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Para o Desenvolvimento Ambiental, Cultural e Socioeconômico

Xosé Somoza Medina
(organizador)

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PRÓLOGO

Por tercera vez, la editorial Artemis organiza un volumen para promover la difusión de investigaciones originales que desde diferentes ámbitos pretenden promover el desarrollo ambiental, cultural y socioeconómico. En esta ocasión, se trata de catorce trabajos estructurados en dos bloques, Ciencia y Tecnología, como en el volumen precedente, para de esta manera percibir con claridad como desde ambos campos del saber se puede proyectar un mundo mejor.

La ciencia y la tecnología en el siglo XXI deben orientar sus esfuerzos a ofrecer soluciones a los grandes problemas presentes de la humanidad y de nuestro planeta. Las Naciones Unidas iniciaron el camino en el año 2000 con los Objetivos del Milenio, reformulados y ampliados en 2015 con los ahora denominados Objetivos de Desarrollo Sostenible, ODS. Más allá de una simple declaración, los ODS deberían convertirse en el faro guía de todo avance científico o técnico. Lo ideal sería que cada persona científica o tecnóloga, independientemente de su origen o vinculación profesional, pensara en la fase de diseño de la investigación cuál de los ODS contribuye a alcanzar la consecución de su proyecto, para de esta manera orientar los esfuerzos de millones de seres humanos en todo el mundo a resolver el futuro de las próximas generaciones y no al contrario, que el progreso de nuestra civilización suponga una amenaza real para la Tierra, como parece que hemos estado haciendo hasta ahora. Todavía estamos a tiempo de cambiar nuestro destino, pero debemos concienciarnos y actuar en consecuencia.

Con este pensamiento en la mente, los trabajos que presentamos en este volumen adquieren una dimensión mayor. En el primer bloque, Ciencia, se agrupan siete trabajos que desde las ciencias de la educación y las ciencias económicas y empresariales contribuyen a alcanzar esos objetivos enunciados, bien a través de encuestas a una muestra de estudiantes de diferentes carreras universitarias o bien a través del análisis local de casos concretos. Así se pueden desarrollar temas de gran actualidad como la responsabilidad social, la incertidumbre de las políticas monetarias, la importancia de las microempresas en contextos determinados, las redes sociales, la internacionalización del sector turístico, la sostenibilidad en las empresas o la ansiedad provocada por la pandemia.

En el segundo bloque, Tecnología, se agrupan siete investigaciones con aportaciones igual de interesantes y novedosas, como los avances en teledetección de incendios, los tratamientos con bacterias para eliminar los residuos de aceites, la evaluación de antioxidantes en el desarrollo “in vitro” de plantas de caña de azúcar, los análisis informáticos para la predicción de plagas en los cultivos, las técnicas kinésicas para el tratamiento de la incontinencia urinaria femenina, la inteligencia aumentada de usuario o el estudio de un megaproyecto urbanístico como el de Saemangeum en Corea del Sur.

Xosé Somoza Medina
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ABSTRACT: Monetary policy uncertainty (MPU) is a hot topic in economics. In this chapter, I examine the impact of a positive shock to the MPU index on the technology-heavy stock market. Using data for the United States, I find that a positive shock to the MPU index causes a short-term decline in the Nasdaq Composite Index and the Nasdaq-100 Index. These results offer insights into whether and how the MPU affects technology-heavy stock indices.
KEYWORDS: Monetary policy uncertainty. Nasdaq. Technology-heavy sector index. United States.

EL IMPACTO DE LA INCERTIDUMBRE DE LA POLÍTICA MONETARIA EN EL MERCADO DE ACCIONES DE ALTA TECNOLOGÍA: EVIDENCIA DE ESTADOS UNIDOS

RESUMEN: La incertidumbre de la política monetaria (MPU) es un tema candente en economía. En este capítulo, examino el impacto de un shock positivo en el índice de MPU en el mercado de valores de alta tecnología. Utilizando datos de Estados Unidos, descubro que un shock positivo en el índice de MPU provoca una disminución a corto plazo en el Índice Compuesto Nasdaq y el Índice Nasdaq-100. Estos resultados ofrecen ideas sobre si y cómo la MPU afecta a los índices de valores tecnológicos.
PALABRAS CLAVE: Incertidumbre de la política monetaria. Nasdaq. Índice del sector de tecnología. Estados Unidos.

O IMPACTO DA INCERTEZA DA POLÍTICA MONETÁRIA NO MERCADO DE AÇÕES DE ALTA TECNOLOGIA: EVIDÊNCIAS DOS ESTADOS UNIDOS

RESUMO: A incerteza da política monetária (MPU) é um tópico relevante na economia. Neste capítulo, examino o impacto de um choque positivo no índice de MPU no mercado de ações de alta tecnologia. Utilizando dados dos Estados Unidos, constato que um choque positivo no índice de MPU causa uma queda de curto prazo no Índice Composto Nasdaq e

no Índice Nasdaq-100. Esses resultados oferecem insights sobre se e como a MPU afeta os índices de ações de alta tecnologia.
PALAVRAS-CHAVE: Incerteza da política monetária. Nasdaq. Índice de setor de tecnologia. Estados Unidos.

