TRANSPARENCY OF THE FEDERAL RESERVE, A FORCE OF STABILITY OR VOLATILITY IN FINANCIAL MARKETS POST 2008 AND PRIOR TO COVID-19?

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ABSTRACT

The purpose of this article is to analyze how the Central Bank of the United States, the Federal Reserve's decision to provide greater transparency after the Financial Crisis of 2008 impacted the volatility in financial markets. This study uses five Chicago Board Options Exchange Volatility Indices as a proxy for overall market volatility and attempts to capture their deviances from expected returns. The event dates identified are when the United States Federal Reserve met and released their "summary of economic predictions".

The methodology deployed uses an event study framework on daily financial market data from the Federal Open Market Committee (FOMC) meeting days, to determine how an increased availability of information impacted financial markets in the period of January 2008 – January 2020.

The results of the empirical analysis do not reveal abnormal returns pre or post the event dates. This finding suggests that the FOMC announcements did not lead to significant abnormal returns of the analyzed assets.

Keywords: Federal Open Market Committee, transparency, Central Bank, monetary policy, financial markets, volatility, market efficiency.

JEL Class: E44, E52, E58, D78, G14.

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INTRODUCTION

In response to the 2008 financial crisis, the United States Federal Reserve increased transparency regarding its decisions on how monetary policy is conducted. In 2011, the Chairman of the Federal Reserve began to hold press briefings four times a year to present the Federal Open Market Committee's (FOMC) current economic projections and to provide additional context for policy decisions. These projections include forecasts for economic growth, unemployment, and inflation. Using daily financial market data from the FOMC meeting days, this research analyzes the movement in various Chicago Board Options Exchange – Exchange Traded Funds (CBOE ETFs) to determine how this increased availability of information impacts financial markets prior to March 2020. This study hypothesizes that the Federal Reserve's increased transparency following the 2008 Financial Crisis, significantly impacts financial markets, as measured by deviations in the Chicago Board Options Exchange Volatility Indices, around the FOMC meeting dates.

This research is significant for both the academic and the professional (industry) audience. Given the volatility in the equity markets and criticism of the Federal Reserve's plan to return a "normal rate" environment post the Great Recession, there is an increased focus on how monetary policy will be conducted. The data points that are provided for each of the years in the forecasts are: the percent change in gross domestic product adjusted for inflation, the unemployment rate, the percent change in the price index for personal consumption expenditures, and the percent change in the price index for PCE excluding food and energy. Beginning in January 2012, the economic projections also include information about policymakers' projections of appropriate monetary policy. These projections support the Federal Reserve's statutory mandate to promote maximum employment and stable prices. This immediate dissemination of information from the Federal Reserve to the public impacts equity markets. This movement can positively or negatively impact investors. One way market participants can gauge investors' fear or concern over these macroeconomic indicators is through the Standard & Poor's stock market index (S&P 500 index). Specifically, the CBOE VIX Volatility Index looks at the 30-day future options to measure how volatile investors believe the market will be. The goal of this research is to further understand how this level of openness to enhance transparency by the Federal Reserve has impacted financial markets.

This study intentionally concluded before the COVID-19 pandemic due to the financial uncertainty that existed during that time. The period of the COVID-19 crisis was characterized by an extreme degree of uncertainty impacting all economies around the globe causing a high level of volatility. Several studies have utilized the event study methodology to examine the COVID-19 pandemic,

and the consequent behavior of financial markets (Chevallier, 2020; Cheng, 2020; Bretscher et al., 2020). Findings include that major crisis or risk factors cause rapid and massive financial market reactions (Rai et al., 2020). This current study is structured to eliminate the massive reactions fueled by the COVID-19 crisis on US financial markets, the period analyzed concludes prior to the start of the COVID-19 pandemic.

This paper is organized in the following manner: section one is a literature review, section two discusses the data and methodology, section three is the empirical results and section four presents the conclusion, including other issues to be considered for further research.

1. LITERATURE REVIEW

The specific topic of the Federal Reserve's transparency has been explored in recent academic literature. Transparency in central banking, particularly by the United States Federal Reserve, has been a focal point of analysis due to its significant implications for financial markets and economic stability both domestically and internationally.

