Journal of Financial Management Strategy
Alzahra University
Vol. 11, No. 40, Spring 2023

pp. 19-22

Research Paper

Analysis of the Relationship between Bitcoin Fluctuations and Tehran Stock Exchange Fluctuations During the Coronavirus Pandemi (Markov Switching Baysian VAR)[1]

Mohammad Ali Yousefi Behzad Farokhi[2], Samineh Ghasemifar[3]

Received: 2022/04/13 Accepted: 2023/02/23

INTRODUCTION

Today, digital currencies have become increasingly popular as an investment product with incredible returns and high risk. These currencies are inspired by research in the field of asset portfolio diversification and hedging of financial assets (Bori et al., 2017; Shahzad et al., 2019; Smalls, 2019). By reviewing the research literature, it can be found that a major part of the literature related to cryptocurrencies mainly focuses on the mechanism of determining the price of Bitcoin and its ability to develop into an alternative monetary system, such as Rogojano and Badia (2014); Brandold et al. (2015); Siyayan et al. (2016); Dwyer (2015). The movement of investment flow towards Bitcoin among new cryptocurrencies is because, despite the diversity of digital currencies, Bitcoin has maintained its first position for 10 years with a share of 51% of

1. DOI: 10.22051/JFM.2023.40085.2675

2. Ph.D. Student, Department Economical Science, Shahid Bahonar University, Kerman, Iran. Email: Aliyousefi8732@yahoo.com.

3. Postdoctoral Researcher, Alzahra University, Tehran, Iran. Email: saminehghasemifar@yahoo.com.

the total capital of cryptographic assets. In addition, the Bitcoin market has experienced rapid growth and significant development in the past decade. Specifically, the capitalization of Bitcoin increased significantly between the third quarter of 2014 and the third quarter of 2019, from about $30 million to almost $20 billion, a growth rate of almost 1,000 percent. Along with the global expansion of the use of cryptocurrencies, a growing tendency to invest in cryptocurrencies has been observed in Iran in the last few years. The government and the central bank have imposed restrictions regarding the control of cryptocurrencies due to this trend. Based on this, considering the direct and non-economic influence of Iran on the global financial markets and the expansion of activity related to cryptocurrencies, especially in the years of the intensification of international sanctions, as well as the conditions of the Corona pandemic, the question arises whether Bitcoin fluctuations as a currency can affect domestic financial asset yield fluctuations or not.

The new contribution of this research is to investigate the relationship and mutual and non-linear correlation between the risk of Bitcoin assets, securities, and foreign currency in the portfolio of domestic investors and analyze these relationships by identifying the behavioral regimes of Bitcoin during the pandemic.

MATERIALS AND METHODS

Initially, this study identifies two regimes of severe and mild fluctuations for Bitcoin based on the assumption that these fluctuations are state-dependent. The MSBVAR model developed by Sims et al. (2008) is utilized to identify these regimes, as it is well-suited for analyzing non-linear relationships between variables and identifying sudden changes in financial variables. Subsequently, a non-linear Bayesian approach is employed to estimate the impacts of Bitcoin and foreign currency fluctuations on the return of the stock market index. Portfolio theory is then utilized to investigate the effects of Bitcoin fluctuations on stock market returns.

RESULTS AND DISCUSSION

The transition probabilities between regimes indicate that regime one is more stable than regime two. According to the findings, the probability of remaining in regime one is 0.99, whereas the probability of remaining in regime two is 0.49. This outcome aligns with the nature of bitcoin volatility because the two regimes correspond to the corona pandemic. Further elaborating on these results, it can be stated that the stability of regime one in comparison to regime two reflects the emergence and possibly fading of the corona pandemic over time, which affects the behavior of the studied economic variables. In regime one (the period before the start of the corona pandemic), the response of the stock index returns to bitcoin fluctuations is positive, but it gradually diminishes after 14 periods. Moreover, the response of stock index returns to exchange rate fluctuations is positive and significant but decays over a more extended period. These response functions belong to regime 2. This regime relates to the beginning of the corona pandemic era. In this regime, the reaction of the stock return index to bitcoin price fluctuations is also positive and significant, but it is stronger than the reaction in regime one. Additionally, the response of the stock return variable to the other two variables is positive in this regime but stronger than the response in regime one. These findings confirm the research hypothesis.

CONCLUSION

The results generally show the relationship between the risks of these two assets in the investor's asset portfolio in two different regimes. According to the research results, a positive correlation has been observed between the return risk of the stock index and both bitcoin and currency in the investor's asset portfolio, in both regimes. Additionally, Bitcoin price fluctuations have a positive effect on stock index fluctuations, but the reaction of the stock market index to the Bitcoin price impulse after the outbreak of Corona is much stronger than before the outbreak. The reaction of stock returns to Bitcoin fluctuations in both regimes shows that Bitcoin can act as a suitable risk hedge in the conditions of the Corona pandemic, which is in line with the results of Buri et al. (2017). The mutual influence of stock index fluctuations and Bitcoin is also confirmed by the article of Lopez Gabarkos et al. (2021). On the other hand, the obtained results confirm the research hypothesis about the effect of Bitcoin fluctuations on the fluctuations of stock returns. This hypothesis is consistent with the theoretical basis of portfolio theory and the relationship between the risks of different assets in the investor's portfolio.

Keywords: Bitcoin Fluctuations, Corona Epidemic, Portfolio, Stock Market Index, MSBVAR Approach.

JEL Classification: N20, I10, G11, G23, C11.