1 INTRODUCTION

The introduction of ChatGPT, an artificial intelligence (AI) chatbot developed by OpenAI, in November 2022 has touched off a boom in the technology-heavy stock market, during which investors increased their exposure to technology-heavy stock companies. In this chapter, I examine whether and how monetary policy uncertainty (MPU) affects the Nasdaq, a technology-heavy stock market. In doing so, I focus on the Nasdaq Composite Index (COMP)[1] and the Nasdaq-100 Index (NDX)[2]. The COMP measures the performance of all companies listed on the Nasdaq Stock Market (Nasdaq) and the NDX measures the performance of the 100 largest companies listed on Nasdaq based on their market capitalisation.

This chapter adds to the growing body of evidence on the impact of MPU on the economy in general and the stock market in particular. According to Baker et al. (2016) and Husted et al. (2020), MPU can be defined as uncertainty about monetary policy and its impact on the economy. Since the introduction of the MPU index by Baker et al. (2016), there has been a growing interest among researchers in understanding the implications of monetary policy uncertainty on the economy (Bauer et al., 2022).

Using data for the US, I found that there is a negative relationship between MPU and technology-heavy stock indices. This has important implications for stock investors and highlights the importance of considering MPU when making investment decisions in the technology-heavy stock market.

The rest of this chapter is divided into five sections. In Section 2, I review the literature on the impact of economic policy uncertainty (EPU) and MPU on the economy in general and the stock market in particular. In Section 3, I describe the methods I used in this study. In Section 4, I present the results of this study. In Section 5, I discuss the results of this study and in Section 6 I draw a conclusion.

[1] See https://www.nasdaq.com/market-activity/index/comp and https://indexes.nasdaqomx.com/Index/Overview/COMP.

[2] See https://www.nasdaq.com/market-activity/index/ndx and https://indexes.nasdaqomx.com/Index/Overview/NDX.

2 LITERATURE REVIEW

There is a growing body of literature on the impact of EPU and MPU on the economy in general and the stock market in particular (see Al-Thaqeb & Algharabali, 2019; Al-Thaqeb et al., 2022; Castelnuovo, 2023). In this section, I discuss the evidence for the US.

Baker et al. (2016), who developed the EPU index and categorical EPU indices, including the MPU index, found that a positive shock to the EPU index causes a decline in economic activity. They used a vector autoregressive (VAR) model that includes the EPU index, the natural logarithm of the S&P 500, the federal funds effective rate, the natural logarithm of the employment rate and the natural logarithm of the industrial production index. Their findings are consistent with those of Caggiano et el. (2021), Fasani et al. (2023), Houari (2022) and Prüser and Schlösser (2020). Colombo (2013) also found that a positive shock to the EPU index causes a decline in economic activity. She used a VAR model that includes the natural logarithm of the consumer price index, the natural logarithm of the industrial production index, the federal funds effective rate and the EPU index. Surprisingly, she placed the EPU index last. Her findings are consistent with those of Caggiano et al. (2017), who also found that a positive shock to the EPU index causes a decline in economic activity. Moreover, they found that this holds for both expansions and recessions. They used a smooth transition VAR model that includes the EPU index, the growth rate of the industrial production index, the unemployment rate, the growth rate of the consumer price index and the federal funds effective rate.

Husted et al. (2020), who developed the MPU index, found that a positive shock to the MPU index causes a decline in economic activity. They used a VAR model that includes the natural logarithm of industrial production index, the natural logarithm of the consumer price index, the MPU index, the EPU index, the excess bond premium and the one-year government bond rate. Their findings are consistent with those of Beckmann and Czudaj (2023), Dahlhaus and Sekhposyan (2018) and Sinha (2016).

Arce-Alfaro and Blagov (2023) also found that MPU has a negative impact on the economy. They used a VAR model with stochastic volatility in mean which includes the unemployment rate, the one-year-ahead expected inflation rate, the five-year-ahead expected inflation rate, the consumer price index and the federal funds effective rate. They also used a VAR model with stochastic volatility in mean which includes the unemployment rate, the one-year-ahead expected inflation rate, the five-year-ahead expected inflation rate, the consumer price index and the Wu-Xia shadow federal funds rate.

The evidence for the US shows that EPU and MPU also have a negative impact on the stock market (see Dahlhaus & Sekhposyan, 2018; Bauer et al., 2022). Most authors examine the impact of EPU and MPU on stock market returns and stock market volatility. Liu & Zhang (2015) found that a positive shock to the EPU index causes an increase in stock market volatility. On the other hand, Kundu & Paul (2022) found that the impact of EPU on stock market returns and stock market volatility is statistically significant in bear markets and not statistically significant in bull markets. Their findings are consistent with those of Arouri et al. (2016). In contrast, Hsiao et al. (2022) found that a positive shock to the MPU index causes a decline in stock market volatility.

All in all, studies have shown that a positive shock to the EPU index causes a decline in economic activity. It is also associated with increased volatility in the stock market. These findings underscore the importance of considering EPU and MPU when analysing market dynamics to help investors make informed decisions.

3 METHODS

In this study, I use two MPU indices: the MPU index developed by Baker et al. (2016) (mpui_bbd) and the MPU index developed by Husted et al. (2020) (mpui_hrs). Both indices are constructed as scaled frequency counts of newspaper articles discussing uncertainty about monetary policy and its impact on the economy. The first index is based on hundreds of US newspapers tracked by Access World News, and the second is based on three US newspapers: The New York Times, The Wall Street Journal and The Washington Post.[3] The dynamics of the two indices is shown in Figure A.1 in the Appendix.