Bauer et al. (2022) contribute to this discourse by developing a novel measure of policy uncertainty based on derivative prices. Their research offers a new lens through which to assess the impact of Federal Reserve announcements and policies. By using derivative prices, Bauer et al. are able to capture market expectations and reactions with high precision, making this measure particularly useful for event studies. Their findings suggest that this new measure can effectively gauge the level of uncertainty and its subsequent impact on market behavior, providing deeper insights into the relationship between Federal Reserve transparency and market stability.

Wang (2019) investigates the effects of Quantitative Easing (QE) announcements on mortgage rates. Wang's study highlights the temporal dynamics of these effects, finding that while short-run impacts are significant, the delayed effects are less pronounced but persist over time. This research challenges previous literature that may have overestimated the overall impact of QE on interest rates. Wang's findings emphasize the importance of considering both immediate and lagged responses in assessing the effectiveness of monetary policy interventions.

In an earlier study, Makenzie et al. (2004) also explore the use of the event study methodology, but with a focus on commodity prices. Their research provides a methodological framework that has been widely adopted in subsequent studies. By analyzing the impact of Federal Reserve announcements on commodity prices, Makenzie et al. offer valuable insights into how different asset classes respond to monetary policy changes. Their work underscores the broad

applicability of event study methodologies in evaluating the effects of central bank transparency.

Additional research by Gürkaynak et al. (2005) examines the market's reaction to Federal Reserve statements, emphasizing the importance of clear and transparent communication in managing market expectations. They find that even small changes in wording can have significant effects on asset prices, highlighting the critical role of language and clarity in Federal Reserve communications.

Similarly, Ehrmann and Fratzscher (2007) analyze the global transmission of U.S. monetary policy, demonstrating that transparent and predictable policies help stabilize international markets. Their findings suggest that Federal Reserve transparency not only impacts domestic markets but also has significant global implications, reinforcing the need for clear and consistent communication strategies.

Blinder et al. (2008) provide a comprehensive review of central bank communication, arguing that greater transparency leads to more effective monetary policy by reducing uncertainty and enhancing market participants' understanding of policy intentions. Their work underscores the importance of transparency in achieving desired economic outcomes and improving overall financial stability.

In a recent study, Acosta (2023) examined the role of Federal Reserve transparency as a conduit to make monetary policies more effective. He studied the Federal Reserve Bank's communication transparency by measuring the extent of the similarities between the minutes and transcripts of each FOMC meeting. Acosta's evidence found substantial discrepancies between the minutes and transcript documents suggesting these inconsistencies were not generated intentionally but rather as a result of the difficult task writing of them presents. The study found that the level of minute-transcript similarities fluctuated over the last 40 years with the FOMC meetings transparency increasing over the years. The evidence suggested that high transparency allows the public to better understand implications of monetary policy communications enhancing efficacy of monetary policy.

Boguth et al. (2019) examined scheduled FOMC announcements beginning with the first Press Conference (PC) in April 2011 till September 2017 (27 out of 52 of these announcements were followed by a PC) and derivatives market data to determine whether the hosting of PCs has bearing on financial markets. The authors demonstrated that scheduled PCs substantially impacted market behavior around the FOMC meeting days. The study found that in absence of PCs, the VIX stayed fundamentally the same, while on the meeting days when PCs were held, the VIX declined by 3%. The findings denoted that the markets' perceived uncertainty coincides with the degree of information disclosed during the FOMC announcements suggesting that investors expect more relevant changes to

monetary policy on FOMC announcement days with PCs. To level out the perception of all FOMC announcements and increase transparency, the authors recommended holding PCs after every meeting. On June 13, 2018, the Fed announced the change to host PCs after every FOMC meeting which overlapped with the time of the publication of this work (Boguth et al., 2019).

Lubys and Panda (2021) also utilized event study methodology to examine the effects of 2008 to 2016 monetary policies of the Federal Reserve Bank and the European Central Bank unconventional policy announcements, their impact on emerging stock markets and magnitude of similarities. The analysis suggested presence of abnormal returns, however, no significant patterns emerged.

