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WHICH EPU HAS BETTER PREDICTIVE POWER IN FORECASTING THE RETURN AND VOLATILITY OF STOCK INDICES?

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ABSTRACT

Purpose- This study examines the predictive power of domestic and foreign Economic Policy Uncertainty (EPU) indices-specifically from the US, China, Europe, and globally-on the return and realized volatility (RV) of 20 global stock indices using monthly data spanning over 25 years.
Methodology- The dynamic connectedness method is applied to analyze the spillover effects of EPUs across stock markets.
Findings- The empirical results reveal that EPU impacts RV more significantly than returns, with Global and US EPUs emerging as primary drivers across most regions and periods. Notably, Chinese EPU consistently exhibits minimal influence, while local EPUs have pronounced effects in economies with heightened political, economic, and financial uncertainties. Contrary to expectations, EPUs from major trade partners and regional EPUs do not exhibit superior predictive power compared to Global and US EPUs. These insights are critical for investors, risk managers, and policymakers in optimizing strategies amidst evolving economic uncertainties.
Conclusion- The findings indicate that Economic Policy Uncertainty (EPU) has a stronger influence on realized volatility (RV) than on stock returns, with Global and US EPUs serving as the dominant predictors across most regions and periods. In contrast, Chinese EPU consistently has minimal impact, while local EPUs play a significant role in countries with pronounced political and economic instability. Surprisingly, EPUs from major trade partners and regional EPUs do not outperform Global and US EPUs in predictive power. These insights underscore the importance of focusing on global and US-driven uncertainties for strategic decision-making by investors, risk managers, and policymakers.

Keywords: Economic policy uncertainty (EPU), stock indices, return, realized variance, dynamic connectedness.
JEL Codes: C32, C58, D80, G12, G17

1. INTRODUCTION

Modeling and forecasting the return and volatility of financial assets are crucial tasks for investors, risk managers, and portfolio managers. These professionals seek to predict the behavior of financial time series using the best available indicators. Traditionally, macroeconomic and financial data were viewed as the most reliable tools for this purpose. However, recent research suggests that Economic Policy Uncertainty (EPU) has emerged as a valuable indicator in predicting financial series, particularly returns and volatilities (Phan et al., 2018; Chiang, 2019). EPU reflects the uncertainty surrounding economic policy decisions and their potential impacts on both economies and financial markets. For example, Chiang (2019) found evidence of EPU's predictive power over risk and stock returns in G7 countries, demonstrating the important role that policy uncertainty plays in shaping financial market outcomes. As a result, policymakers must consider how their decisions may influence EPU and, in turn, affect market stability and economic growth.

Despite the growing interest in the relationship between EPU and financial markets, previous empirical studies have produced mixed results regarding its impact on stock returns. While some researchers have identified a negative relationship between EPU and stock returns, others have found positive or insignificant effects (Sum, 2013; Antonakakis et al., 2013; Bhagat et al., 2013; Kang and Ratti, 2013; Ko and Lee, 2015; Phan et al., 2018; Tiryaki and Tiryaki, 2018; Helseth et al., 2020; Erdoğan et al., 2022; Uddin et al., 2020). The inconsistent results can be attributed to various factors, such as differences in the time periods studied, sample countries, or methodologies employed. Additionally, some authors suggest that the predictive power of EPU on financial series fluctuates over time (Ozoguz, 2009; Li et al., 2015; Kundu and Paul, 2022). The heterogeneous effects of EPU on stock returns may be linked to its influence on expected cash flows, discount rates, and the equity risk premium.

Furthermore, EPU's influence is not confined to domestic markets. Given the increasing economic and financial integration between countries, foreign EPUs may also have predictive power over the return and volatility of stock indices. This is particularly true due to the transmission of economic shocks from one country to another (Ko and Lee, 2015; Dakhlaoui and Aloui, 2016; Li et al., 2020). While many studies have focused on the impact of US or global EPU, the results vary across different countries and time periods (Sum, 2013; Alqahtani and Martinez, 2020; Mei et al., 2018; Li et al., 2020).

