informed and wedded to the concept of service-learning. Moreover, there is usually more than one team working with any given organization and the process facilitates reflection throughout the semester (rather than just at the end). An added benefit is the realization that the service-learning tasks undergo various degrees of transformation as the semester progresses, occasionally creating healthy frustration for the students (and mirroring challenges they will inevitably face once they enter the business world).

The instructor has generally found that the quality of the projects is directly correlated to the degree of supervision provided by both the instructor and the service-learning contact. And level of satisfaction is predicated on consistent involvement by the service-learning partner. Ongoing communication among all parties is essential to delivery of a superior product. It's also a means for monitoring whether or not teams are staying on task and managing their time efficiently and effectively.

The last week of the semester, the student teams reflect on the service-learning aspect of the course. Overall, they have reported positive experiences associated with such tasks. Students conveyed that the projects were both challenging and rewarding, and many have articulated their intention to continue volunteer work in the community. They take pride in their service-learning accomplishments, and are eager to share their ideas about potential topics for future Strategic Marketing classes. Students have also communicated the value of building their portfolio in such a competitive and economically-challenging job market. Many have used the service-learning project as a platform for securing an interview. The only areas of concern expressed by students about the course have centered on lack of communication and/or consistent direction from the service-learning agency, group dynamics, group diversity, and the ability to manage the workload.

Written comments on the instructor's student evaluations have generally indicated that students liked the course format; valued the time spent on site at the service-learning organization; felt the project was demanding at times but valuable; thought their knowledge was broadened in the subject area through application; and, believed the team project was essential for preparing them for a job in the field.

The benefits that accrue to the students include establishing an alliance with a non-profit and, in the process, gaining a greater appreciation for that sector; the development of critical thinking and organizational skills; the ability to work collaboratively and creatively; and, the capacity for managing a service-learning project from conceptualization through completion. They also have a finished product for their portfolio.

The primary benefits realized by the service-learning partners are the ability to gain ideas and assistance on various projects. In addition to the students' marketing savvy, the agencies place a high premium on their technology skills. The findings and recommendations of the student teams are used by the agencies for planning purposes, to establish new initiatives, to project a more contemporary image (in terms of outdated brochures, videos, websites), etc.

4. FRAMEWORK FOR AN EMPIRICAL STUDY

As noted earlier, Petkus (2000) recommended that future service-learning research focus on empirical studies tailored to marketing courses. Hagenbuch (2006) established a paradigm for examining the use of service-learning in a personal selling course. The inputs and outcomes of a sales project provided the foundation for the study. Qualitative and quantitative analyses supported the notion that the class project is beneficial to both the students and the non-profit partners. The purpose of this paper is to extend the literature via presentation of a framework for an empirical study on the benefits that accrue to students from the service-learning experience in a capstone marketing course.

It is recommended that a quantitative study is undertaken to assess the impact of the service-learning experience on the desired outcomes (including intellectual and personal) for students. A convenience sample of undergraduate juniors and seniors will be queried using a basic pretest-posttest methodology during the Fall 2009 and Spring 2010 semesters. The following hypotheses will be tested:

H₁: The service-learning project will have a positive impact on level of student satisfaction with the capstone marketing course.

H₂: The service-learning project will have a positive impact on student attitudes about the marketing discipline.

H₃: The service-learning project will have a positive impact on student perceptions about preparation for a position in the marketing field.

H₄: The service-learning project will have a positive impact on student outcomes related to intellectual skills.

H₅: The service-learning project will have a positive impact on student personal outcomes.

Other areas of interest include assessing changes in students' propensity to volunteer, and their sensitivity to diverse populations.

The first day of the course, students will complete a survey. The treatment will occur throughout the semester via the service-learning project. On the last day of the course, students will complete the same survey. The survey instrument will be developed from a compilation of scales used to study students in service-learning classes (Bringle et al., 2004). The reliability and validity of the scales have been tested in prior studies. Further, the survey will be comprised of multiple-item, interval scales as well as nominal scales to capture demographic information.

The data will be analyzed using paired-observation t-tests, given the anticipated sample size of about 30 each semester. Student responses will be compared between the first survey administration and the second. The pairing of observations is a more sensitive experimental design than a standard t-test, so it will convey more information (Aczel and Sounderpandian, 2005).

5. CONCLUSION

The pedagogical model used to deliver the Strategic Marketing course within a service-learning context has proven mutually beneficial. Students learn about the marketing management process through direct experience, and gain a greater appreciation for civic engagement. They also have the opportunity to collaborate with an outside agency as well as other team members, learn about the challenges associated with undertaking a service-learning task, and generate a quality product for their portfolio. Members of the non-profit community are able to complete projects that, otherwise, may not have come to fruition due to lack of resources.

Although anecdotal evidence and feedback on student evaluations about the service-learning component in Strategic Marketing have been positive, it is important to validate such findings through an empirical study. Such research will prove valuable for improving the design and implementation of the service-learning project while simultaneously addressing a void in the service-learning literature since few studies have focused specifically on marketing courses.

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COMPARATIVE ANALYSIS OF LOW-COST AIRLINES WEBSITES

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ABSTRACT

Due to many circumstances, there are more and more low-cost (sometimes called budget) airlines operating in Europe and around the world. But things change sometimes daily so it is nearly impossible to keep up to date with routes and prices. Luckily we have the Web service of the Internet where one can find teams of researches which regularly monitor available routes and maintain an accurate services database. Usually, the provided information is completely free of charge because it just refers to the airlines official websites to ensure we receive the best available prices. Thus, it is interesting to visit, observe and analyze low-cost airlines websites and find out how we can use them to inform ourselves in order to decide the right company and the right price for our traveling purposes.

Keywords: low-cost airline, budget airline, website, website pages key features, statistic analysis

1. INTRODUCTION

In today's civilized world traveling by air is not a problem. With so many information coming to our brain via different channels, we might dream to visit a place/region of the world or go on vacation based *only* on the information given by low-cost airline websites. After few steps with search engines, we reach usually a simple interface which enable us to find out which airlines provide a service on the route we want to travel. Ideas might come quickly, not only based on found webpages, but from images of elaborated charts which compare different offers.

Case study objective: to conduct an exploratory research in order to find out the stage of developing *specific* pages/elements of low-cost airlines companies in Europe.

Case study methods: visits and analysis of 14 pages/elements of 12 low-cost airlines websites. The first low-cost airline website was chosen randomly; there we selected some target pages/elements. All the pages/elements included in our case were visited and evaluated by 43 participants. The 43 sets of data were introduced in Microsoft Excel to determine the rounded integer mean values for each page/element of the websites taken into consideration. In the resulted table we calculated mean values, totals and elaborated charts; the statistic analysis was conducted in Statgraphics, as shown in the ensuing sections.

2. FINDING LOW-COST AIRLINE WEBSITES TO BE ANALYZED

In order to find lists of websites for low-cost airlines companies we used the Google search engine from <http://www.google.com>. The key word was low-cost airlines. Among the results we took into consideration LowCostAirlines.org at <http://www.etn.nl/lcostair.htm>. Within this website, for Europe it was chosen the link to LowCostAirlinesEurope.org at <http://www.discountairfares.com/lcosteur.htm>. From the list that contains the name of almost 60 low-cost airlines it was chosen randomly the name of one company and then, the first 11 from the beginning. Then we "jumped" to Wikipedia (the free encyclopedia) to the page with the List of low-cost airlines at http://en.wikipedia.org/wiki/List_of_low-cost_airlines#Europe.

We have to notice that it was not very difficult to find targeted low-cost airlines websites at Wikipedia because this organization offer (for free!) the company sites' addresses.

3. LOW-COST AIRLINE WEBSITE PAGES/ELEMENTS TO BE ANALYZED

As any other website, a low-cost airline one contains usually a very large number of web pages with many hyperlinks between them. The number of web pages is dependent on many parameters like company dimension, design team, management, target market, promotion policies, location, costs, etc. There is no

fixed number of pages per website, but, when surfing the Web, anybody can observe the existence of some commonly named pages.

For a low-cost airline company, there are many pages/elements worth considering, but our case study studies and analyses only *specific* pages/elements containing the following key features:

1. **Home Page** – to make visitors/clients feel welcome to the airline website. It offers the hyperlinks that facilitate navigation in the sites' sections and the possibility of rapidly finding the needed information. This page should contain some original graphics/images able to illustrate the main message.
2. **About us** – to introduce the company's goals, strengths and strategies. It also provides information about the company's roots and background, and – very importantly – a message from the owner or the general manager.
3. **Sitemap** – to let visitors view the entire site at a glance. It usually contains an image with active areas, with hyperlinks to related pages.
4. **Destinations** – providing all the destinations that the company operates, including related data. It might contain a less or more sophisticated animated map which can make a good impression. Special destinations offers are to be mentioned separately.
5. **Online reservations** – to provide a complex form containing many fields with validation buttons in order to be completed quickly and avoid incomplete data. Clients can choose various channels to confirm the reservation (e-mail, SMS, fax, etc.). It is one of the most important pages of the entire airline company website.
6. **Rates and tariffs** – to specify the rates for destinations of all kinds, grouped on certain criteria. This page or set of pages should have links to the prices for all the other services offered. Discount policies are to be mentioned in a special section.
7. **FAQ** – providing a systematically developed list of clear and concise answers to frequently asked questions about the low-cost airline's available services.
8. **Terms and Conditions** – a compulsory page or set of pages. Here, one should find general and special arrangements, provisions, requirements, rules, standards and a specification of restrictions for the use of goods or services. It is the best area of the website to publish the data about check-in and embarkation, refusal and limitation of carriage, schedules, delays, cancellation of flights, administrative formalities, etc..
9. **Jobs** – indicating the company's employment policies, details of how to compose and send resumes (CV's), positions available, deadlines for applications, and contact persons. It might contain subsections designed according to database principles with information regarding job requirements. A feedback online form is highly desirable.
10. **Relations with Investors** – to inform about contact details for a sample of analysts who actively published research on the key drivers and metrics behind airline's company success like: volume growth, cost containment, cost per passenger, passenger growth forecasts, etc.
11. **Events** – providing information of airline company's most recent happenings, promotions and news, usually one gets there if he/she is subscribed to receive newsletters.
12. **Services** – to present services like travel insurance, air ambulance, baggage tracking, hotel reservation at destination, rent-a-car, and all sorts of other outstanding services. It is the place where services can be promoted in order to differentiate the company on the air travel market. In case of many possibilities, the page can be organized as a list with hyperlinks to pages with more detailed data. A database could also be very helpful. The company has to be sure that the listing is comprehensive and covers all its services.
13. **Versions in foreign languages** – to facilitate the attraction of clients from different countries or target markets. Versions in widely spoken languages like English, French, Spanish, German and Italian are recommended.
14. **Contact information** – to provide information about the company location(s), a list of its main departments and a brief description of these. It is recommended to include mail and e-mail addresses, phone and fax numbers, and contact persons for each department. Photos should be included too. A feedback form can help the airline company to get timely information from visitors to the site. For example, a drop-down menu for the type of feedback (e.g. comments, bug reports, suggestions, questions) can help guide this information to the right people.

The web pages listed above should contain valuable information for all kinds of visitors, clients, especially for those willing to travel for an event (business presentation, conference, seminar, wedding, etc.). In our case, we supposed that the 43 persons who participated in the case study were tourists willing to travel low-cost within countries from Europe.

For our case analysis, first, we arranged all the sites visited and qualifiers (very poor, poor, good, very good, and excellent) in a spreadsheet file (Microsoft Excel). Then, a certain number of points were given for each qualifier: 1 for very poor, 2 for poor, 3 for good, 4 for very good, and 5 for excellent. If the site does not contain a specific page/element, the cell in the table has a "0" (zero) value. Finally, we obtained 43 tables, one from each participant. Then, it was calculated the rounded mean values of the 43 sets of scores which are illustrated in fig. 1 (together with the distributions).

PAGINA / PAGE																
Compania	Acasa	Despre noi	Harta site-ului	Destinatii	Rezervare online	Preturi si tarife	Intrebari frecvente	Termeni si conditii	Locuri de munca	Relatii cu investitorii	Evenimente	Servicii	Pagini in limbi straine	Date de contact	Total	
Company	Home Page	About Us	Sitemap	Destinations	Online Reservations	Rates and Tariffs	FAQ	Terms and Conditions	Jobs	Investor Relations	Events	Services	Foreign Languages	Contact	Total	
Ryanair	4	5	5	5	4	4	5	5	3	4	4	4	5	5	62	
Aegean Airlines	4	2	3	2	3	1	1	3	1	2	1	2	3	3	31	
Aer Arann	4	3	3	2	2	2	1	4	3	0	0	2	2	4	32	
Air 2000	3	2	0	3	3	3	2	2	4	0	0	3	0	3	28	
Air Baltic	4	3	4	2	3	2	3	3	3	0	0	3	5	3	38	
Air Berlin	3	3	4	2	3	3	3	3	2	3	0	3	5	3	40	
Air Finland	3	2	0	0	2	2	0	2	0	0	0	1	1	2	15	
Air Serviceplus	2	0	0	0	0	0	0	0	0	0	0	0	5	0	7	
Air Southwest	3	1	0	2	2	2	3	3	0	0	0	1	1	3	21	
Alpi Eagles	2	3	0	3	1	1	0	1	4	3	0	1	3	3	25	
Baboo	3	2	0	3	3	2	3	3	3	0	0	3	3	3	31	
Belle Air	4	3	0	2	2	2	3	3	3	0	0	2	3	3	30	
Media / Mean	3.25	2.42	1.58	2.17	2.33	2.00	2.00	2.67	2.17	1.00	0.42	2.08	3.00	2.92		
Qualifier																
Non existing	0	1	7	2	1	1	3	1	3	8	10	1	1	1		
Very poor	0	1	0	0	1	2	2	1	1	0	1	3	2	0		
Poor	2	4	0	6	4	6	1	2	1	1	0	3	1	1		
Good	5	5	2	3	5	2	5	6	5	2	0	4	4	8		
Very good	5	0	2	0	1	1	0	1	2	1	1	1	0	1		
Excelent	0	1	1	1	0	0	1	1	0	0	0	0	4	1		

FIG. 1 – ROUNDED MEAN VALUES & DISTRIBUTIONS FOR AIRLINES WEBSITES PAGES/ELEMENTS

NOTE: The Microsoft Excel file containing the above data and related charts can be found on the personal websites of Liciniu-Alexandru Kovács, at www.geocities.com/liciniu/index.html and www.liciniu.ro in the Research section. All sheets and charts protections are without password. Anyone can download and use the file for free.

4. CONCLUSIONS

4.1 Conclusions based on fig. 1 and fig. 2

- In our study, the low-cost airline company randomly chosen (*Ryanair*) has obtained the best score among a total of 12 companies. More precisely, it has scored (fig. 1):
 - 7 times for "excellent" (5 points),
 - 6 times for "very good" (4 points),
 - 1 time for "good" (3 points).
- Best score was obtained by the *Home Page* category (an average of 3.25 points, fig. 1).
- Poorest element is *Event* (an average of 0.42 points, fig. 1).
- About 50% of the low-cost airline companies websites have between 30 and 40 points (fig. 2).
- About 42% of the low-cost airline companies websites have less than 30 points which means that the quality of their websites is relatively low (fig. 2).

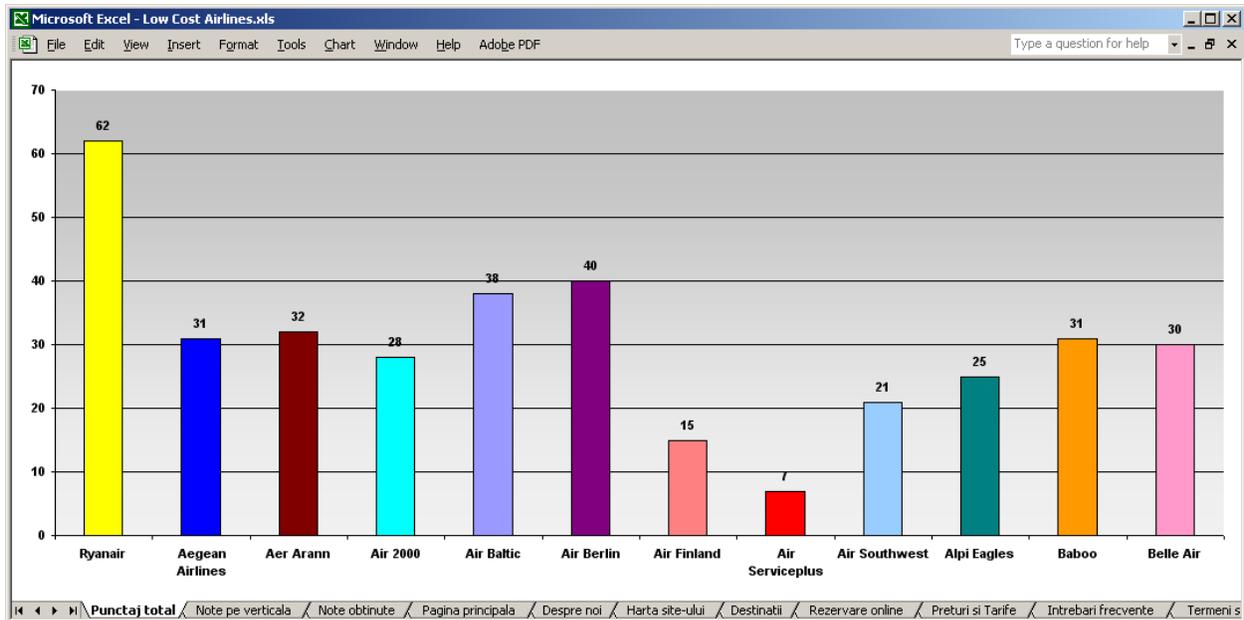


FIG. 2 – COMPARISON BETWEEN TOTAL POINTS FOR PAGES/ELEMENTS OF ALL WEBSITES

4.2 Conclusions based on 14 generated charts (fig. 3 represents one of them)

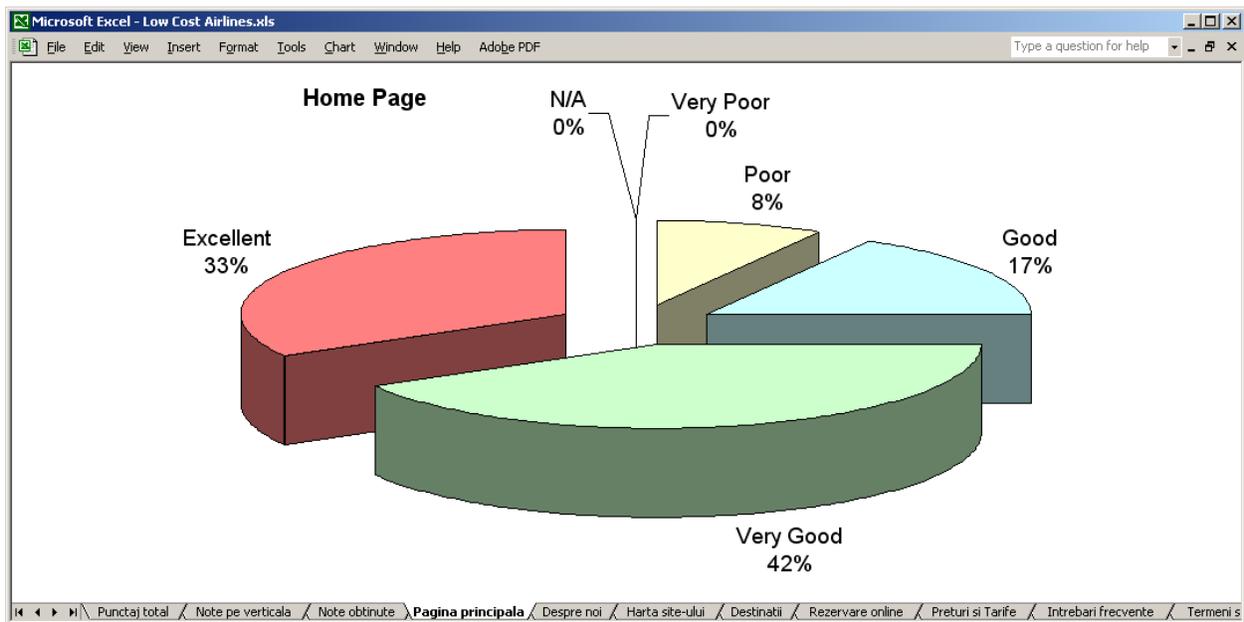


FIG. 3 – THE CHART FOR HOME PAGE CATEGORY

1. On the *Home Page* category, more than 75% are "very good" and "excellent".
2. In more than 92% of the cases, the *About Us* category is at least "good".
3. *Sitemap* category is "excellent" in 50% but is missing in 42% of the cases.
4. Almost 70% of the *Destination* category are "good", "very good" and "excellent".
5. *Online Reservations* are "good" for 34%, "very good" for 33% and "excellent" for 25% of the analyzed websites.
6. The *Rates and Tariffs* category is at least "good" for more than 75% of the cases.

7. *FAQ* is "excellent" for 25% but missing for 59%(!).
8. On the *Terms and Conditions* category more than 59% of the pages are "excellent".
9. More than 42% of the analyzed sites don't have *Jobs* category.
10. It seems that *Investor Relation* is specific only to one low-cost airline company.
11. The *Events* category is spread almost equally between non-existing to "excellent".
12. *Services* are "good" and "excellent" for more than 49% of the cases.
13. More than 17% of the websites don't have *Foreign Languages* versions.
14. *Contact* category is poor only for 17% of all cases.

5. STATISTICS

Throughout this paper we have worked with the mean values. Statistically speaking, it is important to see if the mean values are representative or not. We have obtained the following average values and coefficient of variations. Also we estimated the average of points for each website pages/elements using the confidence intervals at 95% confidence level (table 2).

TABLE 1 – ROUNDED MEAN VALUES FOR AIRLINES WEBSITES PAGES/ELEMENTS

Home Page	About Us	Sitemap	Destinations	Online Reservations	Rates and Tariffs	FAQ	Terms and Conditions	Jobs	Investor Relations	Events	Services	Foreign Languages	Contact
4	5	5	5	4	4	5	5	3	4	4	4	5	5
4	2	3	2	3	1	1	3	1	2	1	2	3	3
4	3	3	2	2	2	1	4	3	0	0	2	2	4
3	2	0	3	3	3	2	2	4	0	0	3	0	3
4	3	4	2	3	2	3	3	3	0	0	3	5	3
3	3	4	2	3	3	3	3	2	3	0	3	5	3
3	2	0	0	2	2	0	2	0	0	0	1	1	2
2	0	0	0	0	0	0	0	0	0	0	0	5	0
3	1	0	2	2	2	3	3	0	0	0	1	1	3
2	3	0	3	1	1	0	1	4	3	0	1	3	3
3	2	0	3	3	2	3	3	3	0	0	3	3	3
4	3	0	2	2	2	3	3	3	0	0	2	3	3

TABLE 2 – STATISTICS AND ESTIMATIONS FOR WEBSITES PAGES/ELEMENTS

Pages/elements	Mean	Coefficient of variation (%)	Confidence interval (at 95% confidence level)
Home Page	3.25	23.19	2.77; 3.73
About Us	2.42	51.31	1.63; 3.20
Sitemap	1.58	127.62	0.30; 2.87
Destinations	2.17	61.71	1.32; 3.02
Online Reservations	2.33	45.99	1.65; 3.01
Rates and Tariffs	2.00	52.22	1.34; 2.66
FAQ	2.00	79.77	0.97; 3.01
Terms and Conditions	2.67	48.85	1.84; 3.49
Jobs	2.17	70.50	1.20; 3.14
Investor Relations	1.00	153.74	0.02; 1.98
Events	0.42	279.48	-0.32; 1.17
Services	2.08	55.90	1.34; 2.82
Foreign Languages	3.00	58.60	1.88; 4.12
Contact	2.92	39.92	2.18; 3.66

In the above table (table 2), the values of the coefficient of variation show us that the mean value (average score) is representative only for *Home Page* category. If we generalize the average score obtained by each website page/element for all possible clients, we obtain the results from the confidence interval column.

As we have used just the same sample for all 12 low-cost airline companies, it is interesting to see some comparison of mean values of the pages/elements between themselves. Using again some statistical tools (ANOVA), we have observed that there exist considerable differences between website pages/elements at a 95% confidence level. It was interesting to observe that there are differences between: *About Us* and *Events*, *About Us* and *Investor Relations*, *Contact* and *Events*, *Contact* and *Investor Relations*, *Contact* and *Sitemap*, *Destinations* and *Events*, *Destinations* and *Investor Relations*, *Events* and *FAQ*, *Events* and *Foreign Languages*, *Events* and *Home Page*, *Events* and *Jobs*, *Events* and *Online Reservations*, *Events* and *Rates & Tariffs*, *Events* and *Services*, *Events* and *Terms & Conditions*, *Events* and *Sitemap*, *FAQ* and *Home Page*, *Foreign Languages* and *Investor Relations*, *Foreign Languages* and *Sitemap*, *Home Page* and *Investor Relations*, *Home Page* and *Rates & Tariffs*, *Home Page* and *Services*, *Home Page* and *Sitemap*, *Investor Relations* and *Jobs*, *Investor Relations* and *Online Reservations*, *Investor Relations* and *Terms & Conditions*.

TABLE 3 – STATISTICS AND ESTIMATIONS FOR THE 12 LOW-COST AIRLINE COMPANIES

Pages/elements	Mean	Coefficient of variation (%)	Confidence interval (at 95% confidence level)
Aegean Airlines	2.21	44.03	1.65; 2.78
Aer Arann	2.29	58.01	1.52; 3.05
Air 2000	2.00	70.71	1.18; 2.82
Air Baltic	2.71	50.94	1.91; 3.51
Air Berlin	2.86	38.48	2.22; 3.49
Air Finland	1.07	100.02	0.45; 1.69
Air Serviceplus	0.50	280.11	-0.31; 1.31
Air Southwest	1.50	81.65	0.79; 2.21
Alpi Eagles	1.79	76.65	0.99; 2.58
Baboo	2.21	56.51	1.49; 2.94
Belle Air	2.14	63.31	1.40; 2.89
Ryanair	4.43	14.59	4.05; 4.8

In table 3, the values of the coefficient of variation show us that the mean values (average scores) are representative only for *Ryanair* and *Air Berlin* low-cost airline companies. If we generalize the average score obtained by each analyzed company for all possible clients, we obtain the results from the confidence interval column. In fig. 4 the confidence interval can be seen as Lower limit and Upper limit columns.

As we have used just the same sample for all 12 low-cost airline companies, it is interesting to see some comparison of mean values of the low-cost airline companies between themselves. Using again same statistical tools (ANOVA), we have observed that there exist considerable differences between website pages/elements at a 95% confidence level. It was interesting to observe that there are 31 differences between website pages/elements, as seen in fig. 5.

6. CONCLUSIONS

In order to obtain better results, one can increase the number of visited websites or the number of visitors who evaluate websites, and can use several Internet browsers (e.g. Internet Explorer, Opera, Mozilla, Konqueror, Netscape, FireFox, Hot Java Browser, etc.) under different operating systems (e.g. Windows, Linux, Solaris, etc.).

From the statistic point of view, it is necessary only to increase the sample volume (the number of visitors) and to work directly the primary scores.

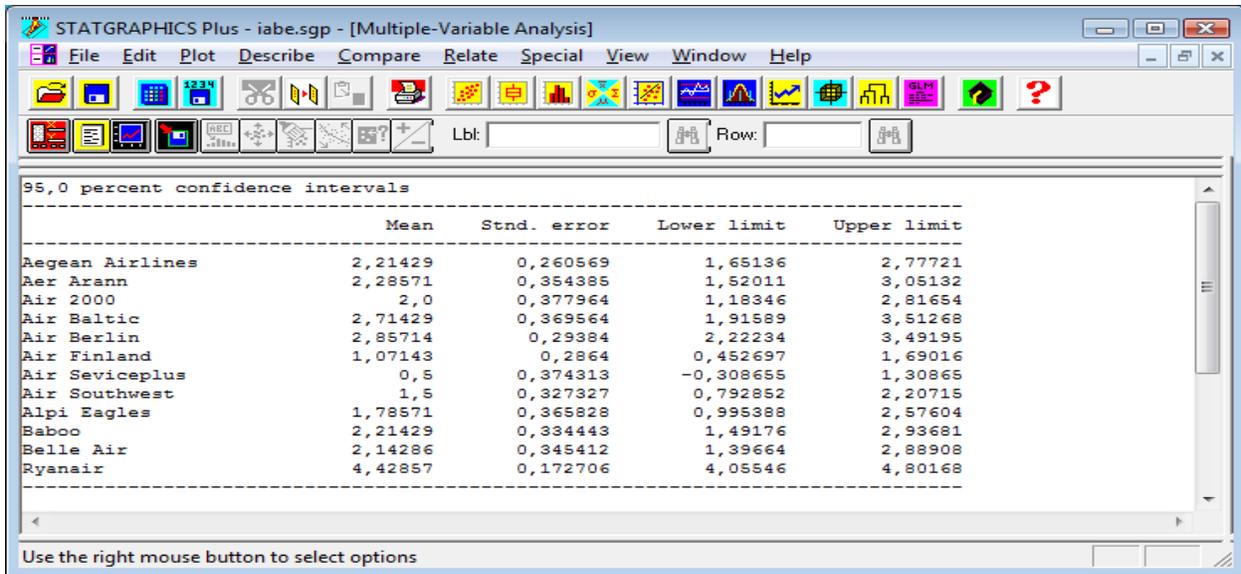


FIG. 4 – STATISTICS AND ESTIMATIONS IN STATGRAPHICS

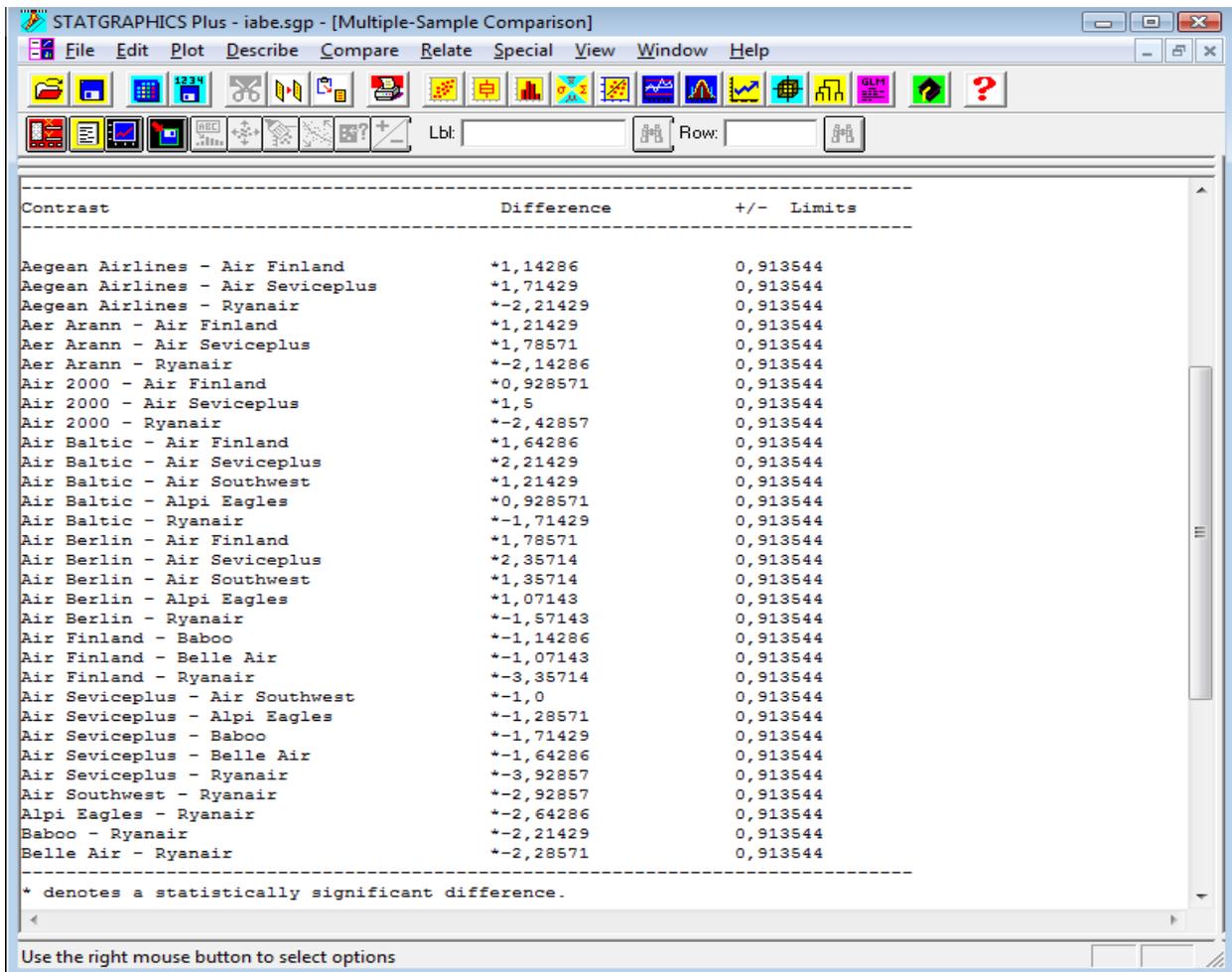


FIG. 5 – CONSIDERABLE DIFFERENCES BETWEEN WEBSITE PAGES/ELEMENTS

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DEVELOPING A CASE STUDY IN OPERATIONS MANAGEMENT STRATEGY.

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ABSTRACT

This paper relates to a text directed to make part of a book of management and a way to differentiate it from many other national and international books is offering students additional information from outdoor scenarios beyond their countries and cultures. Assuming that an important and usual tool for nowadays students is internet the text uses a structure to involve them in the learning process following concepts – the text itself – and selected bibliography by review questions, points for discussion and finished by case development. Developing a text book about strategy in operations management which uses case study as a teaching method in a global context is a great challenge. The case needs to be: a. related with the key concepts in the text book, and b. interesting to different people from different cultures with specific moments, issues and languages. The text below refers to strategy in operations and services management and at the end five companies are mentioned as cases to reinforce the text comprehension. These examples will be developed in order to show specificities, strengths and shortages, starting with general data and some questions driving to key concepts; this idea requires student participation through internet sites reinforced by interviews with people involved in key positions inside these operations. The intention is to present for discussion possibilities in order to achieve a suggestion of case, and topics it may contain. This work does a route to an exercise to be done by students in class supporting a text book about Operations Management and assumes the essential role teacher plays as tutor of this process.

Keywords: operations, processes, value chain, teaching

1. INTRODUCTION

This work refers to an introductory text about operations management intended to international students. Going beyond exclusively the text a targeted objective is to offer students information they value in their learning experience. The content and format below deals with this intention:

1. compose the text
2. offer to students a way of learning different from usual management and operations

texts.

The idea is to think along with teachers about students learning process through their involvement in a case building which achieves interesting and clear structure and steps for every participant – in ways for teacher orientation and student search for data.

The following text is in a book format.

2. WHAT IS OPERATIONS MANAGEMENT

Many developments have occurred in the last decades in businesses – in economy, technology, knowledge, communication, society, individuals – which have brought many changes and improvements in operations management, such as speed increase in cost reduction, capabilities, and time to market. Operations management involves design, implementation and continuous improvement of processes and systems to produce and offer products and services to target markets. It is a process of transformation, in a manufacture company or in a service firm, from many inputs and suppliers to products and services aimed to specific customers.

Operations include all the activities an organization undertakes to reach its objective of making a product or service to the market. Operations are related with processes of transforming inputs into products and services directed to satisfy clients, offering to those clients perceived value. In this sense, its management includes all departments in the organization and have deep relationship with marketing and manufacturing, as well as strategy. Integration and coordination of many people from different departments is the key element for successful operations management in the organizations. For instance, let's think in needs and work of finance and accounting, of production, manufacturing, engineering and research-development, of sales and marketing, of logistics and distribution. And all

of them with specific nature of resources in terms of human, capital, structure, and so on. It is a rich and challenging function, totally connected with the strategy of the firm, mainly nowadays considering the reality of global and national competition for new technologies, new ways of showing and delivering companies' expertise, new ways of communication with stakeholders, and so on.

3. STRATEGY IN OPERATIONS MANAGEMENT

Strategy in Operations Management is crucial to achieve objectives purposed by organizations. In manufacturing and service industries operations strategy seeks to achieve performance demands in operations through planning and control of resources and capabilities, in touch with marketing function, since designing the offer until delivering it. So, strategy for operations and services management develops linked to organization global strategy, is linked to marketing, and has increasing importance in present and future times. When talking about strategy we may consider the main objective of pursuing and achieving long term competitiveness, which includes low cost and differentiation. That objective relates to operations key elements: *processes* and *value chain*, that must be well understood, designed and implemented in order to be superbly managed.

A blueprint of operations strategy shall include:

- internal capabilities (know-how, knowledge),
- suppliers capabilities,
- tools used for quality, inventories, IT systems, R&D,
- finance control and management,
- logistics and distribution,

and translate these into processes along a value chain, in order to fulfill customers needs, wishes and expectations.

Operations strategy is required due to these many variables involved in its function, and clearly is an idea of systems and people.

4. MAIN DEFINITIONS

Talking about main definitions in the area of operations can give us a clear view of the scope of operations management.

Processes are activities to be done in order to achieve objectives, using resources to create products and services; they transform inputs into outputs valued by customers. Examples of activities may be transportation, information processing, order input, storage, manufacture, and delivery. These activities link inputs to outputs in a structure of flows. Operations management must design processes structure in order to plan and control inputs and flows of people, tangibles and data – for example, materials and orders. A way to help people involved in operations to visualize processes is *Process Flow Analysis*, which is a blueprint in graphic format with all the information needed in symbols of activities and their flows. *Process flow diagram* presents a picture of a process layout with movements from activity to activity, and *flow charts* show process activities in a movement drawn from left to right, and through workflow software provide assignment, scheduling, work list, routing and metrics. In these diagrams tasks are shown as rectangles, flows as arrows, storage of goods as inverted triangles, decision points as diamonds.

These processes will be evaluated by all stakeholders involved with the organization, be they clients, suppliers, community, etc A process may involve many departments and require different resources and work, from internal and external sources. Besides the main objective of external clients, we always have internal clients who depend on us, and our suppliers may be internal and external whom we depend on. And many times one process depends on other process. This idea of process management reinforces the magnitude of operations strategy because it is required to examine structure and capacity needed to undergo the process (bottlenecks), the connection with other processes (interfaces), metrics to evaluate performance (in terms of time, quality, cost, flexibility), results compared to marketing targets and objectives.

Operations management must evaluate every process through the optics of value to customers, and compare it with benchmarking against similar practices of most effective firms in the industry, in

order to change it – to eliminate wasting activities – and increase value added. In a more radical way there is the reengineering idea to redesign business processes and achieve dramatic improvements in performance, Business Process Reengineering – BPR. BPR starts by the vision of what is the ideal for a process from the customer point of view; so it redesigns radical, large changes via empowerment, concentration, IT, integration, focus in outcomes. Many other systems related to production effectiveness are TQM (Total Quality Management), lean production, cellular manufacturing among others which may differ from BPR in their continuous improvement versus discontinuous change of BPR.

Processes may have manufacturing and service nature and these specificity is relevant due to characteristics of services, mainly the interaction between client and employees during production and delivery as well as the intangibility of services what brings peculiar clients perception to this interactive experience.

Anyway, clients role, not only in services but even in manufacturing is more and more crucial and needed to be taken in sensible and, let's say, "soft touch" consideration, as key factor for success of all the operation management. Despite the industry in which a company acts, be industry or services, retailing and so on, in general we can observe processes of manufacturing and services in any organization. And the fundamental issue for strategy in operations management is processes value added directed to clients. So, the idea of value chain, inter-relating all activities, steps and processes that an organization undergoes, taking in consideration factors of performance and productivity – like cost, time, quality and flexibility – is the main strategic factor to be managed.

In this vision of value chain, the processes involve suppliers, research, development, design, manufacturing, communication, delivery, clients. It is a chain because everything is a ring in an inter-depending chain of processes and clients-suppliers interaction. Some of these processes are critical and must be considered with special attention and careful management using checkpoints and specific decision taking procedures.

At this point we must observe the strict relation among operations, marketing and strategy, linking short and long term decisions along with required resources and skills in processes and value chain which connects suppliers and clients, internal and externals to the organization.

In this sense, operations management strategy must seek *market orientation* – focus in clients of segments to which the products and services are offered – and constant evaluation of *capabilities and competences* needed in the value chain processes.

5. SUMMING UP THE IDEA OF STRATEGY IN OPERATIONS MANAGEMENT

Operations must work on *processes* – plan, think, act – in touch with strategy (mission, vision, long term, resources, costs, differentiation, competitive advantage) and marketing (clients behavior, needs, wishes, expectations), within multidisciplinary interaction and multifunctional teams.

In such a reality it is not enough standardization, total quality, mathematics tools, IT systems. But mainly to be prepared to change, to analyze and cope different and new variables in order to solve new problems. And there is a growing need to *value chain* efficiency, social and environmental responsibility, global operations, IT virtual teams, knowledge workers, sustainability. This is translated in networks, competitiveness, consumer behavior, open innovation, flexibility. What a great opportunity to people interested in personal and professional development and actualization!

In this environment we can outline some trends for operations management such as:

- performance and productivity pursuit;
- global competition for resources and clients;
- search for new technologies;
- sustainability – social, environmental, competitiveness;
- human behavior – employees, customers, suppliers;
- open innovation.

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7. REVIEW QUESTIONS:

1. Take into consideration the concepts of *processes* and *value chain*. Make a connection between them.
2. Relate these concepts with operations management strategy.
3. Why productivity and value are relevant to operations management strategy?

8. DISCUSSION

1. Explain why operations is linked to strategy and marketing. Discuss these three areas specificities, roles and focuses.
2. Search on the internet for the strategy of business and of operations for a manufacture and for a service company. Try to specify their differentiation, and connection among strategy, operations and marketing. Analyze and comment; compare both situations.

9. CASE DEVELOPMENT

Orientation: student may use *examples*, seek for operations managers *Interviews* and *statements*, evolve to a *Project* by interested students, raising *research questions*.

It starts with an assignment:

- examine the cases of Operations Management Strategies through the sites of these 5 companies below,
- try to obtain data in order to make a *description* of each business operations and to specify characteristics, focus, scope, what could be essential to their value chain and main processes – in their original country and in one affiliate country, for instance Brazil:

1. Wal-Mart – retailing
<http://www.walmartstores.com/aboutus>
<http://www.walmart.com.br/Vitrine/Home/Home.aspx>
<http://pt.wikipedia.org/wiki/Wal-Mart>
2. Procter & Gamble – personal care products
http://www.pg.com/pt_BR/

<http://www.pg.com/company> (also /products)

3. Magazine Luiza Brazil –retailing (department stores) chain - from Brazil

<http://www.magazineluiza.com.br/quemsomos>

http://pt.wikipedia.org/wiki/Magazine_Luiza

4. Scania Brazil – trucks

<http://www.scania.com.br/>

<http://www.scania.com/>

<http://scaniaimagebank.spprod.com/>

<http://pt.wikipedia.org/wiki/Scania>

5. Volkswagen Brazil – trucks and buses

<http://www.vwtrucksandbuses.com/pt/>

<http://www.vwbr.com.br/>

We prepared the data below extracted from the sites, on april/09/2009, viewing the main concepts from the text:

1st. W-M link: <http://www.walmartstores.com/aboutus> (also /suppliers /logistics)

a. Industry (nature; size)

retailing (super market) company; today over 7,800 stores in 16 markets worldwide; employ more than 2 m. associates and serve more than 100 m. customers per year.

b. Mission (strategy; objectives)

“we save people money so they can live better”. (low prices for best quality merchandise).

c. Suppliers

thousands of suppliers in every merchandise category that range from one person shops to multi-national corporations

d. Processes (manufacture, operation specialty, service)

Manufacture: create purchase value (cost/quality)

Operation: in logistics and retailing

Service: in stores, related to purchases

e. Value Chain

suppliers, logistics (storage, distribution), stores, clients

f. Differentiation

truck drivers – our drivers are a critical part of our mission; we have the best truck drivers in the country and they play a big part in our company success; safety is our priority

g. Operation Key Factor/Critical Processes

client needs, cost or prices, service, purchasing, distribution, stores

h. The Client

families

i. Comments/Remarks: the site really shows that “the company saves people money for their better lives”; information is very precise accordingly to its mission.

2nd. Procter & Gamble link: <http://www.pg.com/company> (also /products)

a. Industry (nature; size)

consumer products industrial company; producer of products in nearly 50 categories — from toothpaste to bone-disease therapies — the breadth of P&G's business has allowed us to connect technology across categories in some unexpected ways; here you can learn the secrets behind the P&G discoveries you use every day; from the invention of diapers that prevent diaper rash, to the mystery of shampoo and conditioner in one, this is your home for the science behind the brands

b. Mission (strategy; objectives)

we will provide branded products and services of superior quality and value that improve the lives of the world's consumers, now and for generations to come; as a result, consumers will reward us with leadership sales, profit and value creation, allowing our people, our shareholders and the communities in which we live and work to prosper; three billion times a day, P&G brands touch the

lives of people around the world; our corporate tradition is rooted in the principles of personal integrity, respect for the individual and doing what's right for the long-term

c. Suppliers

thousands of suppliers in every product category that range from personal and beauty, house and home, health and wellness, baby and family, pet care and nutrition

d. Processes (manufacture, operation specialty, service)

Manufacture: technology, innovation, produce quality and value (cost/quality)

Operation: manufacture, and logistics

Service: in stores

Marketing: advertising and communication give support to all operation

e. Value Chain

suppliers, manufacturing, logistics (distribution to stores), marketing, clients

f. Differentiation

quality, technology/innovation, leadership

g. Operation Key Factor/Critical Processes

consumer needs, cost or prices, technology/innovation, manufacturing, advertising, distribution, stores

h. The Client

retailing, consumers (families)

i. Comments/Remarks: the site shows company principles and its relationship with operations, which is directly related to strategy and marketing; information is very detailed.

3rd. Magazine Luiza link: <http://www.magazineluiza.com.br/quemsomos> (site in portuguese language)

a. Industry (nature; size)

retailing (department store) for middle and low income markets, which began in the interior of Sao Paulo state, the richest one in Brazil; today has over 500 stores in seven states in central and south regions of Brazil and moved into metropolitan areas; employees number not specified.

b. Mission (strategy; objectives)

to be competitive, innovative and bold, living common welfare; "our associates are the true soul of our business" (they are the core, they deserve frank and truth communication); adopt attitudes to generate customer happiness; be useful to community to which you belong; make it happens with simplicity, harmony and order; slogan: "come be happy"

c. Suppliers

many suppliers in every merchandise category

d. Processes (manufacture, operation specialty, service)

Manufacture: create purchase value (cost/quality)

Operation: in logistics and retailing

Service: in stores, related to purchases

Marketing: to know (needs and habits) of consumer from middle and low income markets (classes C-D)

e. Value Chain

suppliers, logistics (storage, distribution), stores, clients

f. Differentiation

human resources management

g. Operation Key Factor/Critical Processes

client needs, cost or prices, service, purchasing, distribution, stores

h. The Client

people, families

i. Comments/Remarks: it is a site directed mainly for sales; on "who we are" information reinforces people role for company development during its 50 years history (since beginning in 1957); information is less detailed than two previous cases.

4th. Scania Trucks and Buses link: <http://www.scania.com>

a. Industry (nature; size)

today Scania is one of the world's leading manufacturers of heavy trucks and buses. Industrial and Marine Engines is another important business area; the company also markets and

sells a broad range of service-related products and financing services; Scania is an international corporation with operations in more than 100 countries; the number of employees is more than 28,000; a technologically advanced modular specification system has made Scania the heavy vehicle industry leader in terms of profitability.

b. Mission (strategy; objectives)

Scania's mission is to supply its customers with high-quality heavy vehicles and services related to the transport of goods and passengers by road; by focusing on customer needs, high-quality products and services, as well as respect for the individual, Scania shall create value-added for the customer and grow with sustained profitability.

c. Suppliers

many suppliers

d. Processes (manufacture, operation specialty, service)

our ambition is to supply the world's most demanding customers with the most competitive and optimal solutions for their needs; our products and services shall fulfill our customer expectations well; we intend to keep our premium position in the industry; we must therefore continually improve our skills and working methods, so we can outperform our competitors; to achieve this, our leadership is focused on common values, principles and working methods.

e. Value Chain

vehicles, services and customer financing.



e. Differentiation

Scania's identity is something that gradually has emerged over the years, shaped by our customers, products and people; it reflects our mentality at Scania and the way we act. Scania's products – vehicles, services and financing – are designed to give its customers high profitability in their operations; the Scania brand represents high quality and operational efficiency; Scania is a premium brand; we strive to make our customers feel proud to own and drive a Scania; the Scania brand should generate professional respect among colleagues, competitors and customers; we also want our customers to feel confidence in their investment; trust is important both in terms of the physical product and reliance in the collective capabilities of Scania's organization; our brand values - "pride" and "trust" - must be reflected in everything we do.

f. Operation Key Factor/Critical Processes

client needs, manufacturing, quality, services

g. The Client

Scania's operations focus on heavy commercial vehicles for transporting goods and people by road; this is the segment where the requirements - along with the profitability and growth - are the highest; vehicles in the heavy segment are often driven long distances and have a high degree of utilization; transport operations in this segment are dependent on appropriately specified and reliable vehicles as well as comprehensive services in order to be profitable.drivers - for professional use.

h. Comments/Remarks: it's a very well designed site in relation to its product/services, segment, and positioning (brand image).

5th. VW Trucks and Buses link: <http://www.vwbr.com.br/VW> Brasil/Historia/Caminhoes-e-Onibus

a. Industry (nature; size)

manufacturers of heavy trucks and buses, since 1980

b. Mission (strategy; objectives)

quality products developed and assembled to satisfy consumer wishes

c. Suppliers

many suppliers

d. Processes (manufacture, operation specialty, service)

Manufacture: modular consortium

Operation: manufacture, and logistics

Service: technical assistance

- e. Value Chain
suppliers, manufacturing, logistics (storage, distribution), financing, clients, assistance
- f. Differentiation
modern and flexible factory
- g. Operation Key Factor/Critical Processes
client wishes, services 24 h., modern products
- h. The Client
professional drivers and businesses
- i. Comments/remarks: based on brazilian site, poor in information about trucks and buses, more directed to automobiles; emphasis in quality and brand recognition, leader in the segments of middle weight trucks and buses.

10. Case Development - Comments to the Teacher

Using these five sites as examples, we did a route to an exercise to be done by students in class or as support to a text book about Strategy in Operations Management. Many relations can be made inside the same industry, like retailing, or trucks and buses, and also among different industries and companies. Also appear opportunities to other connections like the communication tool used differently by each company, what is a different subject, more related to marketing and communication, but anyway interesting due to its influence on effective and successful strategy communication to their different stakeholders.

Specifically to the exercise, as a first step professor shall emphasize the key concepts stressed at the eight topics from a. to h. – from industry to client – as a general idea of the subject, and explain to students that operations deals equally with manufacturing and services, and is directly related with strategy and marketing, and their main concepts – mission, differentiation, leadership, costs, long term, and clients (needs, wishes), markets, segments, services, people. In sequence, the students shall be invited to search specified sites (by the teacher) of companies from different industries – at least two companies from each industry – to probe for these eight key concepts sites: 1. search, 2. analyze, and 3. compare.

The justification to this task is that it is observed that the net is the primary source of data to this present generation, being usual, easy and friendly. So, it can be a useful tool to concepts comprehension and analysis development.

In addition to data obtained on the sites, as exemplified above, by the teacher, students could build a case about the companies operation strategy, using interviews with people involved in key positions inside these operations, with a guide discussed between teacher and students, considering time available and objectives for learning and research.

To go ahead we shall analyze adding to this exercise other medias and electronic tools like *second life*, as well as *wikis* and *blogs* related to those companies and their industries as sources of data to students to search.

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TEACHING EXCELLENCE IN HIGHER EDUCATION: TAKING THE TIME TO TEACH

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ABSTRACT

This study discusses teaching excellence in business higher education, looking at the importance of taking the time to teach in order to motivate students to effectively learn. In accomplishing this goal, the discussion focuses on examples in the literature, and the results of qualitative learning assessments conducted in two undergraduate classes and one graduate class in the East Coast of the United States. The purpose is to suggest that rather than diluting the content of a course, taking the time to teach students and showing that the instructor cares for his or her students' learning are more efficient ways to succeed in helping students to learn successfully. Limitations of the study and suggestions for future inquiry are also offered.

Keywords: *Teaching excellence, effective learning, effective teaching, qualitative learning assessments, learning goals, learning experience, taking the time to teach*

1. INTRODUCTION

An incident which happened the first day of class to one of the authors teaching graduate students at a hospital facility informs this discussion. The students were all professionals in the Health industry, and many were returning to school, some, 20 years after having graduated with their bachelor's degrees. These students have been holding positions of responsibility for many years and were working under a tight schedule. After introductions and coverage of the first chapters, the instructor ended the class session. At that time, a group of students made up of nearly half of the class approached one of the authors, the instructor of the course, making it clear the instructor had to change the syllabus. The students' claim was that the workload as laid out in the syllabus was too heavy for individuals who came to class after a long day at work. The instructor acknowledged the students' request and promised to get back to them with an answer.

When that group of students left, a different group of students from the same class, who remained silent during the preceding outburst from their classmates approached the same instructor. This group of students, constituting nearly the remaining half of the class, made it clear that the first group of students was not representative of the whole class. The students from this second group indicated that the workload did not bother them. They added that their classmates who complained about the workload should feel free to leave the class, if they did not feel capable of performing under the conditions laid out in the syllabus. To end their intervention, this same group of students underscored they were just as busy as the students in the first group. However, they added, they were aware of the constraints of going to graduate school, while holding a full-time job. The instructor acknowledged the students' intervention and promised to get back to them, just as was the case with the students in the first group.

This incident proved to be the catalyst for many students in this graduate class. From whiners, the students in both groups offered an outstanding performance during the course of a busy semester. This outcome crystallized the importance for instructors to dedicate the time to effectively teach students, practicing active care towards the students in the process.

1.1. Purpose

This discussion purposes to offer that diluting the content of a course to accommodate students or attempt to gain students' acceptance is counter-productive and contrary to the notion of excellence in teaching. It further offers that taking the time to teach is the best way for business instructors to achieve teaching excellence in business higher education.

1.2. Objective

Thus, this study has a two-prong objective. The first prong is to underscore the importance of taking the time to teach and practice active care towards students in order to achieve teaching excellence. The second prong of this study presents the results of a qualitative study that the authors conducted during the course of a semester at a private institution of higher learning in the East Coast of the United States. These results stress how critical it is for instructors to invest in their students' learning if instructors are to achieve teaching excellence.

1.3. Contribution

The present study extends the literature on learning and teaching by emphasizing the value of implicitly investing time to teach and care for students in order to reap the benefits of teaching excellence in business higher education. A study of this nature is of value to those in academia interested in the effectiveness of the learning process to the benefit of the students. Both instructors and administrators will see value in this study, as it stresses the importance of instructors' actions and the role these play in helping students to effectively learn, even as administrators have an interest in instructors' success.

1.4 Plan

First, this discussion will review the literature on learning and teaching, leading to the identification of a gap the study seeks to fill. The discussion will subsequently review the meaning of taking the time to teach as understood in this study, looking at the importance of doing so, in light of the results of the qualitative study mentioned at the outset of this discussion. Limitations of the study and suggestions for future study will conclude the present reflection.

2. REVIEW OF THE LITERATURE

The literature on learning is profuse and stresses the value of helping students to go beyond problem-solving in their quest for knowledge (Argyris, 1991). Besides answering questions (Atwater, Kannan & Stephens, 2008), the learning process needs to be engaging, inspiring (Auster & Wylie, 2006), and genuine (Argyris, 1997). This will motivate students to acquire the essence of the material to which they are exposed, while taking in the skills necessary to make their learning experience effective (Argyris, 1997; Atwater et al., 2008; Auster & Wylie, 2006) and active (Auster & Wylie, 2006).

In order for students to attain the level of learning described above, instructors have to painstakingly prepare for their classes (Auster & Wylie, 2006), ask for feedback (Ouellet, 2007; Valsan & Sproule, 2008) in order to achieve continuous improvement (Auster & Wylie, 2006) and create a community where the instructors' actions foster learning (Valsan & Sproule, 2008), rather than hampering the learning process (Argyris, 1991).

2.1. Gap

Discussing learning and teaching as related to business higher education is a useful debate (Ashknasy, 2008) and one that needs to incorporate soft variables such as the motivation serving as a backdrop to behavior (Goleman, 1994), the understanding of which is critical when assessing convoluted systems (Atwater et al., 2008). This study responds to the call for different approaches in building theory, using a qualitative approach to reinforce the point that good teaching and achieving excellence in teaching can be

studied (Garvin, 2007). Furthermore, this study answers the call for more studies recognizing the importance of cultivating pedagogic care (Hawk & Lyons, 2008), offering that taking the time to teach is exemplifying the pedagogy of care. Thus, the present study extends the literature on the pedagogy of care by suggesting that taking the time to teach or practicing genuine care (Goleman, 1994) towards the students is a better way to achieving teaching excellence than watering down one's teaching to seek students' approval.

3. TAKING THE TIME TO TEACH AND WHY IT IS IMPORTANT TO DO SO

3.1 Taking the Time to Teach

To build on the ideas expounded in the previous paragraphs, this study concurs with previous studies hinting that caring for students is an important component of successful teaching (Hawk & Lyons, 2008), albeit one that is time consuming. This study offers that caring for students is part of a continuum leading to achieving excellence in teaching, the whole continuum being captured by the notion of taking the time to teach. For the purpose of this study, then, taking the time to teach encompasses the following range of instructors' actions. (1) Practicing care towards the students (Hawks & Lyons, 2008; Hills-Barlow, Naegle & Bartkus, 2009) and developing empathy (Goleman, 2004), while paying attention to differences between students (Hills-Barlow et al., 2009); (2) reflecting on one's teaching (Ouellet, 2007) and investing time in actively seeking to be a good teacher (Vrom, 2007), instead of expecting that good and effective teaching will fall down from the stars, as this will not happen (Ouellet, 2007); (3) engaging in learning that involves fruitful relationships with students (Avery & Steingard, 2008) and in an active process (Burke, James, & Ahmadi, 2009) that makes learning vivid for the students (Atwater et al., 2008); (4) engaging in instructor-student discourse that is supportive and motivational to students (Turner & Patrick, 2004); (5) maintaining contact and making feedback a tool to enhance students' learning (Ouellet, 2007); (6) being genuinely sensitive and authentic; and above all, (7) Taking the time to engage in all these facets, in order to achieve excellence in teaching.

3.2. Why it is Important to Take the Time to Teach

It is rewarding (Auster & Wylie, 2006) to be engaged in the process of seeking to achieve excellence in teaching. As a caveat to this statement, there is an apparent lack of reward and recognition vis-à-vis the time instructors invest into teaching, as administrations seem to be paying only lip service to excellent teaching, while rewarding excellence in research (Terpstra & Honoree, 2009). Nevertheless, recognition should be given to the fact that excellence in teaching has become a virtual mandate in most business schools (Auster & Wylie, 2006). Inextricably intertwined with the concept of excellence in teaching is effective student learning. The achievement of effective student learning is highly dependent on instructors investing time to teach, which involves achieving the wide range of instructors' actions outlined in the immediately preceding section.

The process of formulating teaching plans and instructional endeavors that capture all these elements demands considerable thought, time and effort on the part of instructors. In a study conducted to determine what makes a great teacher, Bain (2004) found that exceptional teachers, when designing lectures, class discussions, problem-based sessions and other intellectual exchanges, contemplate a rich line of questioning that derives from student learning objectives, rather than focusing merely on what the instructor plans to do. Thus, instructors committed to teaching excellence and effective student learning appreciate that their commitment of time is crucial to the formulation of the lesson designs and delivery approaches that will yield optimal results with students. These instructors tend to trust in students, believing that students want to learn (Bain, 2004).

Moreover, effective instructors must devote substantial time in order to realize success in their quest to foster deep learning by students and, as a result, notice measurable results among their students (Bain & Zimmerman, 2009). "Deep learners" place significant emphasis on understanding course materials, giving thought to implications, ideas and concepts, as well as contemplating alternate applications of what they have learned (Bain & Zimmerman, 2009). They are distinguishable from "surface learners" and "strategic learners". The former group, restricted by their limited understanding of information conveyed,

find safety in “parroting” information and tend to fumble when faced with questions that are presented differently from the manner in which they had been initially. The latter group is primarily concerned with navigating the paths to getting good grades, rather than pursuing the intellectual route of solidifying their understanding or mastering application of course contents (Bain & Zimmerman, 2009).

Teaching excellence necessarily calls on instructors to devise ways to engage and motivate both groups of students to learn. Instructors can meet these objectives by taking time to conceptualize strategies to present course material in ways that will cause students to recognize and appreciate the relevance of the material, call on students’ potential and competence, and permit students’ exercise of autonomy (Vansteenkiste, Lens, & Deci, 2006). Students are more likely to learn when the course material tends to answer their questions of interest (Bain & Zimmerman, 2009). Understandably, students have no control over the questions, the curriculum design and shaping of questions falling within the domain of instructors (Bain & Zimmerman, 2009). Consequently, it behooves the effective teacher to design questions central to the course material that has the dual impact of speaking to the students’ question of interest while simultaneously enabling students to tackle various learning objectives, but in a way that invokes maximum intrigue and inquisitiveness (Bain & Zimmerman, 2009). Harris-Lacewell, a professor of political science, rephrased her desired question from “How did Reconstruction influence the development of political institution and traditions, and social and economic realities, especially for African Americans?” to a current-day question that was on the minds of many, “What in the world happened with Katrina? How did a Category 3 hurricane – certainly not the biggest beast ever to churn the Gulf waters – wipe out an American city? How did that disaster happen?” (Bain & Zimmerman, 2009). She posed questions, the answers to which students pursued with great eagerness. At the same time, she exercised teaching excellence and fostered effective student learning.

Fostering a teaching environment that permits instructor-teacher discourse that is supportive and motivational to students also leads to teaching excellence and effective student learning (Turner & Patrick, 2004). Supportive instructional discourse includes the following: (1) statements that help students understand and encourage students to explain their thought processes, rather than steering them to a “right answer” versus “wrong answer” approach (Turner & Patrick, 2004). Instructors focusing on teaching excellence are more likely to take the time needed to employ this method, recognizing students’ potential and competence. Moreover, these instructors show trust in students’ abilities, assuming that they can learn (Bain, 2004).

Despite increasing calls for greater accountability (Terpstra & Honoree, 2009) and the importance accorded evaluations in most institutions of higher learning (Valsan & Sproule, 2008) teaching generally remains a self-monitored process (Valsan & Sproule, 2008). Bain (2004) noted that successful instructors studied and implemented systems for assessing their own performance and modifying their instructional methods, as appropriate. Thus, instructors can use students teaching evaluations to help students learn how to learn (Atwater et al., 2008; Valsan & Sproule, 2008), even using students to conduct meaningful research (Vrom, 2007) and making students active agents in the process of achieving teaching excellence (Cook et al., 2007). For instance, this can be done using assessment of learning goals laid out in syllabi, inviting students’ reaction regarding their perceptions about the achievement of these learning goals. Subsequently, instructors can use the results of such surveys in fine-tuning the tools used in helping the students to effectively learn (Argyris, 1997).