Overall, these studies collectively enhance our understanding of Federal Reserve transparency and its multifaceted impacts on financial markets. The development of novel measures, such as those based on derivative prices, and the nuanced analysis of temporal effects, as seen in Wang's work, are critical advancements in this field. The methodological approaches established by earlier works like Makenzie et al. continue to provide a robust foundation for ongoing research in central bank communication and policy impact assessment.

2. DATA AND METHODOLOGY

The data for this study covers the period of January 2008 – January 2020, retrieved from the Federal Reserve Bank of Saint Louis (FRED). The event dates are the quarterly dates from the FOMC meetings where the Summary of Economic Predictions (SEP) was released (see Appendix). The objective is to measure the movement in the three exchange traded funds (ETFs) and the two volatility indices. The ETF's analyzed are the CBOE Crude Oil ETF Volatility Index, CBOE Gold ETF Volatility Index, and the CBOE Euro Currency ETF Volatility Index. To monitor overall volatility, we use the CBOE VIX Volatility Index and the CBOE NASDAQ 100 Volatility Index (Figures 1–5).

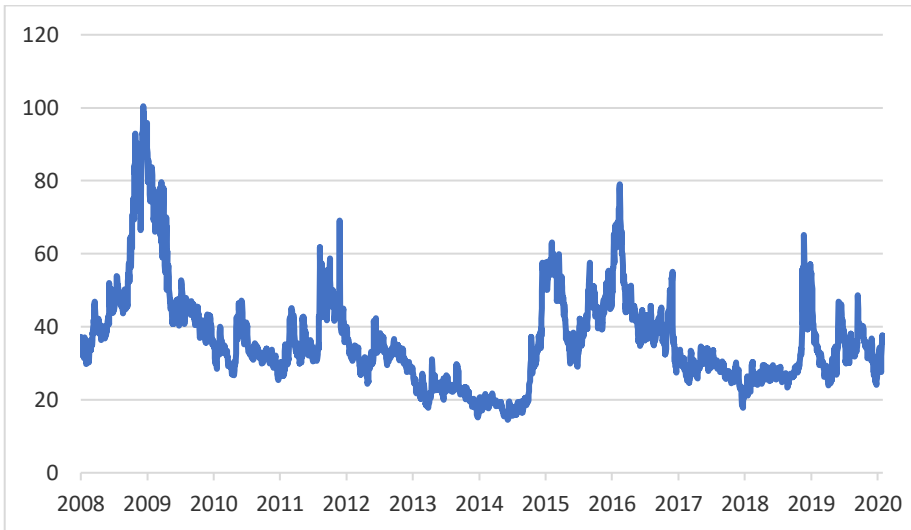Figure 1. CBOE Eurocurrency ETF Volatility Index
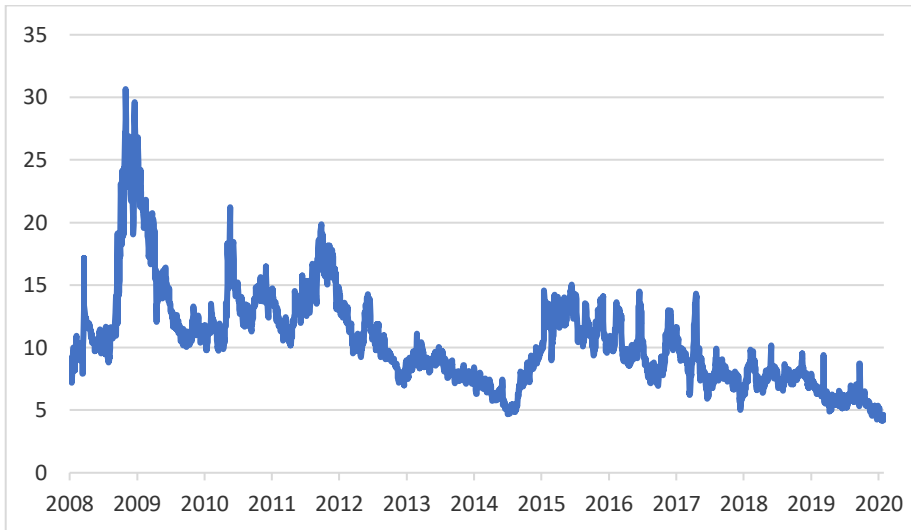
Source: own study based on data from (www1).
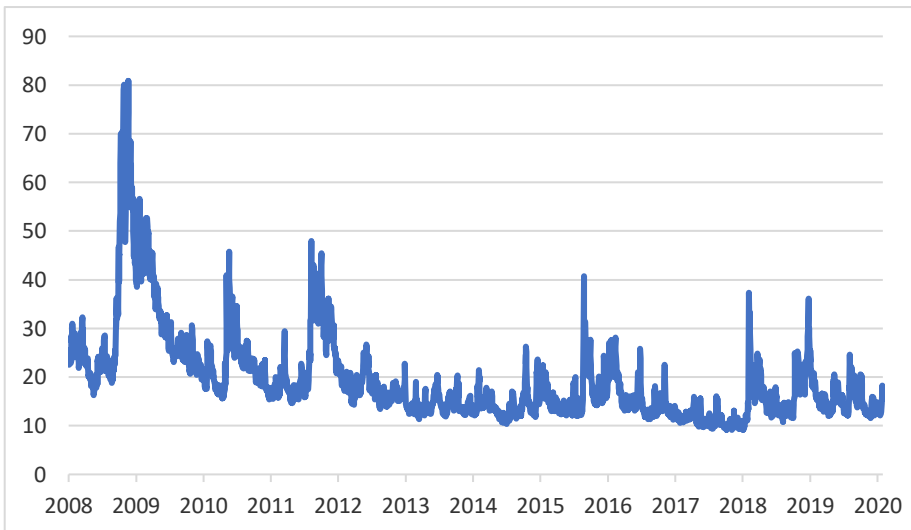
Figure 2. CBOE Gold ETF Volatility Index
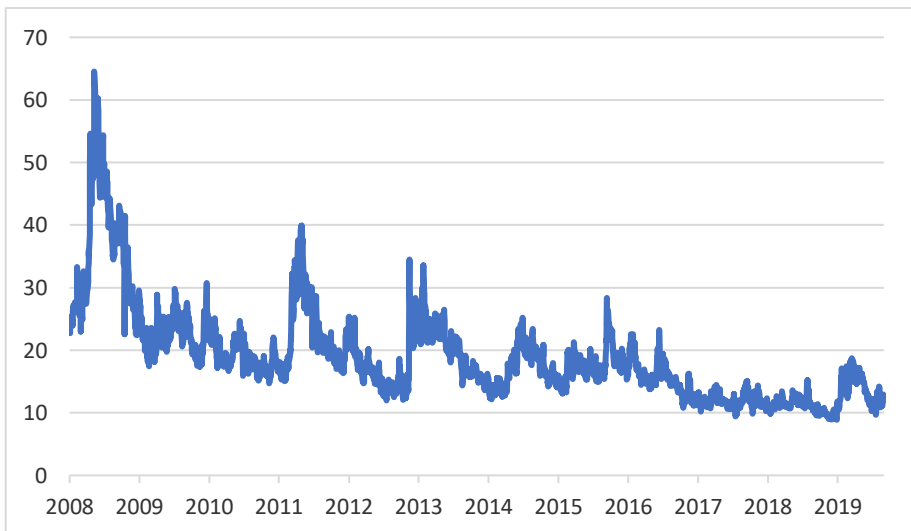
Source: own study based on data from (www2).