The primary objective of this research is to examine the predictive power of both domestic and foreign EPUs on the return and volatility of stock indices over time. This study offers three key contributions. First, it explores the effects of EPU on the returns and volatilities of 20 stock indices from both developed and developing countries, using a dataset spanning over 20 years. The volatility of the stock indices is calculated using realized volatility derived from daily returns. Most previous studies have concentrated on a limited number of stock indices, mainly analyzing the predictive power of domestic EPU on returns (Arouri et al., 2016; Guo et al., 2018; Phan et al., 2018; Xiong et al., 2018; Bahmani-Oskooee and Saha, 2019; Balcilar et al., 2019). Only a few have considered the effects of EPU on volatility (Liu and Zhang, 2015; Liu et al., 2017; Chiang, 2019; Kundu and Paul, 2022).

Second, this study incorporates both domestic and four foreign EPUs (Global, US, European, and Chinese) allowing for a comprehensive assessment of how different EPUs influence stock index returns and volatilities. By analyzing the predictive power of multiple EPUs, this research provides valuable insights into the interconnectedness of global financial markets and the cross-border transmission of economic policy uncertainty.

Third, this study employs the dynamic connectedness model proposed by Diebold and Yilmaz (2014) to assess how the predictive power of EPUs evolves over time. While few authors have accounted for the time-varying nature of the relationship between EPU and financial series (Arouri et al., 2016; Das and Kumar, 2018; Xiong et al., 2018; Bahmani-Oskooee and Saha, 2019), this research highlights the changing dynamics of EPU's influence on financial assets. Additionally, by utilizing the Forecast Error Variance Decomposition (FEVD) method, the connectedness model allows for an out-of-sample analysis of EPUs' predictive power on forecasted returns and volatilities, as opposed to the in-sample approach used in most existing studies.

The remainder of this paper is organized as follows: Section 2 provides the theoretical framework and a review of empirical studies, Section 3 discusses the data and methodology, Section 4 presents and analyzes the empirical results, and Section 5 offers concluding remarks and policy implications.

2. REVIEW OF LITERATURE

Economic policy uncertainty (EPU) can influence stock returns through its effects on expected cash flows and/or discount rates (Arouri et al., 2016). During periods of economic uncertainty, businesses and consumers often adopt a "wait-and-see" approach, delaying investment decisions, hiring, and demand for goods and services until uncertainty is resolved (Colombo, 2013; Baker et al., 2016; Meinen and Roehe, 2017; Kido, 2016). For instance, Baker et al. (2016) found that heightened US economic policy uncertainty negatively impacted production, investment, and employment. This reduction in real economic activity adversely affects expected cash flows and/or discount rates, leading to a decline in stock prices and returns (Phan et al., 2018).

By contrast, EPU can also affect stock prices by shaping investors' expectations and raising the cost of equity capital for firms. EPU may have a positive effect on stock prices if policy-induced uncertainty raises the equity risk premium (Brogaard and Detzel, 2015). Pastor and Veronesi (2013) demonstrated that political shocks can alter investor expectations, increasing both the equity risk premium and stock return volatility. Under these circumstances, risk-averse investors may demand higher returns to compensate for the additional risk taken during periods of high uncertainty (Veronesi, 1999).

Most empirical research has found a negative effect of EPU on stock returns (Sum, 2013; Antonakakis et al., 2013; Bhagat et al., 2013; Kang and Ratti, 2013; Ko and Lee, 2015; Phan et al., 2018; Tiryaki and Tiryaki, 2018; Helseth et al., 2020; Uddin et al., 2020; Erdoğan et al., 2022) and a positive effect on stock return volatility (Liu and Zhang, 2015; Liu et al., 2017; Chiang, 2019; Kundu and Paul, 2022). However, some empirical studies found mixed results. For instance, Phan et al. (2018) examined the predictive ability of EPU on stock returns in 16 countries and found that the results varied across countries. Additionally, some authors have noted that EPU's impact on stock returns depends on the state of the economy (Ozoguz, 2009; Kundu and Paul, 2022). Kundu and Paul (2022) analyzed EPU's effect on stock returns and volatility in G7 markets and found that EPU had a stronger negative impact on stock returns (and a stronger positive impact on volatility) during bear markets than during bull markets. Similarly, Li et al. (2015) discovered that the causal relationships between EPU and stock returns in China and India vary over time.