4. THE RESULTS OF THE QUALITATIVE STUDY

TABLE 1				
Results of Qualitative Survey to Assess Students Learning; Number of Respondents				
From All classes Surveyed				
	GBA512	MAN 131	MAN101	Total Number of Students Surveyed
Number of Students in Class	30	20	30	80
Number of Respondents	9	17	26	52
Percentage of Respondents	30	87	85	65

TABLE 2					
Results of Qualitative Survey Assessing Students Learning; Results Per Class					
	Excellent/Good	Average	Bad	N/A	Total
GBA512					
Percentage of Answers	92	4	0	4	100
MAN131					
Percentage of Answers	96	4	0	0	100
MAN101					
Percentage of Answers	82	17	.5	.5	100

The process expounded in the previous paragraph is the one the authors in this study followed. Students in a private institution of higher learning in the East Coast of the United States were actively engaged in shaping the tools for their own learning by responding to surveys administered to three classes. Tables 1 and 2 summarize the results hereunder presented. The first survey was administered to a graduate class made up of 30 students. 9 students returned their surveys filled, making up a response rate of 30%. The survey contained 13 questions and 63 answer choices. The questions were measuring the level at which students felt learning goals were achieved. The choices offered were the following: "excellent," "good," "average," and "bad." 92% of answer choices were "excellent" and/or "good," 4% of the answer choices were "average," and 4% were left blank. The results of the qualitative study also indicated these students favored debates and case studies as tools to help them learn effectively. As a result, the instructor made an increased use of these tools in facilitating the students' learning, which resulted in students showing more involvement and success in their learning.

The second series of surveys were distributed to a class of 20 undergraduate students, and a class of 30 undergraduate students, respectively. 17 students filled the surveys distributed to the class of 20 students, a response rate of 85%. Out of 102 answer choices, 96% were "excellent" or "good." As in the

surveys administered to graduate students, the questions were asking students to rate the level at which they felt particular learning goals laid out in the syllabus were achieved. The level "average" only recorded 4% of answer choices. Regarding the class of 30 undergraduate students, 26 students returned their surveys filled -- a response rate of 87%. Out of 181 answer choices, 82% selected "excellent" or "good" and 17% of the choices recorded were "average." .5% selected "bad," and .5% were left unanswered.

A total of 52 out of 80 students responded to these surveys, a response rate of 60% across the board. Close to 90% of the choices retained to answer questions asking students how well they felt learning goals were achieved were "excellent" or "good." In other words, the majority of answers obtained suggested students felt the learning goals set were reached at an excellent or good level. Only about 10% of the choices selected indicated students felt the material did a poor job at helping students achieve set goals.

Open-ended questions asked students to elaborate on what methods the instructor could have used in order to help students achieve the set learning goals. The answers that were recorded provided further reinforcement to the value of the dimensions encompassed in the concept under review, taking the time to teach. When asked what the instructor could do to further help them in achieving learning goals, the suggestions that students provided in their responses included the following: (1) engaging in class discussions of the material; (2) using case studies; (3) providing meaningful comments on written assignments; (4) showing videos; (5) providing study guides and reviewing the material covered before exams; (6) exposing students to outside experiences through guest speakers; (7) conducting debates; (8) encouraging class participation; (9) making classes interactive, and (10) making use of powerpoints sparingly. Other responses from the surveys pointed to students appreciating an instructor who showed energy, passion, humor, empathy, and commitment in helping students understand the material.

5. LIMITATIONS & FUTURE STUDIES DIRECTION & CONTRIBUTION

The results of this qualitative study pointed to the value of taking the time to teach and practicing care towards students as a means of achieving business teaching excellence in higher education, not watering down the material to please students. The incident presented at the outset was indicative of the following point: Students may try to get away with not studying and learning, but they will not praise an instructor who will let them win in this attempt. Learning is one of those rare commodities one would purchase, but then act as if he or she did not care to take the purchased commodity home. However, in this particular instance, the material in the course was not watered down, though the instructor provided sufficient time for students to complete the assigned work. By the end of the semester, the students in this class were the most eager to learn and to perform. They asked for extra help and obtained it. Many expressed their satisfaction with their level of achievement by sending personal expressions to the instructor.

This study's contention is that taking the time to teach and practicing care and empathy motivated the students to perform at very high levels, leading to teaching excellence. This study was qualitative in nature and used soft variables such as the willingness to take time to teach and to practice empathy and care. This was in response to a call for more such studies in working at building theory on teaching excellence in higher education. Longitudinal studies on such phenomena would be beneficial. These would make it possible to follow-up more thoroughly on students' suggestions. An investigation of this nature would also benefit from the use of a larger sample, thus increasing validity and generalizability.

Even at this stage, this study would benefit professors and university administrators, alike, and anyone interested in the value of teaching excellence in higher education. It is an attempt at recognizing that although university professors may not be promoted on the basis of teaching excellence, they owe it to their students to expressly invest time in teaching, while working at maintaining their involvement in research meaningful. It still behooves instructors to make sure they do not neglect the teaching aspect of their profession. It is through teaching excellence that instructors make sure students learn and are prepared for their future responsibilities.

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ROLE OF GLOBAL DIGITAL BUSINESS DEVELOPMENT IN THE DEVELOPMENT OF SMALL AND MEDIUM ENTERPRISES

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ABSTRACT

Technology is an enabler and smaller businesses benefit the most provided they can afford the technology (through either purchase or leasing). Information technology is no exception. In fact, because of the lower cost of the access of technology, the range of beneficiaries widens; beneficiary can be anyone from a large multinational corporation to an individual on the street with access to an Internet Cafe. The key here is ACCESS. The role of the government is in making sure that the individual has the access and this is where the cost of the infrastructure comes in. If an individual has obtain it because free market is not providing it, only the rich and larger businesses would have access to it. We also know the most of the growth in employment as well as the GDP of an economy comes through small and medium enterprises. Thus, it is essential to understand this linkage between access and competitiveness and strategies that can be used for enhancing this link for growth of small and medium enterprises. In the current context we are talking about strategies for making appropriate information technology available at a reasonable cost. This would link businesses to other business benefiting from this global boom because of the spread of digital business development. For example, for either providing information on one's product or learn about a technique or for a meeting, one can do video conference using, say, Cisco's TelePresence using 6000 watts of electricity power and two gigabit uplink port or use WebEx for a regular PowerPoint presentation or a meeting using a webcam, which may be sufficient for most purposes. It is appropriateness of technology as a solution is discussed in this paper using examples including provision of and use of low cost information technology solutions.

Keywords: Small and Medium Enterprises, Digital Business, Global Business

1. INTRODUCTION

For trade to take place, the buyer and the seller have to know each other and trust for deliverables and help with exchange of goods and money for the trade to take place. The first thing, thus, that has to happen is exchange of information about the product or service. Information technology has helped facilitate both, starting with information and subsequently with the introduction of business processes which have helped develop the ability to do transaction and develop trust about the transaction. With Internet the cost of transaction has reduced significantly and with introduction of limits on liability of fraud, the trust in ability to transact over the Internet had improved. As trust in both the quality of information about the product (in some cases with the ability of being able to reverse the transaction) and the ability to transact without significant potential loss has improved, and so had trade.

Businesses, especially small business, also need access to information from other businesses and obviously the ability to transact and to trust that they would be able to transact with little or no fraud. In addition to these three, businesses (and to a lesser extent consumer) need resources in terms of technology and at times knowledge (training/ education) to transact business. In the current information age, the knowledge for transacting business on the web is also very important, especially for small businesses. However, as with other business process developments, alternatives are springing up and today, pretty much any business can outsource most aspects of the business if the business person can maintain edge on the intellectual property and deal in areas where the rights can be enforced.

2. ROLE OF TECHNOLOGY AS AN ENABLER

Technology has always played the role of an enabler. Of course, the enabling technology has changed overtime. Early on, railroad and telephone and other telecommunication technologies played a similar role. This is not to deemphasize the role of regulations and business processes that help in process.

Decision of postal service to introduce uniform pricing in the U.S. is an example of the service to help deliver products reliably and relatively inexpensively. Growth of canal navigation is another.

In the early nineteenth century in the United States, depending upon the region, mode of transportation within the country was road and in some instances rivers or canals. When Ohio became a state, commuting on natural trails was the option. The steam navigation was introduced in the first decade and railroad in the next decade, and canal navigation thereafter. Road and canal navigation was emphasized as a way to increase interaction among communities and the development of commerce. (Attack, et al., 2009). Road transportation being expensive, most of the land in mid-west was not used for agriculture as transportation was very expensive. As Sen. Henry Clay had stated that without the railroad going through the prairies, the land would be un-salable. This was the justification used for providing land grant to the Illinois Central Railroad. By 1852, Chicago had five railroads. Of course, with the profitability of railroads, there were plenty of private investments. With the introduction of railroad to Chicago, the population of the city nearly tripled between 1850 and 1860. (Dreyfus, 1995). Thus, individuals who earlier could not go to the market to know what was available and how to get it to their place or take it to the market place could do so at a lesser cost using the railroad. Railroad helped with both information and resources. Population of Wisconsin, for example, increased over time during 1840-60 and the population of Michigan grew almost four times. (Attack et al., 2009).

3. ROLE OF SMALL AND MEDIUM ENTERPRISES (SMEs)

SMEs play very important role in the development of any nation whether small or big; less developed or more developed. SME development and promotion helps in mobilizing entrepreneurial initiative and autonomy and at the same time strengthens pluralistic and social emancipation processes. The importance of SMEs reflects the need to provide employment, enhance economic growth, and generate additional capital for large-scale operations in less developed countries (Hailey, 1987). Muma (2002) argues that SMEs contribute to self-sustained growth and development of nations. In recent years, factors such as privatization, specialization, corporate restructuring and downsizing have further encouraged the growth of such enterprises (Solymossy and Penna, 2000). Furthermore, the development of SMEs is seen as accelerating the achievement of wider economic and socio-economic objectives, including poverty alleviation in developing countries.

Markets and opportunities created by increased globalization and technological advances are also specifically good for small business enterprises (Garnick, 2006 and Strauss, 2004). More and more small firms are going global now (Delaney, 2004). No doubt ever-increasing global competition presents challenges to companies big and small and their choice to take work abroad can be risky, especially for smaller companies that lack resources to bounce back, if a particular venture falls through (Haapaniemi, 1998). Still we can not deny the fact that with more small businesses taking advantage of new technological advances particularly ICT that is helping them immensely in creating new markets and opportunities for home companies to sell their products overseas, creating what some would call a "win-win" scenario (Strauss, 2004). SMEs for example, can widely benefit from e-commerce (OECD, 2000, 2002). The use of information, communication and space technologies (ICST), can address some of these limiting factors in the development of enterprises, especially SMEs. E-business, or the use of ICT for business, is indisputably transforming the way business is conducted across the world. This also increases efficiency, promotes innovation, reduces transaction costs, facilitates networking among stakeholders and allows SMEs to participate in broader markets and compete with larger firms.

Researchers for example, have found three external influences on SMEs in China (China has established about 40 million SMEs in the last ten years) and they have recommended adoption of e-commerce and web-marketing, specialization and subcontracting to avoid intellectual property rights issues and to create links with universities and establish employment brand to coordinate the supply of suitable employees.

3.1 Challenges for SMEs.

There appears to be a scarcity of technology knowledge amongst SMEs (Simpson and Docherty, 2004). It is widely recognized that there are major hurdles and problems facing SMEs wishing to adopt technology and many reviews tackle these areas. Although SMEs are stimulated to adopt IT due to the positive impacts on competitiveness, in practice there are obstacles to IT diffusion. Most SMEs innovate only when they clearly perceive business opportunities involved with the innovation (Gagnon and Toulouse, 1996). In Brazil for example, Luna and Barcia (1995) have observed that SMEs face many difficulties in the process of choice and evaluation of adequate technologies, few software programs adequate to SMEs, few software programs in Portuguese that can improve competitiveness of SMEs, customized development of information systems based on methodologies that reflect the necessities of large firms and high cost of investment in computers.

Technology could be an important source of competitive advantage for companies who wish to export their products to developed countries (Christensen et al.1987). But for developing and less developed countries other sources of competitive advantage, such as low cost, could be more important. This has been reported that SMEs showed better results in terms of export performance if they were more ready to change to new production techniques or new technology. Lack of technology has also been mentioned as export barrier to Turkish manufacturing firms (Dicle and Dicle, 1992).

4. TECHNOLOGY DEVELOPMENT LEADS TO FLATTENING OF THE BUSINESS ENVIRONMENT

In Mentoring and coaching (considered to be the most effective skill development methods in working life) technology has helped introduce important changes in the workplace and the nature of work (Irja Leppisaari and Tenhunen, 2009). Now e-mentoring has become a viable alternative to traditional mentoring programs and seems to fit the new organizational styles of work where employees are dispersed across time and place. In e-mentoring in SME contexts, online communication is an efficient and effective means of bringing the mentor and mentee together and integrating work and learning environments. E-mentoring involves relationships between individuals separated by time and place.

Due to the forces of globalization and information revolution, ICTs have become more mature, reliable, and pervasive over the past few years. It has been indicated by Rosenberg (2001) as the next great "restructuring" technology that transforms the world into a global village of unbridled connectivity. This transformation highlights the shift from traditional classroom-based teaching/learning to the e-learning paradigm. Labor markets have been changing as services increasingly embody knowledge-based work dependent on ICTs and finally, the ways in which knowledge is generated and validated are changing (Lewin, 2000). Moreover, Dobbs(2003) stresses that learners are changing, as they are becoming more demanding, increasingly looking for more flexible means of accessing education and training, thereby expecting more learner-centered approaches than the traditional teacher-driven approach and classroom-based model.

The Internet technology has lead to an explosion in the range and kinds of information available to individuals all over globe. Through this technology, educational institutions have also improved library cataloging beyond any body's imagination. This has permitted the automation of nearly all steps involved in the acquisition and cataloging of library materials. Electronic catalogs have caused a quantum leap in library users' research capabilities. World Wide Web's dramatic expansion in the 1990s led to the growth of online education. In many colleges and universities world over, courses are now being delivered over the Web. Many higher educational institution in primarily the developing world have not benefited from the web technology (Sife, et. al., 2007)

4.1 Higher Education

The demand for education in emerging economies has been increasing at a very fast pace. For example, in 1978 when economic reforms were introduced in China, there were only 405 higher learning institutions, which increased to 1867 in 2006. With 23 million students, China has the largest education systems in the world. In countries like Vietnam the increase has been 25% year after year. A number of universities

has seen a significant increase as well. 97 new universities were started during 2005-07 and another 40 were started in 2007-08. Universities all over are also facing problems in recruiting quality faculty. In India, for example, it is reported that engineering colleges are facing shortages of faculty members in the range of 30-35%. In Vietnam, they are not even able to recruit enough master's degree holders.

There has been a mushrooming growth in business schools in India. However, except for maybe top 30 schools, recruiters are not sure of the quality of MBA programs at most second tier schools. It is also argued that a large number of them lack quality faculty. The shortage of qualified faculty members in India is clear from the following:

"In India, a survey conducted in 2003 by Cosmode Management Research Centre (a think tank founded by leading Indian academics) found that although 550 out of a total of 773 full-time faculty members at the top 15 Indian business schools had a doctorate, only 1,181 out of 2,361 faculty at the top 100 business schools had a doctorate (Cosmode Management Research Centre, 2003). Furthermore, about 70 percent of Indian business schools have fewer than seven members of faculty, and they usually do not have a doctorate (Zachariahs, 2003). The Cosmode Management Research Centre (2003) estimates that the shortage of doctoral qualified faculty in India amounts to 7,200." (Global Management Education Landscape, <http://www.gfme.org/landscape/reportonlineversion.pdf>)

The number of students graduating with a doctoral degree is a reflection of the number of potential faculty members. In the US, the number of doctoral degrees awarded in science and engineering has been around 25,000-28,000 over the past few years. However, enrollment in doctoral programs in many other countries, even though rising very fast in some countries, has been dismally low. For Example, enrollment in the Ph.D. program at Pakistani universities was 3125 in the school year 2001-02; which has since increased to 6475 in the school year 2003-4. Only 19 students graduated with a PhD from a Chinese university in 1983. This number increased to 14706 in 2002 and to 27,700 in the year 2005. The number of PhDs coming of Indian universities has not increased much in the past few years. However, the Prime Minister stated in his speech in 2005 that a task force was set up to double the number of PhDs in the next 5-6 years.

Such a fast growth creates both incentives for growth in the for-profit education sector as well as incentives for both institutions and individuals to take short-cuts. For example, in a survey of 180 doctorate degree holders in China, two-thirds had admitted that they had paid to be published in academic journals. A similar percentage had admitted having copied other's work. Some professors in UK have requested an enquiry to fix problems of academic fraud so that the quality of education programs in Britain can be maintained. Similarly, some have argued that in the case of India, a third of graduates are not employable.

There appears to be a convergence of intellectual content of coursework at institutions of higher learning as well as training institutions. With similarity of content of coursework at the two types of institutions and development of software vendor certifications which at times are valued more by the industry, recognized institutions are giving credit for programs completed at training institutions.

Similarly, there are initiatives between industry and academia to help bridge the gap. For example, The National Association of Software and Service Companies in India has started IT Workforce Development program to bridge the gap between demand and supply of knowledge workers. It conducted several industry-specific training programs. Programs for enhancing faculty skills have also been initiated. In their 2005 report, NASSCOM-McKinsey have similarly noted that 'only 25 per cent of technical graduates and 10-15 per cent of general college graduates are suitable for employment in the offshore IT and BPO (Business Process Outsourcing) industries respectively.' Thus, a serious partnership is needed between industry, training institutions and academia.

5. SUMMARY

Access to technology is considered as a key to growth. It is, thus, argued that government can help with the access to Internet technology which can lead to faster growth of small and medium enterprises, the

primary engine for growth in an economy. SMEs can identify their niches and they can be in various applications, e.g., in ecommerce for goods and services. Delivery of higher education an example has been discussed in this paper.

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ONLINE LEARNING COMMUNITIES: THE GLOBAL IMPACT OF BUSINESS EDUCATION IN THE ONLINE ENVIRONMENT

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1. INTRODUCTION

According to Preece (2000), these online communities “consists of people who interact socially as they strive to satisfy their own needs or perform special roles; a shared purpose that provides a reason for the community; policies that guide people’s interactions; and computer systems to support and mediate social interaction and facilitate a sense of togetherness” (p. 10). While many educators in various fields of studies struggle to meet the changing needs of these new learners and learning communities, many have seized the moment to help join the ever-changing evolution of learning and technology. In the field of business and management, educators have recognized the demographical changes of the student population. In a virtual environment, the student is not the traditional student seen in a classroom in previous years, but rather one that reflects a vast array of cultural differences and needs that require educators to help build “new learning paths” towards the creation of virtual learning communities.

As more technology has become available in many parts of the globe, a new type of student population has emerged. The traditional student image of higher learning has been somewhat limited in many countries, but given the impact of the Internet, this traditional “student body” has changed. Rather than being limited to regional demographics, the student body for educational institutions offering online courses has changed drastically. In fact, these online courses have started yet another chapter in the history of education, known as virtual learning communities.

The purpose of this paper will be to provide a framework towards understanding three major questions surrounding the evolution of online learning communities, in terms of how educational institutions and educators are adapting to these changes.

1. Has this new student population changed the demographics of the learning communities in today’s universities which offer online courses? If so, what changes have educators experienced?
2. Do educators incorporate different teaching strategies and techniques to meet the ever-changing needs of these online learners in terms of learning from their cultural differences in order to enhance the learning experiences of all?
3. Finally, do educators appreciate the value of a diversified, online learning community and create an opportunity for these learners to share and build upon their own experiences? Or do these educators still follow curricular constructs to conform to traditional educational methods and practices, instead of trying to evolve and adapt to the needs of this ever-changing, diversified student population?

Specifically, this paper will explore how education is globally evolving. While technology has provided a powerful infrastructure, the emerging technologies have allowed educational institutions, educators, and students to achieve education on a much higher playing field – in a virtual learning environment. Thus, the business world has also worked with technology in this venture to help assist educational institutions in becoming more modern and adaptive for change. Contextually, one can see a new, global branding of course management systems, which affects and supplements the needs of growing, online learning communities. As a result, educators need to reflect on the historical changes in distance learning in order to better understand how technology can enhance their online teaching – as well as helping them to adapt from their traditional “framework of teaching” into a more modern and culturally diversified way of teaching.

2. HISTORICAL CONTEXT OF DISTANCE EDUCATION

The history of distance education can be tracked actually back to the 1700s in the context of correspondence schools (Jeffries, 2004, ¶ 7). In 1840 Sir Issac Pittman began teaching shorthand in

England by correspondence (Grimes, 1992, ¶ 7). Later, several sources dispute the first university learning program. Mackenzie and Christensen (1971) noted that Illinois Wesleyan University offered both distance university study on the graduate and undergraduate levels in 1874 (Grimes, 1992, ¶ 8). Whereas, another source argues that the 1st University distance learning program was offered by the University of Chicago in 1892 (www.du.edu)

Since some portion of distance education can be traced back to the 1700s in the context of correspondence schools (Jeffries, 2004, ¶ 7), we can conclude that learning, outside of the traditional context, has been slowly evolving. However, we usually refer to our technology-based distance education in terms of the advent of audiovisual devices, which were first used in the early 1900s. Due to the invention of film, Thomas Edison noted that “our school system will be completely changed in the next ten years” (Saettler, 1968, p. 68) Actually, many educators at that time were skeptical of the use of film in the classroom, but this was not the end of the technological evolution in the classroom as we would see over the next several decades.

In the 1920s, the federal government started to issue educational radio licenses to deliver distance education courses (www.du.edu). However, in 1933, the world witnessed the first educational television programs broadcasted from the University of Iowa (www.du.edu). While technology continued to be used across the United States, the military showed an interest in the use of audio-visual media in teaching (Jeffries, 2004, ¶ 7). During the period of the 1940s to 1960s, the U.S. watched as the interests of the American Educational system flourished with the concept of incorporating technology into the classroom in terms of educational television. Ohio University, University of Texas, and the University of Maryland were a few of the early universities that “created” networks to offer educational courses to on-campus and off-campus student populations. (Jeffries, 2004, ¶ 20). During the next two decades, the American Educational system saw a number of changes, which led us to the development of the Web as a viable means of technological influence, which has served an additional educational tool to help educators again “to reach out” to more student populations. Finally, from the 1940s and up to the current period, many people witnessed the metamorphosis of instructional technology from the previous, general correspondence courses to today’s online course offerings.

3. EDUCATIONAL DELIVERY ON THE WEB

The vast array of online course offerings has attracted a larger audience than ever expected. As a result, the academic community has raised several questions about the validity of online learning. Specifically, one of the key questions posed has been: “Can they (online learners) receive the same level of educational quality in the online (web) format, as traditional schools have offered over the years in terms of correspondence and live, instructional courses?” While there have been numerous positions taken by educators and writers on this topic, this paper will be limited in terms of examining how educators have adapted their teaching strategies to an ever-changing online learning environment.

As we have examined the roots of distance learning development, we have set the stage in understanding how distance learning has been somewhat slow in its development. Despite the impact of technology in the educational arena, there have been barriers of resistance to distance learning. Drummond-Hay and Saidel (2004) commented on several barriers to knowledge sharing that could be applicable to the online learning environment.

- There is no recognition or reward for sharing knowledge.
- People are competitive and believe that their knowledge increases their power.
- There is no vehicle for storing and categorizing knowledge, or the existing vehicle is difficult to use.
- They don’t know anyone would be interested in what they know.
- They don’t share knowledge because they are not aware of what they know (pp. 293-295).

Given the barriers stated above, the author does note and strongly recommends a change of the status quo in order for the educational profession to move forward. While some educators may still cling to the Socratic method of teaching, methods do and need to change. Also, we should learn from Socrates’ example – that teaching does not have to occur inside a physical classroom – rather learning can occur in

an open space (perhaps virtual?). Further, rather than being focused on one way of teaching and learning, we, as educators, need to focus on our audience. Has the demographics of our student population changed over the past decade? If so, are we meeting the needs of our virtual learning communities – or just meeting the needs based on past teaching experiences?

4. DEMOGRAPHICAL CHANGES

As we examine the changing environment of teaching, we need to focus also on the changing characteristics of our current and future, adult learners. Has this new student population changed the demographics of these learning communities in educational institutions? As the Baby Boomers have started to retire, several new generations have started to take hold and populate the world of business and education. As a result, we are now starting to see these changes in this new generation of workers and learners. Further, educators have started to notice these changes, and they have started to rethink their way of teaching and interacting with this new wave of adult learners. Thus, this leads us to another question -- what changes have educators experienced? Specifically, are there demographical changes that educator need to consider in the planning and implementation of educational experiences in the online environment?

While some teaching tools may be effective in one learning environment, they may not be as successful in another. Therefore, as each environment is unique, as well as the learners in it, the teacher needs to assess their virtual environment and determine if change is necessary. However, not all educators may be as flexible in their teaching method, and they may not be willing to change. This leads us to the next question for examination: Do educators incorporate different teaching strategies and techniques to meet the ever-changing needs of these virtual learners in terms of learning from their cultural differences in order to enhance the learning experiences of all?

As a result, the online learning environment has helped to break down a few of the barriers as previously discussed in this paper. Also, this new type of learning environment has helped to “level” the playing field, in which students can act, react, and be proactive in the learning process. White (2002) noted “Nowhere is thinking more evident than in the textual environment of the online classroom. If writing is thinking, then online students display their thinking throughout the course, illustrating their individual styles and changing attitudes” (p. 6). Along this same line of thinking, educators can incorporate various strategies to help draw upon the experiences of all class members – rather than just a select few. This demonstrates the beauty of online learning – because online learning is a continuous process (not limited to a set time and place as a traditional course is scheduled).

5. CONCLUSIONS

Historically, distance learning has evolved from the 1700s. Now, in 2008, we can see how distance learning has been embraced by online learners for a number of reasons.

- As a method of completing coursework, even during periods of deployment.
- As an alternative method of instruction to enable students an opportunity to learn from a larger group of faculty members with similar interests and experiences.
- As part of a growing, learning community of diverse learners focused on improving oneself in terms of their work commitment and future career path.
- As part of a virtual network of scholars, practitioners, specialists, professionals, and more – focused on building a stronger, educated nation.

As technology has increased the possibility of more adult learners to participate in taking online courses, in light of various family, business, and personal constraints, changes still need to be done in terms of embracing diversity in education. Also, the current barriers to learning that the field of education has seen in the traditional classroom setting do appear from time to time in the online learning environment. There are several possible suggestions that might help prevent such barriers from appearing and remaining in the virtual learning community. First, the instructor needs to adapt and update teaching strategies to draw upon the experiences and knowledge of all learners, not just a few. Second, educators can be proactive in making appropriate changes in the curriculum to help strengthen course offerings, as well as teaching courses that address the course objectives and meet the needs of the adult learners.

Finally, we, as educators, need to recognize that the demographics of our students are changing – and for the better. We need to embrace diversity and help nurture it along the way. Merryfield (2003) summed it up best in the following quote: “Online technologies provide opportunities for teachers to experience a more global community than is possible face to face” (p. 165). As we strive to build stronger global and virtual learning communities, we need to remember that each member of these communities have an unique gift – their personal, cultural values. These values are important to a learning community – and we, as educators, can set the example by making changes today that will reflect on our society tomorrow.

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ON THE SIGNIFICANCE OF REAL ESTATE INVESTMENT TRUST FUNDS IN INTERNATIONAL PORTFOLIOS: A CANADIAN PERSPECTIVE - PROPOSAL

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ABSTRACT

This paper applies a two-factor asset allocation strategy for assessing the benefits from including real estate trust funds [REITs] in an international portfolio diversified into stocks and bonds of established and emerging markets. Using an ex-post mean-variance analysis we evaluate the benefits from adding REITs to the domestic and international portfolios diversified into established countries, into emerging countries, and into the combination of both established and emerging countries. The results should indicate that the significance of the incremental risk-return benefits depend on the country, on the industry, and on the risk level preferences.

Keywords: *Real estate investment trust, international portfolio, portfolio diversification, diversification strategies*

1. INTRODUCTION

Based on monthly sectoral stock data for the period December 1989- March 2009 and taking a Canadian investor's perspective, this paper applies a multi-level asset allocation strategy for assessing the benefits from including real estate trust funds [REITs] in an international portfolio diversified into stocks and bonds of established and emerging markets. Using an ex-post mean-variance analysis we evaluate the benefits from adding REITs to the domestic and international portfolios diversified into established countries, into emerging countries, and into the combination of both established and emerging countries.

Simons (1999) could not rule out any combination of U.S. stocks, bonds, and cash as being internationally efficient, from a U.S. investor's perspective. Cavaglia, Melas and Tsouderos (2000) on their part found that portfolios that aim to diversify across countries and across industries provide markedly better reward-to-risk ratios than the traditional asset allocation strategies that aim to select country positions. In addition, Baca and Weiss (2000) argued that the industrial factor is becoming increasingly important in explaining the national equity returns of major developed countries. However, Kuo and Satchell (2001) found, in common with previous research by Heston and Rouwenhorst (1994), that the country factor dominates the other factors in explaining stock return variations. More recently, Grandmont-Gariboldi (2005) found significant benefits from including emerging markets in an international portfolio; they depend on the country, on the industry, and on the risk level preference. The results suggest that using at least two factors in market segmentation for international portfolio construction is a better strategy compared to the one based on a simple country allocation.

Assuming that low correlations among financial assets imply good diversification opportunities, the addition of REITs to domestic and international portfolios should result in superior performance in a mean-variance framework. Grandmont-Gariboldi (2005) found that the correlations between industries are lower than those among countries; they also display more inter-temporal stability compared to those between countries. Cleary and MacKinnon (2007) on their part found that income trusts exhibited risk-adjusted performance that far outperformed equities and bonds. In addition, according to Canada Mortgage and Housing Corporation (2002), one of the most positive aspects of REITs is that although they have a tendency to perform well in equity market downturns, they also tend to fare well in equity market upturns. However, the Canadian financial market is not entirely familiar or comfortable with REITs. The geography and demographics of Canada make it less likely that Canadian REITs will specialize in a market niche and diversify geographically to the same degree as has been seen in the U.S. Hence, for a Canadian investor it would make sense to diversify across countries in that sector. Furthermore, Goetzmann, Lingfeng, and Rouwenhorst (2002) argue that investing in international markets expands the opportunity set, but diversification relies increasingly on investment in emerging markets. Indeed, Grandmont-Gariboldi (2005) found significant benefits from including emerging markets in an international portfolio in terms of both risk reduction and return improvement; expanding the U.S. portfolio into established countries provided only

risk reduction benefits whereas expanding the domestic portfolio into emerging markets resulted in return improvement only. So, in this paper we diversify in both types of international markets.

However, given the current global financial crisis triggered mainly by irresponsible and abusive mortgage lending practices, the securitization of risky mortgage loans, speculative real estate investment behavior and the subsequent real estate market bubble, investors may think twice before investing in real estate financial devices. Nonetheless, adding REITs in an international portfolio could provide risk-return benefits over the long-term. Current research, practitioners, and investors as well should benefit from further insight.

2. DATA

We consider the following sectors: banks, communications, electrics and electronics, food, chemicals and allied products, and REITs. For lack of total return data for established countries, we use Global Financial Data sectoral price indices of seven leading established markets (Canada, France, Germany, Japan, Switzerland, UK, US). We also use Standard & Poor's Emerging Markets Data Base (EMDB) stock data to construct sectoral indices of emerging markets¹. The indices are market capitalization weighted, with the weights adjusted monthly. Each industry includes five emerging countries plus regional investable indices. The choice of the industries is in function of their market capitalization in emerging markets and the choice of the emerging countries is in function of their market capitalization in the selected industries. Exchange rates are International Financial Statistics data.

3. METHODOLOGY

We take a Canadian investor's perspective. Because investors from different countries measure returns in function of their home currency, we first calculate exchange-rate adjusted returns. The monthly exchange-rate adjusted return of investment in the assets of country i from the perspective of the j th country is calculated as follows:

$$R_j = (1+R_i) (1+E_{ij}) - 1$$

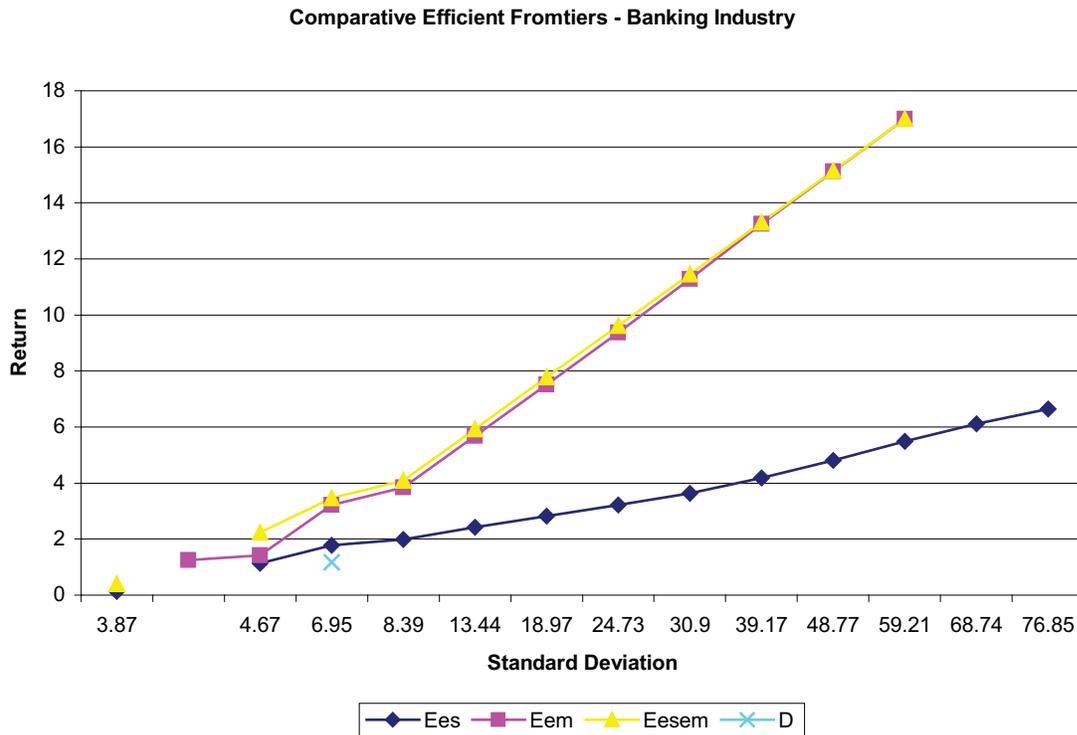
where: R_i = monthly return in country i , and E_{ij} = monthly percentage change in the currency of country i with respect to the currency of country j

In a second step, we use an asset allocation optimizer, derived from the Markowitz' (1959) mean-variance optimization theory, to construct international portfolios. Based on returns, standard deviations, and pairwise correlations for all asset classes under consideration, we perform a mean-variance analysis. The general model of constrained (no short selling) profit maximization assumes no taxes, no transaction and information costs.

Finally, we develop a multi-level asset allocation methodology:

(1) At the first level, within each sector, we construct the efficient frontiers of the international portfolios Ees, Eem, and Eesem and compare them with the domestic portfolio (D). The international portfolios are derived from expanding the domestic (D) stock portfolio, (a) into established stock markets (Ees), (b) into emerging stock markets (Eem), and (c) into the combination of established and emerging stock markets (Eesem). We lever the expanded portfolios Ees, Eem, Eesem up or down in order to set their unconditional volatilities equal to that of the reference portfolio (D). The difference between the return of an expanded portfolio and that of the domestic portfolio provides a measure of abnormal return resulting from the inclusion of foreign securities. In the same manner, we set the returns of the expanded portfolios Ees, Eem, Eesem to equal that of the portfolio (D) to observe potential risk reduction. Figure 1 displays an example of the comparative frontiers.

FIGURE 1



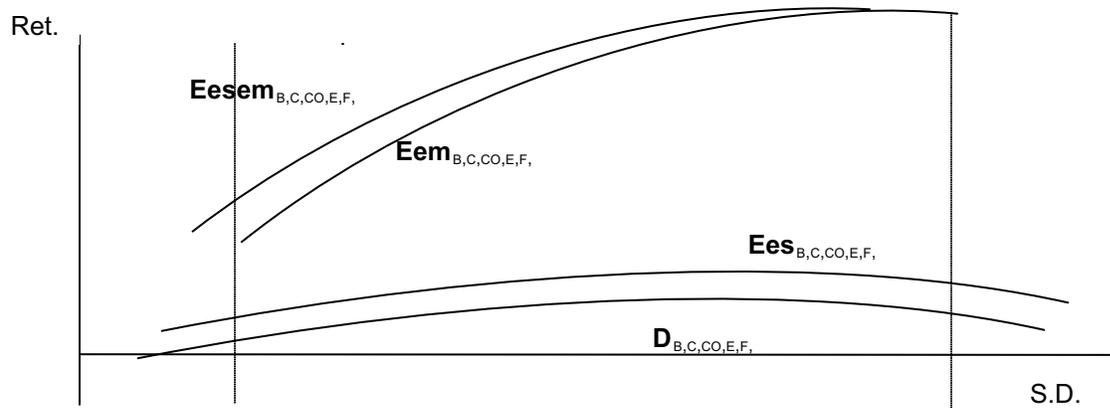
(2) At the second level, within each of the diversification strategies D, Ees, Eem, and Eesem, we optimize on the five sectoral efficient portfolios to obtain the following set of efficient frontiers: $D_{B,C,CO,E,F}$, $Ees_{B,C,CO,E,F}$, $Eem_{B,C,CO,E,F}$, and $Eesem_{B,C,CO,E,F}$, with B,C,CO,E,F representing respectively each of the 5 sectors. We then repeat the process but this time adding REITs as a sector to obtain another set of frontiers: $D_{B,C,CO,E,F,REIT}$, $Ees_{B,C,CO,E,F,REIT}$, $Eem_{B,C,CO,E,F,REIT}$, and $Eesem_{B,C,CO,E,F,REIT}$. We then compare the domestic and international portfolios that include REITs with those that exclude REITs. We also evaluate the incremental returns from expanding the domestic portfolios into international markets at the lowest and highest risk levels at which these portfolios can be compared for both sets of domestic and international frontiers. Figure 2 shows an example of the domestic and international frontiers.

(3) Finally, using an all-inclusive country/industry allocation, we construct the efficient frontiers D_{AI} , Ees_{AI} , Eem_{AI} , and $Eesem_{AI}$. For instance, to create the Eem_{AI} frontier, we optimize on all the U.S. and emerging-market sectoral indices. Then we look for significant return improvement and risk reduction from international diversification.

Given the statistical character of the efficient frontiers, which are derived from estimated parameters, they must have a standard deviation. So it is possible to find statistically equivalent portfolios situated on different frontiers. To assess the significance of the potential benefits from diversifying by sector across countries, we first test the normality of distribution of the efficient portfolios. If the normality can reasonably be assumed, we use a one-way Anova statistical test to assess the return improvement and the Levene test of homogeneity-of-variance to evaluate the risk reduction. In addition, we use repeated measures to assess the significance of the risk-return benefits displayed by the comparative frontiers.

FIGURE 2

Basis for Comparing the Efficient Portfolios



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COLOR: THE SILENT VOICE OF PACKAGES

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ABSTRACT

Philosophers, scientists, researchers and educators have all studied aspects of color which are an integral part of products, services and packages influences both human behavior and human physiology. Because of its physiological and psychological effects, color has always received attention from marketing scholars. Marketing decisions such as advertising, packaging and brand logo are influenced by the meanings and perception of colors. On the other hand, the effects of numerous attributes of a package such as its shape, color, size, technology, graphics layouts, pictures and even the fonts of labels on the perception and buying behavior of consumers have been studied. However, although the effect of packaging color on taste is essential, this impact has been mostly neglected in marketing research. Hence, this study aims to explore whether the package color has any impact on perception of taste, quality and price. Suggested further research into the color of food packaging and its effect on consumer perception of product-related attributes (Koch and Koch, 2003) have provided the main motivation for this study which aims to identify if packaging color has a distinguishing effect on the perception of taste, price and quality of a product. The experiment was performed with 120 university students and the results are demonstrated in the present study.

Keywords: Color, Packaging, Communication

1. INTRODUCTION

Color, which is an integral part of products, services and packages, influences both human behavior and physiology (Madden, Hewett and Roth, 2000). When the meanings and perceptions of color are analyzed, the importance of color in marketing activities is confirmed as the basic facet of *store decoration* (Bellizi and Hite, 1992), *product* (Garber et al,2000), *brand logo*(Solomon,2007: Madden et al,2000), *advertising*(Gorn et al, 1996), *tastes* (Garber et al, 2000) , *packaging* (Madden et al,2000) and *quality* (Francis, 1995).

Color holds a special importance for packaging, which has been considered as the fifth element of the marketing mix by Nickels and Jolson (1976). The non-verbal communication between the products and consumers begin when they meet in a store with the visual elements such as; colors, logos, package materials, size, fonts and shape and informational elements like product ingredients presented on packages (Underwood, 2003). According to Shepherd (2003), a consumer makes a purchase decision in the first 90 seconds after entering a store and the 60-90 percent of this decision is shaped by the colors displayed on the shelves, thus making color a vital element of packages in these 90 seconds.

In packaging, one of the important roles color play is signifying the taste of the packaged product. Thus Eisemen (2000) suggests that some package colors are associated with different food products such that brown is associated with bread, orange with foods and beverages containing orange and lilac with sweet products. Although the effect of packaging color on taste is essential, this impact has been completely neglected in marketing research. Besides taste, color may also signify other attributes about products such as price and quality (Eisemen, 2000). Hence, this study aims to explore whether package color has any impact on perception of taste, quality and price.

2. LITERATURE REVIEW

2.1 Meanings of Color in Marketing

Philosophers, scientists, researchers and educators have all studied the complex activity of seeing color (Klimchuck and Krasovec, 2006) and many studies have been conducted regarding the physiological and psychological responses of individuals towards different colors (Arnheim, 1974; Birren, 1961).

The effects of color on human behavior and physiology was studied by Wexner (1954) using a group of 94 psychology students and colors were found to stimulate moods as follows: red -excitement, , protection, hostility and defence, orange-distress, disturbance and upset, blue- tenderness, security, calmness, peaceful and tranquility and yellow-cheerfulness. Regarding the psychological effect of color, the relationship between color and taste of foods and beverages has been asked and evaluated by various scholars (Koch and Koch, 2003; Alley and Alley, 1998; Zampini et al, 2008; Calvo et al, 2001; Guinard et al, 1998; Garber et al, 2000). Such studies; where the appearance especially the color of food and beverages is used as independent variable and affects are evaluated and compared on the dependent variable such as taste have demonstrated different findings. While Garber et al (2000) argue that there is a stimulated association between food color and its taste; for example the color of fruit juice affects the identification and expectation of flavor in the consumers mind, Alley and Alley (1998) argue that although the liquids were rated sweeter than solids there were no significant difference recorded among colors of beverages and their sweetness. Oram et al (1995) found that the identification of drinks among adults was influenced by taste more than colors. Koch and Koch 's (2003) study has identified that several colors were rated consistently across tastes thus people have some preconceptions about taste based on color, such as the association of red with sweetness, yellow with fruitiness and green with sourness.

Due to its physiological and psychological effects, color has also received attention from marketing scholars. Marketing decisions such as advertising, packaging and brand logo are influenced by the meanings and perception of colors. Colors used in brand logos of many corporations has become the trade uniform for most of the products as they are strongly associated with those corporations, yellow of Eastman Kodak (Solomon, 2007), red of Coca Cola, blue of IBM (Madden, Hewett and Roth, 2000). Colors can also be used by consumers in differentiating products. Red is generally associated with soft drinks, pink is considered a feminine color and it is mostly associated with baby girls (Grosman and Wisenblit, 1999). Grosman and Wisenblit (1999) also suggested that this association process can be exploited by marketers if the images are combined with appropriate colors in advertising and resulting perception can become an important aspect of the marketing mix. Thus, the use of color in advertising has substantial effects on perceived image. Likewise another study reported that the use of higher value (degree of darkness or lightness) and higher chromas (saturation) of colors in advertisements create relaxation, greater liking for the brand and feelings of excitement (Gorn et al, 1996).

Marketers should consider their product's color, the color of packaging and any colors that are associated with the product as part of their marketing strategy (Grosman and Wisenblit, 1999). The success of use of color by marketing managers is highly dependent on the extent to which the meanings associated to colors are understood and implemented, for example a candy producer should use blue in its package instead of green as green is mostly associated with sourness and blue with sweetness (Lüscher and Scott, 1971).

2.2 The Communicative Role of Packaging

A package not merely a piece of paper or a container that enclose any product for sale but a medium of communication that creates convenience and promotional value for its concealed product. Underwood (2003) emphasizes that attributes associated with the packages are crucial in determining the quality of the relationship between the consumer and the brand besides creating awareness for both the brand and the product. Thus, packages communicate directly with the consumers and Underwood (2003) suggests that they are perceived as important signals of convenience, environmental consciousness, prestige, price, quality, and brand image.

The effects of numerous attributes of a package including its shape, color, size, technology, graphics layouts, pictures and even the fonts of labels on the perception and buying behavior of consumers have been studied. For example, the research conducted by Silayoi and Speece (2007) into the importance of packaging attributes among Thai consumers in Bangkok indicated that approximately 32 percent of the respondents view technology which conveys convenience and ease of use as the most effective attribute of a single package. Another empirical study made by Garber (1995) indicated that the positive effect of visually novel and appropriate brand packages have important positive effects on consumer choice at the point of purchase as a promotional tool. In a study conducted at a large university by Underwood et al (2001), the communicative role of product packaging on attention to the brand and choice is highlighted and the positive relationship between the two is demonstrated using product pictures and packaging.

2.3 Colors: The Silent Voice of Packages

Being an attractive element while all other things being equal, among other attributes of a package "color" has always received considerable attention from researchers and marketers (Garber et al, 2000). The focus of color as a stimulus is related to its ability to aid companies who are looking for ways to improve their sales and obtain a dominant market share (Kotler, et al. 1998). According to Grossman and Wisenblit (1999), due to learning through association consumers may develop preferred colors for particular goods. For example green is associated with healthy foods among USA consumers (Aslam, 2006) thus a snack producer in the USA, uses green in its packaging to connote "wellness" and "healthier" (Bone and France, 2001).

When the previous literature is reviewed, it can be seen that a number of studies conducted aimed to identify the relation between color used in packages of non durable low involvement products and consumers' perception of tastes, price and quality of the product enclosed within the package. Among these, Rex, Wai and Lobo (2004) conducted in-depth interviews with a supermarket manager and a design director, and they conducted a survey with potato crisp consumers in Australia. The results showed that while consumers did not consciously believe that the color of the packaging affected their purchasing decision, it was an important subconscious stimulus through the relationship that color had with the most important stimulus of flavor. Suggested further studies about the color of food packaging and its effect on consumer perception of product-related attributes (Koch and Koch, 2003) have provided the main motivation for this study which aims to identify if packaging color has a distinguishing effect on the perception of taste, price and quality of a product.

3. THE EXPERIMENT

The goal of the experiment was to test whether perception of taste, quality and price varies as a function of package color. Specifically it was hypothesized that different package colors (blue, green, red and yellow) have an effect on the perception of taste quality and price of the product, thus the flavor of the product was not manipulated, all the packages contained the same mixed fruit juice.

3.1 Stimulus

We selected uncarbonated mixed fruit juice for our empirical study for several reasons. First of all, fruit juice is a very popular and familiar product among young generation in Turkey. Second we hesitated to use another more expensive product as we have chosen a sample from university students thus it might have been difficult for them to make perceptual judgments about the taste of product with which they are not very familiar with. Finally we preferred to study mixed fruit juice rather than orange juice in order to control the association of the color of the soft drink with the package.

We used colors yellow, red, blue and green since they were frequently used in previous studies. Scholars various either changed the color of the soft drink or asked the respondents to associate these colors with various attributes (Garber et al, 2000; Koch and Koch, 2001 and 2003; Alley and Alley, 1998; Zampini et al, 2008; Calvo et al, 2001; Guinard et al, 1998). Another reason is that these are very basic colors used among Turkish Soft Drink Manufacturers. Well known brand such as Pinar and Dimes use blue and green in their packages of sugar free soft drink, red is used in the gourmet line of producer Cappy, and yellow is chosen widely for the orange juice. Finally, our literature review indicated that although reactions to color are considered highly individualized, and vary from culture to culture, universal color

preferences are thought to exist. Blue was proved to be most popular color and was mostly associated with health (Grieve 1991; Ward 1995) followed by red, yellow and green (Ward 1995; Madden, Hewett and Roth, 2000).

3.2 Participants

All participants were volunteer students from Izmir University of Economic and were tested between 04.01.2009 – 25.01.2009. The test was carried out on a total of 120 students 60 female and 60 male, with an age range of 18 to 25 years old, with a mean of 21. Students were from a variety of departments, as can be seen in Table 1.

TABLE 1: THE DEMOGRAPHIC DISTRIBUTION OF THE SUBJECTS BETWEEN PACKAGE COLORS

	Yellow	Red	Green	Blue	Total
Departments					
Business	8	22	17	11	58
Architect	11	0	8	7	26
Logistics	3	0	0	9	12
Psychology	4	2	4	0	10
Others	4	6	1	3	14
Total	30	30	30	30	120
Gender					
Female	21	11	15	14	
Male	9	19	15	16	
Total	30	30	30	30	

3.3 Procedures

We developed an experimental design to examine the role of package color on the perceived taste, quality and price of soft drink as already stated in a research question in the previous section. Soft drink was chosen as previous studies have been conducted concerning the color of the soft drink and its perceived taste. The packages of mixed fruit juice were covered with plain blue, red, yellow and green paper that completely obscured the recommendation of any picture and label on the packages. All subjects were served the same soft drink at the same room temperature from same white plastic cups. Treatments were given to the subjects in groups of ten in the same meeting room either between 11:00 and 12:00 am with fluorescent light, in order to stabilize the lighting of the room. All subjects were served a glass of water before the experiment was conducted just to clean their mouth and equalize their thirst level which, we believe that may affect their perception of taste. The subjects were seated separately and requested not to speak until they left the room as soon as they tested the samples. No explanation was made except this was a part of an experiment conducted by a PhD student.

The sample was equally divided between the red, yellow, blue and green packages. One quarter of our sample was served from red package, one fourth from yellow package, one quarter from blue package and one quarter from green package. Each sample has filled a questionnaire including thirteen short attitudinal statements Developed by Garber et al (2000) which was translated into Turkish and are listed in Table 2. The subjects were asked to evaluate what they tasted according to a five point Likert type scale, where “5” demonstrated strongly agreement and “1”strongly disagreement. There was no time limitation for completing the questioners. The attributes were driven during the focus group study of Garber et al (2000) and were exactly matching with our research question. Beside the 13 attribute questions, there were demographic questions regarding their age, gender, education and department, preference questions regarding the brand and type of soft drink that they mostly preferred in their daily lives.

Our study will likely be among the modest studies which used the package color as only treatment without using any label, picture or wording as an independent variable and survey the effects of four different color treatments on the perception of taste, quality and price of a product.

4. FINDINGS

One way analysis of variance (ANOVA) has been done to compare the mean differences of answer given to thirteen factors among four different package colors by using SPSS program. However the results listed in the Table 2 can be interpreted as indicating that there are no significant difference among the mean scores of thirteen dependent variable, across four different package color except the factor "Has a lot of flavor" with a mean square of 2,774 and $p < 0,05$ for yellow package.

5. DISCUSSION

We concluded the present study to determine whether people's perception of taste, price and quality is affected by the color of the package. The results indicate that although the previous study by Garber et al (2000) found significant difference between the perceived flavor and color of the soft drink, the present study found no significant difference between the perceived taste of soft drink and the package color. The previous studies indicated that, when asked, the majority of the respondents rate the product inside a green package as healthier than others (Bone and France, 2001), red is associated with sweetness and yellow and green with sourness (Koch and Koch, 2003). In their study Garber et al has found that the perceived flavor significantly differentiate across different soft drink color however in our study -when they tasted a glass of fruit juice from a plain green package with no label, picture and information on it- no significant difference between perceived taste, price, quality and package color. For example there is no significant difference between the perceived sweetness of the soft drink and the package color, with means very close to each other (red=3,793, yellow=3,567, green=3,310 and blue=3,733),

Our literature review has showed that there are very few studies conducted about the perception of taste of consumers and the effects of color used in packaging. Thus, our study may lead to further discussion of implication regarding this .Firstly, taste may be the attribute that respondents focus on when drinking rather than the color of packaging. The taste stimulus sent to brain is so effective that they did not see the remaining variable on the table, although there were no other distractions on the table where we conducted our experiment. Second, graphical presentations, information and even the size and style of the fonts used on packages seem to be as important as the color of the package. The study conducted by Bone and France (2001) indicated that the subjects associated the bottle with a blue background and a picture of a man sleeping under a palm tree with a lower amount of caffeine than the bottle with a red and yellow picture of a football player, although both of them had the same verbal information and the same caffeine level ($p=0,03$).

The presented study has several limitations corresponding the methodology and sample. As with in many of the experimental designs, the number of sample is relatively small compared to questionnaire based studies. This is most probably because an experimental design is time consuming and in our study we needed to limit the number of participant to avoid any interaction. Second, as the majority of the students in IEU are members of faculty of business, our sample is weighted toward business students and this is especially reflected on the group of participants for red package. Third limitation of the study is concerns the type of soft drink chosen for the study. We selected mixed fruit juice to avoid any harmonization between the package color and sample color; therefore we chase to avoid using orange and cherry because of the use of red and yellow packages. However, mixed fruit juice has a rather different taste to traditional fruit juice like orange and cherry and may have a dominant taste that is either liked or disliked.

Furthermore by using a mixed fruit juice might have affected the subjects and caused them to concentrate on the taste rather than the package. Majority of the people in Turkey are not subjected to experimental design, rather than the "taste tests" performed by firms to market their new products and this preconditioning may have led them to suppose that taste was the main object of the experiment. Finally we gave no explanation other than they were a part of an experimental research. It might have been better to refer explicitly to the color of the packages when asking them to rate what they had just tasted.

6. CONCLUSION

Regardless of the result of the present study; from the second we step into the shop until we leave, colors on packages try to sell the product. While on the one side of the market dark colored deodorants for men struggle to associate charisma and power, on the other hand brightly colored detergents emphasize their ability to keep the clothes looking new even after hundreds of washes.. Majority of brands use green, blue and white in the packages of low fat foods and black to address quality and elegant. Such examples support the idea that color whether “the color of product or package” was and will be an integral part of any marketing strategy that can not be misleading. Nevertheless beside the universal preconditioned associations of colors on the minds of people, each study conducted into color adds new findings to the literature and open new fields for further studies. Thus our study was the further study of whether the associated meanings to yellow, red, green and blue will also effect the taste perception of people about the product when they are used in packages. The present study will probably lead to further studies to investigate whether or not colors used as the single element of package is really as effective as when they are used together with additional attributes like pictures and verbal information.

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SPREADSHEET SOLUTIONS TO BUSINESS PLAN MODELLING: CLASSROOM APPLICATIONS

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ABSTRACT

The use of technology in the classroom has increased dramatically in the last decade. The current study presents the benefits derived from getting university students to develop and use a complete business plan model using the popular spreadsheet software, Excel. In a two-step process, students are first required to build a simple model using a template provided. Thereafter, they are introduced to the complete business plan model in Excel. The full model is parametrically driven, and produces an income statement, balance sheet, and a cash flow statement. The main purpose of using this spreadsheet model is to introduce students to business modeling and give them an opportunity to recall and build on past learning in the areas of financial and managerial accounting, and to develop a core understanding of financing and budgeting issues and concepts. The model is versatile enough to be used for simple exercises in an undergraduate course to provide a simple but complete overview of a budgeting process, including the exercise of borrowing money as needed. At the same time, it is also powerful and sophisticated in design to allow graduate students to explore the intricacies of multi-dimensional break-even analysis and the effects of various forms of financing on the bottom line. A key benefit of using the model is that students gain a thorough understanding of the articulation of the three financial statements and their interrelatedness.

Keywords: *Excel, Business Plan Model, Budgeting, Financial Statement Analysis, Break-even Analysis.*

1. INTRODUCTION

Instructors are constantly experimenting with different pedagogical techniques to teach students the complex concepts involved in designing and modeling successful business plans. The often difficult quantitative aspects of a business plan pose a roadblock to student learning and understanding. Even students that come to the classroom with above-average quantitative skills find it hard to understand the core concepts and interactions of the various quantitative elements of a successful business plan. A novel approach to integrating these quantitative elements of a business plan in an easy to understand format has been facilitated by the advent of spreadsheet software programs.

The use of technology in the classroom has increased dramatically in the last decade. The current study presents the benefits derived from getting university students to develop and use a complete business plan model using the popular spreadsheet software, Excel. The main purpose of using this spreadsheet model is to introduce students to business plan modeling and give them an opportunity to recall and build on past learning in all the core functional areas of business and specifically in quantitative topics like financial and managerial accounting, and to develop a strong understanding of financing and budgeting issues and concepts.

In a two-step process, students are first required to build a simple quantitative model of a business using a template (provided). Thereafter, they are introduced to the complete business plan model in Excel. The full model is parametrically driven, and produces an income statement, balance sheet, and a cash flow statement.

The model is versatile enough to be used for simple exercises in an undergraduate course to provide a simple but complete overview of a budgeting process, including the exercise of borrowing money as needed. At the same time, it is also powerful and sophisticated in design to allow graduate students to explore the intricacies of multi-dimensional break-even analysis and the effects of various forms of financing on the bottom line. A key benefit of using the model is that students gain a thorough understanding of the articulation of the three financial statements and their inter-relatedness. A related

benefit would be improved employability of students as they become more proficient in the use of analysis tools widely used in today's work environment.

2. BACKGROUND AND LITERATURE REVIEW

In spite of the dramatic increase in technology on college campuses, its potential to support newer, more student-centered learning styles, remains by and large, untapped (Means and Olson, 1997). Older and traditional knowledge transfer systems present concepts and information abstractly rather than in a context of meaningful applications (Resnick, 1989). A direct consequence of students simply memorizing and regurgitating information as opposed to learning through applications that have meaning to them is a reduction in the students' capacity to retain and apply the content. In such instances, the main objective of learning becomes merely that of passing a test or getting by in the classroom (Duit, 1991).

Hands-on application based teaching of core accounting concepts is consistent with the Constructivism Theory that is much in vogue these days. Constructivism being more of a philosophy than anything else which points to knowledge being constructed by the learner as opposed to the learner being simply a passive recipient of knowledge transfer (Null, 2004).

According to Bagley and Hunter (1992), students become empowered and spend more time in active construction of knowledge when using technology. Therefore, the use of a spreadsheet model in the classroom would allow students to take control of the learning process and consequently subscribe to the Constructivism theory. Alexander (1996) and Kruck and Maher (1999) have used general spreadsheet design principles to develop spreadsheet design skills in students. Tracey & Beverley (2006) say that students view computers as performance enhancing instruments that provide useful insights into the complex relationships that exist among the variables. Maddux, Johnson, & Willis (1997) advocate the use of spreadsheet models which are built from scratch by the students as opposed to pure templates which simply allow them to alter the input values.

Even students with good quantitative skills sometimes find accounting and finance concepts difficult to grasp. This is particularly true in courses where abstract concepts are not reinforced with pertinent applications. This paper presents spreadsheet modeling as a means of maximizing understanding and retention by students of the quantitative components of a business plan. The paper is motivated by the authors' classroom experiences in accounting courses that incorporated this approach for a number of semesters. The positive feedback from former students, many of whom, have now entered their professional working careers was another motivation for writing this article.

3. THE MODEL

The model is constructed in four main sections. The top includes a section labeled, Parameters, which includes the price and growth rate of two products, a widget and a superwidget. The prices remain constant over the usual 13-month time span, while the rates of growth are designed to allow losses in the first half of the time span, while providing for profits in the second half. This is to allow borrowing from a line of credit according to prescribed limits, and then paying the line back according to the same limits all within 13 months.

The second section is an Income Statement in which the revenues are driven from the sales units and prices developed in the Parameters section. The model incorporates both variable expenses, related to sales levels, and fixed expenses to allow for observation of cost-volume-profit outcomes and to bring a feeling of reality to the model. The third section is a Balance Sheet that articulates with both the income statement and the Cash Flow Statement.

Receipts are established to take place over three months, with payments on expenses being set to occur over two months. This drives a cash outcome that is slightly delayed from the accrual accounting income statement results, and brings home the point that even though an income statement may be reporting a

net income, a company still may not be generating enough cash to operate, particularly during the startup phase.

The last section is the Cash Flow Statement, constructed using the direct method, which is more difficult for financial statement reporting, but is easier, and in fact better, for modeling in that the receipts and expenditures are readily available. Finally, as indicated earlier, all three financial statements articulate.

3.1 UNDERGRADUATE CLASSROOM APPLICATIONS

The following are the sequence of actions taken in using the spreadsheet business plan:

Provide students with both the formulae/numeric information in the cells to generate the quantitative aspects of the business plan and the numeric results of such formula/numeric information. This is done by giving them a sheet with the formulae/numeric information on one side and the results on the other side. The students are told -- "Reproduce the formulas and numbers on the one side precisely, and you will get the results as given on the other side. You will need to get some of the words and the spacing from the results side, because the formulas took up most of the space for certain items."

Once the students complete and turn in the first phase, then they are required to move on to the second phase. Pull the months across to the following February. This means that the spreadsheet time period would cover one more year from the February in the first assignment.

Copy the February column starting with the first numbers and paste it to the twelve months following. In doing the paste, use only the top row for the numbers. In the cash flow statement, delete from March through the following February the numbers in line of credit. Working one month at a time, borrow enough from the line of credit (as was done in February) so that the bottom line equals at least \$10,000. Borrow in blocks of \$10,000, that is, \$10,000, \$20,000, etc. (This requirement makes all of the papers look the same so that they can be compared and scored.)

At some point the company reaches breakeven and no money need be borrowed. This is for a couple of months. Then, as sufficient cash is accumulated (and the model is constructed so that this happens), begin paying the line of credit back in blocks of \$10,000. This means that a negative number is entered for that month. If students do this correctly, all of the money can be paid back during the year, with money left over. The model is constructed so that students have to check the amount outstanding in the liabilities of the balance sheet to see when to stop repaying the line.