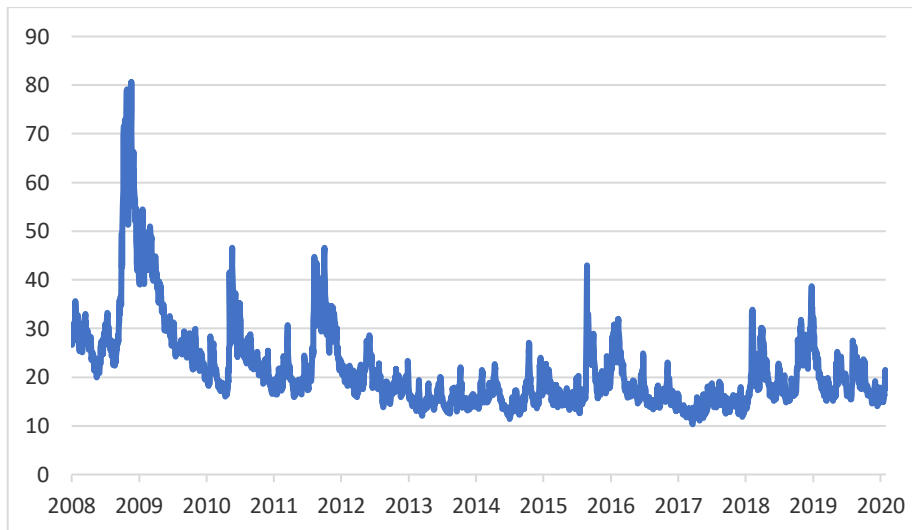Figure 3. CBOE Crude Oil ETF Volatility Index

Source: own study based on data from (www3).

Figure 4. CBOE Volatility VIX Index

Source: own study based on data from (www4).

Figure 5. CBOE NASDAQ-100 Volatility Index

Source: own study based on data from (www5).

The variables selected for this study include measures of volatility in the commodity markets, published by the Chicago Board Options Exchange. Calculated as a weighted average of put and call options on the S&P 500 Index, the VIX (Figure 4) is considered as a forecasting indicator of the S&P 500 Index's volatility over a one-month period. VIX is also referred to as the "fear index". Like all indexes, the VIX is not something you can buy directly. Moreover, unlike a stock index such as the S&P 500, you cannot even buy a basket of underlying components to mimic the VIX. Instead, the only way investors can access the VIX is through futures contracts or ETFs (exchange traded funds). While the actual calculations that go into VIX are quite complex, reading the index is rather simple. The number represents the expected percentage range of movement of the S&P 500 – either up or down – over the next year, with a 68% confidence interval (one "standard deviation" in statistics terms). For example, if the VIX is 20, that means: "based on options data for the next 30 days, traders are 68% confident that the S&P 500 will remain within 20% of its present level over the next year".

The CBOE Crude Oil ETF Volatility Index (OVX – Figure 3) measures the market's expectation of 30-day volatility of crude oil prices by analyzing options on the United States Oil Fund (USO). It is often referred to as the "Oil VIX" and reflects the anticipated fluctuations in the price of crude oil, a critical global commodity.

The CBOE Gold ETF Volatility Index (GVZ – Figure 2) measures the market's expectation of 30-day volatility of gold prices by analyzing options on the SPDR Gold Trust (GLD). Known as the "Gold VIX" it provides insights into the expected volatility of gold, which is widely used as a safe-haven asset.

The CBOE Eurocurrency ETF Volatility Index (EVZ – Figure 1) measures the market's expectation of 30-day volatility of the Euro currency by analyzing options on the Currency Shares Euro Trust (FXE). This index offers a view of expected volatility in the Euro, reflecting market sentiment about economic and political events in the Eurozone.

The CBOE NASDAQ-100 Volatility Index (VXN – Figure 5) measures the market's expectation of 30-day volatility for the NASDAQ-100 index, which includes 100 of the largest non-financial companies listed on the NASDAQ stock exchange. Similar to the VIX, it is derived from options prices on the NASDAQ-100 index and indicates the expected volatility of technology-heavy stocks.

3. EMPIRICAL RESULTS

Using the event study methodology, it is determined that there were no abnormal returns during the event period. In stock market trading, abnormal returns are the differences between a single stock or portfolio's performance and the expected return over a set period. Abnormal returns are used to determine a security's or portfolio's risk-adjusted performance when related to the overall market or a particular index. Abnormal returns can be either positive or negative.

The event study methodology is a widely used approach in finance to assess the impact of specific events on stock prices. Among many other studies, Soper and Sywak (2019) used the event study methodology to analyze the impact of federal minimum wage change announcement on the stock market returns examining abnormal returns of publicly traded major employers. By comparing the actual returns during the event period to the expected returns, researchers can isolate the effect of the event from other market movements. Expected returns are typically estimated using a market model, which relates the returns of the security to the returns of a market index.