The dynamics of domestic stocks can also be influenced by foreign EPU due to the economic and financial integration between countries, which facilitates the transmission of shocks from one economy to another (Ko and Lee, 2015; Dakhlaoui and Aloui, 2016; Li et al., 2020). Additionally, heightened economic policy uncertainty in developed countries may have either positive or negative spillover effects on emerging markets via capital flows (Gauvin et al., 2016). A positive spillover may occur when investors in developed markets redirect their investments to emerging markets due to a decline in the attractiveness of domestic investments caused by increased policy uncertainty. Conversely, a negative spillover can occur when investors reduce overall risk exposure by retreating to domestic markets and lowering allocations to emerging markets (Tiryaki and Tiryaki, 2019).

Most studies have examined the impact or predictive power of US and/or Global EPU on stock indices (Sum, 2013; Donadelli, 2015; Mei et al., 2018; Chiang, 2019). Many of these studies have shown that both US and Global EPUs have a negative effect on stock returns (Ko and Lee, 2015; Dakhlaoui and Aloui, 2016; Das and Kumar, 2018; Bahmani-Oskooee and Saha, 2019; Belke and Osowski, 2019; Chiang, 2019; Li et al., 2020). However, these studies tend to focus on developed and significant stock markets that are highly integrated into global financial systems. Negative impacts have also been observed in developing markets. For instance, Sum (2013) found that US EPU negatively affected stock returns in five Asian countries (Indonesia, Malaysia, the Philippines, Singapore, and Thailand), with the exception of the Philippines. Alqahtani and Martinez (2020) showed that Global and US EPUs had a significant negative impact on stock prices in Bahrain and Kuwait but had little impact on other GCC countries. Similarly, Tiryaki and Tiryaki (2019) found that US EPU negatively affected Turkish stock returns. On the other hand, Chiang (2019) reported that both domestic and Global EPUs positively impacted stock indices in G7 economies (Canada, France, Germany, Italy, Japan, the UK, and the US).

Some studies have found no significant linkage or spillover effect between EPU and stock returns. For example, Mei et al. (2018) discovered that European EPU indices did not have predictive power over the volatility of European stocks, whereas US EPU did, with its predictive power fluctuating between recessions and expansions. Using a VAR framework, Donadelli (2015) did not find a significant effect of US EPU on Asian stock returns in countries like China, India, Indonesia, Korea, and others. Tsai (2017) noted that while US EPU has historically been influential, Chinese EPU has become more significant and its contagion risk now extends to several regional markets, excluding Europe.

Beyond US and Global EPU, Uddin et al. (2020) examined the effects of EPU on the Bangladeshi stock market and found that the EPUs of Bangladesh's major importing countries (China and India) had a greater negative impact on stock returns than the EPUs of its major exporting countries (US and EU).

Several studies suggest that the predictive power of domestic and foreign EPUs on stock returns and volatilities can change over time (Ozoguz, 2009; Li et al., 2015; Arouri et al., 2016; Das and Kumar, 2018; Xiong et al., 2018; Bahmani-Oskooee and Saha, 2019; Al-Yahyaee et al., 2020; Aimer, 2021; Kundu and Paul, 2022). Xiong et al. (2018) found a time-varying relationship between EPU and stock returns in the Shanghai and Shenzhen markets, while Arouri et al. (2016) observed a stronger relationship between EPU and returns in the US during periods of heightened volatility. Das and Kumar (2018) further demonstrated that EPU’s impact on stock returns can vary across different time scales, using a wavelet approach.

3. DATA AND METHODOLOGY

3.1. Data Presentation

This paper investigates the predictive power of domestic, US, Chinese, European, and Global Economic Policy Uncertainty (EPU) on the returns and volatility of 20 stock indices. We used news-based EPU indices as proxies for economic policy uncertainty, with the time series data obtained from the Economic Policy Uncertainty Index website. The study considers EPUs from 20 individual countries (domestic EPU), as well as US, European and Global EPUs, to predict stock returns and volatilities. These EPU’s series have been retrieved from the Economic Policy Uncertainty internet pages Economic Policy Uncertainty Index.