3.2 GRADUATE CLASSROOM APPLICATIONS

For more advanced students, two advanced activities are used. The first is to have students borrow money (a stipulated amount) in the form of a note payable at say 6 percent interest with a 60 month payback. Students are shown how to set up an amortization schedule below the model to calculate the monthly principal payback as well as the interest amount using a fixed monthly payment as one would likely have for a note. This gives them experience in expanding the model to provide for the borrowing in the cash flow statement as well as providing for a note payable line in the balance sheet. The students are also advised to create a separate interest expense line in the income statement. A second option, if students are still enjoying working with the model (this seems to vary from class to class), is to have the students buy equipment with the proceeds of the note, and depreciate it over a period of time, say 10 years. Again, this exercise would require the setting up of another schedule below the main model to account for depreciation expense and the accumulated depreciation. This, in turn, requires the setting up of depreciation expense in the income statement and accumulated depreciation as a contra-asset account in the balance sheet.

4. CONCLUSIONS

The main purpose of using this spreadsheet model is to introduce students to business modeling and give them an opportunity to recall and build on past learning in all the core functional areas of business and

specifically in quantitative topics like financial and managerial accounting, and to develop a strong understanding of financing and budgeting issues and concepts.

The spreadsheet model allows students to see what a completed business plan model looks like. One of the authors, when starting a company, presented a model not too dissimilar from this one (the model covered a period of five years) to a bank and obtained a line of credit that helped him float the company.

The model used in classroom applications is much more sophisticated than linear CVP models, but the concepts are easily identified in the monthly figures. It shows how the three main financial statements are interrelated, and it provides for the opportunity for more advanced students to learn how to construct sub-schedules that feed into the model proper.

In addition to facilitating student understanding of complex quantitative relationship their spreadsheet modeling skill are also enhanced. This in turn increases the marketability of the students and gives them a competitive edge in the job market.

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A TRANSPORTATION BASED ECONOMIC ORDER QUANTITY MODEL

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ABSTRACT

In this paper we investigate the integration of transportation costs into the Economic Order Quantity (EOQ) model. Regression analysis is used to model the nonlinear functional relationship between the order quantity and the per unit transportation cost as defined by a real world transportation freight rate tariff for motor carrier shipping. A spreadsheet based solution methodology is presented for optimizing the transportation-based EOQ model.

Keywords: *Transportation Based EOQ; Inventory Management; Transportation Cost Modeling,*

1. INTRODUCTION

The EOQ model (and its many variants) is the most widely reported and/or referred to model in the inventory management literature. From a pedagogical perspective, the EOQ model is an integral part of the inventory management chapter in nearly all textbooks used in operations management, logistics and purchasing and often appears in cost accounting and finance textbooks. Weiss (1990) and Gardner (1980) argue that the lot sizing concepts promulgated by the EOQ model, such as the trade-off between order cost and holding cost, are fundamental in managing an inventory system. Questions based on the EOQ model routinely appear on certification examinations held by the American Production and Inventory Control Society (APICS), see for example Wilcox (2007).

From an industry perspective the usefulness of the EOQ is not without controversy. Applications of the EOQ to solve inventory control problems in industry have been reported by Osteryoung et al. (1986) and Reuter (1978). The robustness of the EOQ to errors in the parameter estimates for the model has been demonstrated by Brown et al. (1986) and Guiffrida and Papp (2008). However the EOQ model has also criticized as being unrealistic for use in industry due to the restrictive set of assumptions that govern the model (see for example, Woolsey, 1988; Zangwill, 1987; and Adkins, 1984).

1.1 Adaption of the EOQ for Transportation

Transportation costs were first integrated into the inventory lot sizing decision by Baumol and Vinod (1970) in their formulation of the comprehensive "inventory-theoretic" model. A number of researchers then extended the inventory-theoretic model to integrate specific transportation related variables of interest (see for example, Buffa and Reynolds, 1977; and Constable and Whybark, 1978). A common limitation of these studies was the assumption that transportation costs were either: (i) constant and hence independent of the size of the order quantity being transported or (ii) linearly related to the lot size quantity being transported.

Widespread implementation of the Just in Time (JIT) and Lean Manufacturing paradigms in the 1980's led researchers in inventory management to re-think the functional modeling of transportation costs used in joint inventory-transportation lot sizing models. These modern manufacturing paradigms emphasize waste minimization in all facets of the production system. This change in philosophy directly impacted inventory and transportation management by requiring that customer demand be met with small, frequently delivered lot sizes. Hence, transportation costs in inventory management need to more accurately reflect the true functional relationship between the cost of motor carrier transportation and the quantity of a product being shipped.

Langley (1981) first investigated using non-linear cost functions in an attempt to more accurately model per unit transportation costs in joint transportation-inventory lot sizing models. Guiffrida and Christy

(1992) were the first researchers to mathematically model an *actual* industry based motor carrier transportation rate tariff for inclusion into a joint transportation-inventory lot sizing model suitable for use under the JIT production philosophy. The model presented by Guiffrida and Christy (1992) enhanced the realism of transportation-inventory based models by incorporating the product class, place of origin and destination, and freight rate per hundredweight of the item being shipping.

Traditionally transportation costs have been ignored in most academic textbook presentations of inventory lot sizing models such as the EOQ. From an industry perspective, the applicability and realism of the inventory models is enhanced when transportation costs are integrated into the overall lot sizing decision. When inventory lot sizing decisions are viewed from the more macro supply chain management perspective, failure to include transportation costs within inventory management is a fundamental deficiency.

1.2 Paper Organization

In this paper we present a spreadsheet methodology for incorporating transportation costs into the EOQ lot sizing decision. This paper is organized as follows. In the Section 2, we present the underlying mathematical model for incorporating transportation costs by motor carrier shipment into the EOQ model. In Section 3, we present a spreadsheet based solution methodology for the transportation-based EOQ model. The applicability of the model is demonstrated by a numerical example. The industrial and pedagogical benefits of using the spreadsheet based model are discussed in Section 4.

2. MODEL DEVELOPMENT

2.1 Nomenclature and Assumptions

The following notation is used in the development of the model:

S	order cost (\$ per order placed)
D	annual demand (units)
H	inventory holding cost per unit per year (\$/unit/year)
Q	order quantity
W	item weight (pounds)
T	transportation cost per unit, $T = a(Q^b)$
a, b	parameters of T to be fit from transportation freight rate tariff
TC	total annual cost

We adopt the traditional EOQ modeling assumptions: (i) a single product, (ii) constant demand and lead time, (iii) instantaneous replenishment, and (iv) no quantity discounts.

2.2 Model Definition

The total annual cost for the transportation-based EOQ model is composed of the sum of annual ordering costs, annual holding costs and annual transportation costs and is defined as

$$TC(Q) = S\left(\frac{D}{Q}\right) + H\left(\frac{Q}{2}\right) + T\left(\frac{D}{Q}\right) \quad (1)$$

Under the power curve representation of the transportation cost per unit, $T = a(Q^b)$, the total annual cost is

$$TC(Q) = S\left(\frac{D}{Q}\right) + H\left(\frac{Q}{2}\right) + \{a(Q^b)\}\left(\frac{D}{Q}\right) \quad (2)$$

or,

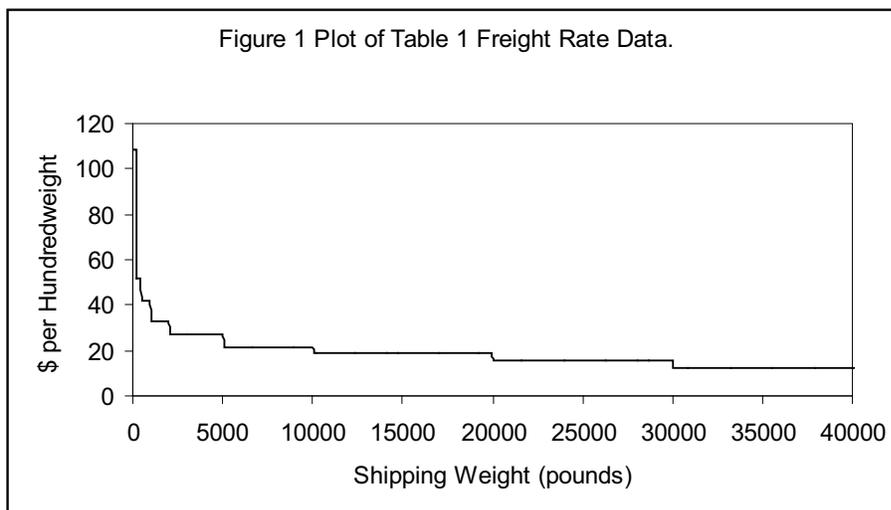
$$TC(Q) = S\left(\frac{D}{Q}\right) + H\left(\frac{Q}{2}\right) + a\left(\frac{D}{Q^{1-b}}\right). \quad (3)$$

Under a motor carrier freight rate tariff, the shipping cost for a product is determined based on the product class to which the product is assigned, the product's point of origin and final shipping destination, and the weight of the product. User friendly freight rate calculators have been designed that calculate the transportation cost (in \$ per hundredweight) based on the user entered values for the numerical code identifying the product class, the zip codes defining the starting and ending destinations for transport, and the total weight to be transported. Table 1 and accompanying Figure 1 illustrate the structure of a typical freight rate tariff.

Table 1 Example of a Motor Carrier Freight Rate Tariff.

Product Class: 85 (automobile radiator)
 Zip code of origin: 14206 (Buffalo, New York)
 Zip Code of destination: 48226 (Detroit, Michigan)

Shipping Weight	Freight Rate (\$ per hundredweight)
$X < 206$ pounds	\$108.20 (minimum charge)
$206 \leq X < 500$	52.51
$500 \leq X < 1000$	41.52
$1000 \leq X < 2000$	32.72
$2000 \leq X < 5000$	27.46
$5000 \leq X < 10000$	21.46
$10000 \leq X < 20000$	19.00
$20000 \leq X < 30000$	15.96
$30000 \leq X \leq 40000$	12.84



Examining Figure 1, the freight rate tariff defines a discrete step function for relating shipping weight in pounds to the freight rate in dollars per hundredweight. Implementing the transportation cost in the EOQ based model defined in equation (3) requires that the transportation cost be stated on a per unit basis. The per unit shipping cost can be obtained from the freight rate tariff using the following conversion calculation: $(\text{freight rate})(W/100)$. The number of units of product (Q) that can be shipped under a given

transportation cost per unit can be found by dividing the shipping weight X by the item unit weight W , e.g., $Q = X/W$. Table 2 illustrates this conversion for the freight rate tariff introduced in Table 1.

Table 2 Freight Rate Tariff of Table 1 Converted to Units of Product.	
Product Class: 85 (automobile radiator)	
Zip code of origin: 14206 (Buffalo, New York)	
Zip Code of destination: 48226 (Detroit, Michigan)	
Per unit shipping weight: $W = 15$ pounds	
Units of Product	Transportation Cost per Unit
$Q < 206/15 = 13.7$ units	\$108.20 (minimum charge)
$13.7 \leq Q < 33.3$	$(52.51)(15/100) = \$7.88$
$33.3 \leq Q < 66.7$	$(41.52)(15/100) = 6.23$
$66.7 \leq Q < 133.3$	$(32.72)(15/100) = 4.91$
$133.3 \leq Q < 333.3$	$(27.46)(15/100) = 4.12$
$333.3 \leq Q < 666.7$	$(21.46)(15/100) = 3.22$
$666.7 \leq Q < 1333.3$	$(19.00)(15/100) = 2.85$
$1333.3 \leq Q < 2000.0$	$(15.96)(15/100) = 2.39$
$2000.0 \leq Q \leq 2666.7$	$(12.84)(15/100) = 1.93$

2.3 A Power Function Approximation of the Transportation Cost per Unit.

The optimization of (1) to determine the optimal order quantity is greatly simplified when the transportation cost per unit is defined by a continuous and differentiable function as opposed to the discrete step function found in Table 2. Figure 1 suggests that the per unit transportation cost can be reasonably approximated by a power curve of the form $T = a(Q^b)$.

The following algorithm can be employed to approximate T :

Step 1. Generate a set of data pairs (Q, T) based on Table 2.

Step 2. Transform $T = a(Q^b)$ into the linear equation $\ln T = \ln(a) + b \ln(Q)$.

Step 3. Convert all (Q, T) data pairs to $(\ln Q, \ln T)$.

Step 4. Run a linear regression on the data pairs $(\ln Q, \ln T)$ to determine the values of the slope b and intercept $\ln(a)$ of $\ln T = \ln(a) + b \ln(Q)$.

Step 5. Parameterize $T = a(Q^b)$ using the values $a = e^{\ln(a)}$ and slope b .

The algorithm outlined above can be easily implemented using an Excel Spreadsheet.

3. MODEL IMPLEMENTATION

The transportation based EOQ model presented in this paper can be conveniently implemented using a spreadsheet methodology. The optimization problem is to determine the order quantity Q that minimizes the total cost function $TC(Q)$ defined by equation (3). The Excel Solver can be used to efficiently perform this nonlinear optimization.

3.1 Numerical Example

Consider an industrial application where the objective is to determine the optimal order quantity for a class 85 product (automobile radiators) that is to be shipped by motor carrier from Buffalo New York to Detroit Michigan under the freight rate tariff defined in Table 1. We assume that EOQ assumptions stated in section 2 hold. The product characteristics are: unit weight $W = 15$ pounds, order cost $S = \$50$ per order, inventory holding cost $H = \$100$ per unit per year and annual demand $D = 1,200$ units. Application

of the algorithm defined in section 2.3 to the freight rate data of Table 2 yields the parameters $a = 26.61056$ and $b = -0.33182$ for the power curve approximation of unit shipping costs. Figure 2 summarizes the application of the Excel Solver to determine the optimal order quantity Q that minimizes equation (3) for the data used in this example.

Figure 2 Summary of Numerical Example.

	A	B	C	D	E
1	Spreadsheet Implementation of Numerical Example				
2					
3					
4	Unit Weight (W)		15		
5	Order Cost (S)		50		
6	Holding Cost (H)		100		
7	Annual Demand (D)		1200		
8	Power curve constant a		26.61056		
9	Power curve constant b		-0.33182		
10	Order Quantity (Q)		38		
11					
12	Total Cost (equation 3)		\$3,730.26		

Examining Figure 2, for the parameters used in the numerical example, total cost of the transportation based EOQ model is minimized at \$3,730.36 when the order (and shipment) quantity is 38 units.

4. SUMMARY AND CONCLUSIONS

In this paper we have presented a transportation based EOQ model and an accompanying spreadsheet based solution methodology. The model solution procedure was demonstrated using a numerical example. A distinctive feature of the model is the integration of an actual industry freight rate tariff into the formulation of the model's total cost equation. This attribute of the model greatly enhances the applicability of the model for industry use and also provides a pedagogical contribution when using the model in academic instruction. The transportation based inventory model and solution methodology presented herein advances the coverage of transportation and inventory management models that are found in operations management and supply chain management textbooks.

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THE ROLE OF BLOGS IN A TOURIST MARKETING STRATEGY

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ABSTRACT

Competition between communities and regions for tourist dollars is intense. As a result there is strong motivation for them to rapidly new media for communicating their messages. This is why the tourism industry was an early adopter of the Internet as a marketing tool. The same appears to be true for Blogs. This paper outlines the early adoption and discusses how Blogs could be integrated into a communities tourism marketing strategy.

Keywords: Tourism marketing, Internet marketing, Blog marketing

1. INTRODUCTION

Competition between communities for tourist dollars is fierce. Communities are always searching for a competitive advantage. In this competition communities are constantly looking for new media and communication tools for reaching their target market, Communities seeking a competitive advantage in tourism marketing were early adopters of the Internet as an adverting media (Reedy and Schullo 2004). From ads on travel websites over building own websites to the use of search engine marketing communities sought the latest venues to promote themselves as destinatio (Reedy and Schullo, 2004). Therefore its should not be surprising that communities were early adopters of blog marketing as a tool for promoting their communities. This paper focuses on role of blog marketing in tourism and how travel destinations can use blog marketing as part of their marketing strategy to attract more tourists to their destinations. This paper shall describe the use, development and benefits of blog marketing in the tourism industry.

2. LITERATURE REVIEW

Place or tourism marketing is a growing area of study. In practice, if undertaken effectively, place marketing can contribute greatly to the economy in terms of attracting tourism, students of tertiary education, economic immigration. (Simon Anholt, 2007). It can also enhance the attractiveness of a place's exports. Pender and Sharpley (2005) identify the differences between tourism marketing and other marketing areas as:

- 1) Principal products provided by recreation/tourism businesses are recreational experiences and hospitality.
- 2) Instead of moving product to the customer, the customer must travel to the product (area/community).
- 3) Travel is a significant portion of the time and money spent in association with recreational and tourism experiences,
- 4) Is a major factor in people's decisions on whether or not to visit your business or community.

2.1 TOURISM AS AN IMPORTANT ECONOMIC FACTOR

Tourism marketing is an important sub-field of marketing because of the major role tourism has in many local economies. Tourism has been a important for keeping many regions alive economically and many local businesses are dependent on tourists. (Middleton, 2001). The chart below shows how tourism growth of California outspace competing destinations in 2007. As it is said in the paragraph above, the tourism industry creates 911,800 jobs. It should be a main goal, to maintain the status as Nr. 1 travel

destination and to increase the number of visitors.



Source: US Department of Transportation, May 2008

Because of the economic importance communities spend significant amounts of money on attracting new tourists from year to year or increase the duration of stay for returning tourists. The competition pressure has driven many communities to take advantage of the modern communication to full extent possible many communities pioneers in Internet marketing (Reedy and Schullo, 2004). The San Diego Tourism Marketing District Management plan for example contains a entire section on the use of the Internet to promote San Diego to its target markets. (Coalition of lodging business owners and managers, 2007).

3. THE INTERNET

Until the early 1990s, the Internet was used only for data interchange by academics, corporations and governments. The development of graphical interfaced browsers like Netscape transformed the Internet into a rich communication media. Today access is not limited to computers, but can be achieved through other means, such as WAP. (Reedy and Schullo, 2004)

Since 1996, the Internet has captured significant public attention. Exponential growth in Internet hosts and personal computer adoption has led to dramatic increases in online activity. Information and communication technologies provide a powerful tool that can bring great advantages in promoting and strengthening the tourism industry's strategy and operations. The Internet, and the World Wide Web in particular, has revolutionized the promotion and communication functions of tourism. They empower personal marketing campaigns and one-to-one marketing. Instead of addressing broad audiences through mass media, such as television and radio, tourism organizations are developing personal relationships with their customers, so as to understand their needs and make sure that they address them through personal communications. The Internet has multiplied the speed and reach of interactive communications, opening opportunities that were only fantasies two decades ago. (Nash, 2000).

3.1 BLOG MARKETING

A new form of communication on the Internet are Blogs, short for Weblogs. This new form of communication allows consumers to express their own opinions in yet another way. Blogs are a new and original cultural phenomenon, reflecting more the changes and needs in society than simple realization of technological possibility. As of April 2007, Technorati, a major blog monitoring service, claimed to be tracking more than 75 million blogs. "If we keep up at this pace, there will be over five hundred million blogs by 2010", Web contrarian Andrew Keen (Sohn 2008) has stated. Blogs are simply online journals consisting of a mix of text, links and maybe graphics. Bloggers are usually people who are strong believers in something and listening to what they are saying in. Blogs can provide insight into what is good or bad about the products. (Barlow, 2008) Destination organizations shall use blogs to see what people have to say about the location they are trying to market. Secondly, location organizations may advertise their locations and services to the virtual communities with blog-ads, which refers to placing advertisement on personal blogs. (Sohn, 2008) A blog is a personal homepage with more enhanced connectivity than an HTML-based Web site. In the blog system, individuals communication activities automatically form networks through which they can move from one blog to another without manually

adding hyperlinks to each page. Once a communication network is formed, information may flow easily through it. The blog-ad is an attempt to expose the information of products and services to consumers interconnected by networks.

3.2 APPLICATIONS OF BLOGS TO TOURISM

There are millions of tourism blogs on the World Wide Web. Google finds 11,400,000 entries for the key word "Tourism Blog". The Internet is a place of opportunities – it offers people the way to express their anger, their joy and their satisfaction concerning a product, a travel experience of a service. That creates a lot of opportunities, but also Threats.

If people aren't satisfied with their travel experience, they more likely tend to write down their anger or tell their friends about the bad experience, they made. This is a threat to any destination. Especially when new travelers do their research on the Web and discover a lot of negative feedback and blogs on the web. Everybody wants to spend a great time during their vacation and they tend to do research. Furthermore there are millions of travel blogs on the Web – that is a Threat too. Travel organizations have to make sure, that they appear in the Blog Sphere at all. It is important to do Blog Marketing and make sure, that travelers are able to find Blogs about that particular destination on the web.

On the other hand, there are also a lot of great opportunities. Travel organization can create own blogs and motivate their travelers to write down their opinions on this particular blog. Travel organizations can also place ads on personal blogs, to attract more tourists as well. Blogs can be a great opportunity to market a destination. But there is another opportunity. In order to develop a long-term strategy for a destination, a travel organization has to do research. It is important to know, what the travelers like and dislike. Doing research by scanning the travel blogs, written about the destination, is an excellent way to create a Strength and Weakness Analysis.

3.3 LAUNCHING AN OWN TRAVEL BLOG

An easy way is to launch an own blog on the web. This blog can contain information about the travel destination, restaurants, tips and a lot more. This blog can also be used as an information source for travelers coming to the destination. The advantage of an own blog is, that the travel organization has the chance to control, what is in the Blog. They can scan the written blogs, can track them and also use it as a research tool. The organization can also create a lively network and try to create a good position in search engines, by using affiliate marketing and other tools in order to market this particular Blog site. The Blog site can also be given to travelers coming to the visitors bureau. The travel organization can motivate them to write down their blogs by giving them a present or a discount on a tour or anything.

3.4. CREATING AN AMBASSADOR PROGRAM

This is a new trend in the tourism industry. Hamburg in Germany for example has created an "Embassador program". These destinations are looking for Ambassadors to market their place all over the world. These ambassadors have the duty, to write blogs, to write comments on any given internet platform, to mingle with people all over the world telling them about the beauty of the destination, they live in etc. Ambassadors are citizens of that particular region or town. They volunteer and they have an interest in promoting their place. A good way to increase the positive blogs is, to launch an own ambassador program.

3.5 SURVEYS

Annual surveys can also be used in order to increase the number of positive blogs. If a destination knows about the weaknesses, they can develop strategies in order to make the destination more service-oriented and more beautiful. That – in an ideal world – creates a higher satisfaction rate.

3.6 QUALITY OF SERVICE

This point is related to the "Surveys". Annual Service Training for hotel employees, tourist information stuff and all people, occupied in the tourism sector, can increase the Quality of Service in a particular

destination, which leads to a higher satisfaction rate. There are also many actions that can increase traveler's satisfaction with a place, such as local events, infrastructure, orientation systems, friendliness, safety and cleanliness in a destination.

4. SUMMARY

Communities are engaged in fierce competition for tourist dollars. As a result of this fierce competition communities are often on the cutting edge of new marketing techniques. This is why many communities were early adopters of the Internet as a communication tool. Blog marketing is the latest Internet marketing tool to be used to create competitive advantage in the market place.

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INDEXING OF STATE TAX COLLECTION VARIABILITY

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Abstract:

Over the years researchers have performed several studies on the various states tax regimes and its stability. From time to time states face large budget shortfalls and have to scramble in order to cut expenditures or issue bonds to cover the shortage. One of the complications that states face is that not all taxes respond with equal variability to economic conditions. Additionally, economic factors influence some states greater than others. Choosing the particular tax mix that a state uses is a political decision that is influenced by a number of factors that include of historic, regional and economic issues. It is not a foregone conclusion that politicians would necessarily want an entirely stable tax regime, it is entirely possible that they could wish for a lighter tax burden when economic times are difficult, or conversely they could look for taxes that may be inversely correlated since the state would need to provide more services for their constituents. This study does a statistical analysis of the various taxes that states use and to create an index similar to the concept of Beta that is used in investing to show the degree of variability that different taxation methods generate. Six years of data was analyzed to provide the rate of change in collections of four major classes of tax; sales and use, individual income tax, corporate income and franchise tax, and natural resources) from 44 states in order to determine the volatility of that source of income. The results of this study show that sales and personal income taxes are relatively stable while resource and corporate taxes show high fluctuations relative to overall collections.

1. INTRODUCTION

We are in an era where several states are experiencing large budget gaps between forecasted revenue and actual collections. Notably among these is California which is currently experiencing a 22% gap between revenues and expenditures. One of the problems that politicians are having in forecasting is the variability of state tax revenues. Budget gaps occur when state expenditures exceed state revenues. Most states are required by law to balance their budgets. There are generally three factors that go into budget gaps; expenditures which tend to increase during economic downturns, revenue shortfalls also occur during economic slowdowns, and tends to exacerbate the budget gap, finally faulty models tend to error on the optimistic side of both revenues and expenditures. One sub element that affects both forecasts and revenue collections is the variability in certain tax revenues. This study looks to examine the variations in state tax collections in order to show which are stable and which are more variable. In this examination we will create an index much like that is used with returns and finance along the lines of Beta. It is hoped that by creating a Beta(tax) index that it will be possible to better forecast which taxes are more variable and which our more stable. Also in selecting a states tax regime it might be possible to select taxes that tend to be more stable, so that revenue shortfalls do not compound budget gaps during difficult economic times.

By examining the variability of various tax components, legislators (and staff) could see which components of their tax regime are more likely to produce shortfalls. Since each state has its own tax regime that is composed of various elements some states will have greater variability in other states will have more stable tax regimes. It is believed that states with greater variability are more likely to suffer from budget gaps. By knowing the magnitude of variation different revenue sources inherently contain, legislators could either be able to more quickly recognize when collections would be less than predicted or would budget with additional leeway in order to compensate for the variation.

2. BETA

In finance, Beta has come to widespread use. The term beta is derived from the beta coefficient in a least squares regression using a single independent variable. The formula for a least squares regression is $Y = \alpha + \beta X + \epsilon$ where Y is the dependant variable, "α" is a constant, X is the independent variable and "ε" is the error term. "β" is the coefficient on the independent variable and indicates the relationship of the independent variable to the dependant variable. As used in finance the independent variable is the

market as a whole, while the dependant variable is the security (stock or mutual fund) or portfolio of interest. A security with a positive “β” coefficient means that the market and the security generally move in the same direction. A negative coefficient would mean the market and security move in generally opposite directions. The magnitude of the coefficient is in essence the “multiplier” between the independent and dependant variable. Therefore a security with a “β” of one (either positive or negative) has, in general, the same percentage movement as the market as a whole. A security with a “β” of greater than one moves at a greater percentage than the market as a whole, while a “β” of less than one moves at a lesser percentage than the market.

Correlations can be high between securities within markets and particularly within industry groups, as can be seen by generally rising and falling markets. Within a diversified portfolio virtually all of the risk is due to this multicollinearity.

Beta is an integral component used in the capital asset pricing model (CAPM). Since Beta by definition is the multicollinearity of the securities within the portfolio, the “Beta” of a portfolio represents the risk that cannot be removed by diversification. Using least squares regression against a stock index, the beta for individual companies can be determined.

Within a Portfolio

The determination of the beta for an asset contained within a portfolio uses the formula:

$$\beta_a = \frac{\text{Cov}(r_a, r_p)}{\text{Var}(r_p)}$$

r_a is the rate of return for the asset over time, r_p is the rate of return for the portfolio as a whole over time, therefore $\text{Cov}(r_a, r_p)$ represents the covariance between r_a and r_p . When using the CAPM formula in theoretical finance, a market portfolio which contains the universe of all risky assets is assumed. Which leads to the use of r_m to replace r_p in the formula for Beta.

Since Beta is a coefficient, it's effect is as a multiplier, it can often be used to measure the volatility of a particular asset. It can be argued that a managers risk can be measured by Beta. Given two managers with equal portfolio returns, the manager whose portfolio has the lower Beta would be deemed to have subjected his investors to lower risk. Another way of saying the same thing is that in a rising market, a manager could achieve superior returns by including higher beta stocks into the portfolio.

Beta itself is not a measure of the returns of a stock or of a portfolio of stocks. If a particular investment sector would show high returns, while the stock market was flat or drifting lower, the “Beta” (at least for that time) would move in a direction showing a lower correlation. This loss of magnitude in the Beta coefficient, does not in any way reduce the attractiveness of the given security or the sector, it only shows the decrease in relative correlation. What Beta therefore shows is the systemic risk a given security is subject to. It is this risk that this paper intends to exploit in constructing a Beta index for tax collections.

By manipulating the formula for Beta we find that:

$$\beta = (\sigma / \sigma_m)r$$

By using this version of the Beta formula, we can adapt the formula for use in evaluating the volatility of state tax revenues.

3. ADAPTATION

For the purposes up this study the percentage change from one year to the next year was used in place of the rate of return in order to calculate the Beta(tax). This can be justified as the rate of return on a stock with no dividends would be the change in the price of the stock. By calculating the rate of change, one less year is available for calculations than data collected.

The data that was used in this study came from the consolidated annual financial reports (CAFR) of the various states that were involved in the study. Data was unable to be obtained for the states of

Connecticut, Wisconsin, and New Jersey. Furthermore, data for the states of Nebraska and New York were an unusable format. We therefore ended up with data from 45 states. Revenue sources for the states included 83 different categories. The four categories are included in this study were selected on the because of the relative size of those categories to the overall state revenue collections and the number of states that had that form of tax collections. The years involved depended on the states, but ranged from 1999 through 2006. Data for individual years for some states were excluded due to significant changes in tax regime i.e. a difference in the collection of franchise tax for the state of Texas or for a large difference in the amount of tobacco tax on cigarettes. Only 14 data points were lost due to these exclusions.

4. METHODOLOGY

Each state's CAFR was analyzed to extract the revenues from the report the difference between one year and the next year was calculated in order to get a percent change. This procedure was also done for the total revenues of each state for each year. The correlation and variation for between total revenues and each type of tax was calculated and from that the beta for each type of tax was calculated.

Results

The results of the study indicate that some taxes are very stable while other taxes tend to have wide variation in their collection amounts. The results are shown in the following table.

Tax	Beta
Sales and use tax	0.440379
Personal Income Tax	0.140945
Corporate income and franchise tax	1.512235
Natural resource tax	2.235843

The results in from the sales and use tax as well as the personal income tax tend to be less variable than overall collections, while the corporate income and franchise tax, and natural resource taxes tend to be more variable than overall collections. These results are somewhat intuitive due to the fact that corporate income and franchise tax are based on profits, and corporations will tend to cut prices and have reduced sales during periods of recession. Because of their fixed costs, corporations tend to have greater swings in their income. Personal income taxes are based more on an individual's revenue as opposed to a "profit". Deductions are allowed by the various legislatures, however, these are only loosely analogous to expenses. During the period studied there were no severe economic downturns that greatly increased unemployment, or limited wages, which would indicate a greater reduction in personal incomes. The variation which does exist is most likely explained by variations in capital gains, self employment incomes and changes in bonuses. The natural resource tax is the most variable of the taxes which were included in this study. It should be noted that the period of 1999 to 2006 showed a tremendous change in the price for energy related resources, and it also showed a great increase in the price of metals such as gold silver and copper. Sales and use tax was somewhat surprising in its lack of variation compared to overall collections, again during the period studied there was not any severe recessions and therefore it would be difficult to conclusively conclude that these taxes do not have increased potential for variability in an atmosphere of strained economic times. Another explanation would be that the majority of sales are for necessities and that consumers do not reduce their habits as much as overall collections would indicate it is consistent however with personal income tax collections having a low variability that consumers would also have a low variability rate.

5. LIMITATION

This study suffers from several limitations the most notable being that a severe economic downturn was not included in the years examined. These particular years were chosen because these ate the years that

were available online from the consolidated annual financial reports of the states. Without the testing through a period of a significant recession it would be difficult to make any firm conclusions about the variability of the various taxes that are involved. Another limitation is that one of the larger states New York was not included because of incompatible data for the study.

Further research

The potential for research in this area is quite vast in addition to extending it for the total of 83 different categories that were listed in the various cancers. Regional indexes could also be setup is quite likely that regents would suffer from the same economic conditions and therefore would have similar betas whereas other areas could be countercyclical in nature. Additionally the information from additional prior-years and from future years can be added to enrich the source of data that is involved in this analysis.

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PROTECTION OF INTELLECTUAL PROPERTY RIGHTS A COMPARATIVE STUDY OF INDIA AND JAPAN

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ABSTRACT

IPR protection is not simply a tool for Transnational Corporations to generate long-term profits, but it is also an essential means of enabling developing countries' improve research and development, and ultimately their international competitiveness to flourish. Some developing nations like India still lags behind in using IP protection as a tool to achieve better economic growth whereas, countries like Japan are proving that the problem of IP crimes can be fought using appropriate IP protection strategies. This study tries to investigate the different patterns regarding IP right protection in Japan and India through a normative comparative analysis.

Key words: *Gross Domestic Production, Intellectual Property, Small and Medium Enterprise, Research and Development*

1. INTRODUCTION

The process of economic globalization has enabled intellectual property to cross international boundaries more easily. IP rights have become important in the face of changing trade environment which is characterized by the following features namely global competition, high innovation risks, short product cycle, need for rapid changes in technology, high investments in research and development (R&D), production and marketing and need for highly skilled human resources.

Intellectual property protection has become a very important issue in international economic relations. Increasingly, the developed countries are treating intellectual property rights as a precondition of meaningful trade negotiations with developing countries. The study, the 2009 International Property Rights Index (IPRI), compared the protections of physical and intellectual property to economic stability in 115 countries representing 96 per cent of the world's GDP. Data shows that countries that protect the physical and intellectual property of their people enjoy nearly nine times higher GDP per capita than countries ranking lowest in property rights protections. This study shows the comparative picture regarding IP trends between Japan and India.

2. REVIEW OF THE LITERATURE

Over the past 15 to 20 years, economists and scholars have increasingly focused their attention on intellectual property rights and the effects they have on enhancing economic development. Keith Maskus argues with convincing evidence that strengthened IPRs increase economic growth in his book titled *Intellectual Property Rights in the Global Economy (2000)*. A recent (2005) study by Beata Smarzynska Javorcik of the World Bank comes to very similar conclusions to those of Maskus. Smarzynska Javorcik's study in *Intellectual Property and Development: Lessons from recent Economic research (2005)*, looks at the composition of foreign direct investment in Eastern Europe and the former Soviet Union and contribution of IP regime in these nations. The findings of Carlos A. Primo Braga, Carsten Fink, and Claudia Paz Sepulveda, also come to similar conclusions as those of Maskus. Their World Bank Discussion Paper, *Intellectual Property Rights and Economic Development*, argues that creating a framework for enhanced intellectual property protection will benefit developing countries.

3. METHODOLOGY, SCOPE, AND LIMITATIONS

Normative comparison technique is used for this research because the goals of this paper is not only to detect and explain but also to improve the present state of the situation or to help improving or developing similar elements in the future. This is the technique of normative comparison. Given the difficulties and importance, methodologically, of the topic addressed in this paper it covers only the fundamental tasks and questions.

Firstly, in regards to the comparison of the two economies, the discussion will be limited to detecting, explaining, and improving upon the Indian System of IP Protection by using Japan as the ideal economy for benchmarking. I consequently discuss and compare the three aspects that affect the IP Protection System in the economy namely: Economic Structure of the country, R&D activities and IP Protection applications.

4. INDIA'S ECONOMIC SCENARIO

Era of Globalization, liberalization and Privatization, have brought tremendous changes in the economic development process of India. Today India's GDP has already cross 8.5% and striding hard to achieve 10% before 2010. This kind of economic growth has been achieved mainly due to impressive performance by service sector; enhance industrial activities and agriculture sector. Although the services sector is performing very well but industry sector is expected to improve further. Industrialization process has also rapidly picked up high momentum. Due to such a phenomenal economic success, the direct foreign investment is also increasing rapidly. In other words the sharp rise in the investment is also responsible for the current growth phase of economy.

The year 2006 has been a year of record foreign direct investment (FDI) inflows with FDI equity inflows alone during 2006-07 expected to cross US \$ 11 billion.¹ India is also encouraging Indian companies in acquisition of technological capability in various sectors of the industry through a liberal foreign technology collaboration regime.

5. R&D ACTIVITIES IN INDIA

Now days, India has been becoming a hub for the international R&D activities of many multinational corporations as they are only outsourcing their research activities in India but domestic companies including small scale industry sector and individual inventors are lagging far behind. The investment on Research and Development activities has attained a level of more than Rs180, 000 millions (Rs.18, 000.16 crores) which is about 0.80% of Gross National Product (GDP). This kind of low R&D expenditure (0.6% to 0.8%)has been around for many years. The expenditure on R&D activities is quite low, which has been about 0.80%of GDP as compared to other countries which is between 1.5-3.5% of GDP. The private sector is also not making much investment in R&D. In developed countries like Japan, US, Germany, and even developing countries like Korea, China and Taiwan, the R&D expenditure by private sector is much more than the public sector or government sector. In India, the major share in R&D expenditure is from the Central Government source (62.0%). The state Government share is being 8.5%, Higher Education 4.2%, Public sector industries 5.00% and remaining is from Private Sector (20.3%).

6. IP PROTECTION APPLICATIONS IN INDIA

In spite of high economic growth and expansion of industrial sector, the intellectual property protection activities in India are very low as compared to many developing countries such as China, Korea, even a small country like Taiwan. We are well behind to Japan, United States, and European Patent Office. We are not only lagging well behind in terms of total industrial property applications but in terms of applications filed by domestic applicants as well. A comparison of Industrial applications of some countries is given below.

TABLE-1 COMPARISON OF INDUSTRIAL APPLICATIONS (2005-06)

Type of IP	India	Japan
Patents	24,504	427,078
Designs	4,949	39,254
Trademarks	85,669	135,766
Utility Models	Not Applicable	11,386

(Source: IP offices websites)

One of the reasons for the low IPR protection activities in India is found that the SMEs, are lacking in research and development activities due to lack of resources and investment and therefore mainly engaged in the production of goods keeping in mind the requirement of common man. Further, now days they are also facing lot of competition in the market not only among themselves but also from the imported goods, and therefore directing their innovative work in the improvement in the existing products to improve their quality, shape, designs, etc. as per the modern days requirements. However this kind of innovative work done in the SMSE sector goes unnoticed as this kind of new innovative work is short lived due to competition from foreign goods as well as from Indian goods and unable to meet the requirement of patentable subject matter such as novelty and inventive step as patenting needs greater degree of inventive step and world wide novelty criteria. To avoid such sort of serious problems some developed nations like Japan uses the Utility Model Protection for small invention. Figure 1 below shows why innovations in Indian SMEs need to be protected.

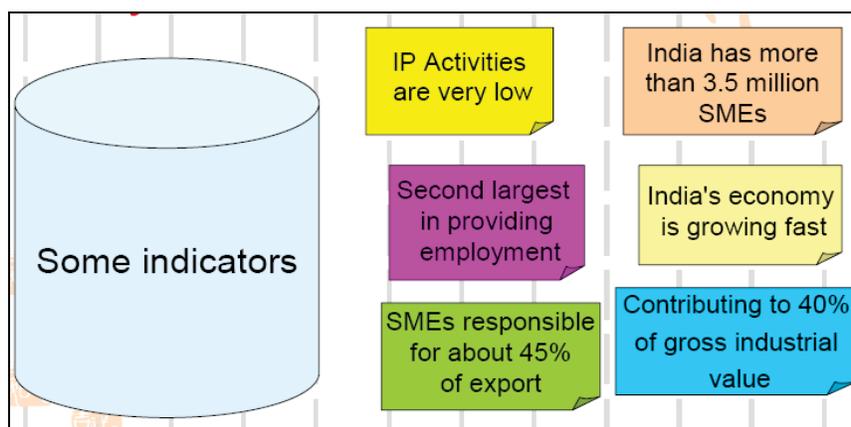


FIGURE-1

(SOURCE: UTILITY MODEL –A TOOL FOR ECONOMIC AND TECHNOLOGICAL DEVELOPMENT: A CASE STUDY OF JAPAN by Dr.K.S.Kardam)

7. ECONOMIC SCENARIO OF JAPAN

Today Japan is world's third-largest Purchasing Power Parity (PPP) after United States and the people's republic of china and second-largest by market exchange rates.⁵⁵ Government industry cooperation strong working ethics high technology development and small allocation for defense are the main reasons which have helped to become one

of the largest economies of the world. Japan's highly educated labor force also played a significant role in the economic growth. From the year 2003 onwards, the pace of Japan's economic recovery increased, supported by relatively high investment and consumption amidst the rapid recovery of overseas economies. As of June 2006, the solid performance of the corporate sector is continuously spreading to the household sector. Japan's economic recovery is also continuing which is supported by domestic Private-sector demand.

(Source: Statistical Handbook of Japan 2006, published by Statistics Bureau, Ministry of Internal Affairs and Communication)

8. R&D ACTIVITIES IN JAPAN

Intellectual property creation culture has been the back bone of Japanese industrial development for a long time. The investment in the research and development and education has not only helped Japan in its own innovation efforts but also helped in effective use of imported technology. Japan's R&D expenditure relative to GNP had been high in the past upto1958 spending upto 0.97% of its GNP (Source: www.nstmis-dst.org)

During fiscal year (FY) 2005, Japan's total expenditure on R&D stood at 17,845 billion yen, showing an increase of 5.4% from the previous fiscal year. It is the highest figure and keeps on increasing for six years continuously. The ratio of R&D in terms of GDP was 3.53%, maintaining the highest rate in the past years. The main industries that expenditure on R&D for business enterprises increased were "Electronic parts and devices", an increase of 26.7%; "Drugs and medicines", an increase of 15.5%; and "Transportation equipment", an increase of 13.3%; compared with the previous fiscal year.

(Source: Statistics of Bureau of Ministry of internal Affairs and Communication Japan, available at <http://www.stat.go.jp/english/data/kagaku/1533.htm>)

9. IP PROTECTION APPLICATIONS IN JAPAN

In fact the establishment of Institute of Physical and chemical Research was a result of Japanese's desire to promote indigenous innovations and develop intellectual property creation culture. This can be seen from the fact that Japan patent office from its inception started receiving increasingly growing numbers of domestic patent applications and also utility model applications. A utility model is a statutory monopoly granted for a limited time in exchange for an inventor providing sufficient teaching of his or her invention to permit a person of ordinary skill in the relevant art to perform the invention. The number of utility model applications filed in the year in which utility model law was introduced in Japan, also authenticated the intellectual property creation culture.

10. DISCUSSION

Today Japan stands very high in overall economic development and therefore regarded as one of the most advanced nations. India, in spite of being one of the fastest growing nations faces serious problem of increasing IP crimes. As shown with the above comparison, IP protection system in both the countries is quite different due to varied economic back grounds, R&D activities and IP Protection applications. Further, it has been felt by experts that although India has put in place very modern Patent and Design laws recently but the small scale industry sector and small innovators are still unable to take full advantage of these legislations as under these legislations, the requirements of patenting and registration are very stringent and global in nature and at the same time, take lot of time and very expensive. Due to these reasons, these small innovators and Small Industry sector seem to have lost interest. At the other hand the Utility Model System is less expensive, provides registration within short time (may be within less than six months) and need no substantive examination. In this context, we can learn from Japan as to how Japan has utilized the UM System to their economic and technological advantage. Proper Management of IP system and encouragement to R&D activities in India can do miracles in combating the problem of IP crimes.

11. CONCLUSION

In order to secure incentives for the creation of intellectual property and to utilize intellectual property effectively, its proper protection is indispensable. Countries like Japan are effectively fighting with the problem of IP crimes with unbeatable strategies to protect IP rights in the country. After comparing the economic background, R&D trends and IP application patterns in India and Japan, we found that Japan is far ahead to India in management of IP system. It is suggested that India should focus on better R&D efforts, and stronger IP Protection System with Utility Model applications in order to have effective IP Management System in the country.

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NEOLIBERALISM, EARNINGS MANAGEMENT AND EXECUTIVE COMPENSATION: A CRITICAL EXAMINATION OF LUCENT TECHNOLOGIES

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ABSTRACT

The ideology of neoliberalism prevalent in the 1990s supported a deregulatory climate and fostered a change in perceptions within the marketplace. Neoliberalists promote “free market” competition and deregulation. They argued that competition allocates all society resources efficiently and therefore, governmental regulation should go away. Neoliberalism fosters corporate hegemony. The prevalence of neoliberalism is responsible for the frequent occurrence of business scandals in the early 2000s. This paper is an in-depth analysis of one company in an industry, telecommunications, significantly affected by the neoliberal climate: Lucent Technologies. Our objective is to highlight the interrelationships between deregulation, earnings management and stock compensation, and the impact deregulation had on shareholders’ value. We begin with a description of the neoliberal framework and the cultural mindset in the 1990s. We then discuss the growth of the telecommunications industry with emphasis on deregulation. We describe Lucent Technologies in depth, showing how neoliberalism affected its management mindsets.

Keywords: *Neoliberalism; Deregulation; Stock Compensation; Earnings Management; History of Telecommunication Industry; Lucent Technologies; Critical Accounting*

1. INTRODUCTION

This paper illustrates the rise and fall of one company during the economic boom and busts that marked in the 1990s and early 2000s. We argue that the cultural mindset influenced by the neoliberal framework, supported opportunities that allowed companies to mislead the public. Widespread corporate losses and earnings management helped fuel records, Enron and WorldCom events were not isolated events. During 1990–1996 the average yearly number of companies restating financial statements was 49, but between 1997 and 2002 the average jumped to 174 restatements per year (Moriarty and Livingston, 2001; US General Accounting Office, 2002). Why was there such an increase in the amount of apparent deception from corporate America? We suggest that the deception was a byproduct of increased profit-focused demands born out of the neoliberal framework. We illustrate this belief by focusing on one company, Lucent Technologies, Inc. We describe the events that took place at Lucent and show how these events were supported and exacerbated by the neoliberal framework.

The purpose of this paper is to show how the neoliberal framework with its cultural influences during the 1990s supported events, including deregulation and CEO compensation, which led Lucent down the path of misrepresentation and the subsequent need for financial restatement. We begin in section two by describing the neoliberal framework, corporate hegemony, and the 1990s culture. In section three, we focus on the case of Lucent. First, we briefly reviewed the history of telecommunication industry and Lucent Technologies. Second, we focus on the influence of deregulation act on telecommunication industry and Lucent. Third, we discuss how executives’ equity based compensation is related to earnings management and what strategies Lucent’s management used to protect their own interests. In section four, we provide our summary and some concluding remarks.

2. NEOLIBERALISM

2.1. Neoliberalism: definitions, origins, and brief history

The term “neoliberalism” is used to describe a political-economic philosophy that over-emphasizes the importance of free market, rejects any government intervention, and advocates deregulation. Harvey

(2005) defined neoliberalism as “a theory of political economic practice that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade.” (p2). Martines and Garcia (2000) notes neoliberalism includes five main points. First of all, neoliberalists advocate completely freeing enterprise from any bonds imposed by governments. Government should offer total freedom to enterprise in moving capital, goods, and services. Neoliberalists believe that unregulated market is the best way to increase economic growth and thus, every body gets benefits. Second of all, in the name of reducing the role of government, neoliberalists suggest cutting public expenditure for social services and thus, reducing the social safety for low-income people. Third of all, neoliberalists advocate reducing governmental regulation-deregulation since it may diminish profit margins. Fourth, in the name of improving efficiency, neoliberalists advocate selling state-owned enterprises to private investors. Fifth, neoliberalists advocate replacing the concept of “the public good” or “community” with “individual responsibility.” If an individual lacks education, health insurance, and/or social security, this person should find his/her solution himself/herself. If this person fails, society should blame this person as being “lazy.”

Neoliberalism roots in liberalism. Liberalists believe that the market is the best way to distribute wealth. They reject the idea of redistribution of wealth by other means. They reject any design or plan for society. This anti-utopianism became increasingly important in liberal philosophy and it anticipated the idea of deregulation in later neoliberalism. They claim that market should determine important aspects of society and entrepreneurs should control the economy. The philosophy of liberalism has been incorporated into the culture of western liberal-democratic societies. Liberalism’s notion of “free market polices” reflects the thought of Social Darwinism. Social Darwinism justifies cutting social programs because it is not society’s fault if someone is weak or poorly educated (George 1999).

Neoliberalism derives from the ideas of liberalism. But it walks way too far. Neoliberals not only believe that government should not intervene with the market at all, but also attempt to turn the entire society into a market where every action of every being is a transaction. George (1999), a neoliberalism critic, notes the notion of neoliberalism may be traced back to 50 years ago, just after the end of World War II. In 1945 or 1959, in the Western countries, everyone was a Keynesian, a social democrat. But, the major claims of neoliberalism such as the super power of market and deregulation were rejected by the spirit of that time (George, 1999). After World War II, the Welfare State and the New Deal that had been interrupted by the war were put back in place. Marshall Plan went through to restore European economy. At this time, the winds of neoliberalism started to blow. Karl Polany published his masterwork, *The Great Transformation* in 1944, to critique the market-based society. Polany critique that allowing the market mechanism to be the sole power to direct/control people’s behavior should not happen after World War II (George, 1999).

Neoliberalists made the triumph of neoliberalism. As early as 1950s, a group of economists, known as “the Chicago boys,” had been attached with the neoliberal theories, advocated by Friedrich Von Hayek and Milton Friedman and colleagues at the University of Chicago (Harvey, 2005). Neoliberalists created a huge international network to develop and push their neoliberalism ideas and doctrine. Their ideas and doctrine were endorsed by Margaret Thatcher in Britain, Ronald Reagan in the United States, and Deng Xiaoping in China (Harvey 2005; Merino 2005). Margaret was a social Darwinist and the central value of her doctrine is the notion of competition. She advocated competition between individuals, nations, and firms. Efficiency is the only basis for resources allocation. Reagan’s government promotes “free market” competition and deregulation. The World Trade Organization (WTO), the successor to the General Agreement on Tariffs and Trade (GATT), and World Bank also promotes “free market” competition (Harvey, 2005; Merino, 2005). Neoliberal doctrine was throughout the world in the mid-1970s. Deng Xiaoping promoted the liberalization of a communist-ruled economy in China in late 1970s and 1980s (Harvey, 2005).

2.2. Corporate Hegemony

Merino (2005) defines hegemony “as a state of being where all sectors of society appear to be in harmony with those in power and control (p3).” Corporate hegemony results when economic interests dominate each institution in the society (Dugger, 1980). Dugger (1980) posits there are six major clusters

of institutions in the U.S.: economic, educational, kinship, political, military and religious institutions. He suggests each institution should be independent, but with the domination of the corporation in U.S. society, Dugger (1980) concludes these institutions serve corporate ends since pursuing maximum economic profit becomes the sole basis of all decision making (Dugger, 1980).

Neoliberalism fosters corporate hegemony (George, 1999; Merino, 2005). When neoliberals occupy people's heads, economic interests become the sole motive. People will do whatever they can to maximize their own interest even if their actions hurt the other's and the society's interests. George (1999) outlined the strategies used by neoliberals shown as below:

"If you can occupy peoples' heads, their hearts and their hands will follow... the ideological and promotional work of the right has been absolutely brilliant. They have spent hundreds of millions of dollars, but the result has been worth every penny to them because they have made neo-liberalism seem as if it were the natural and normal condition of humankind. No matter how many disasters of all kinds the neo-liberal system has visibly created, no matter what financial crises it may engender, no matter how many losers and outcasts it may create, it is still made to seem inevitable, like an act of God, the only possible economic and social order available to us." (cited by Merino 2005).

Corporate hegemony generates corporate super power (Merino 2005). A corporation exercises its power by campaign donations and lobbying (Citizen Works, 2003). In the 2000 election cycle, businesses donated \$1.2 billion to congressional campaigns. Corporate donations made up about 75 percent of the money that candidates received. In the most recent election, the candidate who raised the most money won 94 percent of the time. During the election, about 20,000 corporate lobbyists provide constant reminder of just whose money elected whom. The combination of corporate political donations and pressure from lobbyists is an excellent investment for the corporate world. Its cost is paid off by tax cutting and loose regulation or deregulation. In 2000, corporations received \$125 billion in tax cuts. The return ratio was 100 to 1 on their donation investment (Citizen Works, 2003). In 1990's, per corporate pressure, Congress loosened regulation in the telecommunication, accounting, and finance industries. The 1990s became the era of deregulation.

2.3. Equity Compensation and Deregulation

In the 1980s, with the prevalence of neoliberal doctrine, the primary goal of management had changed from maximizing sales and growth to boosting stock prices (Coffee, 2003). Prior to 1980, maximizing sales and growth rather than stock price was the primary goal to the management of companies. A diversified portfolio of businesses that could cross-subsidize each other may mitigate the impact of the business cycle, and therefore, may reduce the risk of insolvency for management and maximize sales and growth. In order to get such a diversified portfolio, conglomerate mergers frequently occurred during this period of time. However, after 1980, conglomerate mergers were replaced by hostile takeover. The primary motivation for managers to pursue hostile takeover was boosting stock price. Changes in executive compensation may explain why managers were so interested in boosting stock price (Coffee, 2003). These companies compensated executives with much greater ownership stakes than the years before 1980.

Equity compensation began in the 1980's and accelerated in the 1990's (Coffee, 2003). Compared with cash compensation that Congress placed a ceiling, equity compensation was less regulated during 1990's (Coffee, 2003; Merino 2005). Prior to 1991, Section 16(b) of the Security Exchange Act of 1934 required that a senior manager of a publicly held company was required to hold a stock option for six months before he/she exercised this stock option. However, in 1991, the SEC relaxed the holding period requirements under Section 16(b) so that executives may be free to sell the stocks on the same day they exercised the options. In 1993, Congress prevented FASB from requiring options to be expensed. Equity compensation was seen as "cost free" to companies. So, much more equity compensation was offered to executives in 1990's than before. In 1990, equity-based compensation was about five percent of executives' total annual compensation. However, in 1999, this percentage had risen to about sixty

percent (Coffee, 2003). It is clear why earnings management was common in the 1990s when more and more stock options were being offered to executives while there was less regulation on equity compensation. This environment created strong incentives and opportunities for executives to engage in earnings management.

Earnings management is not a new issue; however, it has become a very serious problem since 1997. "From 1977 to 2000, there were 1, 080 earnings restatements in the U.S. The average number of restatements per year was about 49 from 1990 to 1996; however, the average number of earnings restatements per years was about 131 from 1997 to 2000. The difference between the average numbers of restatements per years during the above two time periods is significant (Moriarty and Livingston, 2001:p54; See Table 1)." The GAO study reported that the number of financial statement restatements rose from 92 in 1997 to 225 in 2001, and the average number of restatements each year was 174 (See Table 2). The evidence from the two studies indicates that earnings management has become more serious in the late 1990's and the early 2000's than before.

TABLE 1 EARNINGS RESTATEMENT BY YEAR 1990-2000

Year	Number of restatement
1990	33
1991	48
1992	51
1993	32
1994	61
1995	50
1996	58
Average/year	48
1997	59
1998	100
1999	207
2000	157
Average/year	131

(Resource: Moriarty and Livingston, 2001; p55)

TABLE 2 FINANCIAL STATEMENT RESTATEMENTS BY YEAR 1997-2002

Year	Number of restatement
1997	92
1998	102
1999	174
2000	201
2001	225
2002	250
Average/year	174

(Resource: GAO-03-138; P15)

In this section, we have reviewed the definitions, origins and the brief history of neoliberalism, and discussed how neoliberalism fosters corporate hegemony and how neoliberalism is relevant to earnings management. This section provides a general picture about how neoliberalism starts and how it causes

serious problems. In the next part, we discuss how neoliberalism became the philosophy of 1990's in more detail and specifics.

3. THE 1990S BOOM AND THE NEOLIBERAL PHILOSOPHY

The 1990s saw record highs in the stock market. The NASDAQ Composite Index increased from 459 on January 2, 1990, to 4,069 on December 31, 1999, and the Dow Jones Industrial Average increased from 2,753 on January 2, 1990, to 11,497 on December 31, 1999. As the stock market soared, so did the rest of the economy. There were unique aspects to the 1990s boom.

First, there was the technology bubble. Manufacturing products in the U.S. decreased and the production of ideas and information increased. There was a media push to accept new technology as the way of the new America. Early investments in technology companies provided significant returns. As Internet companies appeared, investors euphorically bought their stocks and bonds. Many of these companies had little or no assets or profits, yet they still had high stock market value. It seemed all that was necessary to be successful was to have "dot com" as a part of the company name. Though it was not only the technology stocks that did well, the growth in the technology industry led the stock market increase and attracted many new investors, many of whom were "ordinary" investors. These new investment conditions led to the second aspect of the 1990s growth: increased focus on the stock market by "the common person" (Lowenstein, 2004).

Second, the investment culture has changed dramatically. Lowenstein (2004, 22) points out that prior to the 1980s, few investors really focused on the market and how it was performing. By the 1990s, the investment culture had shifted to a broader view of the market and the market affected almost *everyone*. There were entire television news programs, eventually whole satellite channels, dedicated to information about the stock market. Local newspapers dedicated columns to stock market news and individuals incorporated discussions of the market into their everyday conversations. As the Internet became more widely used, online trading became popular. There was an almost universal belief that by investing in the market, you would become rich (Lowenstein, 2004; Stiglitz, 2003).

Third, compensation of the corporate chief executive officer (CEO) is another aspect of the 1990s culture concerned. To align the CEO's motives with those of corporate investors, it was necessary to give the CEO an incentive (Jensen and Meckling, 1976). This was done through stock options and stock grants as compensation and bonus awards. For many Internet and high-tech start-up companies lacking cash funds, stock options were the only method they had to pay a competitive compensation. For other corporations, stock options represented a way of attracting and retaining key talent. For still others, stock options were a method of encouraging and ensuring superior CEO performance (Kieso, Weygandt, and Warfield, 2007).

Stock-based compensation would motivate management to boost stock prices by all means since as the company's stock value increased, so also did the management's wealth. Governmental regulation is needed to control this problem. However, the U.S. government exacerbated the appeal of stock options by disallowing a tax deduction for salaries above one million dollar and not including stock options within this limit. Additionally, regulatory changes in the holding period necessary for exercise of the options allowed simultaneous exercise and sale, giving the CEO the possibility of achieving an immediate wealth increase through manipulation of financial information. The result was a widespread increase in CEO stock option compensation and stock grant bonuses (Merino, 2005).

In 1994 the Securities and Exchange Commission required companies to publish disclosure of CEO compensation in the same annual proxy statement in which company stock performance was disclosed. This had the effect of publicly linking CEO compensation to the stock price (Lowenstein 2004, 29). Now, not only did the CEO have an incentive to increase stock price because his/her personal wealth depended on it, there was intense pressure as well to increase the stock price in the short term, resulting in an increased focus on ever-escalating quarterly earnings and meeting or beating analysts' earnings predictions. To accomplish this, CEOs frequently made decisions that would create higher quarterly earnings, rather than encourage future stability and growth. This may have begun as a legitimate

practice; for some companies, however, it represented an opportunity for fraud. As the decade's boom period continued, constant quarterly increases and meeting/beating analyst predictions became more and more difficult. Inevitably, the "game" came to an end and the market "bubble" burst.

A fourth aspect of the 1990s culture was deregulation. With a strong push for a totally market-driven economy and a desire for limited government, a number of deregulatory pieces of legislation were enacted. Deregulation of electricity began in 1992 with the National Energy Policy Act, which allowed power producers to compete for the sale of electricity to utilities. In 1996, the Federal Energy Regulatory Commission issued Order 888, requiring utilities to open their transmission lines to competitors. Throughout the late 1990s, individual states set up deregulatory plans for electric utilities. There were also deregulatory acts for the financial industry. The Gramm-Leach-Bliley Act (GLM Act) repealed portions of the Banking Act of 1933 (Glass-Steagall) and portions of the Bank Holding Act of 1956, allowing single holding companies to offer banking, securities and insurance. While the GLM Act was not issued until the end of the 1990s (November of 1999), many of the provisions had begun to be allowed earlier through "nonbanking" bank subsidiaries and state banks (Barth, Brumbaugh and Wilcox, 2000).

Deregulation also occurred in the telecommunications industry. Shaw (2001;11) indicates the Telecommunications Act of 1996 promised increased competition, lower consumer prices and increased technological advancements. Many of the problems resulting from the 1990s can be traced back to these newly deregulated industries, conflicts of interest arose and deregulation did not always provide what it promised.

In this section, we have discussed the economic environment in the U.S. 1990's. In the next section, we will focus on how neoliberalism affected Lucent Technologies, a company in the Telecommunication industry.

4. LUCENT TECHNOLOGY

4.1. Brief history of the telecom regulation

Telecommunication industry experienced free competition-regulation-deregulation in its 150 years history. In the 1800s and 1900s, free competition took place. In the beginning telecommunications markets were *not* monopolies. As most of telecommunication companies were absorbed in the Bell System and as AT&T became a "Giant" having an overwhelming majority of telephone exchanges in the late 1910s and in the early 1920s, monopoly became a problem in telecommunications markets. In 1934, Federal regulation was instituted. The 1934 Act brought telephone business under regulation by the Federal Communication Commission (FCC) instead of Interstate Commerce Commission. Since then, telecommunications markets had been regulated (Economides 1998; Mackina Center for Public Policy 2003).

Two important antitrust lawsuits that U.S. Department of Justice brought against AT&T marked the regulation of the U.S. telecommunication industry. The first lawsuit was filed in 1949. The U.S. Department of Justice claimed that the Bell Operating Companies practiced a monopoly by buying only from Western Electric, a part of the Bell System. The Department of Justice attempted to separate its manufacturing division (Western Electric) from its telephone service. When the suit was finally settled in 1956, The Department of Justice allowed AT&T to keep Western Electric, but it did not allow AT&T to enter the computer market (Economodes, 1998; Huurdeman, 2003; Endlich, 2004). The second major antitrust suit was started in 1974. The government alleged that AT&T monopolized the long distance market. The Department of Justice sought divestiture of both manufacturing and long distance from local service. This suit was settled in 1982. AT&T's local service and long distance were separated. The settlement required AT&T to divest its local operating companies, and to restrict its services to the long distance market (Economodes,1998; Huurdeman, 2003; Endlich, 2004). One of the consequences of the two anti-trust lawsuits was that competition in long distance service yielded dramatic consumer benefits. Average revenues per minute for interstate and international calls in the U.S. dropped from 62 cents per minute in 1982 to 10 cents per minute in 2001 (Mackinac Center for Public Policy, 2003). This fact suggests that imposing regulations on telecommunications markets indeed brought consumer benefits. It

indicates that neoliberals' claim about the necessity and efficiency of governmental regulation is wrong. Governmental regulation does not hurt competition and it does make the market sound and healthy.

As neoliberalism became the philosophy of 1990s, neoliberals claimed that governmental regulation has become the old fashion and it should go away. Under the influence of neoliberalism, Congress passed the Telecommunication Act of 1996. The Act is a milestone in the history of communications in the U.S. The Act is aimed at creating full competition in all telecommunications market and produce consumer's benefits (Economides 1998; Lehman and Weisman, 2000; Consumers Union, 2001). Telecommunications has traditionally been a regulated sector of the US economy. The main idea behind regulation was to protect consumers from monopolistic abuses (Economides, 1998). With the passage of the Telecommunication Act, less regulation has been imposed on the telecommunication industry. Does deregulation indeed produce consumer benefit as neoliberalists claim?