Contrary to expectations, this empirical analysis using the event study methodology does not reveal abnormal returns pre or post the event dates. This finding suggests that the Federal Open Market Committee (FOMC) announcements did not lead to significant deviations from the expected returns of the stocks or portfolios under study. One possible explanation for this result is market efficiency, which posits that financial markets quickly and accurately incorporate all available information into asset prices.

The Efficient Market Hypothesis (EMH) suggests that any new information, such as FOMC announcements, is rapidly assimilated by the market. Particularly,

Fama et al. (1969) stated that financial markets function efficiently, and defined market to be informationally efficient in view of that stock prices integrate all relevant information. Therefore, any potential abnormal returns would be quickly nullified as market participants adjust their expectations and trading strategies almost instantaneously. This rapid incorporation of information can result in the absence of detectable abnormal returns in the periods immediately following the announcement.

Furthermore, the lack of abnormal returns pre or post the event dates may indicate that investors had already anticipated the FOMC's decisions based on prior information and market expectations. In such cases, the actual announcement serves merely to confirm what the market had already priced in, resulting in minimal immediate impact on stock prices.

Additionally, the results could also reflect the transparency and communication strategies employed by the Federal Reserve. Over the years, the Fed has increasingly aimed to reduce uncertainty by providing clear guidance and setting market expectations through forward guidance and other communication tools. This preemptive approach helps to mitigate any shock effects that might otherwise lead to abnormal returns.

The absence of abnormal returns around the FOMC announcement dates, as revealed by the event study methodology, underscores the efficiency of financial markets in processing and reacting to new information. It also highlights the effectiveness of the Federal Reserve's transparency measures in managing market expectations and ensuring stability in financial markets.

CONCLUSIONS

This study analyzes four CBOE ETF Volatility Funds and their deviance from expected returns before and after each time the Federal Reserve met and released their "summary of economic predictions" from January 2008 to January 2020.

The empirical analysis does not support the hypothesis, as the results indicate that there were no significant abnormal returns observed before or after the FOMC meeting dates. This suggests that the increased transparency from the Federal Reserve did not lead to measurable changes in market volatility during the study period. Since 2008, investors have looked for methods to understand volatility in the financial markets. It is important to recognize that this increased transparency occurred in response to the Great Recession, however, the investigation of potential shocks to the funds provides vital information to market participants. Further analysis into market trends can allow those impacted the foresight to adjust their portfolios accordingly to withstand this volatility.

One interpretation of these results is that the impact of the Federal Reserve predictions translates to returns in a period beyond ten days before the actual

change. Another factor to consider is that the predictions released are discussed and anticipated well before the actual availability date. The efficient-market hypothesis states that it should be impossible to outperform the overall market through expert stock selection or market timing, and that the only way an investor can possibly obtain higher returns is by chance or by purchasing riskier investments.

For the next stage of this research a more diverse group of financial instruments could be utilized. Another aspect to consider is whether to use the FOMC meeting dates where the Federal Reserve only discussed changes in the fed-funds target rate. This study attempts to identify abnormal returns around the dates of the FOMC announcements on economic predictions, although the results were insignificant, the authors argue there is enough significance to warrant further research and provide valuable information to market participants.

DISCLOSURE STATEMENT

The authors report no conflicts of interest.

BIBLIOGRAPHY

Acosta, M. (2023). *A New Measure of Central Bank Transparency and Implications for the Effectiveness of Monetary Policy*. International Journal of Central Banking (IJCB), 19(3), pp. 49-97.

Bauer, M. D., Lakdawala, A., and Mueller, P. (2022). *Market-Based Monetary Policy Uncertainty*. Economic Journal, 132(644), pp. 1290-1308. https://doi.org/10.1093/ej/ueab086.

Blinder, A. S., Ehrmann, M., Fratzscher, M., De Haan, J. and Jansen, D. (2008). *Central Bank Communication and Monetary Policy: A Survey of Theory and Evidence*. Journal of Economic Literature, 46(4), pp. 910-945. https://www.doi.org/10.1257/jel.46.4.910.