The stock indices for each country were retrieved from the EIKON database. The countries and their respective stock indices are: Australia (ASX index), Belgium (BEL20), Canada (SP TSX), Chile (SP CLX IPSA), Croatia (CROBEX), France (CAC40), Germany (DAX30), Greece (ATHEX20), India (NIFTY50), Ireland (ISEQ), Italy (FTSE MIB), Japan (Nikkei225), South Korea (KOSPI), Mexico (SP BMV IPC), Netherlands (AEX), Russia (MOEX), Singapore (STI), Spain (IBEX35), the UK (FTSE100), and the US (SP500).

For most countries, monthly data from January 1997 to December 2022 was used (e.g., Canada, Chile, China, Ireland, Japan, Korea, Mexico, Russia, Spain, Sweden, UK, and the US). For the remaining countries, the EPU data begins later: Australia (October 1998 - December 2022), Croatia (January 2003 - December 2022), Greece (January 1998 - December 2022), India (January 2003 - December 2022), Netherlands (March 2003 - December 2020), and Singapore (January 2003 - December 2022).

The returns and volatilities of the selected stock indices are calculated from the monthly EPU data. The monthly return for each stock (*i*) is determined as $r_{i,t} = \ln(P_t/P_{t-1})$, where P_t represents the level of stock index *i* at the end of month *t*. The monthly volatility of each stock index *i*, or realized volatility (RV), is calculated as the sum of the squared returns observed during the month, $RV_{i,t}=\sum_{j=1}^{n} r_{i,j}^2$, where *n* is the number of working day in the month *t*.

3.2. Dynamic Connectedness Approach Proposed by Diebold and Yilmaz (2014)

The impact of EPU on financial returns has been modeled using various approaches in the literature, such as linear regression (Mei et al., 2018; Phan et al., 2018; Chiang, 2019), AR-GARCH models (Liu et al., 2017; Wu et al., 2019; Liming et al., 2020; Ersin et al., 2022), quantile regression (Wu et al., 2019), AR-Markov switching models (Arouri et al., 2016; Uddin et al., 2020; Kundu and Paul, 2022), Wavelet Coherence Analysis (Asafo-Adjei et al., 2020; Kundu and Paul, 2022), and Autoregressive Distributed Lag (ARDL) models (Tiryaki and Tiryaki, 2019; Aimer, 2021). Nonlinear ARDL models (NARDL) have also been used (Chang et al., 2022), as well as HAR-type models with exogenous variables representing EPU (Liu and Zhang, 2015).

However, most of these methods fail to account for the time-varying impact of EPUs on the dynamics of financial series. Additionally, they often do not distinguish the contribution of each EPU to the dynamic of retained financial series.

In contrast, the dynamic connectedness approach allows for an assessment of the time-varying effects of different EPUs on financial series (returns and realized volatility) while identifying the contribution of each EPU. This method enables a direct investigation of the predictive power of EPUs by analyzing their impact on forecasted error variance decomposition.

The connectedness method has been applied by a few authors to analyze the impact of EPU on financial series. For example, Yang (2019) explored the relationship between EPU and oil prices using the connectedness method proposed by Diebold and Yilmaz (2014) and the Wavelet approach.

In this study, the connectedness framework introduced by Diebold and Yilmaz (2014) is used to quantify the strength and duration of the impact of EPU shocks on the returns and realized volatility of stock indices. This approach relies on the generalized forecast error variance decomposition (GFEVD) of a vector autoregressive (VAR) model.

Let y_t be a 6×1 time-series vector at time t, including monthly return (or monthly realized volatility (RV)) of a retained country, and 5 EPU (domestic as well as US, Chinese, European, and Global EPU).

$$y_t = \sum_{s=1}^{p} \theta_j y_{t-s} + \epsilon_t, \tag{1}$$

where $\theta_j (j = 1, \dots, p)$ are nxn matrices of parameters. Residuals (ϵ_t) are assumed to be serially uncorrelated $(\epsilon_t \sim (0, \sum \quad)$. The optimum lag p is determined by using AIC.