Consumer Union (2001) report that the Telecommunication Act has failed to produce the consumer benefits as policy makers promised. The author of this report argue that the Act's failure is not because of the FCC's over regulation in seeking to create conditions ripe for competition, as neoliberals have suggested. The fundamental problem is that the large companies in the telecommunication industry prefer mergers and acquisitions to competition. These industry giants like AT&T (Lucent Technologies based on Bell Laboratories, that were part of AT&T) refused to open their markets by "dragging their feet in allowing competitors to interconnect (p1)." Their super power successfully makes them avoid head-to-head competition. The telecommunication industry has already become so dominated by huge firms that it is extremely difficult for others to enter the telecommunications market. The consequence is a consumer disaster: prices raise 2-3 times the rate of inflation (Consumer Union, 2001).

We have reviewed the general history of regulation in the telecommunication industry. In the following section, we will focus on the case of Lucent Technologies. Lucent Technologies is a technology company composed of what was formerly AT&T Technologies, which included Western Electric and Bell Labs. It was spun-off from AT&T on September 30, 1996. We will discuss how the neoliberal framework with its cultural influences during the 1990s supported events, including deregulation and CEO compensation, led Lucent down the path of misrepresentation and the subsequent need for financial restatement.

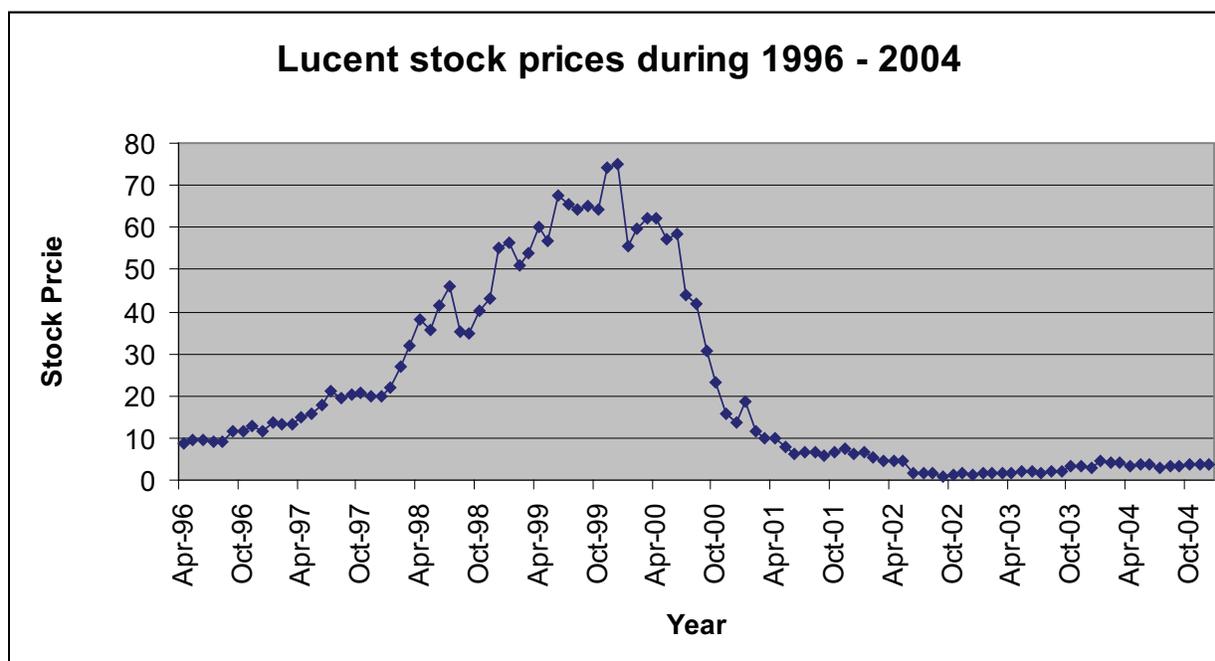
4.2. Lucent Technologies

4.2.1 Boom and bust in telecommunications: The effect on Lucent

The telecommunications industry experienced a "boom and bust" investment cycle in the late 1990s and early 2000s. When a new technology is introduced to an industry, the potential business opportunities attract countless companies and investors to the industry, which usually leads to an economic boom (Thomson 2005). This is what the telecommunications industry experienced in the 1990s.

The introduction of high tech, especially the Internet technology, to the marketplace and the soaring stock market attracted investors so much that investors over-invested in the Internet-related companies. Among these the telecommunications industry was seen as the most promising and was invested in the most heavily (Endlich 2004). Investor's zealouslyness in infusing money into the new technology was strengthened by the pervasiveness of neoliberalism in the late 1990s. Under the influence of neoliberalism, nothing but seeking maximized profit/returns directs people's actions (McMurty 1998; George 1999). In the late 1990s, most investors believed that the new technology should and would bring huge future profits to telecom companies, resulting in high returns to the investor. This belief was so strong there was little concern whether the telecom companies currently were making money or not. There was also little concern about any possible risk associated with such high returns or whether the overall financial status of these companies was healthy. In short, investors hypothesized that telecom companies would do well in the future rather than understanding the long-term productive capacities of these firms (Pollin 2003). Soaring stock prices reflected investors' high expectations of and confidence in Lucent Technologies' potential. Figure 1 shows Lucent's stock price changed in the decade following its inception in April of 1996.

FIGURE 1- CHANGES IN THE STOCK PRICE OF LUCENT TECHNOLOGIES DURING 1996-2004



Note: stock price is adjusted close price

Data Source: posted online by msc.com; Stock price data provided by Nomura Research Institute, Ltd.

When the economic bubble burst in 2000, The NASDAQ index of telecommunications stock prices decreased rapidly. Cooper (2003) reported the annual average decrease rate was 50% from March 2000 to May 2003. Lucent was no exception. Lucent's stock price experienced "boom and bust" as well. From 1996 to 1999, its stock price increased more than 700% (see Figure 1). In the late of 1999, its stock price decreased from about \$75 to about \$55. This trend continued. In 2002, its stock price reached a low of \$0.76. With the falling of its stock price, Lucent's market value decreased by more than \$150 billion from a peak of \$258 billion. Lucent's total market value was less than \$10 billion in October, 2002 (Endlich 2004). The company's stockholders obviously suffered severe damage during this time.

During the 1990s economic boom, many of the high tech companies, particularly those that were "dot-com" companies, did not show a profit. As previously stated, this fact did not deter investors. Lucent Technologies' financial performance, by contrast, was good. Its revenues and net income continued to increase in the late 1990s, which attracted even more investors. The decrease of Lucent's stock price started with the burst of the economic bubble. The decrease speeded up with its announcement of restating the fourth quarter's revenue in fiscal year 2000. This restatement cut Lucent's sales revenue of the fourth quarter by \$125 million and initiated a SEC's investigation (Leyden 2000).

Investors often perceive a restatement as direct evidence of earnings management and respond by quickly selling their shares. Lucent's restatement, along with many other companies' restatements, led to the precipitous decrease in the stock market. On December 21, 2000, Lucent announced that it had improperly recognized \$125 million revenue in the fourth quarter fiscal year ended September 30, 2000, amounting to 26% of pretax income for this quarter. The SEC investigation found, however, that Lucent's earnings had been manipulated much more than \$125 million. The SEC determined that Lucent fraudulently and improperly recognized approximately \$1.148 billion of revenue and \$470 million in pretax income during fiscal year 2000. Of the \$1.148 billion of revenue, Lucent recognized \$511 million of revenue and \$91 million of pre-tax income prematurely, violating GAAP. The company also recognized \$637 million of revenue and \$379 million of pretax income that should not have been recognized (US Securities and Exchange Commission 2004).

Twenty transactions were involved in earnings management that resulted in Lucent's improper report for 2000. Among these transactions, the SEC focused on Lucent's dealings with Winstar. David W. Ackerman was a former Winstar executive and subsequently vice-president of Lucent. To meet Wall Street revenue forecasts in 2000, he agreed to improperly inflate the price of a software deal from the real price of \$10 million to \$135 million (Stern 2004). The difference between the real price and the makeup price was the \$125 million that resulted in the restatement of the fourth quarter's revenue of 2000.

Another instance cited by the SEC was that Lucent recorded more than \$350 million revenue in equipment sales to two distributors, with a promise that all equipment could be returned if no buyers purchased it. According to GAAP, such sales cannot be reported as revenues until the equipment had been sold and would not be returned to Lucent. Despite this, Lucent recorded \$350 million of such revenue in fiscal year 2000 (Stern 2004). The evidence suggests that Lucent Technologies had engaged in earnings management. The same basic aspects appear to be causal: stock-based compensation, corporate hegemony and control-ownership separation.

First, as pointed out, stock-based compensation provided managers with private gain incentives to engage in earnings manipulation (Mouhammed 2003). Second, as has been stated, the separation of ownership from control causes information asymmetry between managers and shareholders (Berle and Means, 1932). In Berle and Means' (1932) seminal study of the development of a corporate control separated from corporate ownership, Berle and Means (1932) describe how owners became increasingly absentee in the early part of the twentieth century. Owners thus without knowledge of corporate happenings granted greater and greater control and power to managers. Managers increasingly disregarded shareholder interests. Thus, the separation of manager and owner corporate control creates the possibility for management to act in a self-serving way, rather than considering shareholders' interests. Further, this possibility can be accomplished without shareholders' knowledge, and stock-based compensation provides impetus to this action.

Given the information asymmetry between managers and stock holders, it creates opportunities for management to easily present fictitious information to unsuspecting shareholders when fictitious information may bring wealth to managers. We suggest this manipulation was prevalent in Lucent, perhaps from its beginning, but certainly in the years challenged by the SEC. We examine each of these keys to earnings manipulation in turn.

4.2.2. Insider trading

Insider trading has been shown to be one of the characteristics of many companies that were suspected of earnings manipulation in the bust period of 2000–2001. Here, we define “insider trading” as trading done by the insiders of the company (these inside trading is not necessarily illegal). The SEC considers company directors, officials or any individual with 10% or more ownership in the company to be insiders. As such, they are required to report their insider transactions within two business days of the date the transaction occurred (US Security Exchange Commission, 2001). Prior to the passage of the Sarbanes-Oxley Act of 2002 (SOX), this reporting requirement was the tenth day of the following month. Clearly, insider information and trading has a deleterious effect on “ordinary” investors.

Lucent's stock price fell quickly with the burst of the Economic Bubble in the late 1990's and in the early 2000's. The restatement of the financial reports for the fourth quarter of the fiscal year 2000 enhanced the decrease. We found that in 1999 and the first half of 2000, the executives/insiders sold significantly more shares than they sold in 1997, 1998 or during the years after the bust. In 1997, the insiders sold 82,311 shares in total; in 1998, no insiders sold any shares; in 1999, insiders sold 787,399 shares (Quote.com 2005).

We suspect that the insider trading may be related to Lucent's earnings management. The Center for Financial Research and Analysis (CFRA) had warned investors about Lucent's slowing sales, inflated receivables and inventory, and aggressive accounting in early 1999 (Schilit 2002). However, Lucent continued to produce positive financial results to maintain investor confidence. Before the insiders sold a

significant amount of shares, stock price kept increasing. After they sold their shares in 1999, stock price went down.

Insiders who have been granted large amounts of stock-based compensation have the motivation to participate in insider trading. They may improve the company's financial performance. If managers cannot improve financial performance in an honest way, they may engage in earnings management to convince investors they indeed have done a creditable job and the firm's profit is consistently increasing. Since managers know they cannot hide the company's true financial status from the investors over a long time, however, if they sell their shares before the manipulation is discovered, they successfully avoid the loss. Therefore, if no regulation is placed on insider trading and limitation is set up to insider trading, the information asymmetry between managers and stock holders will protect management's interests at the expense of ordinary shareholders.

4.2.3. Executive compensation and earnings management

According to the annual executive compensation report in its annual proxy report (Lucent Technologies 1999), Lucent's compensation program was designed to retain key employees by coordinating their compensation with short and long-term financial performance goals. The program consisted of three components: (1) basic salary, (2) annual bonus, and (3) long term incentives, such as performance shares, stock options, and restricted stock grants (Lucent Technologies, 1999). Most of Lucent's executive compensation was based on short- and long-term performance criteria. For example, when Rich McGinn was CEO of Lucent, 14% of his annual compensation was his base salary, 24% was short-term incentive compensation (bonus), and the remainder was long-term incentive compensation. Performance shares were initially the equivalent of AT&T common shares. They were awarded annually based on an executive's position and his/her performance compared with the targets. Performance awards were to be distributed at the end of the relevant performance period (Lucent Technologies 1996). Lucent granted stock options to executive officers based on their positions and three-year performance. Options could be granted to participants either alone or in addition to other awards granted under the stock option plan. The exercise price of stock options would be equal to the current fair market value of Lucent's stock on the grant date. Options vested after three years of service and expired ten years from the date of the grant. Restricted stock awards were selectively and occasionally given to executive officers. "Restricted stock" meant any share issued with the restriction that the holder could not sell, transfer, pledge, or assign such share, and with any other restrictions the compensation committee might impose. These grants would vest after six years of service. (Lucent Technologies 1996). Although the detailed policies of these equity-based compensations were different, there was a common feature in them: executives' compensation was tied to Lucent's stock price, which is seen by investors as the reflection of management's performance.

Stock options were granted to key executives of Lucent as follows: In 1996, Henry B. Schacht, chairman of the board and chief executive officer of Lucent, was granted 90,083 shares of stock options, which represented 4.3% of total options granted to employees. The exercise price was \$53.8989 and the expiration date was 01/02/2006. In 1997, Schacht, now only the board chairman, McGinn (CEO), William B. Marx (President, Bell Labs and Network Systems), and Patricia F. Russo (President, Business Communications System) were granted two separate issuances of stock options. The exercise prices for the two issues were \$44.5625 and \$52.5625, and the expiration dates were 10/01/2006 and 01/20/2007, respectively. The number of shares of the first option granted to the five executives was 8.2% of the total options granted to employees, and the number of shares of the second grant was 1.1% of the total granted. In 1998, these five executives were granted 1,620,000 options which represented 4.2% of all such grants. In 1999, these five executives were granted 2,300,000 options that represented 4.5% of the total. All these options were granted based on managerial performance. Obviously, senior managers' stock options were significant in Lucent Tech during this period of time. This may explain why management of Lucent Technologies engaged in earnings management (Lucent restated its revenues and net income in 2000) and then was caught by the SEC.

We suggest that when executives have been offered a significant number of stock options, they may have the incentive to improve the stock price until it is higher than exercise price in the future when they are

allowed to exercise stock options. If the CEO cannot improve management performance successfully, he or she may use various accounting strategies to make financial reports look better and convince investors that they have done a good job, thus attracting investors' interest and boosting stock price. Once stock price goes up and their options are "in the money" and exercisable, managers can sell their options and make money. Since the average investors do not know that management has provided misleading accounting information to them, they would continually invest in the firm until they discover the ruse.

When we look at the case of Lucent, we suspect that offering a significant amount of stock options might have motivated managers to improve stock price. Lucent's stock price increased 7 times from less than \$10 in 1996 to about \$75 before October, 1999. When the "economic bubble" burst in late 1999 and then Lucent's stock price decreased from \$75 to \$55 (See Figure 1). The shrink of Lucent's stock price scared its key managers since the stock price was close to the exercise price of their stock options. See, the exercise price of Henry B. Schacht's stock option (Henry B. Schacht was the chairman of the board and chief executive officer of Lucent) was \$53.8989 and the expiration date was 01/02/2006. It would be easy to understand why Lucent recognized \$125 million of revenues they should not have recognized in the fourth quarter of the fiscal year 2000. Unfortunately, the SEC caught Lucent's earnings management in 2000. After this news was released to the public, Lucent's stock price decreased quickly from about \$50 to about \$20 and then to less than \$1 in 2002.

When stock price decreases so sharply that it is significantly less than the exercise price of the stock options, these options are "underwater options." It would be difficult for management to use accounting strategies to boost stock price. It also would be impossible for them to make a great fortune from exercising options. The possible strategies they may use are either cancelling old stock options or reissuing new options or repricing stock option.

4.2. 4. "Underwater" options

If the option remains underwater, the value of the option is clearly worthless. At the time of the market bust, a number of corporate boards made the decision to either change the strike price of their CEO options or exchange the options for new ones for which the strike price was the then-current market price. A number of these option refurbishings were done at the behest of the CEO. The CEO, of course, benefited significantly from this move.

Lucent's executive stock options were established with a three-year waiting period before exercise *possibility* (the waiting period varies; 3 years is the least waiting period). As described above, the exercise price was the grant date market price. In 2002, prior to the passage of SOX, Lucent's board of directors, controlled by management, approved an "exchange offer" for all employees holding stock options. This was a voluntary program that allowed eligible employees to exchange some or all of their eligible current underwater stock options (generally granted in February 2001 or earlier) for the opportunity to receive new options for one-half the number of shares, but at the current market price. Vesting on the new options was accelerated to between two and five years. Eligible employees were required to declare their election to participate in the program before May 23, 2002, at which time the options they elected to exchange were cancelled (Lucent Technologies 2001). Lucent thus partially alleviated the underwater options for these eligible employees. Significantly, the executive stock options were the major share of the options which were "repriced."

Executives' interests are protected by repricing when stock price falls below the exercise price. However, who will protect investors' benefits as stock price goes down? Can "free market" really protect investors? Neoliberalists believe that an unregulated market is the best way to allocate economic resources, including capital market resources, and to increase economic growth (Martinez and Garcia 2004). This belief is based on assumptions of efficient information, perfect market and competition. Original Institutionalists, on the other hand, believe that the marketplace is imperfect since some parties have more power than others. In current American society, the corporation has become a "super power," and each social institution has thus been linked to the corporate economic institution. "Behaving like a business person" has become a basic behavioral code for individuals in other social institutions. The

domination of the economic institution creates powerful corporate managers, since that institution becomes the source of individual power (Dugger 1980).

These reasons can explain why management has greater impact on wealth and property allocation than others. In the case of Lucent, during the economic bubble, chief executives and key employees earned a significant amount of compensation, both in stock options and in bonuses based on target percentages. When the economic bubble burst and when restatement of financial reports occurred and the SEC investigated Lucent, we suggest managers were hurt far less than “ordinary” shareholders. For example, Forbes reported that during her first two years as CEO, Patricia Russo, CEO of Lucent, received compensation valued at over \$40 million (including 7.9 million standard options) - yet Lucent's share price dropped 40% during those two years, shedding \$10 billion in market value. During the five-year period through fiscal 2003, Lucent's stock declined 92% (Lucent Technologies 2005). In the stock market, the regular investors' interests are not protected like the protection offered to stock option holders. When the stock market goes down, the investors' loss is irreversible.

Concentration of private power causes inequity in economic wealth allocation (Klein 1987). Given the concentration of economic power in the corporation's managers, Klein (1987) suggests that governmental invention is required to supervise wealth allocation in the market, so that the allocation can reflect the collective wishes of the shareholders who lack economic power. In sum, we posit the unregulated market is not the best way to allocate economic wealth and to increase economic growth, but that governmental invention is necessary.

With the frequent occurrence of accounting scandals in the late of 1990's and in the early of 2000's, neoliberalism's opponents advocated building a sound corporate governance and enhancing government invention. The Sarbanes-Oxley Act of 2002 (SOX) took place. Lucent's board took steps to comply with the provisions of SOX in years after its passage, specifically noting that all options would not be subject to repricing (Lucent Technologies 2002).

5. CONCLUSION

We have attempted to demonstrate how the neoliberalism framework applied in the 1990s created an environment in which corporate America could practice deception. The profit-focused mentality and the compensation link led corporate managers not only to manage earnings, but also to manipulate them by creating false revenues and income. Equity-based compensation is a double-edged sword. It may motivate managers to improve their performance, but it may also provide managers with incentives to engage in earnings management when they cannot successfully improve their performance. Hines (1988) suggests that accounting does not “reflect” reality but “creates” reality since reality is not “out there.” Since it is probable that nobody knows what the true reality of performance is, management has the opportunity to manipulate earnings without it being known by stakeholders. As managers' compensation is tied to achieving target financial performance, they perhaps have the motivation to manipulate earnings. Stock-based compensation may therefore have an association with earnings management

Managers are not to blame alone though. The public rewarded manipulated earnings by focusing on short-term growth and inflated stock prices. What this demonstrates is the lack of ability in the free market to control for such manipulations.

With our focus on Lucent, we believe we have illustrated the events that took place at Enron and WorldCom were not isolated. The environment was such that many companies were presenting false information in order to increase the stock price and increase management wealth. We have argued that in spite of focusing only on Lucent, the general conclusions we present also hold for other companies in deregulated industries.

Neoliberalists claimed that free market should and can solve all social and economic problems and it will result in the growth of economy and improvement of society. However, after a series of liberal experiments in Latin American countries, Southeastern Asian countries and South Korea, people found

that not only does neoliberalism fail to solve the existing problems such as extraordinary inequalities in income and wealth and high unemployment rate but also makes them worse (Harvey 2005; Liverman & Villas 2006). Giroux (2002; 426) critiques that when the notion of neoliberalism gains ascendancy in the United States, market force has radically changed the language people used in representing and evaluating people's behavior. One consequence is that commercialism, privatization, and deregulation have replaced civic discourse (Gioux 2000; 426). McChesney (1999; 40) critiques that the economic philosophy is described as "free market polices that encourage private enterprise and consumer choice, reward personal responsibility and entrepreneurial initiative, and undermine the dead hand of the incompetent, bureaucratic, and parasitic government, which can never do good (even when well intentioned, which it rarely is)," Coffee (2003) and Merino (2005) believe that neoliberalism is responsible for the occurrence of business scandals in the early 2000s.

5.1 Implications for accounting

What does this mean for accounting? First, some basic assumptions did not hold true in this case. The market did not control for manipulations. Fraud and deceit were rewarded in the free market. Yes, there was a market "adjustment" when restatements occurred and the manipulations became evident, but those responsible for the manipulations already benefited and the shareholder and other stakeholders were punished. Rapid decreases in stock prices greatly harmed ordinary stockholders and management reacted to the decline by having major workforce layoffs. There were also problems with agency theory. The managers were not working in the best interest of the shareholders. It was originally argued that stock ownership/options for managers would align the managers' interests with those of the shareholders (Jensen and Meckling 1976).

Second, the accounting profession and processes allowed the manipulations to occur. While we did not discuss Lucent's auditors specifically, they either helped with the manipulations or ignored evidence of the manipulations. Understanding why there was this participation is very important to the future of the profession.

5.2 Limitations and future research

As with all research, we do have some limitations. Lucent does have some unique qualities, such as being created in the middle of the 1990s, that may have fostered a special situation. One major drawback to this uniqueness is that it does not allow us to fully investigate the role of stock options, since most of the CEO stock options for Lucent had not fully vested before the restatements and downfall occurred. We do argue that there is some generalizability despite the uniqueness because of the high number of restatements during this time for similar issues in other companies. Many of the restatements during this time were not due to general oversights, but were related to misuse of accounting practices.

It is important to understand the events of the 1990s and the impacts they had on the beginning of the new century. By focusing on one company we have attempted to illustrate how neoliberal ideas did not lead to the benefit of society and only created a bigger division between management and stakeholders.

There are other issues that we did not address that are important. Future research may explore the influence of neoliberalism ideology on the financial market. Future study may explore the association between deregulation and the most recent financial market crisis. For example, a case study may be conducted to explore why Relman failed. Future study also may examine the role of the investment bankers. We briefly mention the repeal of the Glass-Steagall Act, but there is much more to the story. They helped control the flow and dispersion of money, allowing their decisions to have major impacts. This group contributed significantly to the flow of the "free market."

Other future research should examine the role of the auditor in creating and maintaining the neoliberal framework, including the extent to which this is being continued today in spite of the regulatory requirements of the SEC and of the Sarbanes-Oxley Act of 2002.

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APPLICATION OF TOC IN U.S. ARMY'S RECRUITING PROCESSES

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ABSTRACT

The five-steps of Theory of Constraints based approach are schematically presented with each step being described and applied in context of U.S. Army recruiting procedures. We interviewed the Station Commander of Affinity Recruiting Station and his staff (name changed for confidentiality) in Kentucky and studied the data and recruiting processes to identify any constraint(s) and make recommendations that would help increase the throughput. The major constraint was identified as the number of appointments that are conducted by the recruiters. In order to exploit this constraint, we provide several recommendations which would allow recruiters to contract more army recruits without any additional financial resources.

Keywords – Army recruiting, Theory of Constraints, USAREC

1. INTRODUCTION

The primary focus of Theory of Constraints (TOC) is on continuous improvement which in turn results in enhanced organizational performance (Goldratt, 1992). It provides a framework for organizations to look at their operations decisions and identify constraints. TOC recognizes that constraints limit the performance of organizations and suggests how to best manage these constraints. Although the five-step focusing process has been well documented in improving manufacturing processes and some service sectors, no case study has been documented that illustrates advantages of using TOC for enhancing the tactical component of U.S. Army recruiting strategies. The purpose of this paper is to present a comprehensive descriptive analysis of the sequential application of TOC five-step focusing process in improving the operational and financial success of Affinity Recruiting Station (name changed for confidentiality purposes). This paper comprises of four sections: (a) a brief description of the U.S. Army recruiting procedures, (b) operational analysis, (c) application of TOC using “Five Focusing Steps”, and (d) recommendations to the management of the recruiting Station.

2. U.S. ARMY RECRUITING

The primary mission of the U.S. Army is to deter war by being prepared to fight and win on the battlefield. The U.S. Recruiting Command (USAREC, 1999) supports that mission by recruiting sufficient numbers of quality men and women to meet the needs of the Army. USAREC's service to the Army is measured in numbers. The Army gives USAREC an accession mission (quota). This is the number of recruits that must ship out to basic training. USAREC's service, success or failure, is measured by whether they are able to provide that number. In this paper we analyze the process by which Affinity Recruiting Station, a four man station located in Kentucky, recruits young individuals to serve in the Army.

3. OPERATIONAL ANALYSIS FOR USAREC

In order to identify the constraint(s) in the recruiting station, a nonprofit military service organization, we “need to reevaluate and redefine basic measurements needed to guide decisions and provide essential feedback on improvement” (Motwani et al., 1996, p. 30). In this section we present the system representation of the recruiting station: a process in which inputs are turned into desired outputs through a transformation process.

3.1 Inputs

The service provided by the recruiting station is the provision of contracted qualified men and women fit for service in the U.S. Army. The primary input for this process are prospective recruits, men and women ages 17 – 21, grouped by their education status (high school seniors or graduates). These potential recruits are acquired through several methods including: high schools, vocational schools, internet, community presentations, one-on-one solicitation, referrals (from serving personnel, centers of influence) and special events.

3.2 Transformation

The transformational process from potential recruit to contracted entrant follows a flow shop process as all steps in the process are dependent, the output is uniform, and the process varies depending on possible previous qualifications. The first step is the acquisition of leads. Leads are generated from propriety and syndicated data (generated predominantly from educational institutions). From that contact information appointments are made and conducted with interested prospects. The appointment process consists of a general interview and Q&A, a practice test, as well as preliminary physical, mental, and background qualification. The prospects are then sent to the MEP (Military Entrance Processing) station where they are administered an entrance test (ASAVAB – armed service vocational battery). The candidates are then categorized I, II, IIIA, IIIB, IV, and V. The categories I, II, and IIIA are considered “Alpha” or “quality” and are assigned the designation GRAD alpha (GA – high school graduate alpha) or senior alpha (SA – high school student alpha). The categories IIIB, IV, and V are considered “Bravo” or “non-quality” (OTH – any category other than GA or SA). The qualified prospects continue to the “floor” where a complete physical examination is given and a thorough background check is conducted. The prospect then interviews with a guidance counselor for placement in a MOS (military operational specialty). Each MOS is allotted a fixed number of training seats.

In the case of this recruiting station the source of generating **throughput** is by enlisting three different categorically qualified, or types, of applicants (GA, SA, and OTH). More specifically, the throughput per applicant is determined by the quality of strength provided to the Army. The **inventory** at the recruiting station consists of the potential applicants that are in the recruiting process at any given time as well as any other equipment and assets such as office furniture, computers, phone lines, copiers, fax machines, drug test kits, and cell phones. The **operating expenses** consist of salaries, rent, utilities, office supplies, facility management, and fuel for vehicles. The performance measure used in this case study is contracts - the number of individuals a station enlists in the Regular Army (RA). While it exists at all levels of the organization, its impact is felt at the individual recruiter level. To minimize the contradiction in goals, the USAREC has recently implemented “Station Missioning”. This is the assignment of recruiting quotas to a station rather than to an individual. While recruiters are no longer given individual missions under “Station Missioning”, their individual accomplishments are still taken into consideration for evaluation purposes. For example, a recruiter may “holdback” a prospect until the next period to insure individual accomplishment, even if that prospect may have allowed the company or battalion to achieve its mission. The current performance measure for each step in the process is the number of prospects that complete the process and continue to the next step.

3.3 Output

Due to the nature of the operation, in this case the national defense of this country, there is no entrance or exit strategy. The recruiting command and therefore recruiting stations will exist until there is no need for an active or standing army. However, one could explain the existence of the recruiting station based on market pull. The Army’s needs have been determined and stations have been organized and resourced by higher headquarters in order to supply the Army with recruits. From a similarly circuitous perspective, it could be said that the locations of recruiting stations are based on a combination of total needs and population density factors. It could therefore be argued that enter late (after a certain population density has been reached) – exit late (after the desired population density has faded) is employed. Again, due to the unique nature of the operation, the product life cycle is a difficult and hazy issue as demand is dictated not by consumer propensity but by prevailing geo-politics. In times of extreme demand it is not the process of recruitment but a national draft that satisfies that need. It is unlikely that the volume of recruits generated through recruiting stations will grow drastically; hence this service can be termed as mature.

4. APPLICATION OF TOC USING FIVE FOCUSING STEPS

We now use the following “Five-Focusing Steps” to identify the constraint and find ways to maximize throughput in case of Affinity Recruiting Station:

4.1 Step 1 (Identify Constraints)

The identification of constraints in Affinity Recruiting Station is somewhat more complicated than the same process in a manufacturing environment. Whereas physical inventory levels may be indicative of a constraint in manufacturing, in this application we have discovered a unique identifier: the attrition in conversion from one process to the next. Conversion data in Table 1a represents the average number of appointments made to interviews conducted, applicants tested to those who passed, applicants who took a physical to those who passed, and applicants who processed for contract to those who received the contract. The data is separated by GRAD (high school graduates) and SR (high school seniors). The recruiters collect this data on a monthly basis over a 12 month period to guide Station Commanders regarding seasonal occurrences that may affect their market.

The intra-process conversion rates (Table 1b) and anecdotal evidence provided by the commander and his staff point to the conversion from appointments made to appointments conducted as the primary constraint (the conversion data details the numbers in totality but does not account for appointments made multiple times before they are conducted). In addition, the conversion data in Table 1b suggests that 59% of the appointments made for graduates and 58% for seniors in resulted in appointments conducted. The station is only testing 27% of GRAD and 18% of the SR appointments they conduct. Finally, the conversion data determines the number of contracts that should have already occurred. Using the data in Table 1b, the conversions from appointments made to contract is 1 to 29 for graduates and 1 to 44 for seniors. In other words, about 3.5% of GRAD appointments and 2.2% of SR appointments made resulted in contracts.

RECRUITER/STATION: AFFINITY

FY: 01

RSM & YR	APPT MADE		APPT COND		TEST		TEST PASSED		FLOOR		CONTRACT	
	GRAD	SR	GRAD	SR	GRAD	SR	GA	SA	GA	SA	GA	SA
Jan	35	7	16	4	12	0	5	0	4	0	3	0
Feb	30	12	10	7	6	3	3	2	1	2	1	2
Mar	34	12	29	7	8	0	3	0	0	0	0	0
Apr	33	28	18	13	5	3	1	1	0	0	0	0
May	43	25	19	11	3	0	0	0	0	0	0	0
June	35	16	19	9	7	3	1	1	1	1	0	1
July	33	28	20	14	6	1	4	1	4	0	4	0
Aug	36	26	25	15	5	2	2	1	2	1	1	0
Sep	49	24	27	13	3	1	3	1	2	0	2	0
Oct	66	13	39	13	6	4	3	3	2	0	1	0
Nov	40	11	19	10	8	3	5	3	4	1	4	1
Dec	56	18	39	12	7	3	4	1	2	1	1	1

ROLLING 12-MONTH TOTAL

RSM & YR	APPT MADE		APPT COND		TEST		TEST PASSED		FLOOR		CONTRACT	
	GRAD	SR	GRAD	SR	GRAD	SR	GA	SA	GA	SA	GA	SA
Total	490	220	280	128	76	23	34	14	22	6	17	5

TABLE 1A: COLLECTION OF CONVERSION DATA OVER A 12-MONTH PERIOD

RSM &YR	APPT MADE		APPT COND		TEST		TEST PASSED		FLOOR		CONTRACT	
	GRAD	SR	GRAD	SR	GRAD	SR	GA	SA	GA	SA	GA	SA
Total	28.8	44.0	16.5	25.6	4.5	4.6	2.0	2.8	1.3	1.2	1.0	1.0
			59%	58%	27%	18%	44%	61%	65%	43%	77%	84%
			Made to Conduct		Conduct to Test		Test to Pass		Pass to Floor		Floor to Contract	

TABLE 1B: ROLLING 12-MONTH CONVERSION DATA

RSM: Recruiting Shipping Month, **GA** – Graduate (Alpha), **SA** – Senior Alpha

4.2 Step 2 (Exploit the Constraint)

The recruiting station should take actions that ultimately increase the capacities of the recruiters to reduce process time. Contracting quality applicants generates throughput. Any time spent unnecessarily engaged in activities that do not result in enlisting individuals into the Army is an inefficient use of the recruiter’s time. Several areas in the recruiting process where valuable time is potentially wasted and their recommended solutions follow. In each of the problems, the expected results are in the constraint’s capacity. The most obvious exploitation of the conversion from appointment made to appointment conducted is in the execution of the act itself. Recruiters are instructed to use the “appointment made” call to set the appointment only. However, recruiters often, for a variety of reasons, use that initial contact as a means to “sell” or disseminate additional information. This exuberance can be detrimental as recruiters may “oversell” the Army to the prospect, or intimidate the prospect, and turn him/her away before ever convincing the prospect to arrive for an appointment. Under “Station Missioning”, individual recruiters are no longer individually responsible for contracts, and the station as a whole is responsible.

Another solution is to follow up with the prospect to reinforce his attitude to arrive for the appointment. Again, the recruiter should be careful not to “oversell” the Army at this point. The recruiter may also contact the prospect’s parents as a follow up, inviting them to attend the appointment with the applicant or to discuss Army opportunities with the parent, getting them involved in the process. In order to alleviate pressures on the prospect, the recruiter may conduct the appointment at the prospect’s home or at school. The benefit of this approach is that the recruiter can talk with the prospect in an atmosphere in which the prospect is comfortable, increasing the probability that the prospect will continue to the next step in the process. This approach also ensures attendance by the prospect.

4.3 Step 3 (Subordinate All Other Decisions to the Constraint)

After exploiting the constraint, the next step is to subordinate decisions involving the non-constraint resources. In other words, how can other resources be used to improve the recruiters’ ability to conduct appointments? In the case of Affinity Recruiting Station, any potential recruit contacted that will not ultimately result in an “Alpha” contract can be considered a waste of the recruiters’ time. One solution is to make appointments with previously “Alpha” qualified prospects first. This is only possible if the prospect has taken the SASVAB in high school or if the prospect took the ASVAB previously, but failed to become a contract (ASVAB scores are valid for up to two years). By focusing on the “Alpha” qualified prospects, it can be ensured that more of the constraint resources are being applied to desirable prospects. This is similar to placing quality control checks prior to the bottleneck, or constraint. In order to accomplish this, recruiters must aggressively pursue those schools that administer the SASVAB to do so early in the school year and to share the information with the recruiters.

In the past, individual recruiters had typically followed a prospect through the entire recruitment process. However, due to “Station Missioning”, Station Commanders are now at liberty to allow for active specialization. This could place the recruiter most proficient at “cold solicitation” in charge of appointment scheduling for the entire station and potentially take advantage of individual aptitude to create more beneficial results holistically. The final subordination step involves the realization that any “Alpha”

prospect that does not ultimately become a contract, places a burden on the constraint by requiring the recruiters to conduct additional appointments in order to create throughput. By increasing the conversion rate, we can relieve pressure on the constraint by decreasing the requirement to conduct appointments.

4.4 Step 4 (Elevate the Constraint)

If recommended actions are not sufficient to increase throughput, attempts should be made to elevate the constraint without increasing the number of recruiters. One method of elevation could be the issuance of incentive to potential recruits to adhere to their agreed upon appointments. Another approach is the issuance of incentives, contingent on contractual obligation, to the schools in order that they administer and report the SASVAB early in the school year. The cost benefit analysis of such a program is easily quantifiable.

4.5 Step 5 (Return to Step 1)

Once a constraint is broken, whether after Step 3 or Step 4, continued effective management demands a return to Step 1 to ensure that new constraint actually went where we expected it to go when we first took steps to break it and right exploitation and subordination steps are in place for the system constraint at its newly identified location.

5. CONCLUSION AND RECOMMENDATIONS

This case study research demonstrates that adoption of TOC approach to the tactical level of recruiting operations improves operational and financial success of Affinity recruiting station and USAREC as a whole. TOC analysis allowed us to recommend changes to the recruiting process that will ultimately lead to an increase in throughput for the U.S. Army while increasing the chances of a successful mission accomplishment. The major constraint was identified as the number of appointments that are conducted. In order to exploit this constraint, it is recommended that the recruiters only make appointments with the prospects upon initial contact, follow up with the prospects to help ensure they attend the appointment, and go to the prospect at home or school to conduct the appointment if possible. In order to subordinate all other resources to the constraint, we recommended that the recruiters start making appointments with those prospects that have already been qualified as "Alpha" from the SASVAB or previous ASVAB. Prospects that have been qualified as "Alpha" or prospects that score exceptionally high on the practice test during the appointment should be encouraged to go to the floor and contract all in the same day. Additional efforts should be made to encourage those prospects that are fully qualified to contract, as opposed to leaving the MEP station without contracting. Finally, the Station Commander should ask his recruiters to conduct those steps of the process that maximizes their skills and abilities. Short of increasing the number of recruiters in the station, steps to elevate resources, should the previous recommendations fail to increase throughput, include providing incentives to prospects for attending their appointments, and providing incentives to schools to administer the SASVAB earlier in the year and share results with the station immediately.

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THE T SHAPE DILEMMA (DEPTH AGAINST WIDTH) IN INDUSTRIAL ENGINEERING & MANAGEMENT CURRICULUM DESIGN AND ITS IMPLICATION ON THE FINAL PROJECT'S OUTLINE

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ABSTRACT

This paper introduces a new curriculum in the area of Industrial engineering and management at Israeli high schools and colleges. Project based learning become an integral part of the new curriculum. During two semesters, the students conduct a project where each project is related to a different aspect of engineering management. Because the curriculum is new, no evaluation process has been done yet. During this research we characterized the project based learning environment and investigated its contribution to effective and qualitative studying. Additional part of the research was an examination of system thinking development during the student's working on his project. The research findings allow us to conclude that final project contributed to the development of CEST among learners. Finally, the research presents the T Shape Dilemma (depth against width) in education of industrial engineering and its reflection in the students' team project

Keywords: Capacity for Engineering System Thinking (CEST), Project based Learning (PBL), The T Shape Dilemma

I. INTRODUCTION

The larger, more complex, more dynamic and more interdisciplinary the technological systems get, the harder it is for a lone student, as skilled as he or she may be, to be trained and skilled in all the engineering and management fields necessary to design a complete system. In order to educate the students to deal with systems, it is proposed to include in engineering and management curricula courses based on the systems thinking approach.

Engineering Systems Thinking is a major high-order thinking skill that enables individuals to successfully perform integrated tasks. A "systems view" or a high capacity for engineering systems thinking (CEST) is a combination of knowledge, professional skills, and behavioral competencies. The main characteristic of CEST is the ability to see the "whole picture" and all relevant aspects without getting stuck on details.

One of the central principles in industrial engineering is the "system" concept. A system is any organization or business process which integrated people, materials, information, equipment, processes or energy interact. This high-level view of business operations enables industrial engineers to manage various industries. Therefore, industrial engineers apply their skills across a diverse set of sectors such as financial, healthcare, manufacturing, retail, logistics, aviation and education.

According to the new curriculum in industrial engineering, the students are engaged in active learning by performing a practical project in a substantial organization, such as a productive plant or a service organization. The learning environment is called Project Based Learning- teams of students carry out different kinds of projects. The students have to find an appropriate organization, to present the examined process, to analyze the organization performance, to examine the quality and operation layout and to recommend an improvement in the present layout.

T Shape Dilemma (depth against width) in education of industrial engineering presents the depth extent of pure engineering contents that are being taught during the education process comparing to the interdisciplinary issues that are being discussed.

In the current paper, we will present a case wherein Industrial Engineering students improved their CEST level while working on a multi-disciplinary project. We will also discuss the T shape Dilemma in Industrial Engineering & Management curriculum design.

II. METHODOLOGY

The research combined the use of quantitative and qualitative methods. The population of this research included 42 college students and 111 high school pupils, all of them took part in a team project in the area of industrial engineering and management.

The first stage of the research involved a pilot study in which several in-depth, semi-structured interviews were held with students and seniors teachers. In the second and main stage we used diverse research tools such as: an achievement test, a questionnaire for assessing students' tendency for engineering systems thinking, graduated students survey and semi-structured interviews with senior managers and academic leaders.

The original questionnaire for assessing students' tendency for engineering systems thinking was developed by Frank (2007) and was updated for the current research. The questionnaire was repeatedly used to track the development of the students CEST. First, we passed the questionnaire in the beginning of the process while the students had to find a suitable organization for performing a project. Finally, we passed the questionnaire in the end of the academic year, after the students submitted their team projects. The tool's reliability test was measured by calculating the Alpha coefficient (The result was 0.706). In addition, three types of validity were presented- content validity, contrasted group validity and construct validity

III. RESULTS

In the pilot study, project based learning was found to be a learning environment that may promote studying motivation and interest. Students in PBL (Project Based Learning) are engaged in active learning and gain multidisciplinary knowledge while working in a real-world context.

In the second stage of the research we used a questionnaire for assessing students' tendency for engineering systems thinking. By comparing the questionnaire scores before and after the process, it was found that all of the students achieved higher scores in the post questionnaire and improved their CEST ($p < 0.001$). According to the division of four components which defined CEST (cognitive characteristics, abilities, personal traits, knowledge) we used the paired t test in order to compare those components before and after the final project had been completed. The paired t test was used to test for statistical significance between two points in time: T1 – at the beginning of the final project's work period, and T2 – at the end of the process, after the final project had been completed, when each respondent contributed to both means. To the extent that an individual's marks across the two points of time are related, the paired t tests provided a more powerful statistical analysis (greater probability of finding true effects) than the independent group t test.

As it is shown in Table 1, there is a significant difference between the pre scores (T1) and the post scores (T2) in these components: cognitive characteristics, personal traits and knowledge. There is no evidence of a significant difference between the component of abilities in the two points of time ($p = 0.743$).

The component	Mean of Pre Scores(T1)	Mean of Post Scores(T2)	t-test	Sig. (2-tailed)
cognitive characteristics	23.4762	27.3571	-3.24	0.004
abilities	11.7857	11.9286	-0.33	0.743
personal traits	21.9286	24.8571	-2.962	0.005
knowledge	11.5952	13.6429	-2.627	0.012

Table 1- *The paired t test results*

According to the research results project based learning increases motivation to study and helps students to develop their system thinking. Project Based Learning suggested a lot of benefits for the student: learners develop integrated understanding of content and process, the approach promotes

responsibility and independent learning and finally the approach can improve the capacity for engineering system thinking.

The research also included data analysis of 15 semi-structured interviews with senior managers and academic leaders. . It was found that it is necessary to emphasize and enlarge all the processes by which system thinking capability is acquired during industrial engineering training and certification.

IV. DISCUSSION

The various topics of concern to the curriculum in industrial engineering include management science, financial engineering, engineering management, supply chain management, process engineering, operations research, systems engineering, ergonomics, value engineering and quality engineering. The term "industrial" in industrial engineering can be misleading. While the term originally applied to manufacturing, it has grown to encompass virtually all other industries and services as well.

Industrial engineer will have to find the right solution in the organization level in order to minimize the length of time it takes from a product being conceived until its being available for sale (Time to Market). He doesn't have to understand all the internal process in the organization. The main advantage of the industrial engineer is the ability to integrate all the system's parts. He must understand different issues form varies disciplines and has to combine them together. By isolating and spotting the critical activities in the project, the industrial engineer will help the organization management to focus and handle them correctly.

V. CONCLUSION

This current research deals with the development of system thinking skills and capabilities through active learning in a Project-based learning environment. During two semesters, the students conduct a project where each project is related to a different aspect of engineering management. Using questionnaire for assessing students' tendency for engineering systems thinking, the questionnaire scores were assessed at two points in time: T1 – at the beginning of the final project's work period, and T2 – at the end of the process, after the final project had been completed.

The study findings allow us to conclude that the final project contributed to the development of CEST among learners. Perhaps this is evidence that supports the notion that CEST may be improved and acquired through learning. This conclusion should be verified and validated by additional future studies.

The research finding may contribute to the research community by characterizing the project based learning environment and by improving the industrial engineering studying environment using PBL.

In this research we also present the T Shape Dilemma (depth against width) in education of industrial engineering. We found that the main advantage of the industrial engineer is the ability to integrate all the system's parts without getting stuck on details.

A practicable contribution of this research can be the planning of an effective layout for industrial engineering curriculum so that the graduate students will acquire a high quality system thinking and integrated understanding of contents and processes.

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PROMOTING COURSE RELEVANCY VIA STUDENT ENGAGEMENT TECHNIQUES

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ABSTRACT

Our paper is designed to illustrate to other faculty some possible teaching methods and pedagogy advances they can use to motivate and engage students in the learning process by demonstrating to the students why the subject matter of a particular course is of importance to them personally and to help satisfy the “what’s in it for me” barrier to student learning behaviors. The illustrative examples take place in the introductory insurance and corporate finance courses, oftentimes considered to be some of the “most boring” courses in a finance major’s curriculum.

Keywords: *Motivation, Student Engagement, Personal Relevancy, Communication, Financial Analysis, Financial Technology*

1. INTRODUCTION

As educators, we all have problems with the motivation and the engagement of students to enhance their overall learning and experiences in our classes. This may be even more prevalent in classes perceived as “boring” and irrelevant, such as an introductory class in the “exciting” fields of insurance or corporate finance.

1.1 Relevancy

While as adults we can appreciate the relevancy of understanding principles of risk management, cost of capital, rates of return, and insurance and the financial burden it places on our business and individual budgets, but to many college students, these concepts are just the opposite, irrelevant and a “waste of their time,” often because they have little or no experience with them.

Therefore, the real educational challenge is to attempt to change students’ attitudes about the importance of finance and insurance by relating it to them personally so it helps answer the “what’s in it for me?” relevancy issues.

1.2 Student Motivation

Thus, as we struggle to motivate students to achieve increased performance, student engagement continues to be an area in the forefront of academia (Debanth, Tandon, & Pointer, 2007; Farran, 2006; Fredricks, Blumenfeld & Paris, 2004; Koljatic & Kuh, 2001; Moore, Armstrong & Pearson, 2008; Newmann & Twigg, 2000; Thomas, 2007). Solutions to questions regarding student engagement are pertinent if we seek to continue our educational system in the same form we have become accustomed to. Furthermore, we must address these big questions through various academic lenses and techniques in order to improve our educational systems, enabling the retention of our assets - quality students and faculty.

Keeping this in mind, teaching a student in an introductory finance or insurance course can be challenging to say the least. Students have been bombarded by the media with all the negative aspects of insurance, from questionable sales practices to premiums spiraling out of control and companies everywhere seeking to reduce employee benefits because of the financial strain of providing insurance coverages for them. Additionally, the financial system implosion of the last two years, the scandals of corporate governance, and the simple esoteric nature of fundamentals of finance do little to pique student interest. Consequently, it is of little wonder that when students first come to class, they are already of the “anti-insurance/finance” mind set; to be honest, it is sometimes difficult to blame them.

1.3 Student Engagement

However, as faculty members, it is our responsibility to help educate these students on why these courses can be among the most useful courses they will take in their curriculum. In order to do this, we have tried to develop a variety of techniques to help engage the students in the importance of understanding basic concepts of risk management, financial fundamentals and general insurance coverages and skills that nearly everyone will need; coverages that if not already needed will certainly be needed by graduation time when the students become more self-sufficient and enter the world of full-time employment.

Consequently, over the past thirty (30) years, Dr. McLaughlin has developed a teaching pedagogy designed to not only enhance student engagement but also enhance student motivation in this difficult subject area. Such methods include an IQ test (Insurance Quotient); a needs analysis, which is designed strictly from a student input; and the enhancement of written and oral communication skills, as the students must write and present a paper over a self-chosen insurance topic.

Dr. White's decade-plus of teaching Fundamentals of Business Finance has led him to some unique pedagogical techniques as well. Pre-testing students on skills learned in Accounting I, Accounting II and General Statistics (all course prerequisites) helps the students understand early on that there is no "free lunch" in the finance course. Emphasizing the use of a financial function calculator or Excel spreadsheet for financial calculations has brought the class more current by deemphasizing time value of money tables (which are surprisingly still included in most fundamentals textbooks). Applying the techniques of corporate finance to personal finance is also a helpful teaching tool that helps personalize the course experience and make it more currently relevant to students' current lives and interests.

The use of these pedagogical methods has a substantial impact on student engagement and motivation. Most notably, students enjoy the courses more by understanding the relevance to them; this is apparent to the extent to the students telling their friends to take the courses because they are "very useful", even for non-business majors.

Therefore, we believe the educational significance of this paper is to share with our colleagues some potential tools and examples that can translate into greater student engagement and motivation. These pedagogical methods are applicable across disciplines, not just in a "boring" finance or insurance class; they are time tested principles generalizable to nearly any classroom environment.

2. STUDENT ENGAGEMENT AND MOTIVATIONAL TECHNIQUES

Following are some examples of student engagement activities that have helped to get students motivated and eager to learn the course material.

2.1 The Insurance Quotient (IQ) Test

On the first day of lecture, Dr. McLaughlin starts the class with what he calls an I.Q. (Insurance Quotient) Test that has six scenarios that involve life, homeowners and automobile insurance coverages. They are simple fact situations that are designed to get the students involved by "voting" for the correct answer on whether there is coverage provided, and if so, to what extent. After the votes are counted, they go back and discuss the correct answers and the reasons why, while reiterating the importance of knowing about these basic kinds of coverages both for now and in their personal futures.

Furthermore, quite frankly the questions are designed to also result in a poor performance on the students' part; hence they fail the "I.Q." test. He then takes the opportunity to explain that they are actually "lucky" to have insurance as a required course or have chosen it as an elective because they will be some of the only students to graduate from college with a better understanding of the very important concepts of risk management and basic insurance protections. Such an education will allow them to make more informed decisions on risk management and basic insurance protections on their own without relying on an insurance agent - the same agent whose livelihood is dependent upon selling them

insurance (whether a necessity or not). Students also tend to rely heavily on their parents for information, parents who probably learned what they know via an insurance agent or by the unfortunate experience of an uncovered claim. Consequently, after the IQ Test they also discuss the source of their insurance information and how it obviously is an ineffective way of obtaining this valuable information.

2.2 The Needs Analysis

A second technique Dr. McLaughlin uses before the discussion of life insurance products is to have a hypothetical family of four and to develop a “needs” analysis for them. The example has a family with both parents working and two children, ages eight (8) and ten (10), who the parents want to go to college. In class, they then draft a list, totally from student input (much of which is available from the textbook if they happen to be reading it, too) of what the family needs money for if the father was unexpectedly killed in an automobile accident. After completing the list of needs, they go back and assign “minimum” amounts needed to accomplish each of the listed objectives and determine what resources might be available to the family to meet the total anticipated expenses. Finally, we look at the money that would be needed from a life insurance policy to make up the substantial difference between the resources available and resources needed. It is truly an “eye-opening” experience for them, making the chapters on life insurance much more meaningful because they begin to see its true application for them and their future families. They also discuss the current needs of a college student and why they may or may not need life insurance prior to graduation, again to stress the relevancy factor to the individual student.

2.3 Use of Written and Oral Communications

What would an upper-division course be without working on the students’ written and oral communication skills? Once again, it is very important to try to make the “chore” more acceptable by making it fun for them; thus, by allowing the students an opportunity to pick a specific topic they are interested in from the areas of life, health, homeowners and automobile insurance. Then they are required to write a five to seven page paper with at least five sources, one of which is an interview.

In addition to the obvious benefit received by the student in having to do some very simple research and to writing on an insurance topic, the student must also do a presentation to the rest of the class for eight to ten minutes. During these oral presentations the use of exhibits, technology and relevant statistics are encouraged. For relevancy and evaluation purposes, all of the students receive a scoring sheet where they place written comments to improve the presenting student’s oral communication skills and then assign their fellow students a score up to fifty total points for their topical coverage and the presentation itself. The students sign the scoring sheets to help with the integrity of the process, but the names are removed before sharing with the presenter. Dr. McLaughlin then averages the overall class scores and if their score is within one point of his evaluation score, he uses the class average score. Otherwise, the students are scored using his scoring of their presentation to make sure the scoring is taken seriously. (He will also assign points for the evaluators.) To further ensure and encourage student attentiveness in their process, he includes questions from the presentations on the final examination.

By making this a part of the course requirements, each student is now exposed to not only the course content and textbook materials, but also many other specific areas of insurance coverage and protection that they otherwise would not have been. Topics include distinct areas like wedding insurance, trip insurance, crop hail insurance, insurance on professional athlete’s body parts, pet insurance, fraternity house insurance, steps in filing an automobile claim after hitting a deer and other coverages that would not otherwise be covered in an introductory insurance class.

2.4 Bringing Fundamental Financial Ratios to Life

Dr. White faces similar challenges with regard to material relevance and student engagement. He has found that by assigning students a semester-long publicly traded corporate analysis, students are much more likely to understand how “real-world” financial analysis works, and how professional securities analysis is done.

The students “volunteer” to research the company of their choice. The only restriction is that the company be listed on the New York Stock Exchange or NASDAQ, to prevent any claims that research and financial statements are too hard to find. Students collect a recent balance sheet, income statement and statement of cash flows from their company, along with the most recently available annual report.

As the semester progresses, and Dr. White covers topics like fundamental financial ratio analysis, break-even points in units and dollars, and a firm’s weighted average cost of capital, students learn the techniques of the finance trade by working chapter and in-class problems. But the real learning takes place when students apply these same “ivory tower” techniques to the real company they have chosen, thereby engaging them into this learning process and motivating them to take the material more seriously.

Students rave about this project and feel a true sense of accomplishment by the time they turn in their term papers at the conclusion of the semester. Dr. White has received many emails from students who became so convinced and familiar with the company they analyzed, that they go on to purchase a few shares, often establishing their first brokerage account. This technique reaches beyond the walls of the classroom and helps students appreciate and get excited about investing.

2.5 Embracing Technology by Dumping the Tables

Perhaps nothing is more frustrating to a student in this digital age than being asked or required to use an antiquated method of calculation. Time value of money conversion tables are a great example of this.

In Dr. White’s class, students are required to use a financial function calculator or spreadsheet technology to compute all sorts of time value of money problems. Their default choices of technology are typically the Texas Instruments BA-II+ calculator or the Excel spreadsheet application from Microsoft Office.

The use and mastery of these powerful tools gives our Fundamentals of Corporate Finance students a “leg-up” when it comes to landing a job and performing well in the real world. We have yet to come across a company that prefers tables to calculators and spreadsheets in manipulating financial data – so why do so many continue to teach these techniques the old-fashioned way? Once again, it is a great opportunity to discuss the relevance of the use of this simple technology as a motivational factor because students understand how it relates to them in a direct and positive fashion.

3. CONCLUSION

Therefore, we feel that similar types of techniques, as designed by the instructor in other courses, can get the students “on-board” early in the semester and keep them there with follow-up techniques to emphasize the personal importance of the subject matter to them for their future careers. In fact, our student evaluations from both insurance and finance clearly demonstrate that these techniques are powerful and fully embraced, perhaps after some initial reluctance, by students completing our courses because students feel that they can relate so much better to the course materials.

In addition, as a side note, not only is it a lot more fun from the professor’s viewpoint, due to the increased student interaction, but it also helps solve the students’ inner conflict of “Why Do I Need to Know This?” Now you can show them!

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RISKS ASSESSMENT IN CREDIT INSTITUTIONS: AN EMPIRICAL ANALYSIS BETWEEN ROMANIAN FRAMEWORK AND INTERNATIONAL MODELS

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ABSTRACT

The purpose of this paper is to focus on one of the most important part of the internal control in banking system - risk assessment - trying to identify on which of the two well-known international models of control (COSO or CoCo) is our national one most appropriate to regarding this component.

The research methodology is based on an empirical analysis of our national regulation in correlation with the two models already mentioned. To reach to a conclusion we tried to identify several key issues closely related to risk assessment, the internal control system component analysed, and to determine the degree of similarities and dissimilarities between the three selected frameworks, by using statistical indicators.

The results of the performed analysis show that the Romanian risk assessment issued by our National Bank is equally closer to both international models of internal control system. Also, the values of the statistical coefficient used in our study demonstrate that there is a medium degree of similarity between COSO and CoCo models, which allows us to conclude that the Romanian framework is a complex one and it includes various types of elements for assessing risk.

The paper has some limitations, too, because it only approaches formal harmonization in the area of risk assessment in banks. Moreover, those issues analyzed through the regulations' perspectives need to be closely quantified in matters of their actual implementation, which offer us outlooks of future research.

Keywords: Banks, Internal control system, Risk assesment, COSO, CoCo, Romania

1. INTRODUCTION

There are certain fundamental concepts associated with internal controls that should be addressed. Firstly, internal controls are a process, a means to an end, and not an end itself. Secondly, people at every level of an organization affect internal controls. Moreover, internal control can be expected to provide only reasonable assurance, not absolute assurance, to an entity's management. And, finally, internal controls are geared to the achievement of objectives in one or more separate but integrated categories (Financial Management Capacity Building Committee, 2005).

Management typically has the following five objectives in designing effective internal controls: maintaining reliable systems, ensuring timely preparation of reliable information, safeguarding assets, optimizing the use of resources, preventing and detecting error and fraud (Alvin A, Lemon W.M and Loebbecke J., 1993, Financial Management Capacity Building Committee (FMCBC), 2005).

COSO and CoCo models for an efficient and effective internal control system have been the subject of various research papers along time (Gramling A., 2005, Rezaee Z., 1995, Callaghan et al, 2007).

As internal control frameworks, most authors (Rittenberg et al., 2007, Hirth R.B.Jr, 2008, Kinney W.R.Jr., 2000) reached to the conclusion that COSO and CoCo complement each other. They each see internal control as a process or sets of processes designed to facilitate and support the achievement of business objectives. Each of the frameworks takes the wider approach to internal control covering consideration of significant risks in operations, compliance and financial reporting. Also, the two models are mainly focused on the same objects, such as improving business effectiveness. We do not have to forget about other goals that are included, as are compliance and reporting objectives. The narrow approach to internal control is usually restricted to internal control over financial reporting.

Romanian internal control system framework is a newer one, dated from 2003, when the our National Bank settled the regulation regarding internal control system and audit in banking field, emphasizing their

importance in managing significant risks. Even if this framework is an implementation of the Basle Committee on banking Supervision's settlement, it designs an internal control system, so there has to be a more or less similarity between it and the two international well-known models, which is going to be the aim of our research.

2. AIM OF THE STUDY AND RESEARCH METHODOLOGY

Our empirical study is aimed to identify on which of the international internal control models (COSO or CoCo) is based the Romanian internal control system framework for credit institutions, as regards risk assessment. In order to reach to a conclusion, we made an analysis with character of comparison between the two international models, as well as our national regulation and each of them. In this study, we focused our attention on the risk assessment, one of the most important components on any internal control system.

Our empirical analysis was performed by testing the similarities and dissimilarities between the three sets of regulations regarding risk assessment – the internal control system's component analyzed, taken two at a time in order to reach to a conclusion about the comparability degree existent between them.

The source of information for our research was the three regulations mentioned above which were codified and assayed by using a statistical method, which is being detailed in the chapter dealing with the comparative approach of the national framework by reference to the two international internal control models.

The findings of our study, which come from analyzing formal harmonization in the area of internal control system, are correlated to the literature review, but as every other research, our paper has some limitations, too, which offer us outlooks of future research. We should not forget that our study is only about a formal harmonization, which needs to be broaden to the current development stage of the national banking system, focusing on the degree in witch the regulation is put into practice and its purpose is being achieved.

3. LITERATURE REVIEW

COSO stands for "Commission of Sponsoring Organizations" a private commission chartered to research and report on improving quality of financial reporting through business ethics, effective internal controls and corporate governance. The sponsoring organizations of COSO were American Institute of Certified Public Accountants, the Institute of Internal Auditors, Financial Executive International, Institute of Management Accountants, and American Accounting Association.

Internal control has different meanings to different parties, COSO tries to establish a common definition and standard that can serve such parties. Under COSO's report, "*Internal Control* is broadly defined as a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: (a) *effectiveness and efficiency of operations*; (b) *reliability of financial reporting* and (c) *compliance with applicable laws and regulations*. The first categories address an entity's basic business objective, including performance and profitability goals and safeguarding of resources. The second relates to the preparation of reliable published financial statements, including interim and condensed financial statements and selected financial data derived from such statements, such as earnings, reported publicly. The third deals with complying with those laws and regulations to which the entity is subject. These distinct but overlapping categories address different needs and allow a directed focus to meet the separate needs" (Committee of Sponsoring Organisations of the Treadway Commission, USA, 1992).

As defined in COSO Report, *internal control* consists of five interrelated components:

- *Control Environment* - The core of any business is its people- their individual attributes, including integrity, ethical values and competence-and the environment in which they operate. They are the engine that drives the entity and the foundation on which everything rests.

- *Risk Assessment* - The entity must be aware of and deal with the risks it faces. It must set objectives, integrated with the sales, production, marketing, financial and other activities so that the organization is operating in concert. It also must establish mechanisms to identify and manage the related risks.
- *Control Activities* - Control policies and procedures must be established and executed to help ensure that the actions indemnified by management as necessary to address risks to achievement of entities objectives are effectively carried out.
- *Information and Communication* - Surrounding these activities are information and communication systems. These enable the entity's people to capture and exchange the information needed to conduct, manage and control its operations.
- *Monitoring* - The entire process must be monitored, and modifications made as necessary. In this way, the system can react dynamically, changing as conditions warrant.

CoCo is the control model developed by the Criteria of Control Committee of the Canadian Institute of Chartered Accountants. It focuses on behavioral values rather than control structure procedures as the fundamental basis for internal control in a company (Protiviti Independent Risk Consulting, 2004).

It put control into the context with how a task is performed, defining it as those elements of an organization (including its *resources, systems, processes, culture, structure and tasks*) that, taken together, support people in the achievement of the *objectives*.