Boguth, O., Grégoire, V., and Martineau, C. (2019). *Shaping Expectations and Coordinating Attention: The Unintended Consequences of FOMC Press Conferences*. Journal of Financial & Quantitative Analysis, 54(6), pp. 2327-2353. https://doi.org/10.1017/S0022109018001357

Bretscher, L., Hsu, A., Simasek, P., and Tamoni, A. (2020). *COVID-19 and the Cross-Section of Equity Returns: Impact and Transmission*. Review of Asset Pricing Studies, 10(4), pp. 705-741, https://doi.org/10.1093/rapstu/raaa017.

Cheng, I. (2020). *Volatility Markets Underreacted to the Early Stages of the COVID-19 Pandemic*. Review of Asset Pricing Studies,10(4), pp. 635-668, https://doi.org/10.1093/rapstu/raaa010.

Ehrmann, M. and Fratzscher, M. (2007*). Global financial transmission of monetary policy shocks*. Oxford Bulletin of Economics and Statistics, 69(4), pp. 501-531.

Chevallier, J. (2020). *COVID-19 Pandemic and Financial Contagion.* Journal of Risk & Financial Management, 13(12), pp. 1-25.

Fama, E., Fisher, L., Jensen, M., and Roll, R.. (1969) *The Adjustment of Stock Price to New Information*. International Economic Review, February 10(1), pp. 1-21.

Gürkaynak, R. S., Sack, B., and Swanson, E. (2005). *Do actions speak louder than words? The response of asset prices to monetary policy actions and statements*. International Journal of Central Banking, 1(1), pp. 55-93.

Lubys, J., and Panda, P. (2021). *US and EU unconventional monetary policy spillover on BRICS financial markets: An event study*. Empirica: Journal of European Economics, 48(2), pp. 353-371. https://doi.org/10.1007/s10663-020-09480-8.

Makenzie, A. M., Michael R. T., and Bruce L. D. (2004). *The Performance of Event Study Approaches Using Daily Commodity Futures Returns*. Journal of Futures Markets, Volume 24, Issue 6, pp. 533–555.

Rai, A., Mahata, A., Nurujjaman, M., and Prakash, O. (2020). *Statistical properties of the aftershocks of stock market crashes: evidence based on the 1987 crash, 2008 financial crisis and COVID-19 pandemic*. Financial Economics, https://doi.org/10.48550/arXiv.2012.03012.

Soper, C. C. and Sywak, M. (2019). *An Increase in the Federal Minimum Wage: Good for Employees, Bad for Stockholders?*. International Advances in Economic Research, 25(4), pp. 489-491. https://doi.org/10.1007/s11294-019-09751-6.

Wang, G. (2019). *The Effects of Quantitative Easing Announcements on the Mortgage Market: An Event Study Approach.* International Journal of Financial Studies, 7(1), 9.

(www1) https://fred.stlouisfed.org/series/EVZCLS [Accessed: 02.02.2020].

(www2) https://fred.stlouisfed.org/series/GVZCLS [Accessed: 02.02.2020].

(www3) https://fred.stlouisfed.org/series/OVXCLS [Accessed: 02.02.2020].

(www4) https://fred.stlouisfed.org/series/VIXCLS [Accessed: 02.02.2020].

(www5) https://fred.stlouisfed.org/series/VXNCLS [Accessed: 02.02.2020].

(www6)https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm[Accessed: 02.02.2020].

APPENDIX:

FOMC Meeting Dates that include the Summary of Economic Predictions (SEP)

1/30/2008	6/23/2010	12/12/2012	6/17/2015	12/13/2017
4/30/2008	11/3/2010	3/20/2013	9/17/2015	3/21/2018
6/25/2008	1/26/2011	6/19/2013	12/16/2015	6/13/2018
10/29/2008	4/27/2011	9/18/2013	3/16/2016	9/26/2018
1/28/2009	6/22/2011	12/18/2013	6/15/2016	12/19/2018
4/29/2009	11/2/2011	3/19/2014	9/21/2016	3/20/2019
6/24/2009	1/25/2012	6/18/2014	12/14/2016	6/19/2019
11/4/2009	4/25/2012	9/17/2014	3/15/2017	9/18/2019
1/27/2010	6/20/2012	12/17/2014	6/14/2017	12/11/2019
4/28/2010	9/3/2012	3/18/2015	9/20/2017	

Source: own study based on data from (www6).