I also use two technology-heavy stock indices: the COMP and the NDX. The first is less technology-heavy than the second.

In addition, I also use five VAR models. First, I estimate a VAR model that includes mpui_bbd, the natural logarithm of the COMP (ln_comp), the federal funds effective rate (ffer), the natural logarithm of the employment rate (ln_er) and the natural logarithm of the industrial production index (ln_ipi). Second, I estimate the same VAR model by replacing mpui_bbd with mpui_hrs. Finally, I estimate the same VAR models by replacing the COMP with the NDX (ndx). This allows me to compare the impact of a positive shock to the MPU index on ln_comp and ln_ndx. The VAR models I use in this study are similar to those used

[3] See https://www.policyuncertainty.com/monetary.html.

by Baker et al. (2016), who studied the impact of a positive shock to the EPU index on the US economy.

I use monthly data from January 1986 to March 2023 obtained from the Federal Reserve Bank of St. Louis and other sources (see Table 1).

Table 1: Descriptions of variables.

Variable	Description	Source
mpui_bbd	MPU index developed by Baker et al. (2016), index, monthly, not seasonally adjusted	Baker et al. (2016), https://www.policyuncertainty.com/
mpui_hrs	MPU index developed by Husted et al. (2020), index, monthly, not seasonally adjusted	Husted et al. (2020), https://www.policyuncertainty.com/
ln_comp	Nasdaq Composite Index, index, monthly, not seasonally adjusted	Federal Reserve Bank of St. Louis, FRED
ln_ndx	Nasdaq-100 Index, index, monthly, not seasonally adjusted	Federal Reserve Bank of St. Louis, FRED
ffer	Federal funds effective rate, percent, monthly, not seasonally adjusted	Federal Reserve Bank of St. Louis, FRED
ln_er	Employment rate, percent, monthly, seasonally adjusted	Federal Reserve Bank of St. Louis, FRED
ln_ipi	Industrial production index, index, seasonally adjusted	Federal Reserve Bank of St. Louis, FRED

4 RESULTS

In this section, I present the results of the analysis of the orthogonalised impulse–response functions (OIRFs) for variables in the system. This section is divided into two subsections. In Section 4.1, I examine the impact of MPU on the COMP, and in Section 4.2, I examine the impact of MPU on the NDX. In both sections, I use VAR models that satisfy the stability condition, which means that all eigenvalues lie within the unit circle. In all cases, I determined the number of lags based on the final prediction error (FPE) and the Akaike information criterion (AIC). Descriptive statistics for the variables in the system are shown in Table 2.

Table 2: Descriptive statistics.

Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum	Skewness	Kurtosis
mpui_bbd	447	94.11	59.66	17.00	408.00	1.65	6.83
mpui_hrs	447	116.00	63.60	13.00	407.00	1.64	6.55
ln_comp	447	7.60	1.02	5.75	9.67	–0.02	2.22
ln_ndx	447	7.28	1.28	4.88	9.70	–0.15	2.15
ffer	447	3.24	2.72	0.05	9.85	0.38	1.96
ln_er	447	4.26	0.03	4.10	4.31	–0.93	4.23
ln_ipi	447	4.44	0.20	4.00	4.65	–0.84	2.18

Source: Own calculations.

4.1 THE IMPACT OF MPU ON THE COMP

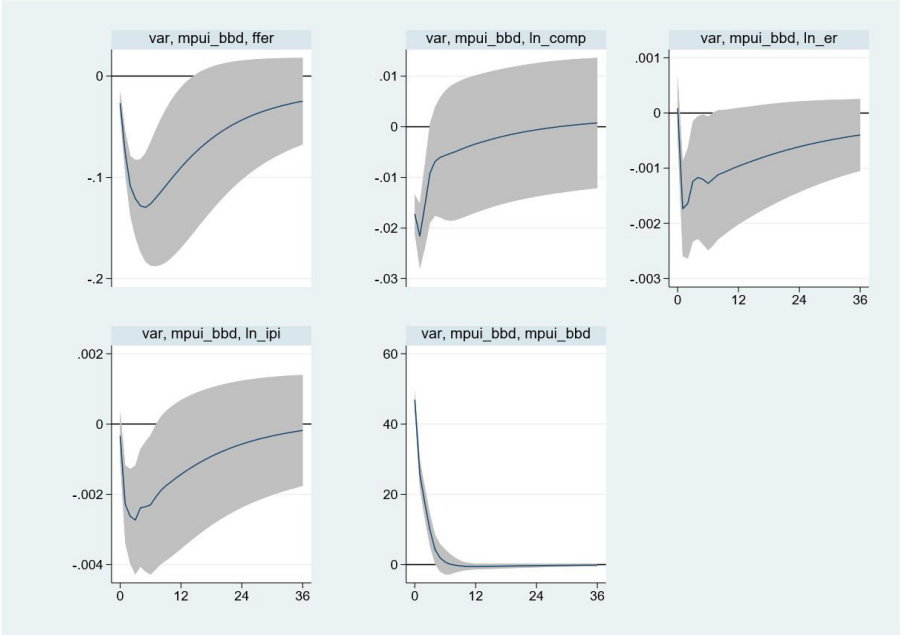
In this section, I examine the relationship between MPU and the COMP using two VAR models with five variables and four lags. The order of the variables in both VAR models is as follows: mpui_bbd or mpui_hrs, ln_comp, ffer, ln_er and ln_ipi.