Besides defining control, which is seen as encompassing the entire organization starting with its smallest unit, the individual person, CoCo's guidance also sets out criteria that can be used to assess the effectiveness of control. It uses four essential elements as groupings within which it articulates 20 criteria of control (International Federation of Accountants, 2006).

- *Purpose* criteria provide a sense of the organization's direction. They address its objectives, risks and opportunities, policies, planning and performance targets and indicators.
- *Commitment* criteria provide a sense of the organization's identity and address its ethical values, human resource policies, authority, responsibility and accountability and mutual trust.
- *Capability* criteria provide a sense of the organization's competence. They deal with knowledge, skills and tools, communication processes, information, co-ordination and control activities.
- *Monitoring and Learning* criteria provide a sense of the organization's evolution. They involve reviewing internal and external environments, monitoring performance against targets, challenging assumptions, reassessing information needs and systems, establishing follow-up procedures and assessing the effectiveness of control.

The above criteria create the basis for understanding control in an organisation and for making judgements about the effectiveness of it, a characteristic, which was from the very old time the subject of many studies (Gibbs J. and Keating P., 1995; Tongren J.D., 1995; Turnbull Report, 1999).

Now, we are going to focus our attention on **risk assessment**, maybe the most important component of the internal control. In doing so, firstly we should find an answer to the following question: *What is risk?* We already know that for all businesses there are risks that exist and that need to be identified and addressed in order to prevent or minimize losses.

Risk is the threat that an event, action, or non-action will adversely affect an organization's ability to achieve its business objectives and execute its strategies successfully. Risk is measured in terms of *consequences* and *likelihood*. The following process is used for assessing risks: identifying risks, sourcing risks and measuring risks. Overall, each entity should focus on the high risks affecting their operations, namely *significant risks*.

Risk assessment is the identification of relevant risks to achievement of the objectives, forming a basis for determining how the risks should be managed (Protiviti Independent Risk Consulting, 2003).

Studies already conducted (Protiviti Independent Risk Consulting, 2003) reveals that objectives must be established prior to the identification of risks, to their achievement and to take necessary actions to manage the risks. By setting objectives, both at entity and activity levels, prior to a risk assessment, a

company can firstly determine the critical success factors and after that, the risks to the critical success factors. So, a precondition to risk assessment is establishment of objectives, linked at different levels and internally consistent.

As regards activity level risks, these are associated with specific processes or activities and can include: accounts receivable / payable process, payroll process, procurement process, technology development process or technology change management. Successfully assessing activity-level risk also contributes to maintaining acceptable levels of entity-wide risk.

Now, it is time to find out *where come from these risks?* Every entity faces a variety of risks from *external and internal sources* that must be assessed at entity-wide and activity levels throughout its operation. According to COSO's Report, within the external factors affecting the entity's risks, there are mentioned the following: technological development, changing customer needs, changes in competition pressures, new legislations, natural catastrophes, and economical changes. Also, COSO identified the following internal factors which can affect an entity's risk: disruptions in information processing systems, quality of personnel hired, a change in management responsibilities, nature of entity's activities, employees' accessibility to assets, and unassertive or ineffective board or audit committee (Committee of Sponsoring Organisations of the Treadway Commission, USA, 1992).

According to other studies (Robert H., 2003), risk assessment is the identification and analysis of relevant risk to achievement of the objectives, forming a basis for determining how the risk should be managed, and in this respect there are four possibilities: to accept, reject, share or reduce risk.

We consider that a risk that does not have a significant effect on the entity and that has a low likelihood of occurrence generally does not warrant serious concerns. A significant risk with a high likelihood of occurrence usually demands considerable attention. Circumstances in between these extremes usually require difficult judgment. It is important that the analysis be rational and careful. This involves judgment based on assumptions about the risk and reasonable analysis of costs associated with reducing the level of risk. Actions that can be taken to reduce the significance or likelihood of the risk occurring include a myriad of decisions management may make everyday.

Every entity *must be aware of and deal with* the risks it faces. It *must set objectives*, integrated with the sale, production, marketing, financial and other activities so that the organization is operating in concert. It also *must establish mechanisms to identify and manage* the related risks. So, a risk assessment usually includes estimating the significance of a risk, assessing the likelihood (or frequency) of the risk occurring and consideration of how the risk should be managed. Many *techniques* have been developed along time *to perform a risk assessment*, such as: qualitative or quantitative methods to prioritize and identify higher-risk activities; periodic reviews of economic and industry factors affecting the business; senior management business-planning meetings (Protiviti Independent Risk Consulting, 2004).

COSO settled the following steps that need to be taken by the management to assess its risks: (a) establishment of company's risk to achieve its objectives; (b) identification, analysis and assessment of risks to achieve objectives; (c) assessment of risks from internal and external sources at both the entity and the activity levels; (d) assessment of risks related to "change in conditions" and (e) assessment of financial impacts of risk analysis on financial statements.

As a conclusion, a study made by IFAC (International Federation of Accountants, 2006) has demonstrated that the general consensus is that, whatever form the internal control may take, it should take a *risk-focused approach*, in recognition of the need for an organization to develop an internal control system particular to its internal and external environment. So, "risk assessment" will always be the key element of a stronger internal control system.

4. EMPIRICAL COMPARATIVE APPROACH OF THE ROMANIAN BANKING RISK ASSESSMENT FRAMEWORK BY REFERENCE TO THE INTERNATIONAL COSO AND COCO MODELS

4.1 The Romanian banking internal control system framework on risk assessment

Internal control, as it was defined by the Basel Committee on Banking Supervision, as well as by the National Bank of Romania (Regulation no. 17/2003) represents "a continuous process in which takes part the board of directors, senior management and all level of personnel, and whose aim is to ensure that all the established goals will be reached." We have to stress that internal control is not just a procedure or a policy, performed at a certain point in time, but rather it is a continually operating action at all levels within the bank.

Considering the stipulations of the same regulations, the main *objectives* of the internal control process are: (a) *efficiency and effectiveness of activities*; (b) *reliability, completeness and timeliness of financial and management information* and (c) *compliance with applicable laws and regulations*.

In order to reach the internal control goals, credit institutions must design a system based on the following five inter-related *elements*:

- *The role and responsibilities of the board of directors and the executive management* refers mainly to their essential duties and measures that should be taken in order to establish and maintain an adequate and efficient internal control system. These responsibilities regard especially the general strategies and policies, as well as significant risks limits and procedures of monitoring it.
- *Significant risks identification and assessment* is based on a permanently, ongoing process which should take into consideration internal and external factors of influence, controllable and non-controllable risks, alternative scenarios (of crises conditions).
- *Control activities and the segregation of duties*. Control activities refers to the politics and procedures of control which must be implemented and tested at each organisational level, while the segregation of duties implies a suitable assignment of responsibilities that must not lead to an interest conflict.
- *Information and communication* is mainly related to reporting needs. More exactly it regards the quality of financial, operational and conformity information – credibility, relevance, completeness, opportunity, accessibility and comparability. A great importance is given here to the information systems and communication channels.
- *Monitoring and correcting deficiencies* stresses the importance of the internal auditor in supervising the functionality of the internal control system.

As regards "*significant risk identification and assessment*" as it is called in our regulation, we have to mention the following aspects related to risk:

- Firstly, it stresses the importance of identifying and assessing not only *internal factors* (such as organizational structure complexity and changes, the nature of banking activities, personnel's quality and fluctuation), but also *external factors* (such as economical changes, increasing competition, technological development), which might have a negative impact upon reaching performance targets and internal control objectives.
- Secondly, it underlines the importance of *managing all risks* that a bank might encounter, both *at a wide-level* and *at each activity-level*. Also the process might be a continuous one, taking into consideration not only present risks, but also newer risks appeared due to the most recent activities, and by thus, the control procedures should be updated to these recent risks.
- Thirdly, it emphasizes that assessing risks addresses to both *quantifiable and non-quantifiable risks* and have to balance costs of managing risks with future benefits. Therewith, assessing risk should also consider *the controllable or non-controllable* character of *risks*. Hereby, in case of controllable risks, banks must decide if accept those risks or how are going to counteract them, whereas in case of non-controllable risks, banks must decide if accept those risks, reject them or reduce the level of activities affected by those risks.
- Finally, it recommends assessing risks by internal specialists who do not have responsibilities in achieving commercial or financial performance, in order to avoid interest conflicts. This requires relevant experience from these specialists, in those activities carried on.

In practice, it was observed that banks' managers frequently incline towards highly productive activities or operations, without an accurate and rational assessment of risks associated to those transactions. Moreover, they do not allocate enough resources for monitoring and assessing risk exposures. Therewith, it was observed that many losses were due to managers' misconduct in updating risks assessment process when business environment is changing.

4.2 Empirical comparative approach of the Romanian framework for risk assessment in credit institutions, by reference to international COSO and CoCo models

In order to achieve our aim - to identify on which of the international internal control models (COSO or CoCo) is based the Romanian framework for assessing significant risks in credit institutions, we conducted an empirical study based on an analysis with character of comparison between the three sets of regulations (the two international models and the Romanian one).

We have started from the main principles for risk assessment required by COSO and the criteria of control also related to risks, as these are defined by CoCo, trying to establish the link between them. Thus, we have identified a series of issues regarding risk assessment, which we organized within four main topics as follows: (1) entity wide-objectives, or also called the strategic plan, (2) activity-level or the operational objectives, (3) risk identification, analysis and assessment, and (4) managing change.

Starting from these topics, we proceeded to compare risk assessment, one of the most important component of the internal control system, as it appears within the three frameworks. Thus, we have allocated the 1 or 0 values for each possible and/or existent requirement within at least one of the considered regulation, where the 1 value shows that the requirement exists within that framework, and 0 value is given for the situation when the requirement is not found within the considered framework.

TABLE I. EXEMPLIFICATION OF THE ANALYSIS METHOD USED FOR THE CONSIDERED TOPICS

RISK ASSESMENT / Analyzed elements	The character of the requirement		
	COSO	COCO	Romania
Managing change			
- <i>assessment of risks related to "change in conditions"</i>	1	0	1
- <i>mechanisms to anticipate identifies and reacts to routine events that affect the achievement of entity/activity-level objectives</i>	1	0	0
- <i>assessment of impacts of risk analysis on financial statements</i>	1	0	0

In the above table (Table I.) there are presented the 1 and 0 values that have been allocated to each requirement of the four components analyzed.

In order to achieve the proposed comparison, we have considered that the best analysis, in case of this type of approach, is represented by the nonparametric correlation and the association degree between two or more than two considered variables. Thus, we have used for our research the Jaccards' association coefficients, which have been used before in studies focused on comparisons between different sets of regulations. On the other hand, the two Jaccard's coefficients offer the possibility of quantifying both the association degree and the dissimilarity degree between different sets of requirements for risk assesment taken into consideration for analysis.

So, in order to dimension the compatibility degree or, in other words, the association between two or more internal control systems, the calculation formula for the Jaccards' coefficient shows as follows:

$$S_{ij} = a / (a + b + c) \quad \text{and} \quad D_{ij} = (b + c) / (a + b + c)$$

where:

- S_{ij} - represents the similarity degree between the two sets of analyzed risk assessment frameworks;
- D_{ij} - represents the degree of dissimilitude or diversity between the two sets of analyzed risk assessment frameworks;

- a – represents the number of elements which take the 1 value for both sets of risk assessment frameworks;
- b - represents the number of elements which take the 1 value within the *j* set of frameworks and the 0 value for the *i* set of frameworks;
- c - represents the number of elements which take the 0 value within the *j* set of frameworks and the 1 value for the *i* set of frameworks.

The risk assessment elements analyzed in this empirical study are there fore given the 1 value for containing a certain requirement and the 0 value for non-containing that considered requirement.

As a result of the effective measurement of the comparability degree between the Romanian risk assessment framework and the international models COSO and CoCo, based on Jaccard's coefficients, we have reached to the conclusion that our national regulation is equally similar or dissimilar to each of the two international models, as presented in the following table (table II.).

TABLE II. COMPARISON ANALYSIS BASED ON JACCARDS' COEFFICIENTS

<u>Risk assessment</u> Topic	Romania vs. COSO		Romania vs. COCO		COSO vs COCO	
	S _{ij}	D _{ij}	S _{ij}	D _{ij}	S _{ij}	D _{ij}
Entity wide-objectives (strategic plan)	0.500	0.500	0.500	0.500	1.000	0.000
Activity-level (operational) objectives	0.500	0.500	1.000	0.000	0.500	0.500
Risks identification, analysis, assessment	0.667	0.333	0.667	0.333	0.600	0.400
Managing Change	0.333	0.667	0.000	1.000	0.000	1.000
TOTAL	0.500	0.500	0.541	0.458	0.525	0.475

But, because there is not a high degree of similarity between COSO and CoCo models, as it is also shown in the table above, and the Romanian framework for risk assessment is equally based on both regulations, we can conclude that ours is a complex one, that includes a various types of elements which have to be taken into consideration when assessing risk.

5. FINDINGS AND CONCLUSIONS

The results of our analysis show the level of similarities between the national framework and the two international regulations. As it can be seen, the Romanian internal control environment issued by our National Bank is equally closer to both COSO and CoCo models. Also, the values of the statistical coefficient used in our study demonstrate that the two international models have common aspects regarding the assessment of risk. The degree of similarity between the three regulations analyzed allows as reaching to the conclusion that the Romanian requirements settled by the Central Bank for assessing risk are various and completed enough to ensure a good and reliable identification and evaluation.

If we try to summarize in a few words the data conclusions revealed by the statistical coefficient used, firstly, we could assert that Romanians *entity-wide objectives* are equally closer to both international models, while those, the latter, are defined totally different. To summarize their characteristics, these objectives provide sufficiently broad statements and guidance on what the entity desires to achieve and are effectively communicated to employees and board of directors.

Secondly, as regards the *activity-level objectives*, according to the statistical results, these are closely to the CoCo model rather than to the COSO one. Here we can identify a linkage of activity-level objectives with entity-wide objectives and strategic plans and the involvement of all levels of management in objective setting. As regards the main characteristics of these objectives, it is important to be consistent to each other, relevant to all significant business process, important for achieving the entity-wide objectives. Another major aspect regarding this topic is the adequacy of resources relative to these objectives.

The next topic analyzed was *risks identification, analysis and assessment*, where we can conclude, according to the statistical results presented above, that Romanian framework is very close to both

international regulations, which emphasizes the importance given to risks, materialized in the adequacy of mechanisms to identify risk arising from internal and external sources, identification of significant risks for each significant activity-level objective and thoroughness and relevance of the risk analysis process, including estimating the significance of risks, assessing the likelihood of their occurring and determining needed actions.

The last topic analyzed regarding risk assessment was the one about *managing change*. In this respect, the statistical coefficient calculated shows that there is just a little similarity of our framework only with COSO's regulation. In this respect there are two aspects which we consider to be important in assessing risks:

- the existence of a mechanism to anticipate, identify and react to routine events or activities that affect achievement of entity or activity-level objectives (usually implemented by managers responsible for the activities that would be most affected by the changes)
- the existence of a mechanism to identify and react to changes that can have a more dramatic and pervasive effect on the entity, and may demand the attention of top management

According to the literature review regarding the two international models of internal control system, there isn't any kind of assessment on which of these models is better, or which of these is good and which is bad. Starting from this argument, we could reach to the conclusion that Romanian banking system is well settled as regards risk assessment, in accordance to very well known international models and, also, to the international supervising authority that we should not forget - the Basle Committee on Banking Supervision.

In the end we need to mention the limitations of our study. First of all, we should not forget that that our empirical research only approaches formal harmonization in the area of internal control systems, more exactly regarding risk assessment. In order to diagnose not only the existence of a "system" for assessing risk, but also the functionality of it we need to go deeper and to continue our research. Only an empirical analysis on insights of the banks internal controls, based on the information provided by credit institutions, would show the degree to which the foresights of the international models of control, which seem to have been assumed by the national regulation, are actually put into practice and respect their purpose. These would show the level of material harmonization which should be analyzed in correlation to the formal one, which was the subject of this study. So, all these offer us outlooks of future research.

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SOCIOLOGY OF KNOWLEDGE: THE EPISTEMOLOGICAL UNDERSTANDING OF BEHAVIORS

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ABSTRACT

Sociology of knowledge is the unveiling of the true origin of thoughts and the sociological analysis of the root functions of its boundary conditions. It is interesting therefore how thoughts originate in societies and how perceptions differ with substantial cultural influences. This notion of thoughts was applied in the African context by this researcher to explain some phenomena in the culture of the Yoruba people of Southwestern Nigeria. The communal habitation of the people of Nigeria and celebration of traditional festivals are considered real and the reasons for these practices are deeply rooted in history and thoughts of the people.

1. INTRODUCTION

Sociology of knowledge was first dabbled in the 1920s by a German sociologist and philosopher, Max Scheler (Berger & Luckmann, 1966). Going through the genesis of German intellectual history and discovery, he felt the necessity to explicate the new phenomenon of sociological importance. As most European sociologists continued to explore the relationship between humans and their environment, a more meticulous connection was found, which was rooted in the origins of thoughts. The epistemological implication of the human thoughts and the actual behavior of human beings were connected at every theater of operation. As expressed by Berger and Luckmann (1966):

It [was] from Karl Marx that the sociology of knowledge derived its root proposition-that man's consciousness is determined by his social being. To be sure, there has been much debate as to just what kind of determination Marx had in mind. (p.5)

The task of sociology of knowledge is the unveiling of the true origin of thoughts and the sociological analysis of the root functions of its boundary conditions (Berger & Luckmann, 1966). It is interesting therefore, how thoughts originate in societies and perceptions or views differ with substantial cultural influences. This notion of thoughts was applied in the African context by this researcher.

2. PERSPECTIVES OF SOCIOLOGY OF KNOWLEDGE

Thoughts of persons in the society are a function of their culture, which is rooted in their beliefs. The types of cloth they wear; the form of living they are accustomed to, and their general behaviors are functions of these thoughts. The communal habitation of the people of Nigeria, where families live with their children and members of extended family (brothers, sisters, nephew, and nieces) in a form of extended family dependency, is a practice considered rooted in the culture of love and togetherness (Fakinlede, 2008). This system may be classified as uninformed and utopia by the western culture but a field that is real to one person as a result of his social group or upbringing may be unreal to another. In addition, this practice could be seen as a form of economic dependency as a result of poverty (Fakinlede & Banna, 2006; Fakinlede, 2007b) but in the thinking of the members of this African society, it depicts love and care and the origin of this practice could be traced to their history of self-embracement.

As further analyzed by Mannheim (1936/1979), the passion sometimes put into this argument could ignite into a phenomenon that falls between a simple practice that is unacceptable by one group, most especially of foreign culture or a solid act crystallized by deep moral beliefs of the people who practice it. However, it is interesting how most of these psychological disagreements are resolved. In the African situation of extended family dependency, the beliefs of the people are still unchanged despite various characterization of this practice by other societies that see no reasons in their arguments (Fakinlede, 2007a). At times, the differences in the position of people of differing cultures about a phenomenon are never resolved. People remain steadfast with their positions and beliefs because their origins of thoughts are so different and no amount of data or analyses could change them.

3. THE UNDERSTANDING OF THOUGHTS: AFRICAN PERSPECTIVES

Thoughts are important factors in culture. The *ijesu* (new yam) festival, which is celebrated annually in many rural western Nigerian towns and villages, is a vital occurrence that originated from the thoughts of the elders in various societies. An example is Ilara-Mokin in Ondo State, Nigeria. Annually, this town of about 50,000 (The Nigeria Congress, 2004) residents celebrates the arrival of new yams in what is known as *ijesu* festival. It is believed that rituals must be performed by elders of the community before new yams could be brought into the township market so that bountiful harvest can be guaranteed in the following year. In addition, to prevent calamities, such as poor yields, mysterious deaths, and illnesses in the society, this and other practices were believed to have been instituted more than one hundred years ago. In the western world or most modern Nigerian cities, bountiful harvest of food crops has nothing to do with rituals. For time immemorial, this belief has held still and the practice has continued until today. This is similar to what Fagunwa (1994) and Courlander (1973) described as the beliefs behind the worship of *Sango* and *Oya*, the gods of the Yoruba tribe in Western Nigeria, which are worshiped as forms of presumptuous gods.

Berger and Luckmann (1966) provided clues to the contention that sociology of knowledge is an empirical discipline that presents inklings to the determination of the origin of human thoughts, leading to epistemological questions concerning thoughts. Thoughts are based on the culture and history of a group and association (Mannheim, 1936). Hence, it is very improbable that few individuals will be able to change the thoughts of the people of Ilara-Mokin despite the arguments of others who grew elsewhere or were educated in the western world that these thoughts are utopia. Thoughts processes are completed by groups in the society and individuals simply function within the group's thought (Mannheim, 1936). Usually, a process of thoughts continues for ages and then becomes the culture of the society. In support of this argument, Mannheim (1936) added that:

Sociology of knowledge seeks to comprehend thoughts in which individually differentiated thought only very gradually emerges. Thus it is not me in general who thinks, or even isolated individuals who do the thinking, but men in certain groups who have developed a particular style of thought in an endless series of responses to certain typical situations characterizing their common position. (p.3)

In essence, people only contribute to ideas put forward by the group, the society, and the cultural elites. Thoughts are primarily based on the ideas pre-established by the group and on the other hand, it is based on the contribution of the individuals who are participating in the thought process. In general, thoughts are so deep rooted in generations that even a multiplicity of ways of thinking do not pose problems in the perception and formulation of individual thoughts. This process of multiplicity is so slow within the generation that from childhood to adulthood, it is well assimilated as thoughts are grouped. Deception in a magnitude so great as to define a cultural departure does not always occur. The tempo of adaptation is demandingly slow in the process of thinking that changes in the way of thinking spans over many generations.

3. CONCLUSION

The thinking process of the people is not just a class thought but also the cultural and socio-political beliefs of the people. This is deep rooted in their generational setting, the childhood adaptation, and the instinctive approach to matters. Human thought are bounded up in the existing life situation of the thinker as well as his social situation. Subsequently, the moral justification becomes the societal dictate and most commonly a generally uniform conclusion is reached about what is morally conceivable or inconceivable. Hence, no matter how the *ijesu* festival is improbable at ensuring bounty harvest in the following years or impractical that non-holding of the festival could lead to calamities in the society, community elders who organize this yearly event will never be convinced in thinking otherwise. The festival is real and the reasons for holding it are deeper in history and thoughts of the cultural elites of the Ilara-Mokin people of Ondo State, Nigeria.

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STRUCTURATION, EMANCIPATION, AND TELEPSYCHIATRY

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ABSTRACT

This research was performed in order to find a theoretical ground to explain the previously found empirical evidence of the success of telepsychiatry in Korea. Utilizing telepsychiatry was shown to result in overcoming of the Confucian cultural barrier which discouraged Korean patients from seeking psychiatric care. The Confucian culture of Korea forces its members to observe absolute conformity to the social norm. In this kind of culture it is very hard to admit one's mental illness and to seek medical help. Structuration theory and critical social theory were combined to be applied to explain the process of seeking psychiatric care through the Internet in Korea.

1. INTRODUCTION

Telepsychiatry refers to a term to describe psychiatric consultation done through none face-to-face environment usually through videoconferencing via Internet connection. This method of treating mental patients was proven effective in many western countries such as US (Cawthorpe D., 2001), Canada (Jennett, P. et al., 2000), and Norway (Wangberg S. et al., 2007). The Confucian teaching emphasizes respect and social order in society. Thus mental illness is seen as a threat to orderly management of society because any mental patient is likely not to observe traditional protocols of showing respect to seniors and the powerful, which then might be imitated by the mass, which can lead to a challenge against the governing elite. It is true that even in western societies for a long time mental illness was regarded as a threat to social order. However this attitude waned as western societies became democratic. Democracy brought openness in people and thus scientific solutions to every aspect of human problems including mental diseases (Whitten P. et al., 2000). Korea is still having difficulty in getting rid of the Confucian tradition even as it goes through many democratic reforms. Telepsychiatry can be another tool in aiding Korean society to overcome the Confucian cultural burden in the area of mental health care. Based on a previous empirical finding using telepsychiatric experiments (Lee, O., 2008), we would like to present a theoretical explanation for this phenomenon.

2. STRUCTURATION THEORY

The theoretical basis for this paper draws firstly on structuration theory (Giddens 1979, 1984). The attention is on how structuration theory can offer a new way of looking at societal change and ICT. Walsham (2002)'s paper whose focus was on cross-cultural issues of ICT implementation defines structuration as following. Structure is memory traces in the human brain. Action draws on rules of behavior and ability to deploy resources and, in so doing, produces and reproduces structure. But human being's reflexivity monitor actions and consequences, creating a basis for social change. By defining structure as rules and resources, recursively implicated in the reproduction of social systems Giddens (1984) attempts to treat human action and social structure as a duality rather than a dualism. In other words, action and structure are seen as two aspects of the same whole. Giddens comments that social systems should be regarded as widely variable in the degree of systemness that they display. Walsham (2002) argues that the structural properties of society often display enough systemness for its members to speak about shared symbols, norms, and values. Under democratic system people are not afraid of expressing their opinions against authorities and their systemness triggers structures in everyday acts.

For example people under democratic or free society are not concerned about expressing respect while talking to authorities whereas those under the dictatorship or repressive society tend to worry about content of their expression but also style how it appears, i.e., their systemness triggers structures which conform to the political system. However there are aspects of human life that are universally desired upon and structuration theory simultaneously recognizes the validity of varied structures of different countries as well as the possibility of breaking the mold. This is referred in Table 1 as "reflexivity and change." When ICT is implemented for a people of nation the consequences include not only efficient new way of

working but also new perspective on how they can behave differently from structures, which can lead to fundamental change such as adopting new structure; advance in democracy. Walsham (1993, p. 64) provides a general view of the role of ICT in the context of structuration theory as following:

A theoretical view of computer-based information systems in contemporary organizations which arises from structuration theory is that they embody interpretative schemes, provide coordination and control facilities, and encapsulate norms. They are thus deeply implicated in the modalities that link social action and structure, and are drawn on in interaction, thus reinforcing or changing social structures. Structuration theory appears to be focused on reproduction of structure through processes of routinization of activity and thus reinforcement of existing structures. However, Giddens also emphasizes human knowledgeability, and the way in which human beings reflexively monitor their own actions, that of others, and consequences, both intended and unintended. This is an element in structuration theory which can be regarded as the identical approach taken by Critical Social Theory (CST) on the concept of "emancipation."

3. CST and ICT

CST identifies unjust conditions and tries to find the cause through critical reflection, which eventually might lead to emancipation of people. CST which was started around 30s produced many scholars who developed their own approaches to it. Held (1980) chronicles various augmentations and diversions by CST theorists from Horkheimer, Adorno, Markuse, and Habermas. Despite differences, CST theorists strive to achieve a general goal that is to expose unjust conditions of the society and bring about emancipation of people. Namely they believe that modern society even including developed ones lacks complete emancipation of people due to existing unjust conditions. In relation to ICT research, Lyytinen and Klein (1985) first proposed a possibility of utilizing Habermas' theory which was one of CST theorists' concepts in information system research. Later Hirschheim and Klein (1994) developed an information system development paradigm based on emancipatory CST concepts. Ngwenyama and Lee (1997), by analyzing discourse data between system analysts, they exposed the occasions of critical reflection to remove distortion in information exchange, which then was considered as expanding media richness of e-mail.

The CST theory that they utilized was Habermas' theory of communicative action (1984). Habermas' contribution to CST is thought to be that he is probably the only one who proposed a realistic solution that might lead people to emancipation. Other scholars, for example, Markuse and Adorno were able to expose injustices of modern developed capitalist system, but only to predict violent breakup of the system without proposing a practicable way to emancipation. In contrast Habermas proposed that human beings could change the unjust world through reasoning. He believed that the power of rational reasoning that could lead to critical reflection would free human beings of deceptive and illusionary information supplied by the oppressive society. Habermas' theory of communicative action explains four types of social action: (1) instrumental, (2) communicative, (3) discursive, and (4) strategic. Habermas suggests that, while performing these social actions, humans can be critical of validity associated with the information being disseminated through communication. Thus humans are capable of critical reflection, which can lead to detecting distorted communication such as false, incomplete, manipulative, and insincere information being transmitted to them such that they can emancipate themselves from those mental pollutants. Ngwenyama and Lee (1997)'s work is a good evidence of achieving emancipation via the use of ICT despite the limitation of technology. ICT in advanced forms can be used for broader emancipation that might alter structures of the society.

4. STRUCTURATION AND EMANCIPATION

Structuration theory's brief touch with societal change leaves an ample room to fill in with what CST has found regarding emancipation. This study proposes a linkage between two concepts which will make a full picture in describing mechanical systemness together with occasional emancipation in people's mind. This is attempted since the role of ICT in human life became a non-human actor as in Actor-Network theory (Walsham and Sahay, 1999), i.e., ICT is a structure that either reinforces the existing rules or that

might bring a profound change of the rules. Thus it is imperative to have a combined model that can illustrate duality of ICT as a change agent and an old-rule enforcer.

In structuration as shown in Table 1, it usually maintains stoic mechanization of structures and sometimes falls into "reflexivity mode" as following.

< Steps of Structuration Reflexivity>

1. Monitor actions.
2. Monitor consequences
3. Create basis for social change

In the mean time following steps are formulated from Habermas' theory of communicative action.

<Steps of Emancipation>

1. Critical Reflection
2. Detect distorted communication
3. Emancipation

Combining these steps from two concepts can be done as following:

<Merged Steps of Structuration and Emancipation>

1. Monitor actions.
2. Monitor consequences
3. Is the event profoundly moving?
4. Critical Reflection
5. Detect distorted communication
6. Emancipation
7. Can it lead to permanent change in structures?
8. Create a basis for social change

The new steps in the model of structuration-emancipation are necessary to fill in the gap between two theories. Step 3 is required to distinguish trivial events from non-trivial ones that might trigger critical reflection; profoundly moving events have to be repeated such as the ones with obtaining completely opposite consequences by the same action, i.e., no punishment even in case of showing no respect toward authority as was not in the past normally in repressive and dictatorial societies. Step 7 is also required to expand the role of emancipation since emancipation here can be ephemeral. People may be liberated from mental shackles but can people take an action based on their discovery? Thus permanent change in structures of the society has to be made to take advantage of emancipation from distorted information, which requires physical practices and courage. With this step fulfilled, people should be capable of creating a basis for social change.

This model is comprehensive since it illustrates the role of ICT in ordinary social stage as well as the role of ICT in facilitating fundamental social change such as achieving no stigma for psychiatric treatment. From a CST point of view, Korean people have been suffering under the unjust condition where any disrespectful attitude toward seniors and authorities were punished either implicitly or sometimes violently. Even without going through critical reflection to determine validity of information that one should pay respect to seniors and authorities no matter what these people's backgrounds were, Korean people mechanically observed this protocol; observing cultural protocol was a structure in view of structuration theory. In many such cultural protocols, the stigma on mental illness was particularly persistent. However after examining the contents of previously found empirical data from telepsychiatry survey in Korea (Lee O., 2008), we found that people were not very concerned with the stigma of mental illness treatment when they were cared for via telepsychiatry. They were only interested in receiving the medical care. In other words, people can be liberated from the societal norm which functions as a mental pollutant and focus on transmitting their message. This cyberspace behavior which contradicts real life one can be regarded as the sign of a possible solution that might lead Korean people to emancipation. This emancipation is rather enlightenment of human spirit by being awakened to a new societal change toward mental illness.

5. THE PROCESS OF TELEPSYCHIATRY IN KOREA

Social stigma of receiving psychiatric care is immensely stronger in still tradition-bound Korea much more than in western countries. Korea has gone through rapid westernization in the last 50 years and

transformed itself one of the most westernized countries in Asia. However due to the long history of the Confucian teaching-based social culture which does not even regard mental illness as real illness it is still very difficult to overcome prejudice attached to the people of mental health care needs. It is true that even in western countries, this stigma existed before.

However democratic openness of western culture helped to relieve the social burden on mental patients in modern times. Thus in western countries there are generally two kinds of needs to utilize telepsychiatry as following (Griffiths M., 2005).

1. Remote area residents who have difficulty in finding psychiatrist nearby
2. Convenience of receiving the care in more comfortable environment

In Korean case, the first need is irrelevant since Korea is a very small country where major hospitals are reachable with little travel. The second need can be a factor that is applicable in Korean context since visiting psychiatric clinics still gives a lot of shame and fear on patients. But we would like to posit that one more factor should be considered in Korea when it comes to the effectiveness of telepsychiatry, that is, the Confucian cultural factor should be considered. There is a big chance that telepsychiatry might help bring down the Confucian cultural barrier because it can minimize negative emotions such as shame and fear. In other words, surveyed volunteers on average agreed that they feel that telepsychiatry helps them to overcome cultural barrier in receiving psychiatric treatment. However we posit that this research should have its merit in terms of investigating the role of telepsychiatry in overcoming cultural barrier in more traditional societies. We can infer that Korean people tend to think that telepsychiatry helps them to break out of burden of fear and shame brought up by the Confucian cultural heritage.

6. CONCLUSION

This research succeeds in demonstrating the applicability of structuration and critical social theory in illustrating the process of overcoming social stigma while treated for mental illness via telepsychiatric facility. This research confirms the previously found empirical evidence on the success of telepsychiatric care in South Korea. The significance of the study lies in creation of models that are applicable to any given country regardless of its development stage. These new theoretical models include structuration-emancipation model which links two otherwise distant theories and is a generalized model that can be applicable for any given country in explaining phenomenon of social change such as removing social stigma on mental illness treatment. This research is, therefore, considered a successful example of multi-research methodology applied rarely in IS field. Mechanization of repressive structures is not the major story of the role of ICT, it is rather another side of providing inscribed rules for permanent change of society for the betterment of the human kind, that is, emancipation leading to removing unreasonable social stigma from mental illness.

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STUDENT PERFORMANCE EXPECTATION SYSTEM USING GENETIC FUZZIMETRIC TECHNIQUE

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ABSTRACT

Genetic Fuzzy Systems (GFS) is relatively new intelligent technique used for decision making processes. It is basically a hybrid between two techniques: Fuzzy system and Genetic Algorithm. This combination provides the ability of the system to interact and “take decision” in an environment in the same manner as the human decision maker would do. Humans are able to deal with uncertain data much more appropriately than machines that can only deal with exactness. Most of real life decision making processes are of that type of uncertainty. One such problem is to decide on the performance level of the student after admission to the university. This is mainly dependent on High School (HS) performance, Sophomore Exam (SE) results and English exam performance. This paper describes the use of one type of GFS to build an expert system that would be able to provide expectation of student performance at the university level during admission. Principle of Fuzzimetric Arcs was used as the main type of GFS to optimize the final system.

Keywords: DSS, Fuzzy systems, GFS, Genetic algorithm, Fuzzimetric Arcs

1. INTRODUCTION

Admission of students to university is a highly responsible task. Students should be advised on how well they may perform in their university educational level. The performance of students in university is highly dependent on number of factor, like High School (HS) performance, English Exam, and Entrance Exam. A study has been established at the LAU (Maalouf, 2008) to correlate these factors and their effect to the final CGPA after 3 years of study. The knowledge noticed and discovered in this statistical study has been used to build an expert system model that would be able to provide a simulated expected results of student's CGPA depending on his EEE, TOFEL, SE and HS tests. This expert system was built mainly on the concept of fuzzy logic. Fuzzy logic Theory was first introduced by Zadeh (1965) which is an intelligent technique that simulates the human method of decision making where unlike machines, humans are able to deal with uncertainty in the data much more appropriately than machines that can only deal with exactness. Unlike pure mathematical based machines, humans would be able to understand fuzzy terms like “almost Zero”, “Small”, “Medium”, and “Large” from a given range of numbers. In order to build this ability into machines, the first step would be to define the whole range (Maximum – minimum) for each of the inputs and outputs, usually termed as “the universe of discourse”, and then define the fuzzy variables like: “almost zero”, “Small”....etc. This process usually termed as “discretization”. Although there is no standard method of defining the fuzzy set shape (method of defining fuzzy variable), Kouatli [1990] proposed a methodology, termed as “Fuzzimetric Arcs”, that allow the definition and selection of fuzzy sets (variables).

Genetic Algorithm is another intelligent technique that allows systems to optimize the inferred (concluded results). It works on an evolutionary manner based on Darwin's theory “Survival of the fittest” where multiple feasible solutions provided with a scoring (performance) factor to measure the actual output relative to the desired output. With time the strongest (fittest) solution would survive and all others would vanish. Genetic algorithm usually meant to be used with rule-set in order to discover the most appropriate rules (fittest rules) in the system. However, manipulation of fuzzy set shapes (fuzzy variables) would also alter the final performance of the system. In this article, the fuzzimetric arcs principle has been used with a tuning mutation factor “t” to achieve the “fittest” shape of the fuzzy variables altering the performance of the rule-set system as it has been proposed by Kouatli (2008).

Hybridization of Fuzzy logic and genetic algorithm are becoming popular among researchers in the field, usually termed as Genetic Fuzzy System (GFS). The main objective is to achieve means for decision making in the same manner that human brain employ in the process of decision making. As such it can

provide a translation of the qualitative abilities of the human brain into quantitative functions. Fuzzy system is the main mechanism allowing the achievement of this objective. However, such mechanism would require an optimization/tuning technique to achieve the adaptability to the environmental changes to the system. Evolutionary systems is usually a term that has resulted from such hybridization where fuzzy systems deal with the uncertainty part and genetic algorithm deals with the optimization and tuning part. Herrera (2008) reviewed the research trends in such systems in more details, where a clear differentiation between the approach areas of learning and tuning mechanisms has been explained. Yun et al (2004) proposed some genetic algorithms with adaptive abilities. Crossover and mutation operators of genetic algorithms were used for constructing the adaptive abilities. These algorithms can regulate the rates of crossover and mutation operators during their search process.

2. STUDENT ADMISSION AT THE LEBANESSE AMERICAN UNIVERSITY

A study has been made on our students at the LAU to check the students' performance after joining the LAU at all three years levels. The cumulative GPA was used as indication of student performance. The statistical sample has been taken from the school of Pharmacy but the general trend is applicable to all schools. The following table summarizes the result of this study:

	Mean	Min	Max
HS (Over 100)	73.74	49.65	93.75
HS (Over 20)	12.42	8	17.4
EEE	533.06	408	643
SE	577.22	383	950
CGPA	2.76	1	4

Table1: Statistical information collected from (Maalouf, 2008)

Table 1 is our main source of information that we can use to build the GFS expert system that can advise and estimate the performance (CGPA level) of students during the admission stage. Expert systems developed with fuzzy logic characterized to behave well under uncertainty and with non-linear system. In general any system can be either linear or non-linear. In case of linearity, it can be either directly proportional or inversely proportional. Table2 below shows the possible schematics of rule-set combinations, where PO (Positive Zero), PS(Positive Small),PM(Positive Medium) and PL(Positive Large) are they fuzzy variables defined in the system

Linear Directly Proportional rule-set	Linear inversely proportional rule-set	Example of Non-linear rule-set
If input = PO then Output = PO If input = PS then Output = PS If input = PM then Output = PM If input = PL then Output = PL	If input = PO then Output = PL If input = PO then Output = PM If input = PO then Output = PS If input = PO then Output = PO	If input = PO then Output = PM If input = PO then Output = PM If input = PO then Output = PS If input = PO then Output = PS

3. GENETIC FUZZIMETRIC TECHNIQUE USED

In our example we used scaling factor to fit the mean to be the medium (PM) in our model. The four fuzzy variables have been discretized into 10 different levels (0 to 9 inclusive) as defined and scaled on Fuzzimetric Arcs as proposed by Kouatli (1990, 2008). Fuzzy variables allow machines (computers) to "think" in the same manner as the human being do. Machines then can deal with decision making process by specifying "almost Zero" (PO) or small, Medium...etc without specifying exactness as it is usually the case of machines. The technique adopted in our example follows the structure of GFS as described by Kouatli (2008). Figure 1 shows the infrastructure schematics of fuzzy system used. As it can be seen the structure of the system is composed of 3 components. These components are: The fuzzification component, the knowledge component and the Inference/De-fuzzification component.

3.1. FUZZIFICATION COMPONENT

The first component is responsible to scale the range of inputs (maximum-minimum) to the fuzzimetric arcs and hence defining the initial definition of fuzzy variables (PO, PS, PM and PL). Mutations of fuzzy set shape were used as the mechanism of genetic algorithm optimization technique to reach the desired output (CGPA). Hence, the responsibility of Fuzzification component is to define, select and tune the fuzzy variables via fuzzimetric arcs. This can be explained in the following steps:

Step1: Initial selection of Fuzzy variables using the fuzzimetric arcs principle as proposed by Kouatli (1990)

- a) Find out the range the system would work under (discretization Range). This can be achieved by subtracting the highest possible value from the minimum one
- b) Calculate the scaling factors for each of the inputs and outputs.
- c) Selection of good initialized "genes" of fuzzy variables (fuzzy set shapes)

Step 2: Mutation of fuzzy sets (variables) are dependent on the third component after inferring the results and measuring the fitness factor deviation.

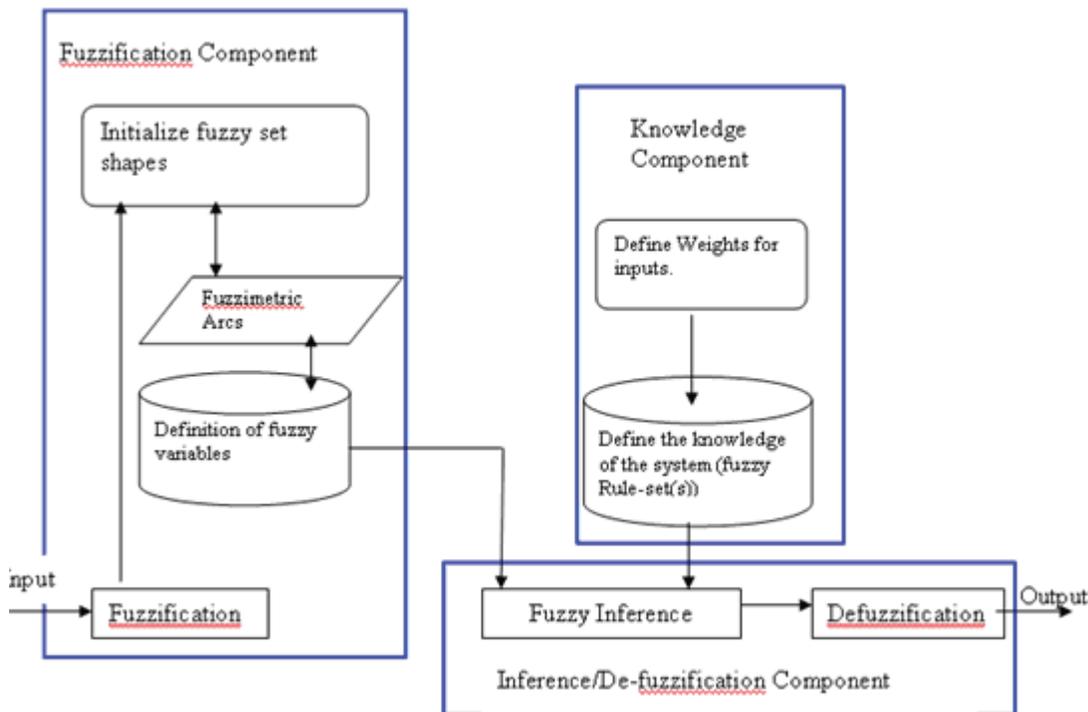


Figure 1: Schematic infrastructure of GFS as defined by Kouatli (2008)

3.2. KNOWLEDGE/ RULE-SETS DEFINITION COMPONENT

This component describes the behavior (collection of if-Then statements) of the system representing the knowledge of the system. Unfortunately there is no standard procedure for developing algorithms and therefore the rules must be developed from a *priori* knowledge of the system. Extraction of the knowledge and representing it in algorithmic form is mainly regarded as knowledge engineering, which is gained through communication with human experts. As we are using multivariable inputs (HS, EEE and SE) and one output (CGPA), then three main rule sets are defined in linear mechanism.

- If HS = PO then CGPA = PO
- If HS = PS then CGPA = PS
- If HS = PM then CGPA = PM
- If HS = PL then CGPA = PL

If SE = PO then CGPA = PO
If SE = PS then CGPA = PS
If SE = PM then CGPA = PM
If SE = PL then CGPA = PL

If EEE = PO then CGPA = PO
If EEE = PS then CGPA = PS
If EEE = PM then CGPA = PM
If EEE = PL then CGPA = PL

Using the concept of multivariable fuzzy system proposed by Kouatli (1994), one coherent structure of rule-set can be accomplished using weighting factor (a factor to measure the importance level of a specific input). Kouatli [(working paper) also proposed a generic inference engine built based on the proposed multi-variable structure. The weighting factors chosen (influence of the input to the output) for each of the inputs has been estimated to be: 0.6 to HS, 0.2 to EEE and 0.2 to SE.

3.3.FUZZY INFERENCE AND DE-FUZZIFICATION COMPONENT

The third component will measure the final performance of the system (after inference) and then decide upon the suitability of rule-set(s). This component will also be responsible for de-fuzzification procedure of the final output(s). Averaging method were used as the defuzzification method for the fuzzified output values (CGPA) and scaling factor was used to relate to the final CGPA result.

4. CONCLUSION

This paper provides a mechanism of an expert system that was able to provide an expected Cumulative GPA at the graduation would be for a given values of High school grades, English Exam and sophomore Exam of the newly admitted students. Genetic-Fuzzy algorithm was used as an inference mechanism. The technique was based on a previously described structure of GFS originated from the principle of fuzzimetric arcs.

This mechanism does not alter the rule-set but rather alter (mutate) the fuzzy set shape to achieve the tuned desired output. The rule-set definitions in our examples was manually defined and considered to be linear (almost linear) for all three inputs with their relation to the output. As this system was based on the statistical information, the results approved with the intuitive derivation of the statistical study.

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A QUANTITATIVE MEASUREMENT OF IAAER'S ACTIVITIES

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ABSTRACT

This paper provides a quantitative measurement of IAAER's activity since its foundation until now. The analysis performed within this paper is based on visionary ideas of Sidney Gray who outlined in 1992 the path IAAER should follow in order to become an effective organization. His ideas were transposed into quantitative indices using ABM philosophy. Short asserts were done regarding the evolution of indices developed in direct correlation with the qualitative evolution of the IAAER. The scope of the analysis is to underscore the vivacity and success of joint work of IAAER's members over time.

Keywords: *accounting education, accounting educators, accounting associations*

1. INTRODUCTION

The IAAER was founded as a planning organisation in 1984 in order to serve as a co-host for the Sixth International Conference of Accounting Education. At that time, the co-host institution for this conference, the Science Council of Japan, required an international planning body to be involved as an organiser. The conference, held in 1987, was a success, so the IAAER received from The Conference Organizing Committee a supporting contribution of 10.000 USD that allowed it to become a permanent organization.

According to Rueschhoff (a) cited by Needles (2004), the IAAER was founded as association of individuals engaged as teachers and researchers in universities and equivalent institutions and of other interested professionals. The Association's role was to foster future international conferences and to provide members with a "forum for exchanging information on meetings, seminars and conferences other than those organized under its own auspices" [Wells cited by Needles (2004)]. The IAAER's Constitution, adopted in 1864 and revised in 1989, 2004 and 2006, states the goals of the organization: "*the Association shall be an association of organizations dedicated to and individuals engaged in teaching and/or research in accounting.*"

The initial paragraph: "*The objective of the Association shall be to represent accounting educators and researchers and to encourage and promote interest in all aspects of accounting education and research internationally, including the assistance in organizing and planning periodic International Conferences on Accounting Education*" was replaced in 2006 with the following: "*The mission of the IAAER is to promote excellence in accounting education and research on a worldwide basis and to maximize the contribution of accounting academics to the development and maintenance of high quality, globally recognized standards of accounting practice*" which describes more widely and comprehensive the future preoccupation of the association.

Needles (2004) underscore that a very critical change was made to the constitution in order to expand membership to include national accounting associations as institutional members; thus creating an organization that uniquely includes both individual and association members since 1989.

The years between 1987 and 1992 were a time of formation and formalizing for the Association and areas of focus included: serving as a federation to unite academic accounting interests internationally, cultivating relationships with other international accounting associations, communicating to members, and expanding membership for the Association beyond individual members to include institutional members (Needles, 2004).

In 1992, the newly elected Executive Committee of IAAER realized the huge potential of the association. This potential was emphasized by Sidney Gray, president of IAAER between 1992 and 1997, who had

addressed to members to discuss the focus of IAAER activities for the next period by analyzing the following tasks:

1. To ensure the success of the next international conference;
2. To ensure the maintenance and further development of the newsletter as a useful source of information about major educational and research activities and events internationally;
3. To promote the JAE by encouraging contributions and readership from around the world;
4. To support the publication of books and monographs relevant to promotion of accounting education and research internationally;
5. To support the development of regional conferences and seminars on accounting education and research;
6. To support and fund international collaborative research and educational projects;
7. To interact internationally with relevant professional, business and other organizations interested in accounting education and research (Gray, 1992).

These tasks, as they were designed and defined, cover fully the objective of IAAER by addressing to the issue of international education conferences, international communication and cooperation between organizations. Achieving these tasks imply a very effective policies to be implemented by IAAER's management in order to adapt the association's activities to the ever-changing needs of the future. As they are stated, the tasks presented are not only short term goals but they even reflect the long term strategy of the association. By drawing up these issues, Gray proved his visionary capacity as a leader.

The aim of this paper is to evaluate using quantitative measurement if these tasks were reached during the existence of IAAER.

2. METHODOLOGY

The success of the IAAER can be measured qualitatively and quantitatively. A qualitative analysis of the IAAER's activity was done by Belverd E. Needles, Jr. and Lisa Olmsted in the paper *A history of the International Association for Accounting Education and Research (IAAER): 1984-2004*, paper presented to The Academy of Accounting Historians in 2004.

Using a quantitative analysis, our aim is to evaluate the activity of IAAER taking into consideration indexes developed based on the tasks presented by Gray in 1992.

We grouped these tasks in three dimensions:

- international education conferences;
- international communication and
- cooperation between organizations.

Firstly we noticed that all the dimensions are based on the international feature of the IAAER. In order to test this feature we analyzed how international have IAAER became by taking a closer look over the structure of its Executive Committee over time. Since foundation until now, IAAER had seven Executive Committees. Their members are presented by Needles and Olmsted in the paper mentioned earlier. Because they emphasize that the members of IAAER represent various international geographic regions, we analyzed the structure of the Executive Committee by calculating the percentage held by each country (counted as members) in total number of members. After that, we grouped the countries according to continents in order to have a better understanding over the regional distribution of the Executive Committee' members.

Referring to three dimensions presented before, we developed for each one indices that allowed us to evaluate objectively the evolution of IAAER's activity. The indices were build based on the ABM philosophy where the dimensions presented before are the major activities of the organization. Therefore, we tried to identify how we can measure these activities using an objective approach.

We used the following indices for analyzing the activities:

- International education events can be measured by:

- a. Number of international events (conferences, seminars, round tables, workshops, etc) organized or co-hosted by IAAER or who benefit from IAAER expertise on accounting education and research;
- b. Grants offered.
- International communication can be measured by:
 - a. Newsletters issued;
 - b. Journals published;
 - c. Books published or other publications.
- Cooperation between organizations can be characterized by:
 - a. Number of international collaborative research and educational projects;
 - b. Number of seats for IAAER's representatives on Global Standard-Setting Boards and Committees.

Besides the indices presented here, others drivers that can help us to have a complete picture over the growing activities of the IAAER are:

- The number of vice presidents. Over time, the number of IAAER's presidents increased in order to strength the Executive Committee and to cover all the interest areas of IAAER.
- Revenue rose within the period.

The source used for collecting data was IAAER' website.

3. RESULTS

TABLE 1. PERCENTAGE HELD BY EACH COUNTRY IN IAAER'S EXECUTIVE COMMITTEE (EC)

Country	EC 1984-1988	EC 1989-1992	EC 1992 - 1997	EC 1997 - 2000	EC 2000 - 2002	EC 2002 - 2005	EC 2006 – 2010
USA	33.33%	42.86%	33.33%	30.77%	28.57%	29.41%	28.57%
UK	16.67%	14.29%	8.33%		7.14%	11.76%	10.71%
Australia	16.67%	14.29%	8.33%	23.08%	21.43%	5.88%	7.14%
Canada	16.67%	0				5.88%	3.57%
Japan	16.67%	14.29%	8.33%	7.69%	7.14%	5.88%	3.57%
South Africa				7.69%	7.14%	5.88%	7.14%
New Zealand		14.29%	8.33%				3.57%
India			8.33%				
France			8.33%	7.69%		5.88%	3.57%
Germany			8.33%		7.14%	5.88%	3.57%
Mexico			8.33%			5.88%	3.57%
Italy				7.69%	7.14%	5.88%	3.57%
HK				7.69%	7.14%	5.88%	3.57%
Russia				7.69%	7.14%	5.88%	
Spain							3.57%
Nederland							3.57%
Brazil							3.57%
Denmark							3.57%
Turkey							3.57%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
No of countries	5	5	9	8	9	12	17

TABLE 2. DISPERSION OF IAAER'S EXECUTIVE COMMITTEES' MEMBERS

Continent	EC 1984-1988	EC 1989-1992	EC 1992 - 1997	EC 1997 - 2000	EC 2000 - 2002	EC 2002 - 2005	EC 2006 - 2010
North America	50.00%	42.86%	41.67%	30.77%	28.57%	41.18%	35.71%
Europe	16.67%	14.29%	25.00%	23.08%	28.56%	35.29%	35.71%
Australia and NZ	16.67%	28.57%	16.67%	23.08%	21.43%	5.88%	10.71%
Asia	16.67%	14.29%	16.67%	15.38%	14.28%	11.76%	7.14%
Africa	0.00%	0.00%	0.00%	7.69%	7.14%	5.88%	7.14%
South America	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.57%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

TABLE 3. INDICES FOR EVALUATING THE GROWING ACTIVITY OF IAAER

Indices	EC 1984-1988	EC 1989-1992	EC 1992 - 1997	EC 1997 - 2000	EC 2000 - 2002	EC 2002 - 2005	EC 2006 - 2010
No of persons in EC	6	7	12	13	14	17	28
No of Vice-Presidents	1	4	6	8	10	13	16
% Vice-Pres. in total	16.67%	57.14%	50.00%	61.54%	71.43%	76.47%	57,14%
Revenues raised					\$37,583*	\$188,018	\$322,213**

* Only revenues for 2000 and 2001 are available on IAAER's web site

** Only revenues for 2006 and 2007 are available on IAAER's web site

TABLE 4. INDICES FOR EVALUATING INTERNATIONAL EDUCATION EVENTS, COMMUNICATIONS AND COOPERATION

Indices	EC 1984 - 1988	EC 1989 - 1992	EC 1992 - 1997	EC 1997 - 2000	EC 2000 - 2002	EC 2002 - 2005	EC 2006 - 2010
No of international events	1	1	6	3	4	4	11
Grants offered							4
Newsletters issued in:		1					
Journals launched in:		1	1			1	
Book published /other public. in:		1	1	1	1		
No seats in boards and committees			2		1		3

5. CONCLUSION

Since setting up until now, the association had the title "international" due to the Japanese national requirements. The degree of internationalization expressed in terms of percentage held by each country in IAAER's Executive Committee is presented in TABLE 1.

Data collected revealed that the numbers of countries members (represented by persons) has grown from 6 to 17 within the analyzed period. This reflects an increasing interest of accounting representatives to involve themselves in IAAER's activity. Moreover, it can be observed that representatives from USA, UK

and Australia are the highest involved within IAAER. This fact is not surprising due to the fact that these countries are well known internationally as having a strong developed accounting profession and for their contribution in the worldwide accounting practices.

Data collected were grouped on continents in Table 2 for offering a synthetic image over the weight held by each continent in IAAER's Executive Committee. Data cannot be compared in between: the changing of percentages from a period to another cannot be interpreted as an increase or decrease in the number of member but rather as a variation of members as a total. Therefore, a decrease in a country's weight is considered to be normal due to the increased number of Executive Committee's members

Another element for measuring the internationalization character of IAAER is the increased number of world wide members. Since foundation, IAAER's members grew at: 53 institutional members and 60 universities members.

So far, we can conclude that the number of IAAER's member has increased significantly over time. This conclusion can be correlated with the activity's diversification of the association on several areas. IAAER's areas of interest for period 2006-2010 are: education, practice, international conferences, research, communications and membership, finance and administration.

To be efficient, the policy of IAAER is to assign an area of interest to each vice president. In 1992, several changes were made to the Association's constitution, including an increase in the number of vice-presidents to strengthen the Executive Committee and represent the growing international membership of the Association [Gray (1993) cited by Needles (2004)]. In this way, the increased number of Vice-Presidents for the period 2006-2010, up to 16 persons, can be justified reasonably. Besides vice presidents, IAAER has also so called Vice-Presidents at Large, who represent Academic Accounting Associations. They shall be assigned duties and responsibilities, as the Executive Committee shall designate (IAAER's Constitution, art. VII, par. 10). We have presented in Table 3 below the figures regarding the number of the members in IAAER's Executive Committee, the number of Vice-Presidents and also the percentage held by Vice-Presidents in total number of Executive Committee's persons.

The increased number of interest areas to eight from the initial one: as support organization can be measured in financial terms too. According to IAAER's financial statements, the association succeeded to expand consistently its revenues. The revenue sources are: membership due, interest, conferences and grants. We can state, based on the data presented in Table 3, that these amounts increased considerably mostly in the last five years.

Referring to next indices developed by us, *international communication area* was covered successfully through several numbers of publications as follows:

1. Newsletters and Journals issued:

- *COSMOS Accountancy Chronicle* publishes announcements of upcoming conferences, and links to the major academic and professional accounting organizations of the world since 1989. Launched as a member newsletter, it serves the purpose of coordinating the news from IAAER to members.
- *Journal of International Financial Management & Accounting* launched in 1991 as an official IAAER publication. In 1999, it became the official research journal for the IAAER.
- *Journal of Accounting Education* launched in 1994 but abandoned later due to the limitation of the developing an international focus to the journal (Needles. 2004:4).
- *Accounting Education: an international journal* is the official educational journal of the IAAER launched on 2005 in alliance with Taylor & Francis

2. Books and other publications

- In 1992, IAAER in association with Pergamon Press published *The International Handbook of Accounting Education and Certification*.
- In 1994, IAAER in association with Pergamon Press and with the American Accounting Association, publishes *Accounting Education for the 21st Century: The Global Challenges*.
- In 2000, the Task Force Report on IEG No. 9 is completed and published on the IAAER web site.
- In 2002, IAAER published *A Global Code of Ethics for Accounting Educators*.

The number of international collaborative research and educational projects is impressive and increased spectacularly over time. Most events organized by IAAER were organized from the beginning in cooperation with a professional association, an international body or another association. The reason we didn't provide figures for this indices was because of our impossibility to identify each organization one by one based only the database we have used.

The *effervescent activity* of IAAER to build relations with other international organizations started prior to 1992, with Education Change Commission (AECC) AND United Nations Center on Transitional Corporations.

IAAER is represented in IFAC since 1992 and later one IAAER received the speaking privilege to the meetings in 1997. The recognition of the IAAER as an official member in IFAC only eight years after the setting up reflects the trust and appreciation of the hard work of IAAER'S member. Becoming a partner of IFAC in accounting education area was a chance that IAAER assumed successfully. Asked by IFAC to provide assistance in "developing reliable information about world wide accounting education", IAAER issued an implementation document for the Revised International Education Guideline no 9 "Prequalification Education, Assessment and Experience Requirements of Professional Accountants" in 2000.

Another international organism where IAAER played a crucial role was IASC. Between the Seventh and Eighth International Conferences, the IAAER was appointed to the Consultative Group of the IASC [Berry, (1995) cited by Needles (2004)]. The IASC realized a need to be affirmative in obtaining input from academics, affirmed IAAER'S position on the Consultative Group, and identified several ways in which the IAAER could support IASC objectives: the IAAER could provide comments from academics in response to exposure drafts and discussion documents issued by the IASC and provide representatives to the IASC Steering Committee that develops discussion documents and exposure drafts, providing early input from academics [Berry (1997) cited by Needles (2004)].

In 2001 IAAER was invited to join the International Forum of Accountancy Development (IFAD) due to the expertise gained. Due to "disagreement within IFAD as to its directions" [Street (2001) cited by Needles (2004)] this cooperation was not a fruitful one.

IAAER is a member of The Standards Advisory Council (SAC), an IASB'S forum formed by a wide range of representatives from different groups interested in the IASB'S work. Moreover, IAAER has representatives in SAC (IASB Standards Advisory Council), in EAG (Education Advisory Group to IASC Foundation) and in ACCA Research Committee.

As an overall remark, a fantastic activity was registered during the actual Executive Committee if comparing to the past ones. It was achieved by hard and constant work of IAAER'S members. But analyzing the trend of studied indices we can state that IAAER is a successful association and its success proves that if you believe in a cause, as it accounting education, you can reach mountains. The activities run and accomplishments achieved are extremely valuable as inputs offered to accounting profession. This is confirmed by the partnerships formed over time with other international associations like ACCA, IFAC or IASB.

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INNOVATIVE METHOD FOR BEER DISTRIBUTION- THE URSUS BREWERIES CASE

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ABSTRACT

This article describes the concept of relationship marketing, some aspects that include attempts by firms to develop long-term relationships with channel members. In this case, we tried to emphasize through the *URSUS Breweries case*, how a customer must be perceived to provide value and long-lasting efficiency. After this introduction, it was suitable to know what a tactical or a strategic relationship should mean and which the best way to choose such a strategy is. The idea of collaboration was also outlined here because this kind of partnership was considered a genuine competitive advantage for the company. In this context, *an innovative method for FMCG distribution – the URSUS Breweries case* was presented and how this direct distribution system has influenced the producer's market share. The outstanding results of implementing an innovative distribution channel are considered an incentive way to creation of the URSUS brand's value and higher levels of efficiency.

Keywords: customer value, customer relationship, supply chain management, strategic/tactical relationship, innovative distribution system

1. MANAGING CUSTOMER RELATIONSHIP

"Personal and business relationships have many similarities. In a marriage, for example, the two individuals agree to exchange only with one another as long as the balance of trade is favorable to both and greater than what can be derived from the greater market"¹

As the benefits of a successful marriage imply companionship, a customer relationship must be perceived to provide value to both relationship members, even if we talk about a company and an individual consumer (B2C) or a relationship between enterprises (B2B).

Nowadays, the competitive marketplace requires a strong customer relationship management. This relationship has to be a lasting one because it is critical to a company's profitability and long-term success. To become more and more competent, the companies have to learn how to build profitable relationships to increase the value of the company. CRM (Customer relationship management) represents a today's "buzzword" that comes to outline some interesting points of view. "One of the most important lessons that marketers and managers can learn is that having a great product at a great price is not nearly enough to guarantee customer satisfaction and repeat buying"². Thus we can say that sometimes a large part of aspects that contribute to a long-term satisfaction and loyalty has nothing to do with products or prices. Relationships take time to develop and must be nurtured, but once they develop, customers feel genuine, long-lasting sense of loyalty to the company or brand.

