

RELATIONSHIP BETWEEN CRUDE OIL PRICES AND THE STOCK MARKET: BEFORE AND AFTER THE LIFTING OF U.S. CRUDE OIL EXPORT BAN

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ABSTRACT

In this paper we study the relationship between crude oil prices and stock prices of oil-related companies in S&P 500 both before and after the U.S. ban on crude oil exporting was lifted. We observe from the sample data that the stock prices are more sensitive to change in oil prices after the ban was lifted than before. Using linear regression models, we also identify a sub-industry of oil industry that is the most sensitive to change in oil prices and one that is the least sensitive to change in oil prices for both periods. Furthermore, the regression analysis shows that the stock returns of oil companies in S&P 500 are more affected by S&P 500 returns than oil returns.

Keywords: Oil Price, U.S. Oil Exporting Ban, S&P 500, Stock Market, SOR Index

1. INTRODUCTION

Energy is critical for the prosperity of this modern world. Among many types of energy, oil has played a significant role in economic growth for many industrialized countries, including United States. In the free market oil prices are determined by demand and supply forces.

However, sudden and substantial increases in oil prices can greatly influence the economies through both macro- and micro-economic factors. Consequently, many researchers have studied the effects of oil price change on the economies of industrialized countries. For instance, Hamilton (1983) concludes that increases in oil prices are closely related to real GNP. In the micro-economic perspective change in oil prices affects equity prices (Huang et al., 1996).

One of the considerable effects of oil supply shock on the economies that U.S. experienced is the 1973 oil crisis. This resulted in the U.S. crude oil export ban starting in 1977 that lasted until December 2015 (The Energy Policy and Conservation Act, 1976 & The Economist, 2015). Before lifting the ban, the U.S. was a heavy importer of crude oil partly due to the ban. However, Reuters reported in December 2018 that U.S. currently exports more oil than it ships in (Reuters, 2018).

In this paper we empirically study relationship between oil price change, obtained by using the West Texas Intermediate (WTI) as the benchmark indicator of oil pricing, and stock prices of S&P 500 companies that belong to the energy industry group according to Global Industry Classification Standard (GICS).

More precisely, we consider the following five sub-industries under energy industry group: Oil & Gas Equipment and Services, Integrated Oil & Gas, Oil & Gas Exploration and Production, Oil & Gas Refining and Marketing, and Oil & Gas Storage and Transportation.

We collected sample data from January 4, 2010 to July 8, 2019 through Yahoo Finance (for stock prices) and the U.S. Energy Information Administration (for WTI crude oil price). The starting year 2010 of the sample data was chosen to minimize the noise of the market turmoil caused by the global financial crisis from 2007 to 2009. During the financial crisis, asset price volatilities in the commodities and financial markets increased substantially (Grane & Veiga, 2014).