First, I examine the impact of a one-time shock to mpui_bbd on ln_comp, which allows me to analyse the dynamics and magnitude of the response. The OIRFs for variables in the system are shown in Figure 1.

As can be seen in Figure 1, an orthogonalised shock to mpui_bbd has a positive impact on mpui_bbd that declines over time and is statistically significant three months after the shock. Figure 1 also shows that an orthogonalised shock to mpui_bbd has a negative impact on ln_comp that declines over time and is statistically significant two months after the shock. This means that there is a negative short-term relationship between MPU and the COMP. Figure 1 also shows that an orthogonalised shock to mpui_bbd has a negative impact on ffer that declines over time and is statistically significant eleven months after the shock. In addition, it also shows that an orthogonalised shock to mpui_bbd has a negative impact on ln_er that declines over time and is statistically significant two months after the shock. It also shows that an orthogonalised shock to mpui_bbd has a negative impact on ln_ipi that declines over time and is statistically significant five months after the shock.

Then, I examine the impact of a one-time shock to mpui_hrs on ln_comp. The OIRFs for variables in the system are shown in Figure 2.

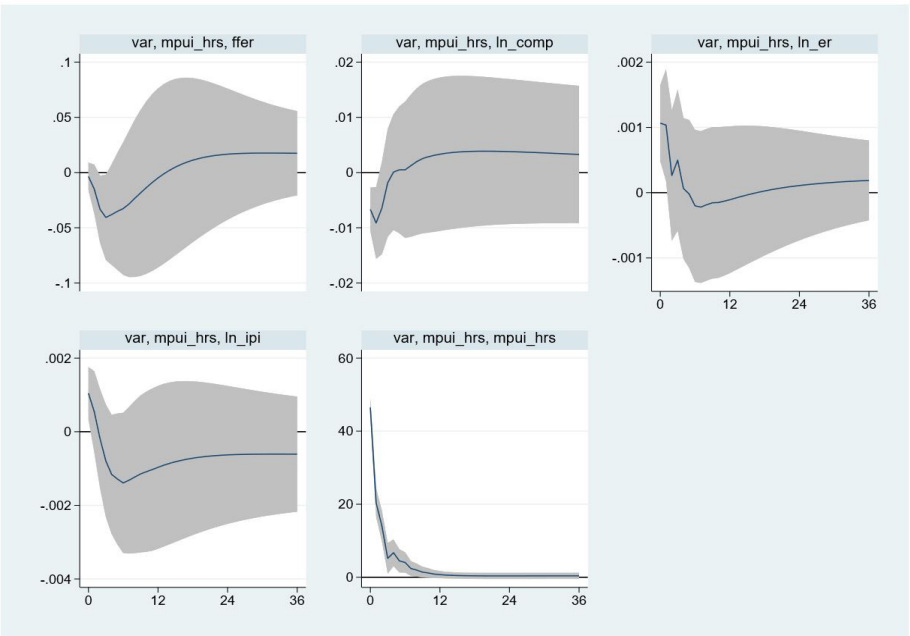
Figure 1: The OIRFs for ffer, ln_comp, ln_er, ln_ipi and mpui_bbd.



Notes: The horizontal axis of each graph is in units of time and the vertical axis of each graph is in units of the variable. Each graph shows the impact of an innovation over a 36-month period. The confidence level for confidence intervals is 90.

Source: Own calculations.

Figure 2: The OIRFs for ffer, ln_comp, ln_er, ln_ipi and mpui_hrs.



Notes: See notes in Figure 1.

Source: Own calculations.

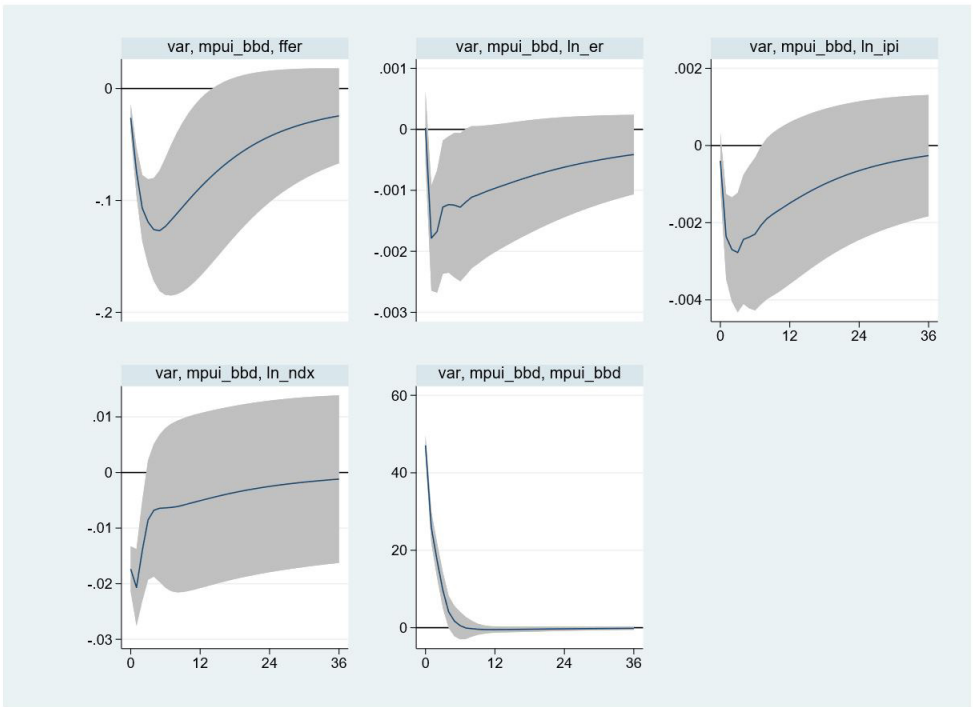
As can be seen in Figure 2, an orthogonalised shock to mpui_hrs has a positive impact on mpui_hrs that declines over time and is statistically significant six months after the shock. Figure 2 also shows that an orthogonalised shock to mpui_hrs has a negative impact on ln_comp that is statistically significant one month after the shock.