2. THINKING ABOUT DISTRIBUTORS RELATIONSHIP

The broadened concept of relationship marketing includes attempts by firms to develop long-term relationships with channel members (wholesalers and retailers).

It is important to recognize that it is through distribution that the manufacturer can provide services that create superior customer value and lead to very satisfied customers. Developing successful long-term

¹ N. Kumar, L. Scheer and J. Steenkamp, *The Effects of Perceived Interdependence on Dealer Attitudes*, Journal of Marketing Research (1995)

² Don Peppers, Martha Rogers, *Managing customer relationships: a strategic framework*, John Wiley and Sons, 2004

relationships with channel members involves a set of generic relationship developmental processes including relationship initiation, maintenance, and completion.

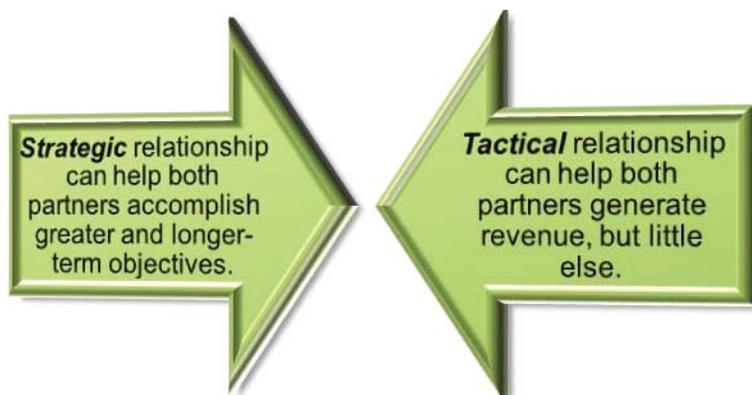
The competitive market entails increasingly frequent such strategies through which the suppliers must develop strong relationships with distributors in order to succeed in new markets. Initiating partnering relationships with distributors in new markets, however, implies significant risks with the vision of substantial long-term rewards. A nationwide survey of US industrial distributors showed that “distributors expect financial and competitive differentiation benefits with greater differentiation benefits inferred to lead to fewer financial benefits. Several observable distributor characteristics can be used by suppliers to conduct preliminary assessments of distributor expectations and thereby prepare for a healthy future relationship.”³

Clearly, distributors and suppliers have common ground. Their relationships must be based on mutual trust, they need to have honest and candid communications, and they both have to continue to grow.

3. A TACTICAL OR A STRATEGIC PARTNERSHIP?

Successful companies today work with a large set of business partners that make up the company's collaborative network. These companies need to develop trusted business partners who will share in making significant investments and commitments.

Relationships between distributors and suppliers range from highly tactical to extremely strategic. Each of them constantly attempts to maintain the relationship with the other and makes adjustments to the energy it applies to relationship. Not all distribution agreements are of equal importance. Some relationships are merely *tactical* while others are *strategic*. Why these two types of relationship are different? Which is the difference?



“Strategic relationships are partnerships with companies that supply noncommodity inputs to the production and delivery process.”⁴ Therefore we can see that strategic relation is suppose to be a durable one, it implies very strong interactions.

³ Amit K. Ghosh., W. Benoy Joseph., John T. Gardner, Sharon V. Thach, *Understanding industrial distributors' expectations of benefits from relationships with suppliers*, Journal of Business & Industrial Marketing, Emerald Group Publishing Limited, 2004

⁴ Philip Kotler, Dipak C. Jain, Suvit Maesincee, *Marketing moves: a new approach to profits, growth and renewal*, Haward Business School Publishing Corporation, United States of America, 2002

A healthcare distributor must understand whether its relationship with a supplier is strategic or tactical. Since a strategic distributor is less easily replaced than a tactical distributor, a distributor serving a tactical role must determine whether its relationship can become a strategic one.

4. COLLABORATION AS CO-CREATION OF VALUE

If we treat the supplier-distributor relationship as collaboration, we will try to find how this kind of relation will influence decisions and all the company's strategies. The collaboration strategies, distinguished by different aspects can be emphasized as key points of the co-creation the value. But to develop such a strategy, we are wondering: Why collaborate? What competitive demands make collaboration necessary? What are the costs and benefits of collaboration? Who bears the costs? Who enjoy the benefits?

"Succeeding in the new competitive space requires both speedier managerial reactions and higher levels of efficiency"⁵. Collaboration through a direct distribution channel can help companies achieve both. Therefore, most firms have learned the benefits of working closely with suppliers and key customers network. Such relationship implies many benefits of time and costs, increases sales and marketing opportunities can also intensify customer satisfaction.

5. CASE STUDY - URSUS – AN INNOVATIVE AND MORE EFFICIENT DISTRIBUTION CHANNEL

A company cannot outdo its competitors unless it is constantly concerned with innovation in all four directions of the marketing mix.

One of the components most open to innovation is the placement of products on the market or, to put it differently, the way in which the company succeeds in meeting its consumers' (clients') needs and expectations since they expect the product to be in the right place, at the right moment and at the lowest cost.

A novel modality in this field has been adopted by Ursus Breweries Company which introduced the system of **direct distribution by means of logistic operators**.

The old distribution system (distribution chain with two in-between links: distributor and retailer) had the following features:

- Producers delivered (sold) the goods to distributors;
- The latter distributed the goods to retailers;
- Distributors had to pay for the goods at the due date;
- Distributors had to return the package at the same date;
- For the commercial credit granted (goods and package), distributors had to provide warranty in favor of the producer;
- For the service provided (distribution), distributors were offered a discount from the delivery price;
- Also, distributors were offered some extra discounts, depending on performance.

In the case of this system, the amount of goods distributed on a particular market was proportional to the distributor's logistic strength and his capacity to credit that market (retailers). Likewise, producers did not have a direct relationship with the market, retailers and the final consumer, respectively. As to market coverage (when all the products of a particular brand have been sold according to the target set for a particular market), it could never reach the highest level because some subjective factors impinged upon the sales force such as:

⁵ C.K. Prahalad, V. Ramaswamy, *The Future of competition: co-creating unique value with customers*, Harvard Business School Press, United States of America, 2004

- Their commission was calculated depending on the amount of goods sold; consequently, they were mostly interested in selling the expensive products not the entire portfolio;
- The goods portfolio also contained products from other producers and, thus, the sales agents were bent on selling those products which were most wanted and required less selling effort;
- The agents' tendency to sell promotional products (as they sell well);
- The desire to sell a lot led to an overlooking of the qualitative aspects of the activity (merchandising, promotion of new products, search for new clients etc);
- The agents' lack of interest in the activity of prospecting for the clients' needs and expectations.

In the new proposed system, a direct connection is being established between producer and retailer. In this system, the producer's sales agents take the orders from the customers, handle delivery at the expected time and in the required quantity and charge the customers for the goods. The delivery proper of the goods and the package retrieval are accomplished through a third party, the latter playing the role of a "logistic operator". The logistic operator does not act upon the content of the goods; he only carries out transport and package operations. This activity is being carried out according to a contract of service signed between producer and operator. The advantages of the system are the following:

a) For *producer*:

- direct control of and contact with the market;
- agents only sell the producer's goods to the clients;
- an outstanding market coverage can be accomplished;
- agents are interested in selling the entire range of products as well;
- sales performance can be easily affected (new clients, numerical distribution, weighted distribution, market share, stock of goods);
- access to information from the market in real time;
- loyalty of the final customer;
- he can influence the customers' consumption habits.

b) For *the logistic operator (ex-distributor)*:

- he has no property right on the goods and does not credit the market (retailers) any longer;
- no need for sales agents any more (cutting the expenses with the live workforce);
- no need for warehouses any more, the expenses thereof are in charge of the producer;
- no need to issue sales papers (invoices);
- paid according to the amount of goods transported (there is a minimum amount set in the contract which is paid regardless of how much is transported).

c) For *the customer (retailer)*:

- establishing a direct relationship with the producer;
- granting quickly all requests;
- the producer's entire products portfolio is available;
- benefits from all promotions organized by the producer;
- superior merchandising of the sales area;
- timely information on novelties about marketed products;
- the possibility to quickly and directly inform the producer about all the changes in the specific market.

This distribution system was firstly tested on an unspecific market, where the producer's market share was very small.

The reason for which a certain area will be chosen, when implementing the new Ursus distribution system is determined by the market-share of that sales area. The system was applied to the small market-share areas or smaller than genuine potential of the brand – such as "home-market" for Ursus.

Thus, the share-market of the first experimented area (a home-market for Heineken) was 5 % before the experiment. It became higher (11%) after one year of the implementation of the new distribution system. At the same time, before the experiment, there were 575 clients (companies with contracts) in the same area. This number was more and more significant, it represents 1342 clients.

All these performances are due to the Ursus' agents and their target has to reach 150 clients/agent. Clearly, the number of agents is increased (from 4 to 10).

As a consequence of this ingenious system, over 4000 agents will be integrated in this direct and efficient distribution system. In this case, Ursus will intend to reach a number of 18000 agents for the next years, a number that emphasizes an increase of about 50 % of the whole clients' portfolio.

The outstanding results which followed the experiment (sales doubled during one year) prompted the decision to extend the system. The extension will develop gradually as the first targets will be with likely the same features: a small market-share, or a market-share smaller than the actual potential of the brand. In a subsequent stage, the target will be the south-western areas of the country. This scheduling of the project takes into account in-house organizational issues of the producer.

Whereas in the experimental stage of the project the sales volume expected to be marketed in the new system was less than 2% of the overall volume distributed on the market, during the second extension stage the targeted volume is over 10% with an expectation, toward the end of the project, of around 50% of the sales volume of the producer.

6. CONCLUSION

In conclusion, we may emphasize the importance of an innovative "marketing movie" – *the direct distribution by means of logistic operators*.

The main advantages of this innovative distribution system, namely

- establishing a direct relationship with the market;
- the logistic operator takes over the higher costs (distribution);
- increase in sales volume, turn it into a model which can be successfully implemented by any company which produces and markets similar products.

Therefore, we wanted to mention that a great strategy of a great company means a lot. The creation of a unique distribution system is relevant for the classification in the consumer's mind due to a genuine competitive advantage. It is a part of the business that could provide effectiveness and benefits for a lasting customer relationship.

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REMITTANCES: POVERTY AND DISTRIBUTIONAL EFFECTS

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ABSTRACT

This paper explores the effect of remittances across the distribution of income. Based on a panel of 46 countries that covers the period between 1970 and 2000, we find that the effect of remittances is non-monotone across the distribution of income and strongest in low income countries. The impact of remittances is positive and decreasing in income for the bottom 70 percent of the population, and negative and increasing in income in the top 20 percent of the population. All else equal, remittances decrease inequality as their effect is mostly felt among the poor and they are negatively related to the income of the rich. We estimate that for low income countries a 1 percent increase in remittances would increase the first decile's income by approximately 0.43 percent, while the same change would increase the seventh decile's income by only 0.04 percent. In contrast, a 1 percent increase in remittances is associated with a 0.10 percent decrease in the income of the top 10 percent of the population.

Keywords: Remittances; Poverty; Inequality; Migration

1. INTRODUCTION

The focus of this paper is on the distributional effects of migrants' remittances to their home countries. In particular, we explore income changes in the home country along the distribution of income. This in turn allows us to quantify the impact of remittances on inequality.

Our main finding is that the impact of remittances on income is strongest in low income countries and non-monotone along the distribution of income. In other words, the effect of remittances is either positive or negative depending on the level of income. In particular, we find that the poor are the greater beneficiaries from migrants' remittances. As one moves up on the distribution of income, the sensitivity of income to remittances tends to zero and becomes negative for the top 20 percent of the population. From a macroeconomic perspective this implies that remittances decrease inequality as the income of the poor increases, while the income of the rich decreases.

The contribution of the study is two-fold. First, we construct a new database on remittances and inequality, which combines a new dataset on remittances data from the World Bank (2007) and a recently revised version of the World Income Inequality Database from UN-WIDER (2007). And second and foremost, the paper calculates the effect of remittances at the decile level. This allows for a better understanding of remittances as a poverty reduction mechanism as it decomposes their effect on the bottom, middle and top of the distribution of income.

Our distribution-wide approach to the effect of remittances is consistent with, and complements previous studies that calculate the impact of remittances on poverty. For instance, Adams and Page (2005) and IMF (2005) document that remittances reduce head-count poverty based on cross-country samples. Survey based studies of individual countries confirm similar effects in Ghana and Guatemala (Adams 2004, 2005; respectively), and in Latin America analyzed by Acosta et al. (2007). For a comprehensive overview on trends and statistics on world migration and remittances see World Bank (2006).

Furthermore, we provide new insights into the effect of remittances on inequality. While the consensus in the literature is that remittances reduce poverty, there is conflicting evidence in regard to the effect of remittances on inequality. McKenzie and Rapoport (2004) find that remittances have decreased inequality in Mexico; Adams (2005) reports that they increased inequality in Ghana; De and Ratha (2005) document a decrease in inequality in Sri Lanka due to remittances; and Acosta et al. (forthcoming) find that remittances decreased inequality in Latin America.

By quantifying the effect of remittances at the decile level, we can present a more accurate picture of the distributional effects of remittances than those based on aggregate measures of inequality such as the Gini coefficient.

The paper is organized as follows: Section II describes the data set, section III presents the empirical findings, and section IV concludes.

2. DATA AND VARIABLES

To analyze the effect of remittances on income across the distribution of income, we construct a panel of countries that draws on several sources of data. In regard to the main variables, remittances and inequality, we use remittances data from World Bank (2007), and take the inequality series (income shares by decile) from UN-WIDER (2007) World Income Inequality Database (V 2.0b). Real GDP per capita in purchasing power parity is drawn from Heston et al. (2002).

In order to control for other determinants of income such as human capital (secondary school enrollment relative to secondary school age group), degree of trade openness (sum of imports and exports relative to GDP), and inflation, we use the World Bank's World Development Indicators. Finally, to transform the remittances data, which is originally reported in nominal terms, into real terms, we use the base year 2000 Implicit Price Deflator series from BEA (2007).

The unbalanced panel contains observations for the period between 1960 and 2006, for 207 countries. Contemporaneous observations for all variables reduce the sample to fewer countries and fewer years.

3. EMPIRICAL ANALYSIS

This section describes the empirical strategy used to estimate the effect of remittances on the distribution of income at the decile level. Following UN-WIDER (2007), throughout the analysis the first decile is defined as the bottom 10 percent of the population, the second decile as the subsequent 10 percent of the population, and so on until the tenth decile which corresponds to the top 10 percent of the population. For each country, we estimate income by decile following Dollar and Kraay (2002), where decile mean income is given by the decile's share of income multiplied by mean income divided by 0.1.

To see this let y_{d1} represent the average income within the first income decile, and let Y and s_1 stand for total income (or GDP) and the income share of the first decile, respectively. Then, it must be the case that $s_1 * Y = (0.1 * \text{population}) * y_{d1}$. This way, $y_{d1} = (s_1 / 0.1) * (Y / \text{population})$, is the average decile income consistent with $s_1 * Y$.

Our statistical unit of analysis corresponds to a country observation on a given year. For each observation we establish the log of the mean decile income as the dependent variable. The right-hand side variables are the log of real remittances (REM), the log of real per capita GDP (INC), human capital (EDU), inflation (INF), and openness to trade (TRADE).

Firebaugh (2003, pp. 164) documents a significant increase in global (within-country) income inequality after 1995, so in the regression we add a dummy variable that distinguishes observations before and after 1995 to account for such trend. We also include a slope interaction dummy variable for remittances to low income countries to determine whether, relative to other countries, remittances have particularly stronger or weaker effects in low income countries. We also include an intercept dummy variable for low income countries.

Table 1 presents the OLS estimates of the effect of remittances on mean decile income in the bottom 50 percent of the distribution of income. We find that remittances have a positive and significant effect on the income of the first and second income deciles. This effect is stronger for the first decile and declines across the bottom half of the distribution of income.

Furthermore, the impact of remittances in low income countries is an order of magnitude larger than that of the average effect on the whole sample. This effect is statistically significant in the bottom half of the distribution. Quantitatively, our results imply that a 1 percent increase in remittances to a low income country would raise income of the first decile by approximately 0.4 percent. This effect decreases as one moves up in the distribution. This elasticity is approximately 0.11 for the fifth decile.

TABLE 1: POVERTY AND DISTRIBUTIONAL EFFECTS OF REMITTANCES

Decile Income	d1	d2	d3	d4	d5
REM	.036** (.017)	.015* (.009)	.009 (.007)	.007 (.006)	.005 (.005)
REM*LIC	.397*** (.037)	.266*** (.023)	.206*** (.016)	.158*** (.010)	.113*** (.010)
INC	1.121*** (.092)	1.198*** (.054)	1.185*** (.038)	1.167*** (.028)	1.151*** (.021)
SEC	.831*** (.180)	.550*** (.112)	.399*** (.083)	.300*** (.065)	.217*** (.051)
INF	-.142*** (.036)	-.176*** (.023)	-.176*** (.023)	-.160*** (.021)	-.146*** (.022)
TRADE	.079 (.093)	.060 (.057)	.031 (.045)	.017 (.037)	.012 (.029)
after 1994	-.230*** (.065)	-.185*** (.035)	-.146*** (.026)	-.112*** (.021)	-.095*** (.017)

Notes: ***, ** and * denote 1%, 5% and 10% significance, respectively. Obs. 277. Robust standard errors in parenthesis. Intercept and low income country dummies not reported. R-squared are increasing in decile income and range between 0.81 and 0.98.

In Table 2 we present the coefficient estimates for top 50 percent of the population. Consistent with the trend from Table 1, the effect of remittances in low income countries remains positive and significant in the sixth and seventh deciles. However, for the eighth decile this effect becomes insignificant and negative, and significant in the ninth and tenth deciles.

The negative effect of remittances at the top of the distribution in low income countries could be associated to lower growth due to the outflow of high-skilled workers. For instance, the World Bank (2006) cites among other negative effects of high-skilled migration on origin countries, the difference in private and social returns when educated workers interact with other skilled workers, thus hampering growth and the income of non-migrant skilled workers.

In terms of the other regressors we find a positive effect of secondary education in the bottom 60 percent of the population. The non-significant estimates on the 7th and 8th deciles, along with the negative estimate for the top 10 percent of the population, suggest that other proxies for human capital linked to higher education may have better explanatory power for household income at the top of the distribution.

TABLE 2: POVERTY AND DISTRIBUTIONAL EFFECTS OF REMITTANCES

Decile Income	d6	d7	d8	d9	d10
REM	.003 (.209)	.002 (.004)	.000 (.003)	-.001 (.002)	-.002 (.007)
REM*LIC	.075*** (.008)	.039*** (.008)	.007 (.007)	-.019*** (.007)	-.095*** (.013)
INC	1.139*** (.016)	1.118*** (.012)	1.069*** (.011)	1.007*** (.010)	.801*** (.025)
SEC	.127*** (.040)	.045 (.029)	-.020 (.023)	-.119*** (.022)	-.293*** (.061)
INF	-.109*** (.012)	-.088*** (.009)	-.057*** (.006)	-.004 (.005)	.124*** (.014)
TRADE	.012 (.023)	.012 (.019)	.000 (.013)	-.011 (.014)	-.031 (.036)
after 1994	-.077*** (.013)	-.055*** (.010)	-.030*** (.008)	.012 (.008)	.132*** (.020)

Notes: ***, ** and * denote 1%, 5% and 10% significance, respectively. Obs. 277.
Robust standard errors in parenthesis. Intercept and low income country dummies not reported. R-squared are decreasing in decile income and range between 0.94 and 0.99.

In parallel to other studies, we find that inflation is a form of a regressive tax as it has a larger negative effect among the poor. In regard to the effect of trade openness on income, we find no significant effect (neither positive nor negative) in decile income. We interpret this finding as further evidence on the contested effects of globalization on income and inequality. See Dollar and Kraay (2005) and Rodrik (2005) for two views on the issue. Finally, we find a monotone decrease in income in the first eight deciles, no effect on the ninth decile, and an increase in income of the top ten percent of the distribution since 1995. This trend is consistent with Firebaugh (2003), who documents an increase in inequality around the world. All else equal, lower income shares at the bottom of the distribution and a larger share at the top imply larger inequality.

A possible concern about the OLS estimates reported above is whether they are biased due to measurement error, some sort of unobserved country-specific characteristics correlated with say, income per capita; or reverse causality between inequality and per capita income. Since our econometric specification is silent about the effect of inequality on mean income, we test for endogeneity through a series of Hausman tests that validate the use OLS as our preferred estimator. This is because OLS estimates are more efficient than those from Instrumental Variables when the explanatory variables are exogenous. Following Dollar and Kraay (2002), we instrument real GDP per capita with the growth rate of real GDP per capita over the preceding five years. Then, we run a series of heteroskedasticity-robust Hausman tests on with decile income as the dependent variable. In these tests we fail to reject the null hypothesis of 'no endogeneity'.

4. SUMMARY

This paper quantifies the impact of remittances along the distribution of income. Based on a panel of countries we find that the effect of remittances is positive and monotone decreasing for the bottom 70

percent of the population in low income countries. In contrast, we find that at the top of the distribution, larger remittances are associated with lower decile income for the top 20 percent of the population.

From a policy perspective, our findings imply that, all else equal, remittances not only reduce poverty, but also reduce inequality since the income at the bottom of the distribution increases, while the income at the top declines; particularly so in low income countries. In terms of welfare, future research ought to explore whether remittances also reduce consumption inequality, and furthermore how effective are they to smooth consumption across the income distribution. We note that while these findings are statistically robust, they are nonetheless drawn from a panel of countries and ought to be re-enforced by country-specific longitudinal studies.

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CORPORATE ENVIRONMENTAL RESPONSIBILITY: COMMITMENT AND COMPLIANCE

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ABSTRACT

Corporate Organizations seem to embrace Corporate Environmental Responsibility for very different reasons: Compliance, Commitment (to environment), Camouflaging (environmental sins) and seeing yet another business opportunity in environmental goods and services. This paper discusses these dimensions.

Keywords: *Corporate Environmental Responsibility, Corporate Governance, Environment*

1. INTRODUCTION

Most Corporate organizations regard environmental regulations like emission control as constraints which they must satisfy in their pursuit of maximizing profits. They look at environment from a **compliance** point of view. However, some organizations **embrace environment** as a positive feature of their products, like 'green products' and show their **commitment** to environment as a feature of product differentiation.

There are also other organizations that look at environment as a market and as a new business opportunity and **exploit environment** by entering this market with new environmental products and also advertising some of their activities as part of their Corporate Social Responsibility. The compliancers look at cost, the embracers look at consumer behavior and product differentiation and the exploiters look at the possibility of either green bucks or 'green-washing' their image. In this essay, I would like to examine these issues.

2. ENVIRONMENT AS A CONSTRAINT

In this case, environment is treated as an externality. That is the company that pollutes does not incur the cost but others in the society bear it. Take the case of a chemical factory which discharges toxic effluents into the river. And say there is no environmental regulation to check this company discharging the effluents. The company treats the river as a free resource. Since it is a free resource, it over uses it and pollutes it more. Upto a certain point, the river itself has the absorbing capacity and nothing happens. But beyond this level of pollution discharge, fishes in the river start to die. This is a 'cost' not borne by the company but by the fishermen, who also fish in the river. The solution to this problem is to make the company pay a pollution tax, an amount equal to the value of the fish that die, based on the extent of pollution. This is called internalizing the externality, viz. making the company pay for the pollution, which it was not paying before, and thereby making the pollution cost internal to the company.

3. CASHEW CULTIVATION, PROCESSING AND POLLUTION

While calculating the cost of pollution of river in terms of the fishes dying may be simple, there may be other situations where it may be complex. When a cashew growing farmer resorts to aerial spraying of insecticides like endrin, BHC and endosulphan on the cashew crop in his field, the population and children in the area develop skin infections.

Because farmers are 'holy cows' nothing can be done to stop this, except bringing to public awareness¹. About 26,000 hectares are under cashew cultivation in Kerala in Kasargode and Kannur districts. Cashew cultivation needs very little care and cashew is a lucrative export commodity. From 1963 onwards as a part of management of the plantation, agrochemicals were used in all the estates. Hand pumps were used for spraying pesticides at that time. Toxic chemicals like Endrin were in use at that time and no precautions were given to the workers while spraying. Like doing any other work in the plantation, they resorted to this spraying operation in their usual dress dhoti and shirt. They never even covered their nose or mouth with a cloth while spraying. In 1980 they started the aerial spraying programme saying

that this is the most effective and economic way of managing the pests of a plantationⁱⁱ. Here we see an example of economic objectives and environmental objectives on the opposite sides of each other.

Interestingly, Cashew curing in factories has its own environmental problems. The drum roasting method of curing, leads to air pollution. The Andhra Pradesh Pollution Control Board issued orders to close down many factories in Srikakulam district for not switching over to a more environmentally friendly method of curing, viz. boiler cooking method. Obviously, the boiler cooking method needed new and costly machinery which the cashew curing factories resisted. Each unit required about Rs.10 lakhs for change over. The Central Government announced a subsidy scheme of Rs.10 lakh for each unit, of which Rs. 2.5 lakh was subsidy and the remaining was tax concessionⁱⁱⁱ. Eventually, they changed over.

4. COKE-PEPSI AND POLLUTION:

In 2003, the Centre for Science and Environment, an NGO in Delhi, published a report 'Pesticides in Cold drinks' where it alleged that it found in Pepsi and Coke drinks in India, residues of lindane, DDT, malathion, and chlorpyrifos up to 36 times the maximum allowable limits set down by European regulations for pesticides in water used as food. The environmental organization says these agricultural pesticides have contaminated groundwater used in the manufacture of the soft drinks.

"Each sample had enough poison to cause, in the long term, cancer, damage to the nervous and reproductive systems, birth defects and severe disruption of the immune system," the CSE report said.

The CSE's Pollution Monitoring Laboratory, which conducted the tests, found pesticide residues in bottles of the two soft drink brands sold in India, but no residues in bottles of Coke and Pepsi sold in the United States.

Coca-Cola, in a statement issued claimed that the soft drinks it manufactures in India "conform to the same high standards of quality as in the U.S. and Europe and that there is no duality of standards."

Pepsi, in a separate statement, claimed that all its products met all international standards and that the company has delivered only "safe and world-class quality" drinks to Indian consumers. "All Pepsi products meet and indeed better the most stringent testing standards," the company said.

But the controversy has exploded beyond the controversial CSE laboratory report. In 2003 two Indian state governments intensified matters by accusing the two drinks companies of causing cancer, kidney failure and miscarriages. The West Bengal government said that its Pollution Control Board has found high levels of the toxic metal cadmium in waste released from Coca-Cola and PepsiCo plants. The Kerala Pollution Control Board made a similar claim about Coca-Cola's Plachimada plant. It is not accidental that both Governments were Communist Governments, which used the report to attack the US based MNCs.

Meanwhile, the Centre for Science and Environment was contemplating legal action against the cola companies for attacking the organization's credibility and for not presenting relevant data to support their allegations that their soft drink brands are safe^{iv}.

Several lessons can be learned from this episode. 1. While CSE said that the drinks contained 36 times the pesticides as in Western countries, it was silent on the quality of input water. Obviously, these contaminations were part of the water and not part of processing. Even the milk supplied by Government PSUs like Nandini and Avin may also contain similar insecticides, but NSE did not choose to test that. Thus NGOs have a tendency for MNC bashing, even though such reports have their use in keeping the MNCs on their toes. 2. The MNCs did not choose to remove the insecticides, because the Indian Rules did not require them to do. So they have a tendency to exploit the loop holes or ignorance of developing countries, or even bribe their way through corrupt Government officials for sulking compliance. The Bhopal Gas tragedy would not have occurred in Union Carbide's Connecticut plant, because of greater clarity in environmental laws and better enforcement in the U.S. 3. MNCs will use their money power to muscle such organizations as CSE by involving them in series of court cases, where the NGOs cannot

match them in money power. 4. At the same time, they suffer incalculable damage to their reputation by publication of such adverse reports, which damage their credibility and instigate Governments in developed countries too to investigate them. For instance, UK Government also found that Coke was bottling ordinary water and selling as mineral water!

5. COKE MEETS ITS WATERLOO IN WATER

Coca Cola has the biggest brand name in the World and few would have thought that it would have found a slippery slope in marketing its bottled water in UK, under the brand name 'Dasani'. But only after 5 weeks of its launch, in March 2004, it had to withdraw Dasani off the shelves in UK. What went wrong? Dasani was launched in the USA in 1999 as a bottled, purified water, and had become a huge success there. Taking that same formula and repeating it for the UK market must have looked like a breeze, but that wasn't quite how it turned out.

Unlike most of the bottled water sold in British petrol stations and supermarkets Dasani hadn't come from alpine glaciers or trickled out of a precious natural spring - it had come out of the local tap. True, the company put it through a purification process and added mineral salts, but the source was still tap water. The British press and people were outraged that they had to pay 95 pence for drinking tap water, marketed in a blue bottle, as a life style product! To add insult to the injury, some carcinogenic chemicals got into the process and Coke had to withdraw 500,000 bottle in circulation leading to the demise of the brand in UK and Europe. A vigilant press brought about this in the UK.^v

6. EXXON WALDEZ POLLUTION

In 1989 The Ship Exxon Waldez dumped 11 million **gallons** of oil in the Alaska's coast out of its carrying of 1.5 million **barrels** of oil, and destroyed 700 miles of coastline and killed 36,000 birds^{vi}. In the subsequent clean up operation, it further endangered the health of another 6,700 workers due to chemical poisoning by inhalation of oil mists during the clean up^{vii}. Experts opined that had it used double hulled ships instead of single hulled ones, which were 20% cheaper, it might have drastically reduced the damage. It saved some \$18 million using single hull ships, but eventually paid a cleaning cost of around \$3.9 billion over 3 years and a punitive damage of around \$507 million, apart from damage to reputation.

7. GREEN EMBRACERS

A whole new industry has come up offering green products for the home and office. Their product line includes green products made from organic, recycled, or bio-based (biodegradable) materials that lessen the impact on the environment. They have a full line of environmental products that can transform any home into an eco-friendly environment. Similarly another class of industry has come up that is in the business of pollution abatement, using new technologies and innovative solutions. Yet another industry looks at green final consumption products. These industries supply organic farming based vegetables, free of pesticides, for which some consumers are willing to pay more. The local **Namdhari** vegetable shop is an example.

Green certifying organizations are one of those that want to make hay in the environmental sun shine. They have come up with procedures that certify a product / process to be green, based on the following criteria^{viii}:

Manufacturer's Commitment to Sustainability:

Is there a written, working environmental policy in place?

Is it easy to find on their Web site or product literature?

Does this policy strive to make important improvements in manufacturing, reducing and reusing first, then recycling?

Do they comply with their industry's voluntary testing programs?

Product's composition

What are the raw materials used to create the product?

And where do they come from?
Did the materials come from renewable resources?
Is the manufacturing process energy efficient?
Does the manufacturing process release harmful substances?
Are adhesives needed to make the product viable?
What are they using?

Other aspects of the products:

Are coatings or finishes needed to make the product viable?
What are they using?
Does the product nurture the health and well-being of its occupants?
Does the product do the job well?
How much energy does it use?
Does the product release VOCs? At what rate?
How is the product packaged and transported?
How is the product installed and maintained?
Does it have a color or texture that can lead to reduced lighting energy or an expanded range of thermal comfort conditions?
Can the product be maintained in a benign manner?
Using safe cleaning products?

Strategies for disposal:

Is the product durable? Biodegradable? Recyclable?
Can the parts be separated for recycling?
Can it be made into something else?
Can the product be returned to its manufacturer at the end of its useful life?

Cost considerations:

What is the price range for the product?
Does the manufacturer provide life cycle cost analysis on this product?

8. ENVIRONMENT EXPLOITERS (FOR IMAGE)

These organizations exploit being green for their Corporate Social Responsibility slogan. They are mainly energy producers who pollute the environment in the process and therefore want to 'green-wash' their negative image with green related atonement of their sins. There are other non-sinners, who just include 'greening' as part of their CSR product-mix; here CSR works as a public relations tool, creates a positive impression of customers about their products and improves their profits thereby. For instance, Du Pont voluntarily stopped making Chlorofluorocarbons. Patagonia makes very expensive natural garments. In the second category, Ben and Jerry's (ice cream maker) has a Product mission which states: "to make, distribute and sell the finest quality all natural ice cream and euphoric concoctions with a continued commitment to incorporating wholesome, natural ingredients and promoting business practices that respect the earth and the environment".

In a book on Environment and CSR, the authors ask and answer the question: When does it pay for firms to be green? The answer is simple: viz. when it can either increase consumer's willingness to pay or reduce the costs.^{ix} They also say that only a few firms do active CSR and that too under special circumstances.

9. ENVIRONMENT AND CSR COMMITMENT OF ORGANIZATIONS:

Most energy organizations and most polluters are high on Environmental rhetoric. An inspection of web site of Oil Energy giants tells this story. For Instance Total, a French energy firms, puts environment at the top of their website. It claims that they do the following environmental good deeds:

- Improving air quality
- Protecting water resources and optimizing use
- Maintaining bio diversity
- Reducing and recycling waste
- Remediating sites and soil

Exxon says that they reduce their environmental impact by a host of the following things:

- Spill prevention
- Air emission from operations
- Waste management
- Water management, and
- Site remediation

De beers has to capture the hearts of women and men and so being environmental friendly is a sine qua non for its business. It claims that the stewardship of environmental resources is a core part of their commitment to the future of the countries in which we operate. They say that more than 185,000 hectares of their owned and managed property is set aside as nature reserves that conduct research on biodiversity.

10. CONCLUSION

For all the ascendance of environmental concerns in the society especially through increased awareness of the climate change problems, environment is still looked upon as something to be complied with, in order to be within the bounds of legality and firms have not gone beyond. Those firms that have indeed gone beyond are few, and their circumstances were special, in the sense that they may be making so much money that they could afford the luxury of donning the environmental mantle. Thus it would appear for firms profit comes first, shareholder's welfare next and environment comes after these basic goals are satisfied.

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MOVING AVERAGES AS RISK CONTROL MECHANISMS IN THE STOCK MARKET CRASH OF 2008

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ABSTRACT

Moving averages are one of the most common tools used by technical analysts and others. Their use has been documented for many years. Yet, many portfolio managers and most individual investors probably do not use this tool appropriately. This study uses a combination of two moving averages and security prices to control for volatility, risk and loss in the stock market. The thirty stocks that comprise the Dow Jones Industrial Average (DJIA) are filtered through the moving average (MA) system from 2007 into May of 2009. When the MA system is combined with adequate money management and momentum strategies the risk of loss is reduced significantly. The conclusions indicate that the use of a MA system to control for risk will reduce volatility, and reduce the losses incurred during a bear market by a significant amount.

Keywords: *technical analysis, moving averages, trend trading*

1. INTRODUCTION

The basic principal behind successful investments in the stock market is to buy a stock at one price and sell it at a higher price some time later. While that sounds simple enough, many investors have experienced the painful difficulty of successful investing in the past two years. A successful investment of this type is predicated by one simple fact. A successful stock investment requires a price trend to occur. One of the fundamental beliefs of technical analysis (TA) is that prices trend. Not only do prices trend, but the movements of those prices are not entirely random and they are also not perfectly predictable. If prices trend, then tools such as moving averages may have some predictive value in identifying a trend and how to capitalize on the movement.

2. LITERATURE REVIEW

Most financial textbooks of the past thirty years have explained that the Efficient Markets Hypothesis and the Random Walk Model of security prices leave investors with the strategies of buying and holding, dollar cost averaging, and buying for the long run. However, those strategies work best under rising markets, and unfortunately, rising markets are not guaranteed, only assumed. Literature, over the past 40 years, has not always been in agreement with the mainstream thought. Stevenson and Bear (1970) determined that the "random walk does not explain the movement of those speculative price series". Conrad and Kaul (1998) found that "the momentum strategy usually nets positive and significant profits" in the use of trends. Gencay (1998) found "the results indicate strong evidence of nonlinear predictability in the stock market by using past buy and sell signals of the moving average rules".

More recently, Farmer and Joshi (2000) showed in their study that "This can be exploited by trend followers, and provides one possible explanation for the persistence of trend followers." Also, Kwan, Lam, So and Yu (2000), utilizing a trend following system determined that "the proposed trading rule...could earn more net profit than the commonly used buy-and-hold strategy". And Fung and Hsieh (2001) "created a simple trend-following strategy using a look back straddle" that also out performed a simple buy and hold strategy. Le, Levich and Thomas (2006) employ a moving average system to currency trading with interesting results.

This study utilizes a moving average crossover system to determine what effect such a system would have on return and risk of security investments. The thirty stocks that comprise the Dow Jones Industrial Average are analyzed through the use of the system.

3. THE MODEL

The moving average crossover system (MACS) signals buy and sell signals as follows:

- Moving averages of the daily closing price of the DJIA securities are calculated for 20 and 40 day moving averages
- (SMA)
Simple moving averages are constructed to form a "Moving Window" that smoothes price action and determined automatic buy and sell signals

$$SMA_n = \sum_{i=1}^{20} data_i / n$$

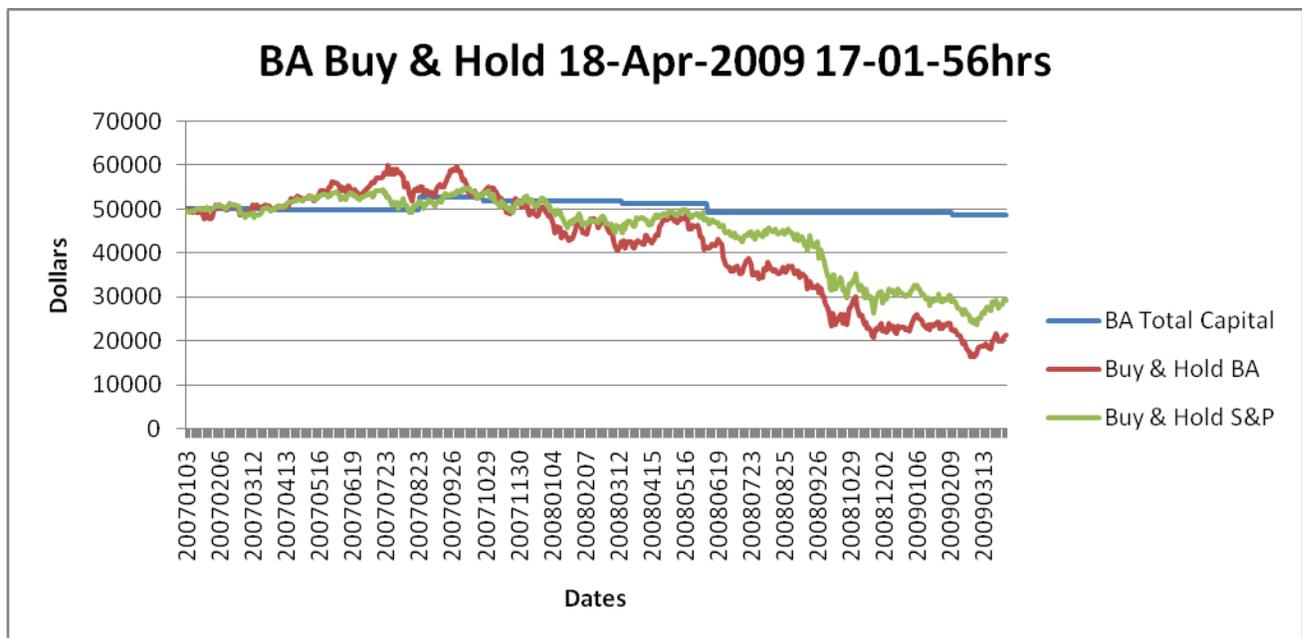
- The signals
P>20>40 = Buy
P<20<40 = Exit
- Pyramiding
The system can use a momentum based algorithm that adds to the position if the price moves enough in the correct direction
- Risk is monitored and controlled throughout the system

4. THE DATA

The daily closing prices for the stocks that comprise the DJIA are used for the tests. The information is publicly available and can be found on Yahoo Finance, Microsoft Money, as well as other sites. The data used for this test is part of a database supplied by Norgate Investors Services.

5. THE RESULTS

The system was analyzed for the DJIA stocks and the results were compared to a buy and hold of the same stocks for the same period, and also compared to utilizing the same buy and sell signals on the S&P 500 as opposed to the DJIA stocks. The results are intriguing. The following chart, for Boeing, is representative of the group of 30 stocks. The results indicate that the system avoids much of the losses of 2008. Not only are the losses avoided, but the volatility is much reduced.



The chart indicates that over the two year period the system resulted in a small loss for Boeing, but the loss was much smaller than either investing in the S&P or simply buying Boeing and holding the security for the period.

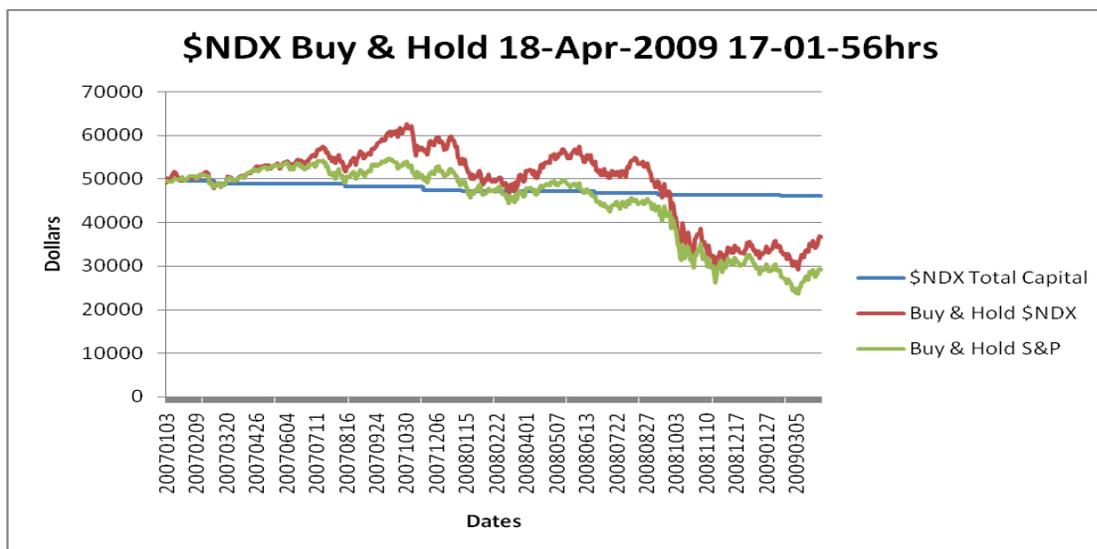
The results overall are:

- **The DJIA component return from January 3, 2007 through April 6, 2009 was as follows:**
- **Jan 1 2007 – April 6 2009 = - 35.66%, and Jan 1 2008 – April 6 2009 = - 40.00%.**
- **In comparison the MACS resulted in returns:**
- **Jan 1 2007 – April 6 2009 = - 1.18%, and Jan 1 2008 – April 6 2009 = -0.82%.**

These results were for a strategy that went long (purchased) and short (short selling). Most investors are more passive, so the results for a long only strategy were also calculated.

- **MACS taking Long signals only**
- **Jan 1 2007 – April 6 2009 = 1.88%**
- **Jan 1 2008 – April 6 2009 = 5.08%**

The system could also be utilized for controlling the risk of the index of the DJIA itself. This could be a very important tool for portfolio managers. The following chart shows the results.



Here again, the MACS results in much lower loss of capital.

6. CONCLUSION

The use of moving averages incorporated with price movement dampens the volatility of stock prices, the MACS reacts slowly to upward and downward movements of the stock prices. This means that during upward moves, the delay in the moving average crossovers can reduce possible profit. During downward moves, the delay also reduces profit on short selling opportunities. Most importantly, the use of a moving average stops can significantly reduce the risk of loss due to severe downward movements. During a bear market that declines rapidly, like the one from 2007 into 2009, the use of MACS to control risk and volatility does so, and also results in a better return performance.

This study has found that the use of MACS to control risk can do so, but can also result in better return performances. Future study could contrast this system to buy and hold strategies. The use of longer time

periods, different security databases, and different types of moving average systems could also provide valuable information.

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CARE FOR THE ENVIRONMENT AT A LIBERAL ARTS COLLEGE: A CASE STUDY

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ABSTRACT

This paper examines how one small liberal arts college in Pennsylvania has implemented environmentally sound practices and procedures via an overarching philosophy of care for creation. These practices do not only benefit the environment. Rather, they also positively impact employee and student welfare and cost reduction. The specifics behind these practices are addressed in this paper and the implications discussed.

Keywords: *Environmentalism, Cost Reduction, Care for Creation, Small Colleges*

1. INTRODUCTION

Never before has the care for the environment played such a prominent role in American society (Laroche, Tomiuk, Bergeron, & Barbaro-Forleo, 2002). Additionally, the world economic landscape has drastically changed during the period from 2007 to 2009. These two seemingly disparate topics are of great concern to many individuals and institutions worldwide. It is, therefore, important for organizations to be both environmentally responsible and cost effective. These topics will be examined in this paper. In particular, this paper addresses the following question: How can environmentally friendly practices be implemented within the context of a small liberal arts college? What are the implications of such practices on costs, student education, and the welfare of the college community? These questions will be addressed within the context of a case study of how one such college has constructed an eco-friendly environment.

2. THEORETICAL OVERVIEW

Neumann College is a small, Catholic liberal arts college in the Franciscan tradition. It is located in suburban Philadelphia and has a full time equivalent enrollment of approximately 2500 undergraduate and graduate students. One of the major tenets of the Franciscan philosophy is care for the environment (Mizzoni, 2008). Hence, there has always been an interest in environmentalism at Neumann College. This "care for creation" is not limited to a handful of discrete policies and procedures. It is, to the contrary, integrated into the very structure and operation of the college.

While the care of the environment is a responsibility of everyone at the college, the implementation of environmentally related policies is led by the "Care of Creation Advisory Council," or CCC for short. The CCC is headed by Elaine Grose. The CCC collaborates with the Order of the Sisters of St. Francis of Philadelphia (OSF), as the OSF is the founding order of the college, and also is a member of several environmental councils and organizations. In addition to sponsoring eco-centric programming such as an Earth Day festival, the CCC runs what is known as the Students for Environmental Awareness Club (SEA). The existence of this club serves two purposes. First, participation in such co-curricular activities like this enrich the educational experience of students (Busseri & Rose-Krasner, 2008). Second, it engages the student population in campus wide environmental efforts.

As previously noted, co-curricular experiences are important to student education. Environmentalism at Neumann does not, however, exist only outside of the classroom. Rather, care for the environment is integrated into the curriculum. Indeed, an environmental studies minor is offered, and an introductory level environmental studies course satisfies the college's core science requirement. Eco-centric topics are also incorporated into the curricula of other fields. In particular, the care for creation is a topic in many theology courses and Neumann's masters in strategic leadership program offers a short course on global environmental policy.

3. FROM THEORY TO PRACTICE

It can be seen from the preceding discussion that environmental concerns are incorporated into the corporate culture that exists within Neumann College. While the totality of the policies related to environmental concerns at Neumann College is too extensive to list, some of the specific policies and procedures that flow from this culture will now be discussed.

The environmentally related policies and procedures which exist at Neumann College serve to: (a) minimize negative environmental impacts, (b) promote environmentally beneficial practices, (c) save money, and (d) promote safety. The four aforementioned goals do not exist in isolation to one another but, rather, mutually coexist.

Two particular practices have been implemented, however, primarily to promote safety. These are the removal of asbestos in labs and offices, and safety audits for hazardous waste disposal. The recent installation of hands-free devices (such as automatic water in bathroom sinks) bridges the gap between safety and cost. Use of such devices not only reduces the spread of germs (Yates, 2004), but also conserves water (Miodonski, 2003). The conservation of water is clearly environmentally friendly, but also serves two other purposes. First, decreased water usage decreases water costs. Second, the reduced spread of germs has the potential to decrease the number of employee days lost to sickness, thus increasing productivity.

Several other policies exist that serve to minimize negative environmental impacts, maximize positive environmental impacts, and save money. A heat curtain has been installed at a primary building entrance. This heat curtain serves to reduce heating costs in the winter, thus reducing the amount of heating fuel used and, consequently, lowering heating costs. On a related note, plans are underway for the expansion of automated lighting. Such lighting will automatically go off when an area is not in use. This will serve to reduce the amount of electricity used and associated costs.

Several procedures exist which serve to reduce the usage of paper. This clearly has the potential to reduce the amount spent on paper and paper products. First, the office of the general counsel utilizes a system called Worldox which makes the office nearly paperless. Similarly, the library uses a paperless interlibrary loan request form. The bookstore also electronically stores sales information.

Related to the aforementioned environmentally friendly cost reducing measures is the recent addition of speed tables on the campus drives. These tables serve to reduce unnecessary acceleration of vehicles on campus, thus reducing vehicle emissions. This more efficient use¹ of fuel ultimately saves money for those who drive on campus.

Finally, many trees have been planted on campus during recent construction. The existence of these trees has the potential to reduce air conditioning costs by providing shade. Further, this beautification of campus may be attractive to potential students.

4. DISCUSSION AND CONCLUSIONS

It has been shown in the preceding sections that care for the environment permeates life on the campus of Neumann College. This care for creation finds its roots in the philosophy of the Sisters of St. Francis, the founding order of the college. This philosophy runs through both the curriculum and life of campus. In order to extend this philosophy in a practical way, several environmentally friendly policies and procedures have been implemented on campus. While these policies and procedures have their genesis in a desire to be environmentally friendly, they have the significant added benefit of reducing costs.

A number of environmentally friendly practices that exist at a small liberal arts college have been discussed in this paper. Many of these practices are readily applicable in both educational and corporate

¹ Exact costs are not reported for institutional privacy.

settings. For instance, the use of heat curtains at major building entryways has the potential to reduce heating costs for nearly any school or business located in an environment that experiences cold weather. Similarly, the installation of automated lighting could be relatively easily accomplished in most educational and corporate settings.

As has been discussed, many of the environmentally friendly practices that have been implemented also serve to reduce costs. This concern for the environment also benefits the student body, as the concept of care for creation is addressed in many classes and is a focus of a co-curricular club. Finally, the eco-friendly practices that have been introduced also have the potential to benefit student and employee welfare. This can be seen in two ways. The more concrete way in which this can be seen is through such practices as the installation of automated soap and water dispensers in restrooms, which reduce the spread of germs and disease. The more subtle way in which this can be viewed is the potential for greater student and employee satisfaction and productivity due to the natural and aesthetically pleasing environment.

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THE RELATIONSHIP BETWEEN BURNOUT, NEGATIVE AFFECTIVITY, AND ORGANIZATIONAL CITIZENSHIP BEHAVIOR

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ABSTRACT

One of the major concerns for managers and employers in the field of social work is employee burnout. Pinpointing the factors that are related to burnout is vital to any human social services agency. High burnout rates lead to employee dissatisfaction and in some cases resignation (Maslach & Jackson, 1986). Determining the factors that correlate with burnout is essential for the social service field to aid in an effort to alleviate burnout and the effects of burnout. Thirty-two Social Service workers were surveyed to determine if there are any correlations between burnout, negative affectivity, and organizational citizenship behavior. Significant correlations were found between both total and subscales of burnout, negative affectivity, and organizational citizenship behavior.

Keywords: *Burnout, Negative Affectivity, Organizational Citizenship Behavior*

1. LITERATURE REVIEW

Burnout, Negative Affectivity, and Organizational Citizenship Behavior will be the variables focused on in the current study. Maslach and Jackson (1986) define burnout as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work in helping professions such as social work, counseling and nursing. Emotional exhaustion occurs when workers feel emotionally drained by continuous contact with other people, depersonalization is characterized by negative feelings and cynical attitudes toward the recipients of one's services or care, and reduced personal accomplishment is a tendency to evaluate negatively one's own work (Richardson & Martinussen, 2004). Burnout has been recognized as a serious concern for employers in the social services and all other industries. Burnout has been linked to negative health effects such as anxiety, depression, decreased self-esteem, cholesterol problems, headaches, diminished psychological well-being, and various other health concerns (Maslach, 1993). Burnout has also been linked to organizational repercussions such as intention to turnover, decreased employee commitment and decreased job satisfaction (Jackson, Schwab, & Schuler, 1986).

Negative Affectivity (NA) can be described as a dispositional trait, a frame of reference through which a person appraises and reacts to a situation using consistent and stable ways of thinking, feeling, and behaving (Chiu & Francesco, 2003). Negative affectivity is a trait that describes the tendency of an individual to experience a variety of negative emotions across time and situations (Chiu & Francesco, 2003). Individuals high in negative affectivity are characterized as being easily distressed, agitated, upset, pessimistic, and dissatisfied.

Organizational Citizenship Behavior was initially defined by Organ (1988) as discretionary behavior directed at individuals or at an organization as a whole, which goes beyond existing role expectations, and benefits the organization and/or is intended to benefit it. Three features of OCB are the behavior is voluntary and not assigned by a job description or role in the organization, the behavior benefits the organization from the organization perspective, and nature of the behavior is multidimensional (Van Dyne et al., 1995). After an extensive study of available research, Podaskoff et al. (2000) defined organizational citizenship behavior by grouping these behaviors into seven different categories. The seven categories are: helping behaviors, sportsmanship, organizational loyalty, organizational compliance, individual initiative, civic virtue, and self-development. For the purposes of the present study, this definition of OCB, which focuses on specific types of behaviors, will be employed.

It is hypothesized that social service workers engaging in these behaviors will be more likely to experience burnout due to the higher likelihood that they will exhaust themselves. Specifically, these

workers who take on more responsibility than they are asked to take on for a specific job could run the risk of overburdening themselves. This excess workload that is created by individuals that exhibit the behaviors described as OCB characteristics could possibly lead to some relationships between OCB, NA, and Burnout.

1.1 Volunteers of America

Volunteers of America is one of two comprehensive nonprofit human services organizations in Washington State and employs 400 professionals and 275 volunteers. The Everett Branch of Volunteers of America serves Snohomish County. The staff of the housing and transitional services and the food bank emergency services programs will be surveyed. Housing and transitional services primarily serve families with children. One component of this program is the emergency shelter, which consists of motel vouchers given to families on a weekly basis with a 90-day limit. The families must check-in with their case managers daily and meet with their case managers weekly. The case managers also meet with walk-ins as they come into the food bank seeking services.

1.2 Cocoon House

The Cocoon House is the only emergency shelter for teens in Snohomish County. The youth served at Cocoon House come for a last refuge when other mainstream resources through the schools and community agencies have been unable to address their complex and challenging needs. The Cocoon House also manages Snohomish County's Teen Advocate Program. Both the shelter program employees and the teen advocates will be surveyed. The shelter program employees serve the homeless teen population in Snohomish County by providing shelter and basic needs services. The teen advocates provide community outreach to connect with homeless and disconnected youth. The advocates also case manage the youth that they serve.

3. METHOD

3.1 Participants

Eighteen Volunteers of America employees and fourteen Cocoon House employees participated in the current study. All of the participants provide direct service to the homeless population of Snohomish County in Washington State. Demographic variables of the participants are summarized in Table 1.

3.2 Procedures

All of the surveys were completed during staff meetings at the organization at which the participants are employed. The participants were given 30 minutes to complete the survey. Each participant was given a candy bar for his or her participation. Every participant was given a copy of the informed consent form and any questions regarding the study were answered by the researcher.

3.3 Instruments

The first instrument in the survey was the Maslach Burnout Inventory, one of the most widely used measures of burnout. It measures the three subscales of burnout; emotional exhaustion, depersonalization and personal accomplishment (Wright & Hobfoll, 2004) and employs 22 questions on a Likert-type scale.

The scale used to measure Organizational Citizenship Behavior has twenty-seven questions on a Likert scale. The first thirteen questions are based on a scale developed in China and measures Civic Virtue, Altruism, and Conscientiousness (Markoczy & Xin, 1997). The four subscales of Interpersonal Harmony, Protecting Company Resources (Fahr et al., 1997), Sportsmanship, and Courtesy (MacKenzie et al. 1993) are based on the American OCB scales.

Negative Affectivity was evaluated by a modified version of the Positive and Negative Affect Schedule (PANAS-X scale). The modification of the scale consisted of a reduction of the amount of items and the measurement of 20 emotions. The participants rated how they usually feel in regard to the emotions presented on a Likert-type scale.

4. RESULTS

The demographic variables of the study are summarized in Table 1.

TABLE 1

Variable	N	Mean	Males	Females					
Sex	32		13	19					
Age	32	29							
Ed. Level		H.S.	Some College	Tech. School	A.A	B.A./B.S	M.A./M.S.	Some Post Grad.	L.P.N.
	32	3	7	1	4	12	2	1	1

According to Maslach (1993) burnout is defined by high scores in Emotional Exhaustion and Depersonalization and a low score of Personal Accomplishment. In order to determine the total Burnout score, Emotional Exhaustion and Depersonalization are added and the Personal Accomplishment score is subtracted from the summation of the previous two variables (Maslach, 1993). The descriptive results of the study are summarized in Table 2. The previous research found similar findings for the means and standard deviations of the subjects that were evaluated for the Burnout scale (Richardson & Martinussen, 2004) and the OCB scale (Somach and Drach-Zahavy, 2004).

TABLE 2

Variable	N	Mean	SD
Civic Virtue	32	22.22	4.12
Altruism	32	6.97	2.32
Conscientiousness	32	25.81	5.65
Interpersonal Harmony	32	21.72	7.71
Protecting Company Resources	32	13.78	4.72
Sportsmanship	32	16.34	5.03
Courtesy	32	23.06	6.34
Organizational Citizenship Behavior Total	32	129.91	26.09
Negative Affectivity Total	32	18.16	5.10
Emotional Exhaustion	32	20.09	13.28
Depersonalization	32	29.91	16.57
Personal Accomplishment	32	26.31	17.49
Burnout Total	32	23.69	16.07

TABLE 3 CORRELATIONAL ANALYSIS

	Civic	Alt.	Cons.	I.H.	P.C.R.	Sport.	Court.	E.E.	D.P.	P.A.	O.C.B.	N.A.
Altruism	-.404*											
Conscientiousness	.466**	-.421*										
Interpersonal Harmony	.280	-.441*	.564**									
Protecting Company Resources	.429*	-.607**	.595**	.819**								
Sportsmanship	.628**	-.422*	.164	.568**	.658**							
Courtesy	.369*	-.305	.607**	.903**	.826**	.601**						
Emotional Exhaustion	-.411*	.837**	-.322	-.445*	-.548**	-.410*	-.232					
Depersonalization	-.443*	.855**	-.313	-.309	-.397*	-.364*	-.087	.905**				
Personal Accomplishment	.360*	.788**	.232	.201	-.330	-.257	.016	.781**	.921**			
O. C. B. Total	.594**	-.461**	.706**	.900**	.893**	.722**	.938**	-.426*	-.316	-.202		
Negative Affectivity Total	-.512**	.935**	-.453**	-.485**	-.570**	-.465**	-.298	.810**	.899**	.817**	-.504**	
Burnout Total	-.405*	.716**	-.336	-.467**	-.503**	-.435*	.299	.910**	.776**	.507**	-.459**	.696**

*Significant at the .05 level, ** Significant at the .01 level

Table 3 results are based on two-tailed analysis since this is an exploratory study

5. DISCUSSION

5.1 Conclusions

The Negative Affectivity scale, the Organizational Citizenship scale and the Burnout scale all correlate at a significant level with each other. Various significant correlations were pinpointed between the subscales of the OCB and the Burnout scales and the totals of the OCB scale, the Burnout scale and the Negative

Affectivity scale. The factors of these subscales often correlated with the totals of the other scales at a significant level.

5.2 Implications

One possible prediction is that a person that scores high on the Negative Affectivity scale is more likely to experience the symptoms of burnout and less likely to exhibit the characteristics associated with Organizational Citizenship Behavior. If an employer could test for Negative Affectivity then a better hiring decision could be made. One could also make the argument that if you test potential employees for the characteristics associated with the Organizational Citizenship Behavior scale then one may be able to identify individuals that would be less likely to experience burnout. This type of person would likely be a positive influence on the workplace. A person with a high negative affectivity score would not only possibly cause negative attitudes in the workplace but also experience burnout and cause the organization to pay more money in training costs. A high rate of burnout is also hard on the clients receiving the services of the employees.

5.3 Limitations

One major limitation of this study was the low sample size of N=32. Studies should be conducted in a manner that reflects at least N=50 or higher. It is difficult to find large populations of social service workers conducting direct service in small nonprofit organizations. This limitation however did not seem to hinder the correlations found. Another limitation of this study is that the population surveyed was very specific. These findings are not necessarily applicable to a larger population.

5.4 Future Research

One possible avenue for future research is a longitudinal study involving people who score high on negative affectivity to determine if these individuals experience burnout more often and are less likely to perform the actions associated with the Organizational Citizenship Behavior scale.

Another interesting angle could be to study two workgroups with one control group and one group selected based on a high ratings on the OCB scale. This study produced high negative correlations for the relationship between the OCB scale and Negative Affectivity. A similar negative correlation was determined between the OCB scale and the Burnout scale. The work group selected based on the high OCB scale should experience less Negative Affectivity and less Burnout.

Altruism, the factor of the OCB scale that was determined to correlate in a positive manner with both the Burnout and Negative Affectivity totals could be studied individually. Altruism had significant positive relationships with all of the Burnout subscales. Future studies could be conducted to determine what some possible explanations could be for the relationships. The factor of Altruism alone may be a good indicator of a person that would be more likely to experience Negative Affectivity and Burnout.

Future research could also be conducted examining the relationship of these variables in the Department of Social Services, an agency that has significant problems with burnout and turnover rates. This agency has a large enough workforce to provide a significant sample size. With a larger sample size, more generalities could be made and these correlations provide for some insight into the factors leading to Burnout. Further studies should be conducted in various industries with diverse participants in order to increase generalizability of these findings.

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THE INTEREST ELASTICITY OF ENTREPRENEURIAL START-UPS

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ABSTRACT

Via a refinement of Irving Fisher's timber-harvesting paradigm, a theoretical model of entrepreneurial start-ups, which is based on his optimal timing of the implementation of his business plan, is developed. The model is then employed to gauge the sensitivity of start-up activity to interest rate changes. A rise in the interest rate is shown to have two effects. The first effect is the obvious reduction in venture NPV. The second effect, which refers to the interest rate induced change in the timing of the venture's implementation, is more subtle. For highly profitable ventures, the interest rate rise induces the entrepreneur to initiate his start-up sooner whereas for less profitably ventures, the start-up is postponed. Thus, due to this implementation timing option, start-ups are less (more) interest rate sensitive than other investment decisions if highly (less) profitable entrepreneurial ventures predominate.

Keywords: Entrepreneurial start-ups, Timing, Interest rate elasticity, NPV

1. INTRODUCTION

Entrepreneurial start-ups play a central role in the Schumpeterian process of creative destruction, whereby previously dominant firms are displaced by more innovative and younger enterprises. With their importance in mind, this paper develops a theoretical model to gauge the sensitivity of entrepreneurial start-ups to changes in interest rates. It is shown that, due to the presence of an implementation-timing option, start-ups are less (more) interest rate sensitive than other investment decisions if highly profitable entrepreneurial ventures are more (less) salient than less profitable ones.

