CORRELATION BETWEEN BITCOIN, STOCKS AND GOLD: A MARKOV REGIME-SWITCHING APPROACH

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ABSTRACT

The following article explores the correlation between bitcoin and both stocks and gold. A Markov regime-switching approach was used to identify and date two regimes in each of these financial assets. Stock returns are characterized by short-lived episodes of elevated volatility and negative returns whereas bitcoin returns are characterized by a persistent high volatility state with positive returns. Gold stayed in the low volatility period most of the time and only a few short-lived episodes of high volatility were identified during the first year of the pandemic. A concordance measure was computed to assess the synchronicity and correlation between the regimes. The regimes of bitcoin and gold are uncorrelated suggesting that bitcoin is not yet perceived as a safe haven like gold. The regimes of bitcoin and stocks were also uncorrelated suggesting that bitcoin may be used as a hedge against stocks.

Keywords*: Bitcoin, correlation between bitcoin and stock market, correlation between bitcoin and gold, Markov regime-switching.*

1.INTRODUCTION

In recent times, the financial world has seen an explosion of new cryptocurrencies. During years, investors were skeptic about the use of cryptocurrencies as a financial instrument that could be an integral part of their diversification strategies. However, this perception has changed in the last three to four years and more and more investors have incorporated cryptocurrencies in their portfolios. Also, a growing number of businesses now accept cryptocurrencies as a means of payment.

In addition, El Salvador was the first nation to accept bitcoin as legal tender, followed by the Central African Republic where bitcoin functions as a legal currency. Cryptocurrencies have been touted as the currencies that will eliminate the problems created by regular money. For example, cryptocurrencies' advocates affirm that they are an effective shield against inflation and, in consequence, a haven in times of financial instability. If this is the case, it is expected that the demand behavior of cryptocurrencies to resemble the demand for gold which has traditionally been considered a haven. In addition, since cryptocurrencies have been incorporated to the portfolios of traditional investors, it is expected that they would be affected by the same factors that affect the valuation of equities. For example, changes in monetary policy such as interest rate increases to reduce inflation that have sunk the valuation of equities, should also affect the prices of cryptocurrencies.

The objective of this article is to shed light on the behavior of cryptocurrencies over time and their interactions with gold and the stock market. Given the growing number of cryptocurrencies in the market, this study will focus on bitcoin. Specifically, a Markov regime-switching model is proposed for the identification of two states in the time series of bitcoin. A similar methodology will be applied to the stock market and gold. Once the regimes have been identified and dated, their synchronicity will be computed, and a correlation test will be performed. These tests can be used to assess the validity of some hypotheses.

For example, if investors consider bitcoin as a haven in the same fashion as gold, it would be expected that the demand and price of both bitcoin and gold to increase in periods of financial instability. In other words, a high degree of synchronization between their regimes is expected. In addition, a high degree of synchronization between the regimes of bitcoin and stocks would suggest that investors perceive them as assets in the same category. For the contrary, a low degree of synchronization would suggest the potential use of bitcoin as a hedge against stocks.