4.2 THE IMPACT OF MPU ON THE NDX

In this section, I examine the relationship between MPU and the NDX using three VAR models with five variables and four lags. The order of the variables in the first two VAR models is as follows: mpui_bbd or mpui_hrs, ln_ndx, ffer, ln_er and ln_ipi.

First, I examine the impact of a one-time shock to mpui_bbd on ln_ndx, which allows me to analyse the dynamics and magnitude of the response. The OIRFs for variables in the system are shown in Figure 3.

Figure 3: The OIRFs for ffer, ln_er, ln_ipi, ln_ndx and mpui_bbd.



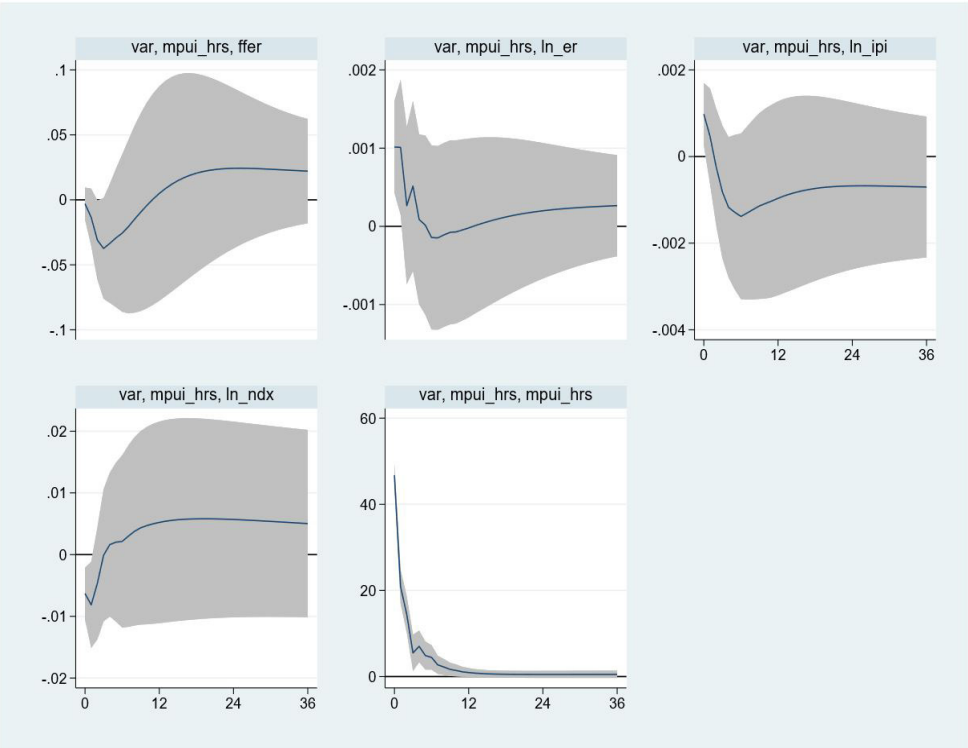
Notes: See notes in Figure 1.
Source: Own calculations.

As can be seen in Figure 3, an orthogonalised shock to mpui_bbd has a positive impact on mpui_bbd that declines over time and is statistically significant three months

after the shock. Figure 3 also shows that an orthogonalised shock to mpui_bbd has a negative impact on ln_ndx that declines over time and is statistically significant two months after the shock. This means that there is a negative short-term relationship between MPU and the NDX, which is consistent with the results for the COMP. Figure 3 also shows that an orthogonalised shock to mpui_bbd has a negative impact on ffer that declines over time and is statistically significant ten months after the shock. In addition, it also shows that an orthogonalised shock to mpui_bbd has a negative impact on ln_er that declines over time and is statistically significant between two months after the shock. It also shows that an orthogonalised shock to mpui_bbd has a negative impact on ln_ipi that declines over time and is statistically significant five months after the shock.

Then, I examine the impact of a one-time shock to mpui_hrs on ln_ndx. The OIRFs for variables in the system are shown in Figure 4.

Figure 4: The OIRFs for ffer, ln_er, ln_ipi, ln_ndx and mpui_hrs.