The Net Present Value (NPV) decision rule is refined to account for the presence of a potentially valuable postponement or timing option available to the entrepreneur, i.e., by delaying the implementation of his plan to enable him to refine it further, he may be able to enhance the profitability of the venture. A start-up is thus viewed as a specific type of capital budgeting decision, to which the customary tools of analysis discussed in standard Corporate Finance textbooks, such as Ross, et al. (2005) and Booth and Cleary (2007), may be applied but only after suitable refinement. The required refinement, which serves as the focus of this paper, derives from the unique aspect of a start-up, i.e., the value enhancing potential associated with optimal timing of the start-up.

A business start-up is viewed as an investment decision that may be postponed with the intent of enhancing its profitability. Delaying the investment outlay increases the eventual annual cash flows generated by the venture because of improvements in the venture plan developed during the period of delay. Thus, the entrepreneur faces the following fundamental trade-off. If the investment expenditure is incurred early, the wealth creating potential of the venture is likewise realized early. But if the investment expenditure is postponed, the wealth creating potential of the venture is enhanced; the latter is due to venture plan refinements made possible by the delay. The entrepreneur must decide between an earlier but less profitable venture versus a later but more profitable venture.

The entrepreneurial start-up model developed here is a more complex version of the famous timber-harvesting paradigm first articulated by Irving Fisher in his classic reference on the theory of interest rates (1930). The major differences are as follows. Instead of timing the date when a stand of growing trees is chopped down to be processed into construction materials, this paper's focus is on timing the date when a business venture is started. Additionally, whereas in the timber harvesting model, there are no costs incurred and all value is realized on the date the trees are cut, in the model explored here, start-up costs are incurred

and a perpetual stream of cash flows is generated on the date of venture initiation. Insofar as there is a timing option embedded in the investment decision, this paper may be classified under the rubric of real options in capital budgeting, which captures the value of managerial ability to adapt to market developments. However, an important difference is that this paper eschews the treatment of uncertainty, a topic that plays a critical role in the vast literature on the theory of real options, as exemplified by Amram and Kulatilaka (2000), Dixit and Pindyck (1994), Henry (1974), Kandel and Pearson (2002), McDonald and Siegel (1986), and Trigeorgis (1996).

The model is then employed to gauge the sensitivity of entrepreneurial start-ups to changes in interest rates. To minimize verbosity, only a rise in the interest rate is entertained as the effects of a reduction in the interest rate are exactly opposite. Two effects are delineated. First there is the obvious reduction of NPV caused by the interest rate rise. However, there is a second effect that is more subtle, which may be summarized as follows. Whereas the implementation of low profitability start-ups is postponed, the implementation of high profitability start-ups is accelerated.

2. THE ENTREPRENEUR'S DECISION SETTING

Having developed a business concept and plan, an entrepreneur faces the option of further refining the plan during a period of length T . At time T , he will incur the requisite investment expenditure amounting to I , whereupon a perpetuity of $C(T)$ annual cash flow is generated. $C(T)$ rises at a decreasing rate with the length of the planning period, i.e., $C'(T) > 0$ and $C''(T) < 0$.

Define R as the continuously compounded interest rate. The entrepreneur maximises the following net present value (NPV) of the venture with respect to T .

$$NPV(T, R) = e^{-RT} \left[-I + \frac{C(T)}{R} \right] \quad (1)$$

Equation (1) measures the value created by the start-up now, i.e., at the present time, given a delay, which is T periods in length, in the implementation of the start-up plan. The quantity within the brackets of expression (1) may be interpreted as the NPV created by the venture on the date, time T , when the venture is initiated. This quantity is denoted by the following expression.

$$NPVT = \left[-I + \frac{C(T)}{R} \right] \quad (2)$$

The entrepreneur faces a trade-off between increasing T to raise $C(T)$ versus reducing T to increase the present value of the discount factor given by e^{-RT} . Stated another way, the entrepreneur must trade-off increasing the length of the period during which the venture plan is refined, thus increasing the venture's annual cash flow, versus reducing the length of the same period to realize more quickly the venture's potential for wealth creation.

The entrepreneur's optimal T is obtained by taking the derivative of equation (1) with respect to T and then equating the resulting expression to zero, bearing in mind that the interest rate R is an exogenous parameter over which the entrepreneur has no control. After simplification, the following requirement for optimality is obtained.

$$C(T)R - IR^2 - C'(T) = 0 \quad (3)$$

2. THE DUAL EFFECTS OF AN INTEREST RATE RISE

The first effect of an increase in the interest rate is the obvious reduction of NPVT, as captured by the following expression.

$$\frac{dNPVT}{dR} = -\frac{C(T)}{R^2} < 0 \quad (4)$$

Thus, some entrepreneurial ventures that were profitable at the time of implementation before the increase in the interest rate are no longer so. These ventures are either postponed or permanently cancelled.

Ignoring the induced effect of the interest rate rise on T , the effect on $NPV(T,R)$ is likewise clear-cut, as the following expression makes clear.

$$\frac{\partial NPV(T,R)}{\partial R} = -e^{-RT} \frac{C(T)}{R^2} - Re^{-RT} NPVT < 0 \quad (5)$$

Thus, assuming that the entrepreneur does not react to the interest rate increase by adjusting T , the wealth-reducing effect of the rise in the interest rate is unambiguous.

However, there is a more nuanced second effect that requires further analysis. This refers to the effect of the interest rate rise on the optimal time to implement the venture. The comparative statics effect of R on T must be assessed. To assist in this task, the function $F(T,R)$ is defined to equal the left-hand side (LHS) expression in the optimality condition given by equation (3), i.e.,

$$F(T,R) = C(T)R - IR^2 - C'(T) \quad (6)$$

Invoking the implicit function theorem, as discussed in Chiang (1984), the following holds.

$$\frac{dT}{dR} = -\frac{\frac{\partial F(T,R)}{\partial R}}{\frac{\partial F(T,R)}{\partial T}} \quad (7)$$

Assessing and substituting the indicated partial derivatives in equation (7) results in the following equation.

$$\frac{dT}{dR} = \frac{2RI - C(T)}{C'(T)R - C''(T)} \quad (8)$$

Observe that the denominator on the RHS of equation (5) is positive. Thus $\frac{dT}{dR}$ is negative if and only if the numerator is negative. By dividing through the numerator by I , the latter condition may be restated as $NPVT > I$. In formulaic terms, the condition is articulated as follows.

$$\frac{dT}{dR} < 0 \Leftrightarrow NPVT > I \quad (9)$$

On the one hand, for projects whose $NPVT$'s exceed the up-front investment required by the start-up, a rise in the interest rate induces an decrease in the optimal value of T , i.e. venture plan implementation is accelerated. On the other hand, for projects whose $NPVT$'s fall short of the up-front investment required by the start-up, a rise in the interest rate induces an increase in the optimal value of T , i.e., venture plan implementation is postponed.

For ventures whose $NPVT < I$, the delayed implementation reinforces the first wealth-reducing effect of an interest rate rise noted above, thus aggravating the negative effect of an interest rate rise. For these ventures, a rise in the interest rate unequivocally dampens start-up activity. However, for ventures whose $NPVT > I$, i.e., highly profitable ventures, the accelerated implementation reduces the first wealth-reducing effect of an interest rate rise, thus ameliorating the negative effect of an interest rate rise. For such highly profitable ventures, the earlier implementation date means that entrepreneurial start-up activity is thereby stimulated. The net outcome of these two contradictory effects cannot be determined

given the level of generality of the model, i.e., precise parameter values have to be estimated and specified to obtain a definite result. However, it can be argued that, in general, the potential presence of highly profitable ventures whose implementation will be accelerated due to the rise in the interest rate, causes entrepreneurial start-ups to exhibit less sensitivity to interest rate changes.

3. CONCLUSION

Business start-ups were modelled in terms of an entrepreneur who attempts to time his NPV-maximizing investment decision. Postponing the expenditure raises, at a decreasing rate, the venture's cash flows as a result of increasing business plan refinement. Thus, the entrepreneur faces a trade-off between immediately realising the wealth creating potential of the venture versus postponing venture plan implementation to increase the venture's profitability in the future.

A rise in the interest rate was shown to have two effects. First is the obvious negative effect of the interest rate rise on both NPVT, the NPV of the start-up on the date the venture is implemented, as well as NPV(T,R), the NPV of the start-up on the date that planning commences for the venture. This effect serves to reduce start-ups. However, there is a second effect that is ambiguous, namely, the induced effect of a rise in the interest rate on the entrepreneur's behaviour, i.e., optimal timing of the venture's implementation.

As regards the adjustments of start-up timing that are induced by a rise in the interest rate, two cases were delineated, namely, the case of highly profitable ventures ($NPVT > I$) whose implementation is accelerated versus the case of less profitable ventures ($NPVT < I$) whose implementation is postponed. The former case implies that a rise in the interest rate will to some extent stimulate start-ups, whereas the latter case implies that a rise in the interest rate will clearly reduce start-ups. The possible preponderance of highly profitable ventures over less profitable ones means that the negative effects of an interest rate rise will be somewhat mitigated. Thus, due to the presence of an implementation-timing option, entrepreneurial start-ups are shown to be less (more) interest rate elastic than other investment decisions if highly profitable ventures are more (less) salient in the economy.

It remains for future papers to address the empirical testing of the positive model of start-ups developed here. A convenient initial step would be in the form of clinical studies that illustrate the putative stimulative (depressive) effect of an interest rate rise on highly (less) profitable entrepreneurial start-ups due to accelerated (delayed) venture plan implementation, which forms the major contribution of this short paper.

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APPLYING SERVICE - DOMINATED LOGIC TO BUSINESS EDUCATION

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ABSTRACT

Service-Dominated logic has far-reaching implications for how business is conducted and how programs of higher business and management education can prepare for it.

In this paper we apply S-D logic conceptually to three different types of business education: full time, part time and executive MBA. The educational value created through different types of business programs appears dependent on the time horizon for evaluation, the parties involved, including who pays for the education, and the students' desire to learn, and warrants further investigation. Empirical support is foreseen through a comparison of different types of business students, enrolled in a full time program, part-time distance learning program, or executive MBA program, or recently graduated these programs, about the value of their master level business education. Implications for academe are formulated.

Keywords: *Service-Dominated Logic, Business Programs, Value Creating Networks, Educational Value*

1. INTRODUCTION

In recent papers by Vargo & Lusch (2008), Ordanini & Pasini (2008) and Grönroos (2006), the traditional view of making something and value being created by producing (goods-dominated logic) is profoundly challenged by a new view concerning the main purpose of the goods and services produced: Their reason for existence is to assist customers in their own value creation processes. No value is produced unless a customer can create value with the help of goods and services offered. All indications are that this Service-Dominated Logic will take hold in the minds of both scholars and practitioners pursuing modern business management including marketing and service management: S-D logic conveniently integrates the until now seemingly disparate disciplines of business to business, services, and consumer marketing, in essence encompassing B2B, B2C, C2B, and C2C.

At this point, business education can be seen as a service that assists students and life-long learners in their processes of creating knowledge and value. In fact, modern business education should not only include the S-D logic in their programs content-wise (see e.g. Ford & Bowen, 2008), it should apply the logic to their own core business of providing knowledge to (future) managers. We like to examine how value is created directly within the student's setting and indirectly how value is created as a result of student learning. We will examine to what extent S-D logic is applicable to educational value, and how current educational practices can be adjusted to include the perception of end customers of the service process in which the student is participating. In this paper we intend to conceptually explore the consequences and implications of S-D logic for business education in general, and for different types of business education in particular:

- 1) standard (full-time) university business education for young adults after high school leading to first a bachelor and then a master degree in business;
- 2) distance learning education aimed at adults, providing bachelor diplomas, pre-master certification and Master level certificates or degree, and
- 3) executive MBA education.

These different types of business students each create different value with their education, and place different demands on the educational institutions and their programs.

It is important to recognize that students in the three different types of programs have distinctly different needs, resulting in different ways in which educational value is being co-created. Young adults need to acquire learning skills and confidence, in addition to a diploma, to pursue a new profession after their education. Executives and other high level managers may benefit most from leadership oriented skills, in addition to a certificate that makes their leadership role legitimate (De Déa Roglio and Light, 2009). Continuing education students, already engaged in networks for value activities with customers, and busy

climbing the career ladder, would benefit most from competencies that make them more useful for their job networks, for instance, by being able to implement improvements to make these networks more effective (Dyer and Hatch, 2006). Our approach is aimed at the perception of educational value co-created by the student in these three different settings.

2. LITERATURE REVIEW

2.1 The new S-D Logic

Vargo and Lusch (2004) observe (similar to Gronroos, 2006) that time has come to replace the traditional goods-dominated logic in marketing with the new service-dominated logic, but also note that a theory of service is still in its infancy, and requires further construction. Vargo and Lusch (2008) propose ten evolving propositions to advance service theory:

- 1 Service is the fundamental basis of exchange
- 2 Indirect exchange masks the fundamental basis of exchange
- 3 Goods are distribution mechanisms for service provision
- 4 Operant resources, i.e. knowledge and skills, are the fundamental source of competitive advantage
- 5 All economies are service economies
- 6 The customer is always a co-creator of value
- 7 The enterprise cannot deliver value, but only offer value propositions
- 8 A service-centered view is inherently customer oriented and relational
- 9 All social and economic actors are resource integrators
- 10 Value is always uniquely and experientially determined by the beneficiary.

A recent insight is that 'competence in provision of service' and 'competence in consumption of service' have acquired equal importance. Self-service now competes with service from others, instead of service from others competes with service from different others. However, to consume the most sophisticated services, extreme levels of competence may be required, rendering self service infeasible (e.g. performing surgery on oneself). In (business education) self service is not so far-fetched, and multiple institutions, from libraries to scholar-oriented websites, can support self-learning.

Spohrer and Maglio (2008) argue that a general theory of service should consist of three bodies of knowledge:

- 1 Service systems and their services, including the origins of new service systems (Creation)
- 2 Service systems improvements, including improving efficiency, effectiveness and sustainability (Perfection)
- 3 Service system scaling, how improvements in one service system can be spread to other service systems (Transformation).

For business education, bodies 2 and 3 seem particularly relevant at this point.

2.2 Educational perspectives on educational objectives and value (co)creation

From an educational perspective, the debate is going on about which knowledge should be taught in business schools, and how it should be taught (see e.g. Chia & Holt, 2008; Rubin & Dierdorff, 2009). The central issue is what education should do to create (its) value. Although legitimate in its own, the educational service staged at business schools represents only one relevant *half* of the situation at hand. The other half concerns the value that is created by the student/learner during interaction with the educational process, and afterwards. O'Brien & Deans (1996) gave this line of thought already attention in advising tertiary education to implement 'supply chain management' in their strategic planning. However, business schools seem not to have taken this advice on a large scale as yet. It is imaginable that the educational value is different for traditional young students (not working, although engaged in different types of social networks), than for working adult learners (taking part in networks related to work and professional development). Knowles (1970) already argued that adults ample prior experience and can manage them in a self-directed way. Adult learners and employees are the main focus group for modern theories on life long learning (LLL). In this perspective on learning, learning is an ongoing process, in which the student/learner has the lead, although often sustained and assisted in learning by educational programs, training and (other) social contexts and contacts (e.g. Hummel et al., 2005).

The idea that students/learners *construct* knowledge based on information they are gathering and (re)structuring is also underlying popular systems like Problem Based Learning and Project Based Learning. The idea of *co-creation* of knowledge takes this idea one step further, in not only using the knowledge (information) made accessible by education, but also all other information and knowledge sources available in social contexts. Modern learning theories seem to confirm the importance of integrating knowledge creation and learning (e.g. Illeris, 2003). In educational research this type of learning and knowledge creation is mainly acknowledged in 'learning networks' (Hummel et al., 2005). The social aspect of learning and networking is acknowledged by economic-geographical studies, into predictors of innovation and learning outcomes (see e.g. Hauser et al., 2007). Therefore, in business education, time has come to seriously explore and integrate findings of other research fields for more comprehensive and effective views on developing the core business of providing service to students in their context. These students have changing needs while learning 'lifelong' and seem to welcome formulas of learning that new enterprises in the corporate training world seem to offer (see e.g. Armstrong & Sadler-Smith, 2008). Ford & Bowen (2008) advocate that more attention be given to the topic of SD-logic in educational programs, including being mindful of the concept *in* education as such. We agree that this mindset on the value of education should be further explored.

3. TOWARDS RESEARCH PROPOSITIONS

To guide our efforts and to examine different educational programs from a S-D logic perspective new research propositions are needed. From a total service viewpoint, taking into consideration how educational value is being co-created in the student/learner's setting for each of the categories of business programs, we should examine (1) the time horizon for evaluation, (2) the stakeholders in addition to the student, (3) funding and accreditation, and (4) learning motivation. Tabel 1 shows the parameters that will likely be helpful in examining educational value created:

Table 1 :Factors in perceived educational value for different business program categories

BUSINESS PROGRAM CATEGORY	SHORT VS LONG TERM HORIZON	EVALUATIONS BY STUDENTS VS. EVALUATION BY OTHERS	FUNDING FROM SELF VS. FUNDING FROM OTHERS	DESIRE TO LEARN VS. DESIRE FOR DIPLOMA
Full time	Longer Term	Students, Parents, Government	Mostly others	High
Part time distance	Medium Term	Students, Employers, Government	Mostly self	Medium to High
Executive MBA	Short Term	Students, Employers	Mostly employer	Low to Medium

Business programs co-create educational value together with students/learners in particular settings, each of which will have an effect on both the educational value created and how this value is perceived. For the purpose of our study, explorative data are available for 150 Business graduates from Maastricht University, collected in 2007-2008. In addition, value of education questions will be posed to about 40 students enrolled in an executive MBA program in September 2009 and January 2010. Another 100 distance education students (in Business and Management) at the Open University Nederland will be surveyed regarding value of education during Fall 2009/Spring 2010. In due course we expect to compare the different types of students and the value created and perceived with these students in the different educational programs and approaches.

4. DISCUSSION AND IMPLICATIONS

We distinguished different parameters affecting co-created educational value, for three different types of business programs. Research propositions involving the value of education should take into account the time horizon of evaluation, the stakeholders involved and funding composition, and the level of learning motivation of the learners/students. Our list of parameters is not meant to be exhaustive.

Preliminary indications are that most full time business programs are in tune with their students` needs, while distance learning programs and executive MBA programs exhibit a larger gap between what students and their employers want, and what is currently being emphasized (Rubin and Dierdorff, 2009). For decades, traditional universities catering to full time students have been grappling with educational value issues and parties willing to pay for it, resulting in mature evaluation, visitation and accreditation schemes. Perceived educational value created is more difficult to determine if employers play a larger role in both funding and evaluation. When students are employed, the educational value created by them can have an immediate effect on how their organizations co-create value with end customers.

Further research is needed to show the pervasiveness of S-D logic in modern organizations, and how it has already affected hiring practices. According to Grönroos & Ojasalo (2004), service organizations need a much deeper understanding of the concept, and the various factors involved in measuring productivity. Benefits from this study will include specific ways for business programs to create better value, not only in the minds of the students, but also in combination with their present and future customers, in organisations, and society who collectively fund these business programs. Our paper demonstrated how a relatively simple conceptual step in the way the purpose of business is reformulated has far reaching consequences for the educational programs designed to teach students to become valuable contributors in delivering service.

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AN EMPIRICAL STUDY OF BUSINESS STRATEGY IN SERVICE FIRMS

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ABSTRACT

This paper reports on four broad types of business strategy in service firms. These strategy-types are derived from data on competitive strategy, growth strategy, product strategy and linking/networking strategy in service firms in India, and are discussed in the context of conceptual schemes in literature.

Keywords: Strategy, Service Strategy, Strategy Typology, Services, Business Strategy, Types of Strategy

1. INTRODUCTION

This work presents major differences and commonalities observed in the business strategies of service firms. Using multivariate data on aspects of business strategy in twenty-eight service firms, the study elicits four 'types' of strategies. A basic reason to explore services in this manner is that there are many strategic choices which are specific to the service domain and carry no relevance for firms offering products, and vice versa. These differences range from elaborate aspects like how barriers to entry may be created, to differences in the processes of innovation, developing new offers, and choosing acquisition targets (Thomas, 1978); all of which implicate the firm's strategy. In trying to figure out differences in business strategy of firms, it is therefore more meaningful to develop a typology of purely service firms, or purely product firms, than to develop a typology of *all* firms.

2. LITERATURE

Strategy literature specific to the above context is of two kinds – one that takes a view of 'typing' strategy, the other that does not. This latter approach (Barnard, 1938; Drucker, 1954) considers an enterprise at any stage to have a unique external & internal situation, for which a *case-by-case* approach is the only way to analyze and formulate strategy. Entrepreneurial ambition primes this process. Goals, and what strategy a firm might pursue, are matters of choice. Product/market focus, value chain, the choice of product-lines, and how to out-compete rivals – which describe one firm's strategy versus that of another – are all '*open*' for the top decision-makers of the enterprise to choose. This view suggests that strategy cannot be '*typed*'; because there must be limitless variety in strategic choice available to a firm.

Mutual dependence amongst the above aspects however narrows the strategic choice. Some services cannot but have an integrated value-chain, such as hospitals; some ways of competing, like price, are not appropriate to some market structures. This substantially reduces the realm of choice. Porter's research (1980), the industrial organization view, suggests an even further determinism in choice of strategy. It offers only three choices of strategy -- Low Cost, Differentiation, and Focus – as the only *Generic* choices for success of a firm (Porter 1980).

Miles & Snow et al (1978) developed another typology that slotted (successful) firms on the basis of their adaptive behavior. The difference amongst their three main types – *defender*, *prospecter*, and *analyzer* – is whether they protect their existing product/market turf, or look continuously for new opportunities or wait and watch to enter markets after others have tested the ground. A firm that does not adapt successfully is classified as *reactor*.

Studies from another genre obtain multivariate data on a range of strategic dimensions in a cross-section of enterprises, and then analyze this data to discover broad *types* of strategy (Douglas & Rhee, 1989; Hooley et al, 1993). This is also the approach of the present work. It is focused on service firms in India's emergent economy. The rest of this paper is devoted to first formulating the relevant aspects of strategy in service enterprise, describing the collection of data and its analysis, and identifying the types of strategy. These empirical types are then discussed in the context of above literature.

3. STRATEGIC ASPECTS OF SERVICES

Services strategy must be viewed from two angles, choices that are general to all enterprise and those which are specific to services. Strategic aspects of both kinds are discussed below.

3.1 Service Differentiation

Service differentiation may relate to organizational image, technology, or dealer network, amongst other things. Creating customer loyalty is the primary thrust of all differentiation strategy (Reichheld, 1993). Service companies therefore aim at building reputation for the type or quality or other aspect of service they provide, especially if they provide an abstract or complex service (Thomas, 1978).

3.2 Building Barriers to Entry

Capital is often the base on which product firms build barriers to the entry of competitors; which is not usually the case in services. Being perishable, services are produced and delivered at the same location, often by a single set of people or other resource (Thomas, 1978), thus making it difficult to scale-up through use of capital. There are however exceptions when proprietary technology is used, especially in equipment based services like telecom, which can create entry barriers.

3.3 Economies of Scale

Using a strategy based on scale-economy is also less probable in service; because customers often do not have the same uniform need and require a variation in the service process. However, there is scope to exploit economies of scale in equipment based services like telecom or airlines. Even in people based services, a firm with sufficient market share might reap economies through its scale of advertising, use of IT system, or even human resource management.

3.4 Technology

From a strategy perspective, technology makes service operations more feasible and profitable, as indeed it does for products as well. This is achieved in two alternative ways; through streamlining and reorganizing the key service performance functions, or through the use of new information technology to provide more information more quickly to support better customer interaction (Hart et al., 1990).

3.5 Developing New Services

New services involve the changing of concept, and often require *enticing* the customer to use the new service. Compared to change in products, a change in service might involve less of hardware disruption, especially in people based services. New services can therefore be useful as a strategy for service firms.

3.6 Market Share

A large market share is good for products, because of economies of scale and because the firm might then dominate its competitive market. For services, it is hard to achieve economies of scale; so, firms may not pursue a very large market share as a strategy. Studies also reveal that lack of a clear relationship between market share and profit (Porter, 1980) is even truer in the case of services (Schwalbkch, 1991).

3.7 Life Cycle Portfolio

A portfolio of offers in different stages of life cycle is often useful in the consumer products market, such as mobile handsets with different levels of sophistication. This may not be so in the case of services. Despite the ease with which new services may be developed, a service provider avoids doing so, and remains committed to a core service only. It is also due to the relative inflexibility of market in seeking alternative services in same category (Carman and Languard, 1980). For example, a lawyer or doctor would probably offer a singular service for any specific need; a portfolio if any would be less likely.

3.8 Standardization

Standardization implies a non-varying sequential process in service offering, in which each step is laid out in order and all outcomes are uniform. It could either be due to a substitution of technology for personal

contact and human effort, or an improvement of work method, or both (Levitt 1972). This is a key to success in many services, as it is in products.

3.9 Mass-customization

Mass customization, on the other hand, is a viable strategy for many service providers, who might offer the service with some individualized elements to a large number of customers at relatively low price (Lovelock, 1983). Unlike in economies of scale, this strategy focuses on activities to isolate and modify for each customer, without loss of efficiency. It may range from personalized thank-you notes to selecting hotel-room for a customer on the basis of past history. Information technology use is mostly critical to this.

3.10 Distribution Channel

Services in general are produced and consumed simultaneously; the concept of distribution channel is generally not relevant. Except in cases like financial services or TV programs, where direct contact may sometimes be unnecessary, and a channel of distribution may be used (Donnelly and James, 1976).

3.11 Service Quality

The quality of service relates to how and with what effect it is delivered. Its impact on customer occurs mainly through an encounter between customer and service provider. Firms might pursue a strategy of high quality by providing specific training to their employees for moments of truth, that is, the moments when the perception of service quality is formed in customer's mind (Bitran and Hoach, 1990).

3.12 Growth through Acquisition

Acquisition is often used for growth of product firms. In services, M&A is seen mainly where fixed assets are high, like in airlines or telecom, because fixed assets can be easily valued (Thomas, 1978).

3.13 Outsourcing

An intermediary might perform some specific value-chain function, albeit secondary ones like promotion or getting advertising contract, and so on. Besides, as in the case of products, services might also build competency around core service skills and outsource the less important segments of value chain to derive specific advantages (Quinn et al., 1990). Outsourcing of both kinds could be a critical aspect of services strategy.

4. QUESTIONNAIRE & DATA

A self-report questionnaire was used for collecting data from service firms about aspects of their strategy. A pilot test reinforced that for the nascent Indian service sector, some of the above concepts may not be relevant. Barriers to entry, economies of scale, life-cycle portfolio, mass customization, and standardization were therefore excluded; and other useful ones added; leading to a questionnaire on *competitive strategy, growth strategy, product (service) strategy, and linking/networking strategy*. Here, competitive strategy refers to strategic aspects that create a defensible position in industry so that the firm can outperform competitors. The aspects included here are the strategic use of *innovation, proprietary technology, quality, and organizational image*, and generic strategies of *cost-leadership, focus, and differentiation*. The items of growth strategy include *market share, profit, and creating new services*. Issues covered in the product (service) strategy are *service variety, its reach, entry into unexplored market, and entry into competitive market*. Linking/networking strategies include *distribution channel strategy, outsourcing, acquisition, joint venture, and franchising*. In all, nineteen strategic aspects (seen later, in Table-II) were scored by the respondents on a five point likert scale, to represent the emphasis that their firm attaches to those strategic aspects.

5. DATA ACQUISITION:

The questionnaire was posted to 200 service firms in India, which fetched 28 useable responses. The selection of firms was made from online Yellow-pages, and other databases. The companies who were sent the questionnaire included those in the fields of banking, insurance, other financial services, management consultants, luxury hotels, security and detective services, resorts, transportation, placement consultants, shipping companies, and airlines. These sectors also represent a cross-section of

both business-to-business (transportation, shipping, and consultants) and business-to-consumer services (banks, insurance, and airlines).

6. CLASSIFYING BUSINESS UNITS

Data on 19 strategic aspects from 28 business units was subjected to cluster analysis for data reduction. Ward's method was used for estimating the cluster centers. K-means clustering was then performed to find the orientation of each cluster with respect to variables and thus to compare the clusters.

A four cluster solution was obtained from K-means analysis, the results of which in **Table-I** show the

Cluster	I	13.000
	II	3.000
	III	6.000
	IV	6.000
Valid		28.000
Missing		.000

TABLE I: NUMBER OF CASES IN EACH CLUSTER

number of cases in each cluster. Cluster-I contains 13 out of 28 cases. Similarly cluster-II contains 3, cluster-III contains 6, and cluster-IV also contains 6 out of 28 cases.

Interpreting and profiling clusters involves examining the final cluster centers (centroids). These centers represent mean values of the objects in the cluster on each of the variables. Information about final cluster center was re-arranged using normal distribution. Based on trifurcation of each variable's distribution (of all 28 firms), the final center values of each cluster are marked as high, medium, or low as shown in **Table-II**. For example, the center of cluster 1 (with 13 firms) is in the Medium range of Cost Leadership, and is High on Focus.

TABLE II: LOCATION OF EACH CLUSTER ON THE DISTRIBUTION OF FIRMS ALONG EACH STRATEGIC VARIABLE (H-HIGH M-MODERATE L-LOW)

Cluster of firms Variable	I	II	III	IV
Cost Leadership	M	L	M	M
Focus	Hi	Hi	M	M
Differentiation	M	M	M	M
Image	Hi	Hi	Hi	M
Quality	Hi	M	Hi	M
Technology	M	Hi	Hi	L
Innovation	M	M	Hi	M
Profit	M	Hi	M	M
Market Share	Hi	M	Hi	M
New Services	Hi	Hi	M	M
Reach	Hi	M	M	M
Range	Hi	Hi	M	M
Unexplored	Hi	M	M	M
Competitive	Hi	M	M	M
Outsourcing	M	L	M	M
Using Distribution Channel	M	M	M	L
Acquisition	M	M	L	L
Joint venture	M	L	L	L
Franchising	M	M	M	M

7. HOW CLUSTERS DIFFER ON STRATEGIC ASPECTS

Let us now use **Table-II** to elaborate the nature of each of the four clusters in terms of the dominant similarities and differences in the strategic preferences of service firms.

7.1 Cluster-I (The Niche-Plus-Growth cluster) contains the major chunk of firms, covering almost half the total number. Strategies that characterize this cluster are therefore the most *representative* of India's services sector. Besides, almost all consumer service firms are contained in this cluster. So, the dominant strategies of this cluster represent more accurately the strategies of *consumer services* (B2C) in India. Firms in this cluster, while they show moderate emphasis on other aspects, are *high* in their preference for:

- **Focus:** targeting maximum effort on a niche market
- **Quality:** Investing in strict Quality standards to build a market position
- Entering into **Unexplored** market
- To compete in **Competitive** market
- **Image:** Investing to create strong organizational image.
- **New businesses:** Finding new service businesses
- **Reach:** Improving the reach to ever newer customers
- **Range:** Offering wide range of choices in the service, and
- **Market share**

They emphasize a strategy of *reach, range, and market share*, all of which imply a *growth orientation*. But these firms also emphasize a generic strategy of *focus*. In other words, they seek *growth firstly in their focused* market where they push for greater market share. They also create a strong *organizational image*, not for the sake of differentiation, but as a concomitant of having achieved growth or 'having arrived' in an economy where there are few companies with a significant stature in services. As they continue to target their focused market, these service firms also grow through new businesses, more service choices, and new markets. The cluster is therefore characterized by **Niche-Plus-Growth**.

Davidow and Uttal (1989) noticed the outstanding success of such niche strategy in service firms, which they argue is based on identifying customer service segments, each segment reflecting a set of customers who have particular expectations from a service. All consumer service firms in this cluster are of recent vintage in India's economy, having emerged through its liberalization of last decade and a half. As entrepreneurs looked for the most profitable businesses in this liberalizing sector, they lacked the confidence to enter areas other than niche ones. Even within their niche, their focus was narrow. They started in the two most developed metros in India, and offered the simplest of services. Success in their niche gradually emboldened them to begin considering growth through new businesses, more service choices, and new markets. Their concept of new markets, however, is meant only as a replication of existing markets, like starting at another metro, as seen in telecom services and in corporate hospitals in India. Their new businesses are also mostly based on existing businesses, like caller tunes for mobile customers, or air-ambulance for healthcare customers, so as to exploit the same niche.

7.2 Cluster-II (Technology Focus cluster) has only three companies. All three are *knowledge based* firms serving institutional customers. They lay a high degree of emphasis on the strategy of focus, image building, and proprietary technology, and a low emphasis on cost leadership. That is, the firms' strategic emphasis is:

High on:

- A) **Focus**
- B) **Image-building**
- C) Using **Technology** to create entry barriers, and
- D) **Range:** offering variety of services, and

Low on:

- A) Cost leadership
- B) Joint Venture
- C) Outsourcing

Offering knowledge based consultancy, each firm in this cluster has a small base of institutional customers, and has a strategy that revolves around dominating its own niche market. While proprietary technology is a key success factor in this domain, it is important also to build image so that the dominance is sustained. Proprietary technology comes at a high cost, which may not always be possible for modest sized companies to afford; yet, firms in these domains must create entry barriers through technology, either acquired or developed internally. They also put low emphasis on cost-leadership, as well as on outsourcing and other collaboration; as this does not hold any major importance for B2B firms.

7.3 Cluster III: This (**Competitiveness**) cluster of six firms is somewhat like the previous cluster -- they offer mostly B2B services to institutional customers. But their strategic emphasis is different, and is along following lines:

High on:

- A) **Image**
- B) **Quality**
- C) **Technology**
- D) **Innovation**, and
- E) **Market share**

Low on:

- A) Acquisition
- B) Joint venture

Firms in this cluster are also not looking for co-operation with other firms in their growth. They want to compete in the present market and strengthen their position on their own. To gain an upper hand over competitors, they emphasize image building, and quality standards. Their emphasis on proprietary technology and innovative ideas is also not for creating new businesses; it is more to improve their competitiveness, and thus to capture increasing market share. They do not emphasize focus, and unlike cluster-I their growth is not through increasing reach and range in a niche. Theirs is a wider national market, and competitiveness through efficiency is their strategy. This cluster is thus dominated by a strategy for **Competitiveness**.

7.4 Cluster IV (Run of the Middle cluster) has six firms, including some offering B2B services, and some B2C services. Cargo transportation is one example. The firms *do not* put high emphasis on *any* of the strategic aspects. However, they are notable for putting low emphasis on the following:

Low on:

- A) Acquisition
- B) Technology
- C) Joint Venture, and
- D) Using Distribution Channel

These firms do not emphasize any aspects of competitive or growth strategy, nor a strategy of co-operation. They are also not technology savvy. As they put moderate emphasis on many aspects, it is proper to describe the cluster as **Run of the Middle**.

The following **four-fold typology** of service strategies has therefore emerged from this study:

1. **Niche-Plus-Growth**
2. **Technology Focus**
3. **Competitiveness**, and
4. **Run of the Middle**

8. DISCUSSION & CONCLUSION

8.1 Typology Frameworks

This four-fold typology of strategy is specific to services. It is important to note that in the absence of literature on service-specific typology, discussion must be based on typologies in general, that is, inclusive of products and services, as introduced in Section 2. The four-fold typology is also clearly based on actual data from firms, rather than being deductive. It must however be compared with both, deductive

as well as empirical, approaches introduced in Section 2. Hooley et al (1993) refer to these as – (a) *a priori*, and (b) *post hoc*. The industrial organization typology formulated by Porter (1980) is *a priori*. Based on actual field experience, Porter suggested three (generic) strategies –

- A) Product / Market Scope of the business (Whether Focused or not),
- B) Cost Leadership (Relative emphasis on efficiency), and
- C) Differentiation (Relative emphasis on creating differential attractiveness to customer).

All three are considered by Porter as *desirable* business strategies. Firms that do not pursue any of these are *stuck in the middle*, and not likely to perform well.

Another *a priori* approach reviewed earlier in this paper is that of Miles & Snow (1978). This again is based on case information. It builds a theory of *adaptive process* that a firm exhibits over a period, and assesses the firm's adaptation on three key questions – product / market choice (entrepreneurial problem), technology / control choice (engineering problem), and structure / process / human resource & roles choice (administrative problem). Based on what choices the firm makes in *successfully* handling the adaptive process, the firm's strategy could be one of the following types:

- A) Defender
- B) Prospector, or
- C) Analyzer

A *defender* would choose to enact its approach in such a way as to seal-off its niche to others in the market environment; a stable organization is appropriate for this. A *prospector* would instead continuously look for new opportunities, and may be unstable. The *analyzer* would also move to new opportunities, but only when its viability is relatively proven. A fourth type, the *reactor*, is one that fails to adapt successfully.

Aside from the above, there are studies (like the present one) that develop a typology of strategy on a purely empirical basis. Firm-level strategy data is used for deriving such typology (Douglas & Rhee, 1989). The data from a cross section of firms is processed through data-reduction techniques, like clustering used here, to identify types of strategy. Hooley et al (1993) refer to these as *post hoc*.

8.2 Comparing the Four-Fold Typology with Others

It is instructive to compare the four fold typology of the present study with that of Porter and with that of Miles & Snow. While there are *Stuck in the Middle* types of firms in Porter's scheme, there are also the *Reactor* types in the Miles & Snow typology. The **Run of the Middle** here is similar though not entirely so. Both Porter and Miles & Snow suggest theirs as 'residual' categories which exhibit poor performance. This is not necessarily so in the four-fold typology. Here, the residual category comprises a set of firms that do not exhibit any *strong* strategic orientation; they may not be poor performers.

Another category of Porter, cost-leadership, finds an echo in the **Competitiveness** cluster (cluster-III) here; both represent a strategic orientation towards *improving* oneself in *existing* markets. Yet, the generic strategy seeks to compete on cost alone, while there are other aspects, like quality and image, which set apart the competitiveness of firms in cluster-III of the present study. These additional aspects reflect differentiation. It is therefore significant that a combined strategy of *efficiency-cum-differentiation* imparts competitiveness to prominent business service firms.

A third point is about the most representative strategy in Indian service firms, the **Niche-plus-Growth** category. Focus is the essence of this, and matches the corresponding generic strategy. Here, it is important to note that not only does the present paper's typology describe the product / market scope of narrow focus as in Porter; it also identifies the mechanisms through which firms *grow their niche*. Improvement of reach, and range, and replication in similar markets are the strategies that these service firms use for growing their niche.

Finally, there is no connection of any category of Miles & Snow with the present typology. This is because their framework is about long term *adaptation* by firms, who might constitute multiple businesses. That there are parallels of Porter's framework in the four-fold typology is because they are both about single businesses, and relate to more immediate (competitive) strategy. It is also significant that service firms have had a recent history of liberalization and growth in India. Starting with simple and single businesses, they have just replicated to different cities and barely kept pace with an uncertain environment. It is perhaps too early to expect a history of long term adaptation in service firms of this 'new' economy.

8.3 CONCLUSION

Strategies in the service firm seem therefore to be more *tentative* than received theory suggests, especially in an emergent economy. Niche strategy is most prevalent, and though its subsequent growth is localized by similarity, a strategy of increasing reach, range, and market share finds wide use. Consumer services are more marked by this tentativeness. Business services tend to use a less focused, more widespread, strategy and are more oriented towards their improvement through efficiency and differentiation.

This study also gives an indication that a generic (Porter) or adaptive (Miles & Snow) view of strategy may not find as much empirical support in services as in products, and that the divergence may be greater in an emergent economy. Both *a priori* views pay less attention to the long process of maturation of markets and industries, and also to the dynamic through which entrepreneurial confidence accumulates. Services have themselves been an emergent business, and it is therefore further likely that the economic locale might contribute to the tentativeness of strategy.

Limitations of this paper and of other studies of this nature include: the difficulty of getting enough firms, the heterogeneity of value chain and portfolio that disturbs a sampling frame, the possible disconnect of a pen and paper response from actual strategic thinking, and so on. *A priori* typologies, like Porter's, provide parsimonious frameworks. Yet, this lack of parsimony could be the strength of the empirical approach. For, strategies are never so simple to be uni-dimensional. Nor are strategy-makers constrained to be un-creative. An empirical typology may not reveal causality, but it reflects a more comprehensive picture of strategy on the ground. It also opens up new hypotheses, about relevance of niche strategy in different markets, about differences between B2B and B2C markets, and about strategies in markets with different levels of maturity, which may provide directions of future research.

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360 DEGREE FEEDBACK METHOD: AN APPLICATION FROM A MULTINATIONAL IN TURKEY

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ABSTRACT

360 degree performance appraisal has gained its popularity by the beginning of 1990s. While organizations welcomed the new application with a great excitement and aspiration, academicians merely proposed studies where they tried to explore the pros and cons of the method (Uyargil et al, 2008). "With flattened structures and the need to respond quickly to customer demand, 360-degree feedback ("360 feedback") was introduced to equip employees with the information needed to deal with change and to leverage individual talent to meet organizational goals" (Rogers et al, 2002). Despite the enthusiasm and interest towards the method the efficiency is not yet proved to be satisfying (Uyargil et al,2008). The aim of the paper is to reflect the real life story of a multinational company's Turkey branch 360 Degree Method Application.

Keywords: 360 Degree Feedback, Multisource Feedback, Leadership, Multinationals, Culture

1. INTRODUCTION

1.1 360 Degree Feedback Method

'Learning the fact that people do not perceive us as we perceive ourselves is quiet disappointing.'

360 Degree Feedback (360 DFS; Multisource Feedback-MSF ; Multi-rater Feedback) is a performance appraisal methodology that obtains information utilizing internal and external multi sources related to the employee, such as employee himself, supervisors, peers, colleagues, subordinates and customers, both for organizational and individual development purposes (Carson, 2006; Gillespie, 2005; Bracken and Timmreck, 1999; Tornow, 1993). Depending on the relationship, the feedback obtained from different sources reflects various aspects of the subject. Therefore this method conceives a wider and fuller profile about subject's competencies and performance (Prideaux and Van Rensburg, 2006). 360 Degree Method is an effective quality improvement tool. Competencies of the employee is evaluated in multiple domains and thus, improvement in all domains is possible (Sargeant et al, 2005).The original idea that differs the method from traditional appraisal methods is that, it utilizes all possible sources of information related to the employee. Peers, customers, managers, subordinates and sometimes even the task itself are used as sources of feedback. However in traditional methods the employee is evaluated on the basis of available information supplied to the supervisors (Jackson and Greller,1998). Despite the difference between traditional methods and 360 degree ratings, the two are inter-related and represent an employee's extensive performance (Beehr et al, 2001).

360 Degree feedback method is basically used for two main purposes: the results may either be used for the development of appraised individuals in succession planning or for performance evaluations (Heneman, 1992). The method is named differently according to its different purposes of use: For personal or organizational development reasons '360 Degree Feedback' ; for performance appraisal Multi Source Assessment (London and Smither, 1995; Waldman and Atwater, 1998; Mamatoğlu, 2008).

This method discloses the interdependence between organizational growth and individual growth which is linked to self- awareness (Tornow and London, 1998). As stated by previous studies, it provides feedback that enhances self-awareness (Argyris, 1970; Bion, 1959; Lewin, 1958). As today's organizations are increasingly becoming leaner, employee self-motivation is coming into question as the key factor for growth. Employee initiative, follow-through and self-motivation are the corner stones of growth in lean organizations. (Tornow and London, 1998)

The main point for the success of this method is that it should not be seen merely as an independent tool but rather as a process. A process which should by all means involve trust, sponsorship of management, and a trained facilitator. If mismanaged, the process may result in fear, anger, denial and other destructive feelings (Tornow and London, 1998). Research has shown that majority of organizations that applied 360 Degree method has stopped the practice (Lepsinger & Lucia, 1997). To avoid unwelcomed results, organizations must structure the application keeping in mind that *'The type of specific behavioral feedback most valuable for development is not necessarily useful for evaluation'* (Yukl, 1998; Lepsinger and Lucia, 1997)

Carson (2006) suggested certain ropes for the success of applications with development target such as:

- Link the process to organizational goals and strategies
- Limit use of results to professional development
- Train all participants on the process and use of measurement instruments
- Promote an environment of trust and protect confidentiality
- Provide coaches or mentors to help participants process and act upon the feedback

In addition to the guidelines stated above, individuals that are involved in the process should refine themselves from their subjective thoughts about the appraised person.

360 Degree feedback method is consistent with many modern organizational and environmental trends such as growing emphasis to team work, autonomy, lateral relations, hierarchical structures and uncertainty (Jackson and Greller, 1998 ; Handy, 1994 ; Meyer, 1991). Before applying the method, organizations should carefully analyze the uncertainties of the market and their own unique cultural values as well as structural elements, to evaluate the degree of fit with 360 Degree feedback method (Jackson and Greller, 1998).

For organizations that operate in volatile markets, where customer tastes, needs and wants and market conditions change rapidly, it is essential to obtain information -regarding their product and service- from external stakeholders. At this point, 360 Degree method, which involves all -external and internal-stakeholders as well as managers and subordinates, provides the external information necessary and thus is a valuable method for contemporary organizations.

' ... Understanding discrepancies between how we see ourselves and how others see us would enhance self-awareness and lead to personal development' (Rogers et al, 2002)

If organizations adopt the above statement as a motto in applying this method, favorable results may be obtained. But if both the organizational culture and employees are not ready to support and adopt the method, then the results may fall distant from expected results and conflicts may occur.

With its pros and cons, the method is a valuable multisource feedback means both for performance appraisal and individual/organizational development. In Turkey, Temsa Global, Turkcell, Schneider Electric Turkey and the multinational subject to our study are some leading firms that used the method.

1.2. 360 Degree Feedback Application, Multinational Corporations and Culture

Globalization increased the number of multinational corporations all around the world, and this emerged the adaptation of all managerial functions to local culture as an obligation. Additionally, cultural differences have an effect on employee expectations which should be taken into consideration by management (Gillespie, 2006). If well structured and correctly applied, 360 Degree Method should be an appropriate way of overcoming cultural differences in performance appraisal and managerial development for multinationals.

As Hofstede defined in his 1980 study, culture is *'Collective programming of the mind which distinguishes the members of one human group from another'*. Thus, the multinational company using this method should take into account the cultural differences. Those differences inevitably influence organizational culture that reflects on beliefs, everyday practices and expectations of home country employees. A study conducted by Robie et al (2001), interpreted that the effective leadership practices conceptualized by US based company's 360 degree feedback survey, did not match with the perceptions of leadership practices

in different cultures. Another study by Peterson & Hunt (1997) also states that leadership effectiveness understandings of USA based companies may be seen improper by different cultures.

1.3. 360 Degree Feedback Method as a Leadership Development Tool

Due to its complex and longitudinal implementation, 360 Degrees Feedback method is mostly used to support feedback for the development of talented employees within the organization. According to the survey of Rogers et al (2002), organizations which take advantage of the method most, use it for individual development planning. In this study we examined a multinational corporation's 360 Degrees Feedback Method experience for leadership development purposes.

2. AN APPLICATION FROM A MULTINATIONAL IN TURKEY

2.1. History

With its 150 years of experience, the company has made several strategic choices that brought remarkable achievements which in turn placed it amongst leaders of the electronics sector.

Its story dates back to 1800s when two brothers working together took over a local electric company. In the first half of the 20th century, they spread operations over Europe, beginning with France and including Turkey. The first strategically successful attack was the association with a global home appliance giant. With this association, company enlarged its activities and started manufacturing electrical motors, electrical equipment for power stations and electric locomotives. The success story incrementally continued with the decision of abandoning non-strategic activities and acquiring the leading companies in telecommunication, IT and electronics in between 1988 and 1999.

In 2000s, it increased competitiveness through organic growth, international operations and serving new market segments. Today, it delivers solutions to its various customers including architects, solution partners, electricians, electrical equipment distributors, superstores and even the end users.

2.2. General HRM Practices of the Company

As a multinational company with 150 years of experience and more than 100.000 employees in nearly 100 countries, the company practices distributive leadership in its global operations. Distributive leadership is utterly different from the traditional concept of leadership which can be summarized as one person leading and motivating others. This new understanding involves distribution of value, vision, competence, intelligence and concern for the well being of the system as a whole, across the organization (Elmor, 1999-2000). In brief, distributive leadership is not merely what one person does (Henley, June 2005).

As the company's corporate culture is based on local autonomy and distributive leadership practices, local managers are given freedom in their decisions as long as the organization reaches predetermined targets. Considering HR operations, headquarters declares the targets to local organizations' HR departments and how to attain them are the managers' initiative.

2.3. Turkey Branch - HRM Operations

Company's Turkey operations are based on two main locations: Izmir and Istanbul. Production facilities are located in Izmir and sales, marketing and management functions are in Istanbul. Human resources operations are jointly run by Izmir & Istanbul staff and charges are equally divided. HR department of Istanbul is responsible for the "sales staff", whereas Izmir HR department carries out the operations of "production staff"

As a result of the leadership strategy of the company, local HR managers work with high autonomy. Targeted performance outcomes related to human resources operations are notified by headquarters to local HR departments and each local department is free to develop its own selection, induction, performance appraisal and continuous training programs and methods.

2.4. Application of 360 Degree Feedback Method: A New Vision

At the eve of the new millennium, company has targeted creating and supporting leaders who can cope with the new dimensions and terms of the forthcoming century. In this direction, with the assistance of a

French HR consultancy company, a novel program is initiated. The initial phase of the program included 'identifying' leaders of the millennium.

Identification phase was run with the following sequence: Nine leadership competencies in three dimensions were designated. The focus was developing external, internal and personal competencies of leaders. Nine competencies under these dimensions were respectively:

- Learn to view events from multiple perspectives
- Identify and maintain critical stakeholder relations
- Follow and keep track of recent environmental changes
- Seek challenging assignments
- Be skeptical of easy answers
- Build organizational coaching, mentoring and maintain succession planning
- Learn from mistakes
- Straight talk
- Improve self-monitoring and develop a personal vision of career objectives.*

Exploiting those competencies, the desired leadership profile is generated. Next step was to see if the managers possessed those competencies and if they did, how much progress is needed.

The French consultancy firm has developed a general (To be used in all countries that the company operated, regardless of cultural differences) survey examining leadership proficiencies and competencies of the managers. And 360 Degrees Method was selected as the leadership development tool. (It is highly necessary to point out that 360 Degrees Method was not chosen as a performance appraisal tool in this case) Headquarters, in spite of company's general tendency towards local autonomy, declared the application of this new program (Including the application of 360 Degrees Method) and sent the surveys to local organizations. Each local organization's top management selected managers to be included in this 'Leadership Development Program'

All six top managers of Turkey branch participated the 'Leadership Development Program'. As required by the method, each manager would be evaluated by his/her superiors, subordinates and peers through the questionnaires. Given that superiors and peers were specific and small in numbers, and the number of subordinates were too many, each manager selected six subordinates to evaluate his/her leadership competencies. Selected subordinates, superiors, peers and the managers filled out the questionnaires, put them in envelopes which were then sent to French for assessment. This process was executed throughout the world simultaneously. Surveys were evaluated in the headquarters with the French HR firm. And the final assessments of managers regarding their leadership competencies were sent back to the evaluated managers. As soon as they received their assessments, managers arranged a three phased briefing with peers, superiors and subordinates. The aim of this briefing was to discuss how the evaluated manager perceived himself and how he was perceived by others. The point was to state the differences between actual evaluations of managers and the predetermined nine leadership competencies and eventually to design routes of improvement.

2.5. Results of the Application

Although the original motive of the program was constructive, final results were not as expected. The program was initially planned to continue with a series of 'Leadership Academic Trainings'. The trainings were designed with a specific content to improve poor competencies of attendant managers. As mentioned above, results were not constructive but rather quite destructive. Assessments of subordinates were far from expected, they were fairly cruel and they reflected subjective feelings. Thus, the briefings were stressful and tense, which affected organizational activities poorly. Managers were despaired and this affected their motivation.

Shared criticism towards the application was based on the fact that attendants could not manage to get free of personal feelings and biases and make objective judgments; hereby, the program failed to serve its purpose. In order to prevent possible organizational conflict, decrease in commitment and poor affects on motivation, the continuity of the program was not considered.

3. DISCUSSION

Even though it is successfully applied and profited by many companies, 360 Degrees Method has given reverse results in this case. Some possible reasons can be discoursed. Firstly, although the company was known for its distributive leadership strategy, it did not involve local organizations in the preparatory stage of the program. Local organizations were declared to apply the program without a hearing. Second, the exclusion of local organizations ruled out cultural differences. Thus, the application did not meet diverse understandings of leadership competencies among different cultures (Gillespie, 2005). For example; implicit expressions are far more favored than the defined leadership competency "straight talk" in collectivist cultures. Third, although local organizations did their best, the compelling attitude of headquarters caused concealed resistance. Finally, lack of training about the method resulted in rule of thumb.

To gain and maintain competitive advantage, multinationals should by all means well manage their human resources (Gillespie, 2005). 360 degrees method is a comprehensive and strong tool for this purpose. However, the key point is to prepare a well defined and well prepared program and to keep in mind the issues stated above. In this manner, multinationals can manage human resources activities in such a way that balances home and host country employee needs and organizational objectives.

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THE RELATIONSHIP BETWEEN MANAGERIAL ACCOUNTING AND INFORMATION TECHNOLOGY (IT) WHEN INITIATING STRATEGIES AND MEASURING PERFORMANCES

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ABSTRACT

Nowadays we assist a rapid development of information technology (IT), the use of electronic instruments in everyday activities of the entities which opens new directions for research regarding: financial perspectives, performances and strategies. Management accounting uses various systems in order to cope with the existing requirements. The Balanced Scorecard (BSC) is a management system that enables organizations to clarify their vision and strategy and translate them into action. This allows the monitoring of present performance, but also tries to capture information about how well the organization is positioned to perform well in the future.

We want to present that in time the Balanced Scorecard evolved from an improved measurement system to a strategic management system. Senior executives in organizations now use the BSC as a central organizing framework to formulate, communicate and execute strategy and learn from strategy implementation. Together with IT (information technology) the Balanced Scorecard can anticipate what the business requires in the future and lay out a trajectory to meet the upcoming needs. Both Balanced Scorecard and IT are indispensable strategic resources in every organization's activity.

Keywords: *Managerial Accounting, Strategy, Balanced Scorecard, It*

1. INTRODUCTION

In present context preoccupations regarding strategies, performances and performance measurement are major challenges within organizations. We are also the witnesses of globalization, technological and organizational mutations, the automation of the production processes.

This entire phenomenon emphasizes the role of management accounting and its instruments. The Balanced Scorecard has become a popular management tool which identifies and measures the indicators of an organization's current operations and the drivers for future performance from four perspectives of the business: financial, customer, internal and innovation and learning.

Moreover, changes of information technology (IT) have been commonplace for many years. In a digital world, the management and use of information, information systems and communications is of critical importance to the success of an organization. The criticality arises from:

- the increasing dependence on information and the systems and communications that deliver the information;
- the scale and cost of the current and future investments in information; and
- the potential of technologies to dramatically change organizations and business practices, create new opportunities and reduce costs.

Many organizations recognize the potential benefits that technology can yield. Successful organizations, however, understand and manage the risks associated with implementing new technologies. Executive management needs to have an appreciation of the benefits, risks and constraints of information technology in order to provide effective direction and adequate control. The IT industry increased very efficiently and resulted as the intensification and consequences of organizational and environmental changes. In these condition becomes vital the collaboration, strong relationship and communication between management accounting, strategy, performance measurement and information technology.

2. RESEARCH METHODOLOGY

This article focuses mainly on the knowledge in the field of management accounting, specifically on performance measurement and organizational strategy, through a qualitative approach. Qualitative research can produce significant results with the methods it uses, such as: case-study, comparative analysis, interpretive research, action research, grounded theory and narrative inquiry.

In this article we used elements from several methods presented above in order to achieve a multidisciplinary approach and to reveal the complexity of the research field. We based our research on reviewing the existing literature, especially journal articles, books and reviews or frameworks issued by independent professional organizations and elements of ethnography research (conducting primary observation over a period of time).

Considering the methods used and the way they were combined we consider our research as being mainly non-participative and by this objective which guarantees the validity and reliability of our findings.

3. THE ROLE OF MANAGERIAL ACCOUNTING WHEN FORMULATING STRATEGIES

Managerial accounting was defined by the National Association of Accountants (NAA) as “the process of identification, measurement, accumulation, analysis, preparation, interpretation and communication of financial information, which is used by management to plan, evaluate and control within an organization.”

All and all, the main purpose and objective of management accounting is to become an effective orientation instrument, a dashboard, a consultant in establishing internal and external actions, procedures and decisions which are essential for every organization. The management accountant’s role is to provide managers (Drury, 2001) with feedback information, to enable them to determinate if operations and activities are proceeding according to plans and to identify those activities where corrective actions are necessary.

Managerial accounting information is used for (CIMA 1991; Sangster, 1994): (1) Formulating strategy; (2) Planning and controlling activities; (3) Disclosure to employees; (4) Decision taking; (5) Optimizing the use of resources; (6) Disclosure to shareholders and others.

Also managerial accounting involves ensuring that there is effective (Sangster, 1994):

- strategic planning, formulation of short-term operation plans
- budgeting, financial management, communication of financial and operating information, financial control
- corrective action to bring plans and results into line, internal audit
- reviewing and reporting on systems and operation.

Strategy is probably among the most discussed and debated topics we encounter in the world of organizations. The concept has entered the mainstream of our society. There are as many definitions for the term as there are academics, writers, and consultants to muse on the topic. The execution of a strategy is more important, and more valuable, than the formulation of a strategy. It’s one thing to sit down and craft what is seemingly a winning strategy, but successfully implementing it is another thing entirely. Strategy and strategy implementation requires continual focus on the change initiatives and on the performance against targeted outcomes. If managers are not energetic leaders of the process, change does not occur, strategy is not implemented, and the opportunity for breakthrough performance is lost.

Usually, an organization begins by developing a strategy statement and then translates it into the specific objectives and initiatives of a strategic plan. As managers execute the strategic and operational plans, they continually monitor and learn from internal results and external data on competitors and the business environment to see if the strategy is succeeding. Finally, they periodically reassess the strategy, updating it if they learn that the assumptions underlying it are out-of-date or faulty, starting another loop around the system. This activity involves a 5 stage system within an organization (Kaplan&Norton, 2008): (1) Develop the strategy; (2) Translate the strategy; (3) Plan operations; (4) Monitor and learn; (5)Test and adapt the strategy.

Often, executives at companies currently doing well create stretch targets to ensure that the organization does not become complacent. They use the Balanced Scorecard to communicate a vision for dramatically better

performance than the present. Executive leadership makes the need for change obvious to all. Once the change process is launched, executives establish a governance process to guide the transition. This process defines, demonstrates, and reinforces the new cultural values to the organization. Breaking with traditional power-based structures is important. The creation of strategy teams, town hall meetings, and open communications are all components of the new management approach.

For many organizations, the Balanced Scorecard has evolved from a measurement tool to a strategic management system. While the original intent of the scorecard system (Olve & Sjöstrand, 2006) was to balance historical financial numbers with the drivers of future value for the firm, as more and more organizations experimented with the concept they found it to be a critical tool in aligning short-term actions with their strategy.

All and all the Balanced Scorecard is an effective communication tool. (Kaplan & Norton, 2001, 2007) It translates the organizational strategy and tells it to employees. Sharing the results obtained by using the Balanced Scorecard gives employees the opportunity to discuss the assumptions underlying the strategy, learn from any unexpected results, and dialog on future modifications as necessary. Simply understanding the firm's strategies can unlock many hidden organizational capacities (DeBusk & Crabtree, 2006), as employees, perhaps for the first time, know where the organization is headed and how they can contribute during the journey

4. THE IMPACT OF IT ON MANAGEMENT ACCOUNTING AND STRATEGY

In order to adjust the balance between the traditional functions of management accounting, such as score keeping, attention directing and problem solving, and extend the role of management accounting through new areas like strategic problem solving, IT and IT implementation may also be an important factor.

Information Technology (IT) refers to information systems and the organizational resources required to plan, acquire, implement, deliver and monitor them. For many years, information technology (IT) has been playing an important role in the operations of organizational, strategic and managerial systems. It is often difficult, however, for generalists - which most board members are - to keep up with the rapid changes taking place in IT and, therefore, to know what questions to ask to ensure that IT issues are being properly addressed (The Canadian Institute of Chartered Accountants, 2004).

In time the advances in technology have increased the type and quantity of financial and non-financial data collection and its diffusion within organizations. Information technology (IT) (Huang & Hu, 2007) is a critical resource for every company competing in the global economy of the digital era. Depending on the industry, market and business goals it can enable or drive a company's competitive strategy. In addition, IT has become the essential infrastructure of any company, the backbone for corporate information flow and the enabler or driver of business processes.

IT has also changed the nature of management accounting and the management accountant's role (Sangster, 1994) especially because there has been a general increase in output and speed and a move towards automation of production and activities which together have led to considerable differences in the management accountant's role between organizations and industries.

Another limiting factor may be the differences in interorganizational ethos and managerial decision-making style which mean that any management accounting-based expert system must be customized to match the specific needs and requirements of the organization in which it is to be used.

Still, IT and these generic expert system packages should be used in the performance of specific management accounting-related tasks. This system enables managers to consider alternative approaches to new product development proposals, evaluate major strategic investments and consider the consequences of cost-reduction plans and buying and leasing equipment.

Knowing these advantages the IT-business alignment becomes a priority in every organization. This process is more than a passively matching operation of IT with business activities. It involves (Huang & Hu, 2007) active design, management and execution of the IT functions in accordance with the company's goals and strategies.

In order to achieve sustainable alignment between IT, strategies and business performances there is a need for four key elements and processes within an organization (Luftman et al., 2006):

- **Integrating IT planning with business planning** – the reflection of business objectives and strategies in the IT planning and operation. Without being operationalized in the planning process, alignment will remain more theoretical than practical.
- **Maintaining effective communication channels** – it helps IT and business understand each others needs and work together well and it needs also communication channels between IT managers and business executives (Brown, 1999).
- **Developing strong relationship between IT and business** – the CIO's' interactions with other top management can positively influence the assimilation of IT in an organization.
- **Institutionalizing the culture of alignment** – a successful alignment system must possess and demonstrate the flexibility to adapt in an often changing environment

5. INFORMATION TECHNOLOGY AND BALANCED SCORECARD – IT BALANCED SCORECARD

Over the past decade, managers realized that it is not sufficient to manage merely the IT end of the business. The integration of IT strategy to business strategy must be managed as well. The tool chosen for this task is the balanced scorecard. The Balanced Scorecard initially developed by Kaplan and Norton, is a performance management system that should allow enterprises to drive their strategies in measurement and follow up. In recent years BSC has been applied with success to information technology (IT) in order to achieve performances, to support the IT business governance and alignment processes. (Van Grembergen, 2000)

The balanced scorecard can be applied to the IT function and its processes as Gold (1992, 1994) and Willcocks (1995) have conceptually described and has been further developed by Van Grembergen (1997, 1998, 2000). Bowne & Co, an American management company initiated an IT balanced scorecard also in 1997 and the implementation process had a great success.

According to Van Grembergen the IT scorecard encompasses the following four quadrants:

1. **User (customer) orientation:** to be the supplier of choice for all information services, either directly or indirectly through supplier relationships.
2. **Business (corporate) contribution:** to enable and contribute to the achievement of business objectives through effective delivery of value-added information services.
3. **Operational excellence:** to deliver timely and effective services at targeted service levels and costs.
4. **Future orientation:** to develop the internal capabilities to continuously improve performance through innovation, learning, and personal organization growth.

Figure 1 — Standard IT balanced scorecard	
<p>USER ORIENTATION How do users view the IT department?</p> <p>Mission to be the preferred supplier of information systems</p> <p>Strategies</p> <ul style="list-style-type: none"> • preferred supplier of applications • preferred supplier of operations • vs. proposer of best solution, from whatever source • partnership with users • user satisfaction 	<p>BUSINESS CONTRIBUTION How does management view the IT department?</p> <p>Mission to obtain a reasonable business contribution of IT investments</p> <p>Strategies</p> <ul style="list-style-type: none"> • control of IT expenses • business value of IT projects • provide new business capabilities
<p>OPERATIONAL EXCELLENCE How effective and efficient are the IT processes?</p> <p>Mission to deliver effective and efficient IT applications and services</p> <p>Strategies</p> <ul style="list-style-type: none"> • efficient and effective developments • efficient and effective operations 	<p>FUTURE ORIENTATION How well is IT positioned to meet future needs?</p> <p>Mission to develop opportunities to answer future challenges</p> <p>Strategies</p> <ul style="list-style-type: none"> • training and education of IT staff • expertise of IT staff • research into emerging technologies • age of application portfolio

Figure 1 – Standard IT Balanced Scorecard
Source: Van Grembergen, 2000

Keyes (2005) proposed that the relationship between IT and business can be more explicitly expressed through a cascade of balanced scorecards:

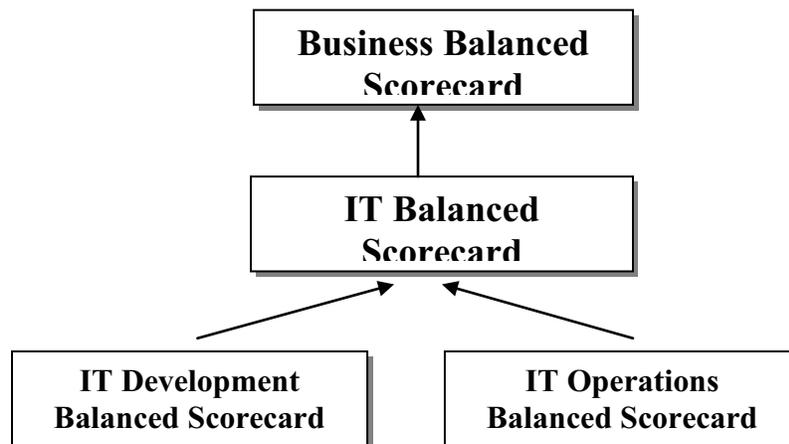


Figure 2 – Cascade of Balanced Scorecards
Source: Keyes, 2005

The proposed cascade of balanced scorecards fuses business and IT and in this way supports the IT governance process. The Business BSC shows a marketing strategy of reaching more and new customers through alternative distribution channels. The alignment IT/business process and the IT governance process is shown in the IT Strategic BSC and the IT Development BSC.

The different balanced scorecards drive the business and IT strategies on measurement and follow-up. In this way, there is assurance (Van Grembergen, 2000) that the IT organization returns some business value and does not invest in bad projects, and the adequacy of IT control mechanisms. The scorecards may also uncover major problems, it provides crucial control measures on IT expenses, user satisfaction, efficiency of development and operations, expertise of IT staff and may compare these measures with benchmarking figures.

6. ENDING IDEAS

Many companies adopted Balanced Scorecard concepts to improve their performance measurement systems. They achieved tangible but narrow results. Adopting those concepts provided clarification, consensus, and focus on the desired improvements in performance.

In time researchers and practitioners have recognized the importance of IT and IT-business alignment also. When alignment exists IT delivers systems and services that are crucial to the company's strategies, operations or user needs. Making plans based on the business strategy, IT can anticipate what the business requires in the future and lay out a trajectory to meet the upcoming needs.

Effective management of information technology is a business imperative and increasingly a source of competitive advantage. The rapid pace of technological changes together with the declining unit costs, are providing organizations with increasing potential for: (1) enhancing the value of existing products or services; (2) providing new products and services; and (3) introducing alternative delivery mechanisms

Despite the critics, IT is a necessary evil in every organization's activity. IT is an indispensable strategic resource but it requires major investments. However, experience in IT management shows that IT and business alignment is easier said than done because IT is a highly technical field. We can talk about a cultural gap between IT and business and this is an impediment to align IT functions with the rest of the business. That is why alignment remains one of the top issues in IT management.

The implementation of information technologies may be a complex, time consuming and expensive process for organizations but. Despite of these disadvantages, relevant technologies are identified and evaluated in the context of broader business goals and targets. Based on a comparative assessment of relevant technologies, the direction for the organization can be established.

Balanced Scorecard is a measurement and management system that is very suitable for supporting the IT governance process and the IT/business alignment process. It is believed that in the near future many organizations will use a cascade of a business balanced scorecard and IT balanced scorecards as a way of assuring IT governance and achieving the integration of business and IT decisions.

IT-business alignment is not just a process but a mindset of how IT can work for and with business all the time. In other words it's a basic principle of interaction between IT and business. In so doing alignment can maximize the potential return on IT investment.

For an organization to maintain appropriate information systems, it is important to keep up with current technology trends. This is especially important in the context of modern e-business, where there is increased integration with business partners, customers and suppliers. Organizations that retain obsolete or old systems may find it difficult to integrate them with more state-of-the-art systems, leading to lost opportunities. It is important, therefore, to track current technology trends and regularly consider upgrades of hardware and software in the context of return on investment. This effectively spreads the cost over the years, rather than having to do a massive and costly replacement of large, obsolete segments of the systems.

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GENDER-BASED DIFFERENCES IN FINANCIAL AND RETIREMENT PLANNING

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ABSTRACT:

This paper examines the reasons women need to develop a plan and focus on their own investment needs. Retirement planning criteria can be very different based on social and gender differences. The number of obstacles faced by women in the financial planning arena, tends to be greater than their male counterparts. Recognition of this problem is the first step toward alleviating the problem. Empowering women through utilization of resources on financial education will help to reduce the inequalities that exist today.

1. INTRODUCTION

Starting a new fitness routine is something many people resolve to follow as each New Year begins. However, few follow their resolution and many seem to live in a constant state of postponement. Financial planning is similar to an exercise regime considering it is never too late to start, and results will occur as soon as that first investment is funded. Surprisingly, according to Barbara Lee (1996) only 12% of women actively participate in the financial decision making process in their own families. This is a shocking statistic since Lee also points out that at some point in their lifetime 90% of women will assume full time responsibility for the families' finances. Money is an integral part of everyday life and the management of this commodity should not be taken lightly. Traditionally, women have not been as actively involved in financial planning as men. This is a trend that needs to change. Financial education is a tool women need to embrace and accept to ensure their futures will be as secure as possible. Barber and Odean (2009) concluded that "women's risk adjusted returns beat those of men by an average of about one percentage point annually". It is interesting that even though women must overcome certain obstacles, they can still enjoy decent returns on their investments. Women seem to manage their retirement investments equally as well as and sometimes better than their male counterparts due to the fact that they set realistic expectations, keep focused on a set strategy and tend to be long term investors.

2. RESEARCH

One of the most critical obstacles women face is the wage differential. Salaries still experience an ongoing gender inequality. A Washington Post article (2007) concluded that women who work full time earn about 77% of the salaries of full time working men. However, this figure does not factor in educational level or differentiate between professions. When these factors are put in the equation, women still earn 11% less than men of equal experience and education. The wage gap is slowly becoming less prominent in recent years. However, a woman who has been working for a substantial number of years cannot make up for the lost wages in previous years. Her retirement benefits and personal savings are also affected by the wage gap. She has lost many years of the compounding effect that increased savings would have provided.

Traditionally, women tend to pursue careers that have a lower earning potential. Salary is not their most important consideration when choosing an occupation. The Department of Labor (2007), reports that "management occupations dominated by women tend to be service related, while those dominated by men tend to be goods producing". The greatest percentage of management level jobs for women consist of human resources, medical and health services, social and community services, and education. These do not represent the highest median wage potential in management positions. The highest median wage management jobs are predominantly male oriented and include engineering and computer information systems. Men account for 92% of managers in the engineering field and 72% in the information technology. Therefore, the occupational salary statistics as well as the wage inequalities are a detriment to the retirement planning for women. This supports the idea that retirement planning for women poses a challenge and strategic goals must be set into motion as quickly as possible.

The reality that women change jobs more frequently than men also presents another obstacle in the financial planning process. It is reported that women over twenty-five stay with the same employer for approximately 4.8 years as opposed to men who average 6.6 years (Patterson, 1993). These changes can cause costly interruptions in retirement savings. Many employers require new employees to wait a specified time period before they are eligible for any retirement plan matching contributions. Vesting, or working long enough to become eligible to the right of benefits from a saving or pension plan, can be a long process. Typically, employers require up to five years of employment to capture full benefits. If an employer offers a defined contribution plan, it is advantageous to join as soon as possible and try to maximize contributions according to the plans' guidelines. Many companies with a 401K plan will match an employee's contribution up to a certain percentage. Always take advantage of this - it's like getting free money! In a report from the United States Department of Labor (2009), of the approximately 62 million working women in the United States, only 45% are participants in a retirement fund. Saving now can greatly enhance a woman's chance of having enough money to outlast her retirement years. Setting realistic expectations and focusing on an attainable savings target will enhance a woman's monetary resources and provide additional security when she chooses to quit working and enjoy retirement.

Another stumbling block for women is the fact that they are in and out of the work force more often than men. As a result, women are less likely to receive a pension. Even if a pension is earned, the amount of the pension is estimated to be approximately 50% of what their male counterparts receive (Thakor, 2007). Women are also more likely to work in smaller companies. On a positive note, this provides them with a more flexible work schedule for family issues. The trade off for this quality of life option is often smaller or nonexistent benefit packages. Part time jobs are one of the many reasons a woman may not be contributing to a retirement account on a regular basis. Most employers do not offer benefits to part time employees. Women are more likely to interrupt their careers for pregnancy, child care, elder care, or moving with a spouse following a promotion. This affords women fewer years and dollars to contribute to their retirement funds. Statistically, a twenty-five year old male will work for 70% of his life while a woman will only spend 44% in the workforce (Patterson, 1993). Career gaps seem to be more prevalent in a woman's life. Since women are considered the nurturing sex, it is normally an unwritten rule that they will be the one to take time out of their careers to create a work and home life balance. This severely hampers efforts to fund a retirement account on a constant basis. Women must remember to make regular contributions whenever an opportunity exists.

Other forces that can hinder a woman's effort to concentrate on funding her retirement include, divorce, personal living expenses and higher medical expenses. Thaker (2007) states that many women choose to marry later in life or not at all. With the United States' divorce rates of approximately 50% and the fact that life expectancy is higher for women, there is a good chance that more women will spend a higher percentage of their lives living alone. Thus, making them almost entirely responsible for their own financial well being in retirement. Though it would be nice to believe that marriage is forever, statistics prove the stark reality of the situation and tell us this is not the case. "When it comes to divorce, women still end up with the short end of the stick" (Bach, 2002). Unfortunately the average divorcee will experience a decline in her standard of living. According to a study done by the Women's Legal Defense Fund as noted by Bach, this decline is approximately 25%. Women are still typically the custodial parent where children are concerned; this often leads to a drop in their savings while at the same time their expenses increase. Personal living expenses also tend to be higher for women. Maintenance type costs such as dry cleaning, haircuts and clothing usually have a higher price tag than the corresponding services for men. Medical costs for women represent another obstacle to overcome. In a 2000 study by the Centers for Disease Control and Prevention (2008), it was determined that medical costs for women are two to three times higher than for men. Considering women enjoy a longer life expectancy, medical costs can account for a large expense over a lifetime. Retirement saving becomes even more important when unforeseen expenses are combined with the normal costs of living. To put it simply, they need to decrease their savings level just to maintain a modified lifestyle.

The largest disadvantage women face in retirement planning is time. Small changes in the work pattern can have dramatic effects on the amount of retirement income a woman can rely on. Patterson (1993) provides an example of this concept when comparing a woman who spent 40 years in the workforce with no career interruptions versus taking off for just seven years during working years. The impact can be as

devastating as the loss of 50% of retirement benefits. Many women work for employers who offer retirement benefits, or fail to stay employed long enough to reap full retirement benefit rewards. This type of behavior can have serious repercussions during the retirement years. A retiring 65 year old female can expect to live an additional nineteen years in retirement, which are many years longer than a male. To account for the longevity factor and the reduced benefit payouts associated with employment gaps, a woman must formalize an early plan to fare better. Increased regular saving contributions and investments can help to alleviate some of these challenges. Saving early in a career affords a portfolio the opportunity to grow and take advantage of the compounding effect. Compounding allows money to multiply faster and faster Thaker (2007) expresses this concept as “profiting on your profits”. In this scenario, time can be a woman's greatest ally if she lets it. Don't depend on Social Security benefits to fund you retirement years. The monthly amount received is still relatively low and does not fully keep up with inflation. As reported by the Social Security Administration (2007), the average benefit for women over 65 was \$10,685 per year as compared to \$14,055 for men. Again, since women tend to have lower paying jobs, they contribute less which leads to a lower payout in retirement. Social Security benefits should be viewed as a supplement to other income in retirement if a person intends to retire in relative comfort.

Identifying the obstacles that many women will encounter during their careers in relation to their financial planning process is the first step toward finding the correct path to start their journey toward wealth. Education on the many different tools available to plot their course is the next step. On a very fundamental level, women relate to money differently than men. They value security and use alternative methods to gather information, compare risk versus reward more objectively. Personal attitudes about finances play a key role in defining a woman's retirement goals. She must decide how much she will need, how hard she is willing to work and how she will feel once she reaches her goal. A woman must set specific and realistic goals. Writing them down on paper helps to keep them committed to memory. It is crucial to make sure they are specific and can be measured. They must be continually monitored and realigned when necessary. Women tend to put safety first when deciding how to obtain their investment goals. This can be a very good measure since risk and reward are directly related. Traditionally, the greater risk a person takes should be visible in the higher return. However, a lower risk option combined with steady investments gains can prove equally beneficial in the long run. Women tend to exhibit more patience in the investment arena. This is evident in the fact that they “trade less frequently, hold less volatile portfolios and expect lower returns than men do” (Wall Street Journal, 2009). They are admittedly more risk-averse than men. Given inefficiencies and market fluctuations in general, a slow and steady course can be beneficial.

Are women wiser investors? According to a Wall Street Journal article (2009), studies have shown that on an annual basis, women's risk-adjusted returns beat those of men slightly. Even with these results, women still feel less confident than men when making investment decisions. Surveys have found that males are twice as likely to view themselves as more knowledgeable about money and investing (Prince, 1996). Investment professionals still seem to have a bias in the way they treat women investors. According to a study conducted by Money magazine, brokers take female investors less seriously, do not value their business, spend less time on average interviewing female clients, and are more likely to introduce riskier investments to male clients (Prince, 1996). Jupiter (1998), states that “women control 55% of Americas wealth”. Cultivating female investors could prove to be very lucrative and a good source of income for investment advisors. Women investment groups have enjoyed a lifetime rate of return of 10.2% compared to all-male group returns of 8.7% (Prince, 1996). These statistics lead to speculation about investment styles. Women are more likely to set a long term plan and follow a strategy. They are not over confident and don't feel the need to “beat the market”. Men, on the other hand, tend to be more “trigger happy”. They compare themselves to other investors and need to comment about how well their portfolios are performing. Asking for investment advice is something men rarely do. Conversely, women have no problem asking for help and researching investments until they feel secure with their decision making. During bear markets, women tend to do nothing if they feel uncertain. They view certain events as out of their control and stay committed to their strategic goals by not making rash decisions that could increase their risk factor. Since women adopt a more buy and hold strategy, their long term results are more consistent. The following depicts the state of female retirement situation in the United States:

"Only 5% of Americans can afford to retire at age 65!" (Bach, 2002).

"The average retirement income for a woman over 65 is less than \$7000 a year" (Bach, 2002).

"Two-thirds of women over 65 rely on Social Security as their primary source of income. Consequently, women are twice as likely as men to live out their golden years at or below poverty levels...(Thakor, 2007).

"Women need to keep in mind that their retirement career can be longer than your working career" (Prince, 1996).

"If a woman has 50% less service than a man, coupled with the fact they earn nearly 67% of men's earnings means that a woman's retirement benefits will be one-fourth the size of her male colleague's" (Patterson, 1993).

"Only 12% of women make the investment decisions in their households...This is frightening when statistics also indicate 90% of all women will be responsible for their families' finances at some point in their lives" (Lee, 1996).

"Our life spans have increased, so retirement years will be considerably longer than previously estimated - which means that savings will need to last longer, as well" (Jupiter, 1998).

3. CONCLUSIONS

If these quotations seem shocking, imagine the daunting task they present for women. Investing for retirement is not part of the public education's requirement, perhaps it should be. Correcting social problems and equalizing wage differentials will not happen in time to benefit women already in the workforce. The best solution to confront these issues is more financial education. Women need to empower themselves with education. They must recognize it is imperative they take an active role in funding their own retirement. Retirement savings needs to move to the top of the "to do" list and begin on the first day on the job. Identifying financial goals early and setting a realistic strategic plan will go a long way to overcoming the challenges women face in financial planning. Diversification, steady investments, and following a long term plan can help alleviate the many obstacles women encounter. Assuming an active role in the family finances is not only proactive, but could prove two heads are better than one and therefore improve family financial decision making. Research indicates that women are capable of making wise investment decisions and their overall return results are on par with those of men. However, it is not a contest; women must gain the confidence to believe in themselves. If knowledge is indeed power, the road to financial success is well within the reach of the female sex. Jupiter explains (1998); money is "vehicle of freedom". This should be a right all women strive to achieve. The good news is it is never too late or early to begin the journey of investing for retirement.

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DATABASE SECURITY MECHANISMS FOR COMPLIANCE: SIMPLICITY IN INCREASINGLY COMPLEX ENVIRONMENTS

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ABSTRACT

People considering improvements in database security may benefit from this summary of security trade-offs, especially trade-offs between the level of data security and the efficiency of the organization. Also this paper explains the most important database security features and describes how they have been implemented in three major commercial DBMSs. The discussion covers features for identity management, encryption, auditing, and so forth, focusing on how the three DBMSs deal with demand for simplified security mechanisms to meet complex compliance requirements.

Keywords: Database Security, Compliance, Identity Management, Encryption, Auditing

1. INTRODUCTION

Organizations keep their most important data -- customer details, financial information, and human resource details -- in their databases. Given the increasing volume, variety, and sophistication of new threats and vulnerabilities of information confidentiality, integrity and availability, organizations are now bound by law to store, backup, encrypt, secure and protect their critical data, and to demonstrate that they are doing satisfactorily.

Complying with government and industry regulations is a major concern for organizations across the board. The Sarbanes-Oxley Act (SOX) for publicly held companies does not pose direct requirements for corporate data security, although it does include a number of clauses concerning internal control, the completeness of sensitive financial documentation, and audit situations (DeviceLock UK, 2008). A series of policies and legislative mandates are dictating a more data-centric approach to security, and are requiring the disclosure of any breaches:

- **Regional legislation.** California's Database Security Breach Notification Act, SB 1386 dictates encryption in some fashion, and that any victims of breaches are notified.
- **Industry-specific legislation.** In health care, the Health Insurance Portability & Accountability Act (HIPAA); and the Gramm-Leach-Bliley Act (GLBA) in financial services have provided comprehensive guidelines for safeguarding patient and consumer data respectively.
- **Commerce policies.** Credit card issuers such as Visa, MasterCard, and American Express all have delivered comprehensive guidelines that provide a decree for both best security practices, including data encryption for example Payment Card Industry Data Security Standard (PCI DSS), as well as mandating consumer notification of breaches.

Historically, the challenge for many organizations has been lacking of options either in terms of delivering true security, or in terms of prohibitive cost or complexity. In spite of the deployment of network security technologies, organizations are still vulnerable to a range of attacks: storage systems can be breached via insecure storage management interfaces and physical storage systems and databases themselves can be stolen. Most estimates cite that over 50% of security breaches are perpetrated by internal staff (SafeNet).

While it is critical to protect business data, there is a trade-off between the cost of reducing security risk and the adverse impact of a breach of security. Reduction in risk is declining as the investment in security increases beyond a certain point. There is no such perfect database system that will guarantee that data would never be lost or stolen.

There is also a trade-off between the level of security and the efficiency of the organization (Therault & Newman, 2001). If a database system devotes too much processing time to auditing, users may find the response time too slow. Implementing extremely strong security is not always practical because of the added cost in terms of additional security software, training users, and following complex procedures. The challenge is to determine a solution that achieves the highest level of security for the least cost in both dollar value and lost user productivity.

At tough economic time, organizations are demanding to “do better with less.” That is, they want to spend less money and time on database management systems but achieve better results. Vendors are responding by delivering DBMSs that are “easy to understand, cheap to implement and fast to market.” DBMS developers must simplify increasingly complex processing procedures in an increasingly complex business and data communication environments (Feinberg & Beyer, 2008)

Gartner ranked Oracle, IBM and Microsoft as leaders in the database management system market (Feinberg & Beyer, 2008). This paper focuses on how these three leading commercial database systems implement security features such as identity management, encryption, and auditing of security-related operations. This will provide examples for organizations to enforce security measures and provide controlled, protected access to the contents of the database in increasingly complex, demanding business environments.

2. SIMPLICITY AND AUTOMATION IN DBMSs

Database developers try to include features to simplify security-related procedures in their DBMS new releases. Oracle Audit Vault reduces the cost and complexity of compliance and the risk of insider threats by automating the collection and consolidation of audit data. It provides valuable insight into *who* did *what* to *which* data *when* – including privileged users who have direct access to the database. It enables simplified reporting, analysis, and threat detection on audit data. In addition, database audit settings are centrally managed and monitored from within Audit Vault to reduce IT security cost.

In DB2 9.5 IBM added simplification to the BACKUP process (including restore, roll forward, and recover commands) for DPF (database partitioning feature) customers. DB2 will automatically backup on the partitions specified (and it takes care of the catalog partition without the user having to back it up separately). The INCLUDE LOGS option is fully supported in a DPF environment and will include the log files necessary to restore the online backup. Finally when the user runs this form of backup command the timestamp for the backups on all partitions is the same and the command will return a single timestamp for use during the restore of any or all of these database partitions.

SQL Server 2008 uses schemas to simplify and improve flexibility of large databases' permission management. Permissions are granted to a schema to grant permissions to every object contained in the schema and every object created in that schema in the future. In SQL Server 2008, management is centralized to reduce the need for configuring each server separately. Administration is simplified, reducing the effort required to maintain standardization and compliance in complex environments. Policy-based Management enables the efficient management of multiple SQL Server instances from a single location; easily create policies that control security, database options, object naming conventions, and other settings at a highly granular level; policies can evaluate servers for compliance with a set of predefined conditions and prevent undesirable changes being made to servers.

3. IMPLEMENTATION OF SECURITY FEATURES

3.1 Identity Management

As part of compliance efforts, many companies are turning to identity management technology to meet data security requirements (Oracle). Identity management enables organizations to better control *who gets access to what* systems and applications at any given time. Compliance-level accountability demands this kind of control over access to information, and the ability to prove that controls exist and are enforced. Identity management provides accountability through single sign on, authentication, federation, user provisioning, and identity administration capabilities. It allows enterprises to centrally manage users'

identity and access rights; enforce separation of duties; restrict access by maintaining tight control over user permissions and privileges; and automate processes and reporting. In recent years identity management has emerged as a growing business and IT priority, especially in the financial services, healthcare and government industries.

Oracle Identity Management allows enterprises to manage end-to-end lifecycle of user identities, from the initial establishment of an identity through its retirement, across all enterprise resources both within and beyond the firewall. It enables the user to deploy applications faster, protect the enterprise resources, and automatically eliminate latent access privileges. Oracle Identity Management is a member of the Oracle Fusion Middleware (OFM) family of products, OFM consists of a portfolio of software products from Oracle Corporation; it brings greater agility to diverse IT environments.

IBM's Identity Management services suite, which enables a seamless, integrated identity management system, supports multiple systems and identities across the organization, while providing secure access to the right people and ensuring regulatory compliance. The suite is a family of services; it covers assessment, architecture and selection of technologies for the entire user lifecycle.

SQL Server 2008 provides various means for managing *who* can access a database and *which* operations can be executed by database users to control identity and ensure separation of duties. SQL Server 2008 uses Windows Authentication for all database logins. Using this mode ties the SQL Server identity to an Active Directory account, providing a strong identity. SQL Server 2008 uses Policy-Based Management to validate identity policies.

3.2 Encryption

While not all the regulations specifically require the use of stored data encryption, many organizations are moving ahead with implementing encryption for their protected information since a judicial interpretation will likely refer to best practice standards that advise the use of encryption in conjunction with other security layers to protect personally identifiable information (PII) (Mattsson, 2006).

There is no single point solution that meets all the varied data protection compliance regulations. Every application needs to be accessed individually, and a variety of technologies will probably be required to satisfy compliance. Any enterprise solution for protecting data - especially data at rest - must include the following components (Mattsson, 2006):

- Centralized security policy and reporting across different systems.
- Segregation of data administrative roles and security roles.
- Secure encryption technology to protect confidential data
- Careful management of access to the cryptography keys

When encrypt the sensitive data in the database and store the encryption keys in a separate location, which is a password protected file called Wallet. Oracle tries to strike a balance between two contradictory concepts: convenience by which applications can access encryption keys and the security required to prevent the key theft. To comply with company and federal regulations, Transparent Data Encryption (TDE) in Oracle Database 10g Release 2 let the user declare a column as encrypted without writing a single line of code. Oracle creates a cryptographically secure encryption key for the table containing the column and encrypts the clear text data in that column, employing the user's specified encryption algorithm. Oracle encrypts that table key using a master key, which is stored in a secure location called a wallet, which can be a password protected file on the database server. Encrypted table keys are placed in the data dictionary. When a user enters data into the column defined as encrypted, Oracle gets the master key from the wallet, decrypts the encryption key for that table from the data dictionary, uses that encryption key on the input value, and stores the encrypted data in the database. The user can encrypt any or all the columns in a table. Oracle generates a single encrypted table key for the table and uses it to encrypt those columns. On the disk, the values in the non-encrypted columns are stored as clear text and values in the encrypted columns are stored in encrypted format. Since the data is stored encrypted, all downstream components, such as backup and archived logs, also have the encrypted format. Since encryption and decryption consume CPU cycles, the user must consider their

effect on performance. When the user accesses encrypted columns there is a small performance overhead while decrypting during selects and encrypting during inserts, so the user might want to encrypt columns selectively. If a column no longer needs to be encrypted, it can be turned off or decrypted.

IBM Database Encryption Expert is a comprehensive software data security solution that when used in conjunction with native DB2 security provides effective protection of the data and the database application against a broad array of threats. IBM Database Encryption Expert is designed to help organizations comply with regulations and legislative acts and ensure that private and confidential data is strongly protected. Database Encryption Expert can protect sensitive information in both online and offline environments and has centralized policy and key management to simplify data security management. The tool can help minimize the risk of data backups, which are typically written to portable media and stored offsite for long periods of time, making the data more vulnerable to loss; reduce the risk of replicated data being stolen or lost; and limit privileged user access to sensitive data.

SQL Server 2008 Transparent Data Encryption (TDE) enables data to be stored securely by encrypting the database files. If the disks that contain database files become compromised, data in those files is protected because that data can only be de-encrypted by an authorized agent. SQL Server performs the encryption and de-encryption directly, so the process is entirely transparent to connecting applications. Applications can continue to read and write data to and from the database as they normally would. Backup copies of encrypted database files are also automatically encrypted. TDE implements strong encryption keys and certificates to secure data. Applications do not need to be modified to support TDE. TDE does not increase the size of the database. External Key Management enables certificates and encryption keys to be stored using third-party hardware security modules. Storing the keys separately from the data enables a more extensible and robust security architecture. External Key Management reduces administration requirements when there are multiple keys and certificates to manage.

3.3 Auditing

A compliance audit is a comprehensive review of an organization's adherence to regulatory guidelines. Independent accounting, security or IT consultants evaluate the strength and thoroughness of compliance preparations. Auditors review security policies, user access controls and risk management procedures over the course of a compliance audit (SearchCompliance.com, 2009).

With Oracle Audit Vault, audit data is consolidated automatically into a secure, centralized repository built using Oracle's proven data warehousing software, and analyzed in real-time against enterprise-defined policies. Any unauthorized activities can be detected immediately using Oracle Audit Vault's alerts dashboard. In addition, Oracle Audit Vault delivers pre-built, customizable reports to help address the need for comprehensive compliance reporting for regulations such as the PCI DSS, HIPAA, and SOX. Oracle Audit Vault's reports can be saved and shared within the enterprise as well as with external auditors. Oracle Audit Vault can be used to monitor privileged user activities as well as privileged user controls enforced by Oracle Database Vault, a native solution for real-time enforcement of preventive database controls.

The audit utility generates a trail of audit records for a series of predefined and monitored database events. The enhancements to the DB2 audit facility for Version 9.5 include fine grained configuration, new audit categories, separate instance and database logs, and new ways to customize the audit configuration. Because the users now has control over exactly which database objects are audited, they can audit only the events that occur for database objects for which they have an interest. Consequently, the performance of auditing (and its performance impact on other database operations) has been greatly improved. Sole responsibility for managing audits at the database level now lies with the security administrator.

SQL Server 2008 Data Auditing requires simple configuration using SQL Server Management Studio. It provides a simple way to track and log events relating to the user's databases and servers. The user can audit logons, password changes, data access and modification, and other events. Tracking these events helps maintain security and can provide valuable troubleshooting information. The results of audits can be

saved to file or to the Windows Security or Application logs for later analysis or archiving. Storing audit data outside of SQL Server database files results in minimal impact on performance.

4. CONCLUSION

Database security features in leading DBMSs are implemented to meet compliance requirements with simplified mechanisms. Enterprise Systems (Palgon, 2009) predicts when most organizations locked down data at risk Cybercriminals will focus more on stealing personally identifiable information (PII), then try to crack encrypted data by stealing encryption keys and certificates, virtualized data, etc. Governments and industries will institute additional regulations or add more security features to existing legislation and DBMS security mechanisms. However, the trade-offs and added data security benefits should be about the same since current economic time requires that organizations expect IT security “to do better with less.” That is, they want to spend less money and time on database management systems but ensure that critical data is protected and secured.

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THEFT-LOSS DEDUCTION FOR THE VICTIMS OF MADOFF'S PONZI SCHEME UNDER REV. RUL. 2009-9

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ABSTRACT

This paper points out that, by Madoff's ponzi scheme is a theft loss rather than a capital loss. It further substantiates that the investment is a transaction entered into for profit. As a result, the theft loss is fully deductible without limitations. The paper further demonstrates that the amount of the theft loss deduction consists of the initial investment and any additional investment plus any fictitious income included in taxable income in prior years, but reduced by withdrawals and any actual recovery and potential third-party recovery. The nondeductible theft loss qualifies as a net operating loss that can be carried back for five years and carried forward for 20 years. The phantom income is deductible as part of the theft loss, provided no amended tax return is filed to claim a tax refund. The statute of limitation is three years. Thus, the taxpayer cannot go back to the years where the periods of limitation have expired. This article also explains the safe harbor treatment offered by the IRS. In terms of the amount of deduction, the IRS allows the taxpayer to deduct a maximum of 95% of qualified investment that is the initial and additional investments plus fictitious income and minus withdrawals. If the taxpayer agrees not to file an amended tax return and also not to pursue potential third-party recovery, the deductible theft loss is 95% of qualified investment, but reduced the actual recovery and potential third-party recovery. If the taxpayer intends to pursue potential third-party recovery, the maximum deduction rate is reduced to 75%. If the taxpayer agrees to take this safe harbor treatment, the taxpayer must further agree not to deduct any more theft loss in future years and also not to file amended tax returns to apply for tax refunds for prior years. .

Keywords: Ponzi Scheme, Capital Loss, Theft Loss, Dividend Income, Phantom Income, Safe Harbor Treatment, Statute Of Limitation, Operating Loss Carryback And Carryforward, Tax Loophole

1. INTRODUCTION

Bernard L. Madoff was allegedly engaged in a \$65 billion ponzi scheme deceiving 13,000 investors in the past 20 years. On March 18, 2009 he pleaded guilty and on June 29, 2009 he was sentenced to 150 years in prison. On March 17, 2009 the Internal Revenue Service (IRS) immediately issued Rev. Rul. 2009-9 and Rev. Proc. 2009-20 that govern the treatment of investment loss from this criminal fraud. The tax treatment concerns whether the investment loss is a theft loss or a capital loss. If it is a theft loss, should the deduction limitations apply? Since the fraudulent scheme has been going on for decades, in what year should the loss be deductible and in what amount? If the loss is not fully deductible in the current year, in how many years can it be carried back and carried forward? During this long period the investors received income, but in substance it was fictitious. How should it be handled now? Since the fraud was only discovered in 2008, are the taxpayers going to lose the periods of limitation? In order to mitigate the taxpayer's record keeping chores and the IRS' administrative burden, the IRS now offers a safe harbor treatment by which the taxpayers are given an option. The answers to these questions sustain the substance of this paper.

2. WHAT IS MADOFF'S PONZI SCHEME?

Under the firm of Bernard L. Madoff Investment Securities, LLC, Madoff received funds from investors and promised a return at a rate of as high as 12% a year. However, in fact, he did not buy or sell stocks

or bonds. Instead, he appropriated the earlier investors' fund to pay dividends to the later investors. Worse yet, he issued Form 1099 to the investors and the IRS showing these fictitious dividend payouts. The investors duly reported the dividends as taxable income on their tax returns and paid income tax to the IRS. Moreover, Madoff falsified the fraudulent financial statements and had his CPA certify them. This is known as "ponzi scheme" but the fraud was not discovered until two decades later. Besides the aspects of the devastating consequences on so many investors and the supervisory failure on the part of the Securities and Exchange Commission, what are the problems from an income tax point of view?

3. CAPITAL LOSS VERSUS THEFT LOSS

Sales or exchanges of capital assets result in capital losses, which can be offset against capital gains, such as investment in stocks or bonds. Damages or theft of property give rise to casualty and theft losses, which cannot be offset against capital gains. The Madoff's ponzi scheme was structured as an investment vehicle, and the investors indeed intended to make such an investment. Unfortunately, the investment was not sold or disposed of; instead, it was stolen. Madoff knowingly and intentionally embezzled the investors' funds. Therefore, it constitutes a theft loss rather than a capital loss (Reg. §1.165-8(d)). This aspect is reaffirmed by Rev. Rul. 2009-9. As a consequence, losses from this Ponzi scheme have lost the benefits of reducing the tax on capital gains.

4. LIMITS OF THE THEFT-LOSS DEDUCTION

The deduction of a theft loss is subject to the limitations of two floors: \$500 for each event of loss and 10% of the taxpayer's adjusted gross income in the taxable year (Code §165(h)(1) and (2)). If the loss from the ponzi scheme is to be treated as a theft loss, should it be subject to the limitations? It depends on the nature of the property. If it is a personal-use property or a transaction entered into not for profit, then the theft loss is subject to the deduction limit. This is termed a §165(c)(3) deduction. An example would be the theft of a personal-use car. On the other hand, in the case of a business-use property or a transaction entered into for profit, the theft loss is not subject to the deduction limit. This is referred to as §165(c)(2) deduction. An example is a business-use truck that is destroyed in a highway accident.

What are the characteristics of the ponzi scheme? Madoff held himself out as "Bernard L. Madoff Investment Securities, LLC." It was meant to be an investment firm. The investors made the investment for the purposes of making a profit. The investment was indeed a "transaction entered into for profit" (§165(c)(2)) and Madoff clearly had criminal intent. Therefore, the loss from the ponzi scheme is qualified to be a theft loss without any deduction limits. Rev. Rul. 2009-9 provides that "...the theft loss therefore is deductible under §165(c)(2) and is not subject to §165(h) limitations." In other words, it is not required that the loss from the Madoff ponzi scheme be reduced by \$500 for each case of loss and 10% of the taxpayer's adjusted gross income in the taxable year. In fact, this procedure is outlined in Rev. Proc. 2009-20, Section 6.01(1) and Appendix A. A taxpayer is required to figure out the amount of "deductible theft loss" and enter it into Form 4684 without going through the limitations of the two floors.

Further, the "miscellaneous itemized deductions" are subject to the floor of 2% of the taxpayer's adjusted gross income (§67(a)). However, the theft loss is not classified as a miscellaneous itemized deduction. Therefore, it needs not be further reduced.

In addition, the "total itemized deductions" are further subject to a phaseout for taxpayers with adjusted gross income beyond a threshold amount (§68). Nevertheless, the casualty and theft losses are excepted from the components of the total itemized deductions. Therefore, the theft loss deduction

needs not be further reduced. In other words, the loss from the Madoff ponzi scheme is fully deductible without any limitations or reductions.

5. YEAR OF DEDUCTION

The Madoff ponzi scheme has been going on for the last 20 years, but it was not discovered until December 11, 2008. In what year can the taxpayer deduct the loss? The theft loss is deductible only in the year the taxpayer discovers the loss (Reg. §§1.165-8(a)(2) and 1.165-1(d)). Thus, the year of deduction is 2008. This determination has impact on the statute of limitations, which will be discussed later. At that time the taxpayer must also estimate the possible recovery in future years and subtract it from the deductible loss. If the actual recovery in the future year is less than what was estimated before, the additional loss is deductible in that future year. Conversely, if the actual recovery in the future year is more than what was estimated before, the additional recovery is includable in the taxpayer's gross income in that future year.

6. AMOUNT OF DEDUCTION

In the case of casualty loss, a taxpayer can deduct the lesser of the loss in the adjusted basis of the property or the decline in the market value of that property (Reg. §1.165-7). However, in the event of the loss from the ponzi scheme, the deductible amount becomes more complicated because it involves fictitious income that was in substance never realized, and yet it was wrongfully reported to the IRS as income by Madoff's criminal act and was also reported as taxable income on the taxpayer's tax return. This is termed phantom income, which will be discussed below. Under these circumstances, a taxpayer can deduct the sum of the initial investment and additional investment in later years plus fictitious income reported as taxable income in prior years, but reduced by any withdrawals and actual and potential third-party recovery, such as Securities Investor Protection Corporation (SIPC) (Rev. Rul. 2009-9). In fact, Rev. Proc. 2009-20 offers taxpayers a safe harbor treatment, which will also be discussed later. Therefore, the taxpayer has an option in determining the deductible amount.

7. NET OPERATING LOSS CARRYBACK AND CARRYFORWARD

The ponzi scheme has resulted in millions of dollars of losses on the part of many investors. The theft loss is one of the components of the "net operating loss." Many taxpayers may potentially end up huge amount of net operating loss. What is the timeframe for carrybacks and carryforwards? Usually, net operating losses can be carried back for only two years and carried forward for 20 years (§172(b)(1)(A)). However, in the case of a casualty and theft loss, it can be carried back for three years (§172(b)(1)(F)). Further, if the taxpayer is an "eligible small business" (i.e., a gross receipt of \$15 million or less), the casualty and theft loss can be carried back for either 3, 4 or 5 years (§172(b)(1)(H)(4)). The loss from the ponzi scheme certainly qualifies for this favorable treatment.

8. TREATMENT OF PHANTOM INCOME

In the ponzi scheme, the investors received fictitious dividend income and paid income tax on it. But in truth the taxpayer had no right to the item. This is termed "phantom income." How should this situation be treated? Can the taxpayer file an amended tax return for prior years? Can the taxpayer claim a theft loss deduction in the year of discovery for the phantom income? If the taxpayer elects to file an amended tax return and claim a tax refund for prior years (§1341), he/she is prohibited from claiming the theft loss deduction for this amount of income in the year of discovery. Alternatively, if the taxpayer elects to claim the theft loss deduction in the year of discovery, he/she is not allowed to file an amended tax return and

claim a tax refund for prior years (Rev. Rul. 2009-9). Therefore, the taxpayer actually has an option for the treatment of the phantom income.

9. PERIODS OF LIMITATION

Madoff's ponzi schemes has been going on for many years. If the taxpayer elects to file an amended tax returns and claim a tax refund for prior years, how many years can the taxpayer go back? Generally, the statute of limitation is only three years (§6501(a)). In the case of the Madoff ponzi scheme, since the year of discovery is 2008, the taxpayer can only go back three years, i.e., 2007, 2006 and 2005. There are exceptions, but since the taxpayer has correctly reported the income in the past years, the exceptions do not apply.

10. SAFE HARBOR TREATMENT

Madoff's ponzi scheme is astronomical in scale and in scope. It involves \$65 billion in amount with 13,000 investors in 7 binders spanning across a period of two decades. It is truly unprecedented. If all investors are going to go back to dig out all records and file amended tax returns, the IRS will face an avalanche of paper work. In order to alleviate this potential burden, the IRS offers taxpayers a safe harbor option to simplify the tax treatment and cut all future workload. In determining the deductible amount of theft loss, Rev. Proc. 2009-20, Section 5.02 provides that:

“The amount specified in this section 5.02 is calculated as follows –

(1) Multiply the amount of the qualified investment by –

(a) 95 percent for a qualified investor that does not pursue any potential third-party recovery,

or

(b) 75% for a qualified investor that is pursuing or intends to pursue any potential third-party recovery,

and

(2) Subtract from this product the sum of any actual recovery and any potential insurance/SIPC recovery.”

If the taxpayer agrees to take advantage of this safe harbor treatment, the IRS further imposes restrictions on the part of the taxpayer. Rev. Proc. 2009-20, Section 6.02 provides that:

“By executing the statement provided in Appendix A of this revenue procedure, the taxpayer agrees –

(1) Not to deduct in the discovery year any amount of the theft loss in excess of the deduction permitted by section 5 of this revenue procedure;

(2) Not to file return or amended returns to exclude or recharacterize income reported with respect to the investment arrangement in the taxable year preceding the discovery year;

(3) Not to apply the alternative computation in §1341 with respect to the theft loss deduction allowed by the revenue procedure; and

(4) Not to apply the doctrine of equitable recoupment or the mitigation provisions in §§1311-1314 with respect to income from the investment arrangement that was reported in taxable years that are otherwise barred by the period of limitations on filing a claim for return under § 6511.”

In simple terms, the above two sections mean that the taxpayer will be given a maximum theft-loss deduction of 95% of the qualified investment. This includes the initial and additional investments plus fictitious income but reduced by any withdrawals, if the taxpayer agrees not pursue any third-party recovery. The above deductible amount must be further reduced by any actual recovery and potential third-party recovery, if any. The above 95% deduction rate is reduced to 75% if the taxpayer intends to

pursue any third-party recovery in future years. However, the taxpayer must in turn agree not to deduct any additional theft loss in future years. The taxpayer must further agree not to file amended tax returns to claim tax refunds for prior years.

It should be noted that the above 95%/75% deduction rate applies before deducting any actual recovery and potential third-party recovery. In other words, the amounts of actual recovery and potential third-party recovery are not subject to the 95%/75% limitation. Instead, it is deductible from the theft loss in its full amount and not just 95%/75% of it. Here is an example to demonstrate how to apply the safe harbor treatment..

11. EXAMPLE

A individual taxpayer invested \$500,000 to Madoff's investment firm in 2002. He further invested additional \$120,000 in 2003. He received \$10,000 cash dividends each year in 2003, 2004, 2005, 2006 and 2007, totaling \$50,000 (\$10,000 x 5 years). He filed Form 1040 every year and reported these cash dividends as gross income to the IRS and paid income taxes. He withdrew \$70,000 in 2007. In 2008 it was discovered that the investment was actually a ponzi scheme, and he thus has received \$40,000 actual recovery from the investment firm. If he pursues potential third-party recovery from SPIC, he is expected to receive additional \$60,000 recovery in 2009. What is the deductible theft loss in each of the following three different cases?

CASE A: The taxpayer agrees to apply the safe harbor treatment and does not intend to pursue potential third-party recovery. The taxpayer further agrees not file amended tax returns for prior years to claim tax refunds.

Since the taxpayer agrees to apply the tax harbor treatment, he is not allowed to file amended tax returns to claim tax refundx, the entire \$50,000 dividends income is deductible. Therefore, the taxpayer's qualified investment is \$600,000 (\$500,000 + 120,000 + 50,000 – 70,000). The taxpayer can deduct 95% of the \$600,000 qualified investment, i.e., \$570,000. Since the taxpayer has received \$40,000 actual recovery from the investment firm, it should reduce the deductible loss. Further, since the taxpayer does not intend to pursue potential third-party recover, he does not have to estimate the recovery. Thus, it does not reduce the deductible loss. As a result, the taxpayer's deductible theft loss is \$530,000 (\$570,000 – 40,000). It should be noted that the 95% reduction applies before deducting the \$40,000 actual recovery. The entire amount of \$40,000 recovery is fully subtracted from the deductible loss. It is not subject to the 95% limitation.

CASE B: The taxpayer agrees to apply the safe harbor treatment, but intends to pursue potential third-party recovery. The taxpayer further agrees not file amended tax returns for prior years to claim tax refunds.

In this situation, the qualified investment is the same as CASE A, i.e., \$600,000 (\$500,000 + 120,000 + 50,000 – 70,000). However, since the taxpayer intends to pursue potential third-party recovery, the deductible loss is reduced to only 75% of the \$600,000 qualified investment, i.e., \$450,000 (\$600,000 x 75%). The taxpayer must also estimate the potential third-party recovery, i.e., \$60,000, and deduct it from the deductible loss, together with the \$40,000 actual recovery from the investment firm. Therefore, the taxpayer's deductible theft loss is \$350,000 (\$450,000 – 40,000 – 60,000). It should be noted that the 75% reduction applies before deducting both the \$40,000 actual recovery and the \$60,000 potential third-party recovery. It should further be noted that, since the taxpayer has reduced the deductible theft loss by the amount of \$60,000 potential third-party recovery, if the actual recovery is more than that amount in

the future, the difference should be added to gross income. Conversely, if the actual recovery is less than amount in the future, the difference is further deductible at that time.

CASE C: The taxpayer does not agree to apply the safe harbor treatment and intends to file amended tax returns and also intends to pursue potential third-party recovery.

Since the statute of limitation is only three years, the taxpayer can file amended tax returns for only 2007, 2006 and 2005, but not 2004 and 2003. Thus, the \$30,000 (\$10,000 x 3 years) dividends income from 2007, 2006 and 2005 cannot be claimed as loss deduction. Only the \$20,000 (\$10,000 x 2 years) dividends income from 2004 and 2003 can do so. The taxpayer's qualified investment is now \$570,000 (\$500,000 + 120,000 + 20,000 – 70,000) and it is 100% deductible without the 95%/75% reduction. Further, since the taxpayer intends to pursue potential third-party recovery, he must estimate the amount of recovery, i.e., \$60,000 which reduces the deductible loss, along with the \$40,000 actual recovery from the investment firm. As a result, his deductible theft loss is \$470,000 (\$570,000 – 40,000 – 60,000).

The results are summarized below:

YEAR	TRANSACTION	CASE A	CASE B	CASE C
2002	Initial investment	\$500,000	500,000	500,000
2003	+ Subsequent investment	+120,000	+120,000	+120,000
2003-2007	+ Dividend income	+50,000	+50,000	+20,000
2007	- Withdrawal	(70,000)	(70,000)	(70,000)
	TOTAL	600,000	600,000	570,000
	x Percentage	x95%	x75%	X100%
		570,000	450,000	570,000
2008	- Actual recovery	(40,000)	(40,000)	(40,000)
2009	- Potential insurance/SIPC recovery	(0)	(60,000)	(60,000)
	DEDUCTIBLE THEFT LOSS	530,000	350,000	470,000

This example illustrates that the taxpayer is given an option. The taxpayer may or may not choose to file amended tax returns. The taxpayer may or may not pursue potential third-party recovery. The choice has an impact on the amount of theft loss deduction now. It also has consequences on the tax refunds and potential third-party recovery in the future. Next section delineates the possible strategies.

12. POSSIBLE TAX LOOPHOLES

The safe harbor tax treatment may create some tax loopholes. Now, a taxpayer is given a great variety of options. If a taxpayer chooses not to file amended tax returns and also not to pursue potential third-party recovery, the deductible theft loss would be higher, but he loses the benefits of tax refund and the potential third-party recovery. The decision lies whether the tax savings of higher loss deduction are higher than or lower than the benefits of tax refund and the third-party recovery.

If a taxpayer chooses not to file amended tax returns but intends to pursue third-party recovery, the deductible theft loss is lower, but there is a benefit of receiving potential third-party recovery. The decision depends on whether the benefit of potential third-party recovery is more than or less than the losses of tax refund and less theft loss deduction.

If a taxpayer chooses to file tax amended tax returns, he is not allowed to apply the safe harbor treatment. He cannot deduct the phantom income for the period, but he is free to pursue the third-party recovery.

The deductible loss may be less, but there are benefits of tax refund and potential third-party recovery. The decision lies whether the benefits of tax refund and the potential third-party recovery are more than or less than the sacrifice of theft loss deduction.

The IRS indeed offers many options for the taxpayers to deduct the loss from Madoff's ponzi scheme. In order to maximize the benefits a taxpayer must be aware of what is deductible and to what extent it is deductible.

13. CONCLUSION

This article points out that, by the nature of Madoff's ponzi scheme, the investment loss constitutes a theft loss rather than a capital loss. It further substantiates that the investment is a transaction entered into for profit. As a result, the theft loss is fully deductible without limitations. The paper further demonstrates that the amount of the theft loss deduction consists of the initial investment and any additional investment plus any fictitious income included in taxable income in prior years, but reduced by withdrawals and any actual recovery and potential third-party recovery. The nondeductible theft loss qualifies as a net operating loss that can be carried back for five years and carried forward for 20 years. The phantom income is deductible as part of the theft loss, provided no amended tax return is filed to claim a tax refund. The statute of limitation is three years. Thus, the taxpayer cannot go back to the years where the periods of limitation have expired.

This article also explains the safe harbor treatment offered by the IRS. In terms of the amount of deduction, the IRS allows the taxpayer to deduct a maximum of 95% of qualified investment that is the initial and additional investments plus fictitious income and minus withdrawals. If the taxpayer agrees not to file an amended tax return and also not to pursue potential third-party recovery, the deductible theft loss is 95% of qualified investment, but reduced the actual recovery and potential third-party recovery. If the taxpayer intends to pursue potential third-party recovery, the maximum deduction rate is reduced to 75%. If the taxpayer agrees to take this safe harbor treatment, the taxpayer must further agree not to deduct any more theft loss in future years and also not to file amended tax returns to apply for tax refunds for prior years. An example was given for demonstrative purposes.

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TEACHING OPERATIONS MANAGEMENT IN AN ONLINE EMBA PROGRAM

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ABSTRACT

Operations management is one of nine learning modules in the Executive MBA program taught at the Lubin School of Business, Pace University. The program is unique in that the students spend three days on site at the school for each module and then spend 10-12 weeks with interactive learning via the Internet. This paper demonstrates how students can successfully learn the technical and managerial aspects of operations management online.

1. OVERVIEW

MBA degrees in most traditional major areas of study are offered by a large number of accredited colleges and universities in the United States and many other countries. A novel online executive MBA degree was launched in 2000 by the Lubin School of Business at Pace University. The innovative program at Pace combines residencies every 10-12 weeks with interactive learning via the Internet. Participants work as a cohort group over a 24 month period to complete the requirements for Pace's fully AACSB-accredited MBA degree. The program offers an excellent alternative to having to attend the weekly classes in traditional courses in the regular MBA program.

The program consists of nine learning modules which meet the learning objectives of the Pace MBA. This contrasts with the traditional new Pace MBA program in which a student without a business undergraduate degree takes 19 basic core credits (most waivable), 15 (non-waivable) professional core credits, 15 credits in a concentration, 6 breadth elective credits and a 3 credit capstone credit. This amounts to 19 courses, which students in the part-time program typically take over several years. By contrast, the online program, also designed for working professionals, is completed in two years.

2. PROCESS

The EMBA program begins with a day residency at the University's state-of-the-art conference center in New York's financial district. During the initial residency, students learn the business theories and tools needed for the first learning module. They form teams to work on cases and projects of the first module, learn how to acquire information from both Internet sources and Pace's extensive online library resources and how to make full use of the Blackboard instructional platform. This platform serves as the hub for the learning process by supporting student and faculty interaction and support between residencies. After the initial residency there is a three day residency which ends the preceding module with project presentations and a final examination and begins the following module.

Between residencies, students learn by completing individual learning exercises and by working with their team on the substantial integrative projects. Most of the work is done asynchronously, but periodically, faculty offer virtual classroom sessions either live or as recorded lectures using Microsoft Live Meeting. Working in teams, meeting deadlines, preparing reports, and making presentations during the residencies, assures that students become accomplished problem solvers and effective communicators. Professors monitor the process continually and are always there to provide support to individuals and teams as needed. At the beginning of each module, new teams are formed, so students benefit from a variety of team members with different experiences and strengths.

3. MODULE DESCRIPTIONS

In each of the nine modules, students complete a substantial project. *They work as teams of four to five in eight of these projects and the last on their own. Team projects require students to solve large-scale, complex, contemporary business problems assigned by the program faculty. The projects encourage a holistic, cross-disciplinary approach for their general solution but also make technical demands on teams. Students learn business theory and methodology about subjects such as statistics, accounting, and*

strategy, when the need arises while completing a project. Individual projects are similar in scope to team projects but are proposed by students based on actual business problems they either are facing or anticipate in their work. (From the Pace site)

Module 1: Business Analysis

Student project teams study the problem of improving a service operation. To solve the problem, students are required to research the operational issues associated with the improved service center. They assess the existing operating facility and recommend methods to bring the facility up to specified standards. They specify necessary technology and develop staffing plans that will meet the new operational requirements.

Module 2: Competitive Business Strategy

Teams create recommendations for revising a business strategy to improve the competitive position and financial performance of a firm. To support the recommendations the team identifies and evaluates the current competitive strategy of a business, analyzes the conditions and trends in its environment, assesses its resources and competencies, and examines its organization, culture, and leadership. The team also develops a 5-year forecast of industry demand, business market share, and pro forma financial statements and demonstrates how they will result from the business strategy recommendations.

Module 3: Global Diversification Strategy

Teams create recommendations for a geographic expansion, business acquisition, resource development, divestiture, strategic alliance, or similar corporate strategy initiative to improve the performance of a global diversified company like General Electric, Phillips, or Matsushita. Support for the recommendation includes financial projections, corporate strategy considerations, and organizational impacts. The project should also analyze the interrelationships between the proposed strategic initiatives on the synergy with other businesses in the firm's portfolio.

Module 4: Operations Management

Student project teams develop a recommendation for reengineering a complex manufacturing, service or distribution operation. This recommendation may incorporate make-or-buy decisions, forward or backward integration decisions, continuous or revolutionary change processes, and redefinition of input or output requirements in terms of cost, quality, and service. The teams justify their recommendations in terms of the improved capacity, efficiency, effectiveness, or flexibility of the operation.

Module 5: Marketing

Project teams develop a marketing plan for an existing or new product or business. This project involves the development of a full scale marketing plan which incorporates all forms of integrated marketing communication necessary to build awareness and create loyal customers.

Module 6: Corporate Finance

This module is focused on capital budgeting, cost of capital, valuation principles, corporate governance, risk analysis, dividend policy and statistical analysis. Students work in teams to solve a comprehensive corporate project. Each team is responsible for analyzing the financial position of a firm and making strategic recommendations. The recommendations focus on such areas as risk management, corporate governance, dividend policy, and capital structure. The project also makes extensive use of financial databases and statistical models.

Module 7: Managerial Accounting

In the project, teams are charged with contributing information and evaluations affecting management's strategic and operational decision making responsibilities and with suggesting strategic and operational alternatives for improving the company's efficiency and profitability. Student teams develop and implement an activity-based cost system for the company's distribution operations.

Module 8 Organizational Behavior and Change

Student teams gather information on large, complex organizations over time to determine how the organizations have dealt with change in the past and to project what they might do to accommodate, or

perhaps even anticipate, the need for change in the future. This module focuses primarily on the human side of organizations and leadership, with secondary focuses on strategy, marketing, and finance issues.

Module 9: Management Simulation and Final Project

This module has both individual and team-based components. Individual students design and implement a significant multidisciplinary research. A team component of this module is a complex management simulation. Student teams manage companies in a competitive market place where the goal is to achieve the best performance in the simulated market. Traditional business measures such as ROI, market share and stock price are used to evaluate team performance.

4. STRUCTURE

4.1 Blackboard

The Blackboard platform is used throughout the University's courses. It plays a particularly important role in graduate business courses, where students come to classes only once a week. In that context, it keeps students in touch with each other and the professor between classes. The platform is a vital component of the EMBA experience, since students are away from campus for 10-12 weeks at a time. The functions served by Blackboard are as follows:

- a. Message board: There are pages providing essential information about the course, including:
 - i. Syllabus, including faculty contact information, course objectives, detailed course outline, student responsibilities and grading policy
 - ii. Assignments – detail about what deliverables are due
 - iii. Course Documents: This includes expository notes on technical matters, newspaper and journal articles, spreadsheet examples of computations required for case analyses
- b. Discussion board. The discussion boards for the whole class and for teams serve as an information exchange among students, monitored closely by the faculty. Under forums set up by the professor, students can ask questions, answer questions posed by their colleagues and make comments about exercises, cases or projects.
- c. Digital dropbox. This is a place where students can send documents or other files such as completed assignments.
- d. Email. Students have access to the email addresses of all students, faculty and administrators in the program, which facilitates communication.
- e. Gradebook. Students can continually see their progress through the module by having access to their grades on all submitted work, weighted grade point average in the module and overall course grade statistics.
- f. Group pages. Each group of students on a team are assigned their own pages which allow them to have a private discussion board and file exchange.

4.2 The Operations Module

The Operations Management module contains the topics in a traditional course with the addition of a significant and realistic project which requires students to research and apply the lessons of the module. Topics are:

- Process flow analysis
- Total quality management
- Statistical process control
- Supply chain management
- Inventory control
- Physical distribution

4.3 Module Residency

The module begins with a one and a half day residency where students are introduced to the operations subject material, the learning exercises and the final project. Lectures introduce the subject material, module objectives and procedures, required work and available resources. They also begin instruction in

process flow analysis. Students are assigned their teams and work on a process flow case analysis for class discussion and organize for the team project. Faculty facilitators assist each group.

4.4 Learning Exercises

Students learn the basic topics in operations by individually preparing three learning exercises. These cover:

- Process flow and capacity analysis
- Total quality management and statistical process control
- Supply chain management and inventory control methods

Students learn the subject matter and prepare the exercises individually. There are many learning aids which is discussed below.

4.5 Learning Aids

In order to assist students in learning the complex issues and technical models, many aids are available.

- a) Textbook: Jacobs, Chase and Aquilano: Operations and Supply Management, 12/e, McGraw-Hill, 2009 is provided to students on CD along with the supplementary DVD. Chapter readings for each of the topics are assigned to coordinate with each of the learning exercises.
- b) Current articles: Relevant articles from business publications are posted on Blackboard to reinforce the relevance of the topics to current issues and problems in managing operations in the current economic environment.
- c) PowerPoint presentations: Slide presentations along with presentation notes enhance the material from the textbook and relate subject matter to the specific issues relevant to the learning exercises and the project.
- d) Tutorial presentations and spreadsheets: In order to teach models to be used in operations PowerPoint slides are paired to Excel spreadsheets. Instructions for building and using specific models are provided in presentations and students work with spreadsheet templates to complete short exercises.
- e) Discussion board: This feature of Blackboard provides all students a forum for asking and answering questions relating to topics, learning exercises and project deliverables. Documents, articles, and spreadsheets can be shared with all participants.
- f) Microsoft Live Meeting: This powerful tool allows audio and video conferences to be made and recorded. Any object that can be shown on a computer screen can be shared with all participants. These include PowerPoint slides, Excel spreadsheets, Word documents, photos, live video from webcam or recording, live whiteboard and more. Audio uses VoIP or standard conference calling. Live Meeting is used in two ways:
 - i) Asynchronous recordings. Here the faculty member gives a lecture or tutorial with video slides without any students present and records it to the Live Meeting website. Students can log in and view the session at any time. This is particularly effective for teaching and demonstrating Excel modeling.
 - ii) Synchronous live meetings. These are sessions with students logged in to the live session. The presenter or the students can share video for all participants to view. The sessions are recorded and posted so those unable to attend live can view it at their convenience. These sessions are good for reviewing learning exercises and for question and answer sessions.
- g) Conference calls: Students' groups with or without their faculty advisors hold audio conference calls to plan and share information for completing the term project.

4.6 Module Project

The project provides important learning objectives for the operations module. Student teams of four to five students along with a faculty advisor work on an operations project assigned during the module residency. The project is comprehensive and interdisciplinary. It requires analyses of process flows, capacity, capital investment, facility management, quality control, inventory, distribution and logistics. In addition, accounting principles, marketing analysis and financial planning are integrated into the project requirements. Students must learn how to gather and interpret data and use them to make better

operations decisions. Several Live Meeting sessions with industry representatives are held. The culmination of the project is a presentation to industry executives who review the quality of the project for content and presentation. A comprehensive written report with all documentation, data and models is also required.

4.7 Final Exam

During the final residency for the module, an in-class final exam is administered. The exam is comparable to the exam given in a traditional Operations Management course.

4.8 Assessment

Course grades are determined by the individual scores on the three learning exercises, the grade on the final exam and a composite grade for the group based on the project content, presentation and reviewer evaluations. Group members fill out an assessment form rating the contributions of their colleagues in the group.

5. PROGRAM STRENGTHS AND WEAKNESSES

Teaching operations management through an interactive online method compares very favorably with a traditional course.

5.1 Strengths

- Helps develop individual research skills
- Provides realistic problem solving experience
- Teaches effective teamwork and time management skills
- Improves presentation skills
- Puts operations into a real-world context integrating it with related interdisciplinary topics
- Final exam grades of online students are comparable to exam grades of traditional students

5.2 Weaknesses

- Less face-to-face time with faculty
- Requires more self motivation from students
- Difficult to quickly identify weak students to provide support
- Uneven student contributions to project.

6. SUMMARY

This paper describes how operations management is successfully taught in a novel MBA program offered at Pace University's Lubin School of Business. The program is designed for busy executives and efficiently makes innovative use of the Internet, bound together with short residencies in New York with the program faculty. In its January 2006 peer review report, the AACSB team said: "The Pace EMBA program is highly innovative, ahead of its time, and unique in the marketplace."

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