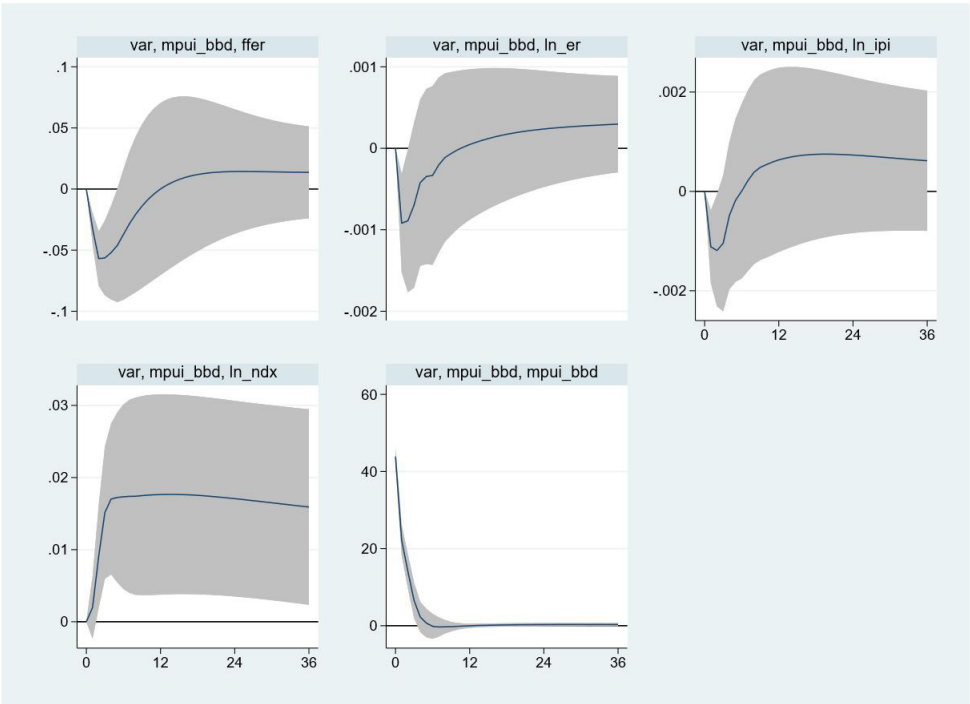
Notes: See notes in Figure 1.
Source: Own calculations.

As can be seen in Figure 4, an orthogonalised shock to mpui_hrs has a positive impact on mpui_hrs that declines over time and is statistically significant eight months

after the shock. In contrast to my earlier results, a one-time shock to mpui_hrs only has an immediate negative impact on ln_ndx.

To check robustness, I estimated the same VAR model as at the beginning of this section and placed mpui_bbd last. The OIRFs for variables in the system are shown in Figure 5.

Figure 5: The OIRFs for ffer, ln_er, ln_ipi, ln_ndx and mpui_bbd.



Notes: See notes in Figure 1.
Source: Own calculations.

As can be seen in Figure 5, an orthogonalised shock to mpui_bbd has a positive impact on ln_ndx that is statistically significant from the second month after the shock. This result, of course, contradicts my earlier findings and suggests that the order of the variables in the system is important.

5 DISCUSSION

Evidence from the US shows that a positive shock to the MPU index developed by Baker et al. (2016) has a negative impact on the COMP and the NDX, which is consistent with my expectations. Based on the results of the literature review, I had

expected the shock to have a negative impact on the Nasdaq. It turns out that the technology-heavy stock market is not resistant to the MPU. This is also true when using the MPU index developed by Husted et al. (2020) and the COMP.

Other findings of this study are consistent with those of other authors (see Arce-Alfaro & Blagov, 2023; Dahlhaus & Sekhposyan, 2018; De Pooter et al., 2021; Caggiano et al., 2022; Husted et al., 2020; Sinha, 2016). They show that MPU has a negative impact on the economy, implying that the Federal Reserve needs to monitor MPU. On the other hand, Lakdawala et al. (2021) found that a positive shock to the MPU index for the US also has a negative impact on other economies, implying that other central banks need to monitor MPU in the US as well.

The results of this study are important because they shed light on the relationship between MPU and stock indices, which are not only technology-heavy but also AI-heavy. Therefore, I assume that MPU also has a negative effect on AI-heavy stock indices.

All in all, this chapter fills a gap in the literature. Until now, it was not clear whether and how MPU affects the technology-heavy stock market. This study shows that an unexpected increase in MPU affects not only the real sector but also the financial sector. The introduction of ChatGPT has increased interest in AI-heavy companies listed on Nasdaq. Therefore, it is good to know whether and how MPU affects the technology-heavy stock market. I assume that MPU also has a negative impact on other stock indices. This means that it is important for stock investors to monitor MPU. The fact is that monetary policy is important. This also applies to MPU, which should not be underestimated by stock investors.

6 CONCLUSION

In this chapter, I studied the impact of a positive shock to MPU index developed by Baker et al. (2016) on the Nasdaq. I found that a positive shock to the MPU index causes a short-term decline in the COMP and the NDX. I also found that both stock indices bottom out a month after the shock, suggesting a temporary impact. In other words, an unexpected increase in MPU causes a short-term decline in stock prices. These findings are useful for stock investors, particularly those who have invested in technology-heavy stocks during the AI boom, thereby increasing their exposure to the technology-heavy stock market. In the event of an unexpected increase in the MPU, they can expect a short-term decline in stock prices. I got similar results even if I used

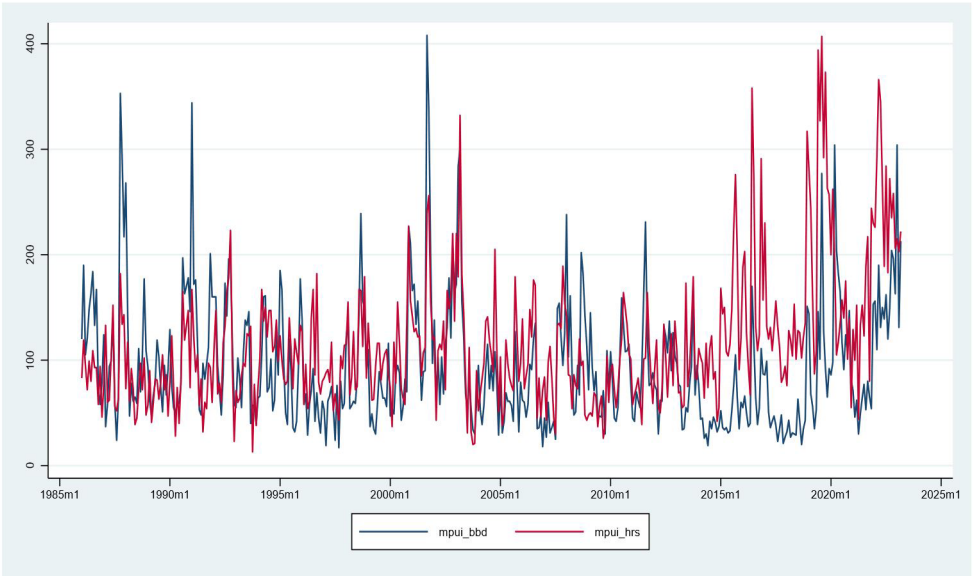
a different MPU index. Nevertheless, further research is needed to answer the question of whether there is a non-linear relationship between MPU and the technology-heavy stock indices.

Expanding the scope of this study to other countries with technology-heavy stock markets would be a valuable direction for future research. By examining the impact of MPU on technology-heavy stock markets outside the US, a more comprehensive understanding of the relationship between MPU and technology-heavy stock indices can be achieved.

This study has important policy implications. First, policy makers need to monitor MPU by using the MPU index. Second, policymakers need to prevent the build-up of MPU by improving monetary policy communication. Finally, policymakers need to study the impact of MPU on the financial sector to improve their decision-making.

APPENDIX

Figure A.1: MPU in the US.



Notes: The horizontal axis of the graph is in months. 1985m1 stands for January 1985.

Source: Baker et al. (2016), Husted et al. (2020), https://www.policyuncertainty.com/

REFERENCES

Al-Thaqeb, S. A., & Algharabali, B. G. (2019). Economic policy uncertainty: A literature review, *The Journal of Economic Asymmetries*, *20*, e00133. https://doi.org/10.1016/j.jeca.2019.e00133

Al-Thaqeb, S. A., Algharabali, B. G., & Alabdulghafour, K. T. (2022). The pandemic and economic policy uncertainty. *International Journal of Finance & Economics*, *27*(3), 2784–2794. https://doi.org/10.1002/ijfe.2298

Arce-Alfaro, G., & Blagov, B. (2023). Monetary policy uncertainty and inflation expectations. *Oxford Bulletin of Economics and Statistics*, *85*(1), 70–94. https://doi.org/10.1111/obes.12516

Arouri, M., Estay, C., Rault, C., & Roubaud, D. (2016). Economic policy uncertainty and stock markets: Long-run evidence from the US. *Finance Research Letters*, *18*, 136–141. https://doi.org/10.1016/j.frl.2016.04.011

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring Economic Policy Uncertainty. *The Quarterly Journal of Economics*, *131*(4), 1593–1636. https://doi.org/10.1093/qje/qjw024

Bauer, M., Lakdawala, A., & Mueller, P. (2022). Market-based monetary policy uncertainty, *The Economic Journal*, *132*(644), 1290–1308. https://doi.org/10.1093/ej/ueab086

Beckmann, J., & Czudaj, R. L. (2023). Perceived monetary policy uncertainty. *Journal of International Money and Finance*, *130*, 102761. https://doi.org/10.1016/j.jimonfin.2022.102761

Caggiano, G., Castelnuovo, E., & Figueres, J. M. (2017). Economic policy uncertainty and unemployment in the United States: A nonlinear approach. *Economics Letters*, *151*, 31–34. https://doi.org/10.1016/j.econlet.2016.12.002

Caggiano, G., Castelnuovo, E., & Figueres, J. M. (2020). Economic policy uncertainty spillovers in booms and busts. *Oxford Bulletin of Economics and Statistics*, *82*(1), 125–155. https://doi.org/10.1111/obes.12323

Caggiano, G., Castelnuovo, E., & Nodari, G. (2022). Uncertainty and monetary policy in good and bad times: A Replication of the VAR investigation by Bloom (2009). *Journal of Applied Econometrics*, *37*(1), 210–217. https://doi.org/10.1002/jae.2861

Caggiano, G., Castelnuovo, E., in Pellegrino, G. (2021). Uncertainty shocks and the great recession: nonlinearities matter. *Economics Letters*, *198*, 109669. https://doi.org/10.1016/j.econlet.2020.109669

Castelnuovo, E. (2023). Uncertainty before and during Covid-19: A survey. *Journal of Economic Surveys*, *37*(3), 821–864. https://doi.org/10.1111/joes.12515

Colombo, V. (2013). Economic policy uncertainty in the US: Does it matter for the Euro area? *Economics Letters*, *121*(1), 39–42. https://doi.org/10.1016/j.econlet.2013.06.024

Dahlhaus, T., & Sekhposyan, T. (2018). *Monetary policy uncertainty: A tale of two tails* (Staff Working Paper No. 2018-50). Bank of Canada. https://www.bankofcanada.ca/2018/09/staff-working-paper-2018-50/

De Pooter, M., Favara, G., Modugno, M., & Wu, J. (2021). Monetary policy uncertainty and monetary policy surprises. *Journal of International Money and Finance*, *122*, 102323. https://doi.org/10.1016/j.jimonfin.2020.102323

Fasani, S., Mumtaz, H., & Rossi, L. (2023). Monetary policy uncertainty and firm dynamics. *Review of Economic Dynamic*, *47*, 278–296. https://doi.org/10.1016/j.red.2022.02.002

Houari, O. (2022). Uncertainty shocks and business cycles in the US: New insights from the last three decades. *Economic Modelling*, *109*, 105762. https://doi.org/10.1016/j.econmod.2022.105762

Hsiao, S., Ma, C., Zhang, T., & Deng, L. (2022). *Monetary policy uncertainty and stock market volatility*. http://dx.doi.org/10.2139/ssrn.4215281

Husted, L., Rogers, J., & Sun, B. (2020). Monetary policy uncertainty. *Journal of Monetary Economics*, *115*, 20–36. https://doi.org/10.1016/j.jmoneco.2019.07.009

Kundu, S., & Paul, A. (2022). Effect of economic policy uncertainty on stock market return and volatility under heterogeneous market characteristics. *International Review of Economics & Finance*, *80*, 597–612. https://doi.org/10.1016/j.iref.2022.02.047

Lakdawala, A., Moreland, T., & Schaffer, M. (2021). The international spillover effects of US monetary policy uncertainty. *Journal of International Economics*, *133*, 103525. https://doi.org/10.1016/j.jinteco.2021.103525

Liu, L., & Zhang, T. (2015). Economic policy uncertainty and stock market volatility. *Finance Research Letters*, *15*, 99–105. https://doi.org/10.1016/j.frl.2015.08.009

Prüser, J., & Schlösser, A. (2020). On the time-varying effects of economic policy uncertainty on the US economy. *Oxford Bulletin of Economics and Statistics*, *82*(5), 1217–1237. https://doi.org/10.1111/obes.12380

Sinha, A. (2016). Monetary policy uncertainty and investor expectations. *Journal of Macroeconomics*, *47*, *Part B*, 188–199. https://doi.org/10.1016/j.jmacro.2015.12.001

SOBRE O ORGANIZADOR

Xosé Somoza Medina (1969, Ourense, España) Licenciado con Grado y premio extraordinario em Geografía e Historia por la Universidad de Santiago de Compostela (1994). Doctor en Geografía e Historia por la misma universidad (2001) y premio extraordinario de doctorado por su Tesis "Desarrollo urbano en Ourense 1895-2000". Profesor Titular en la Universidad de León, donde imparte clases desde 1997. En la Universidad de León fue Director del Departamento de Geografía entre 2004 y 2008 y Director Académico de la Escuela de Turismo entre 2005 y 2008. Entre 2008 y 2009 ejerció como Director del Centro de Innovación y Servicios de la Xunta de Galicia en Ferrol. Entre 2007 y 2009 fue vocal del comité "Monitoring cities of tomorrow" de la Unión Geográfica Internacional. En 2012 fue Director General de Rehabilitación Urbana del Ayuntamiento de Ourense y ha sido vocal del Consejo Rector del Instituto Ourensano de Desarrollo Local entre 2011 y 2015. Ha participado en diversos proyectos y contratos de investigación, en algunos de ellos como investigador principal, con temática relacionada con la planificación urbana, la ordenación del territorio, las nuevas tecnologías de la información geográfica, el turismo o las cuestiones demográficas. Autor de más de 100 publicaciones relacionadas con sus líneas de investigación preferentes: urbanismo, turismo, gobernanza, desarrollo, demografía, globalización y ordenación del territorio. Sus contribuciones científicas más importantes se refieren a la geografía urbana de las ciudades medias, la crisis del medio rural y sus posibilidades de desarrollo, la evolución del turismo cultural como generador de transformaciones territoriales y más recientemente las posibilidades de reindustrialización de Europa ante una nueva etapa posglobalización. Ha participado como docente en masters y cursos de especialización universitaria en Brasil, Bolivia, Colombia, Paraguay y Venezuela y como docente invitado en la convocatoria Erasmus en universidades de Bulgaria (Sofia), Rumanía (Bucarest) y Portugal (Porto, Guimarães, Coimbra, Aveiro y Lisboa). Ha sido evaluador de proyectos de investigación en la Agencia Estatal de Investigación de España y en la Organización de Estados Iberoamericanos (OEI). Como experto europeo en Geografía ha participado en reuniones de la Comisión Europea en Italia y Bélgica. Impulsor y primer coordinador del proyecto europeo URBACT, "come Ourense", dentro del Programa de la Unión Europea "Sostenibilidad alimentaria en comunidades urbanas" (2012-2014). Dentro de la experiencia en organización de actividades de I+D+i se pueden destacar la organización de diferentes reuniones científicas desarrolladas dentro de la Asociación de Geógrafos Españoles (en 2002, 2004, 2012 y 2018).

ÍNDICE REMISSIVO

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