The moving average representation of y_t is expressed as:

$$y_t = \Psi(L)\epsilon_t = \sum_{k=0}^{\infty} \Psi_k \, \epsilon_{t-k}, \tag{2}$$

The (nxn) dimension coefficient matrices (Ψ_k) are defined as:

$$\Psi_k = \theta_1 \Psi_{k-1} + \theta_2 \Psi_{k-2} + \dots + \theta_l \Psi_{k-l}, \tag{3}$$

where Ψ_0 is nxn identity matrix and $\Psi_k = 0 \; for \; k < 0$.

The *H-step* ahead generalized forecast error variance decomposition is:

$$\phi_{ij}(H) = \frac{\sigma_{jj}^{-1} \sum_{h=0}^{H} ((\Psi_k \sum \quad)_{ij})^2}{\sum_{h=0}^{H} (\Psi_k \sum \Psi_h^T)_{ii}}, \tag{4}$$

where σ_{jj} represents the standard deviation of the error term of variable j. $\phi_{ij}(H)$ measures the contribution of variable i to the generalized forecast error variance of variable j. In case i=j, $\phi_{ij}(H)$ measures its own contribution to its own forecast error variance.

$\phi_{ij}(H)$ is normalized such as:

$$\tilde{\phi}_{ij}(H) = \frac{\phi_{ij}(H)}{\sum_{j=1}^{n} \phi_{ij}(H)}. \tag{5}$$

$\tilde{\phi}_{ij}(H)$ enables to determine the percentage in the forecast error variance of variable i that is explained by variable j.

4. EMPIRICAL RESULTS: PRESENTATION AND DISCUSSION

The directional spillovers between the variations in the retained EPUs and the stock returns (and realized volatility (RV)) were determined by estimating the GFEVD model (defined in Eq. 1-5) across successive sub-periods using a rolling-window approach. Each window spans 150 months (12.5 years). Since the starting dates of the datasets vary across countries, the number of windows differs as well (see the data description section). For instance, there are 163 windows for 10 countries.

This approach allows us to quantify the contribution (in percentage terms) of each retained EPU to the forecast error variance of both returns and RVs for each stock index in each sub-period. The results are presented in table form, but due to the large number of windows (around 163), it is impractical to display all of them. Instead, we summarize the findings by plotting the percentage of the forecast error variance of each stock's return and RV explained by variations in the EPUs (Figures 1-20).

First, we discuss the impact of EPU variations on realized volatility, followed by their impact on stock returns.

4.1. Realized Volatility (RV) Responses to EPU

The contribution of EPU variations to the forecast error variance of each stock's RV is shown in Figures 1b to 20b. According to these figures, the RV of most retained stocks is primarily driven by the Global EPU, followed by the US EPU (e.g., Croatia (Fig. 2b), Belgium (Fig. 1b), Italy (Fig. 6b), France (Fig. 3b), the Netherlands (Fig. 8b), Mexico (Fig. 14b), and Chile (Fig. 13b)), with some short-term exceptions. For instance, British RV mainly responded to Global and US EPUs (Fig. 10b), except during sub-periods of heightened uncertainty caused by Brexit (June 2016 to January 31, 2020). A similar pattern is observed for Russia's RV (Fig. 19b), which responded primarily to Global and US EPUs for most sub-periods, though this influence diminished over time. More recently, the local EPU has had a stronger effect, particularly due to international tensions surrounding Ukraine.

In the case of Canada, the stock market's RV initially responded more to local EPU (Fig. 12b). However, this influence waned over time, and the Global EPU, followed by the US EPU, became the dominant drivers. In the later sub-periods, US EPU had a greater impact than Global EPU. For Germany, RV was mostly driven by Global and US EPUs throughout the observation period, though the influence of the local EPU increased and even surpassed that of Global and US EPUs during the most recent sub-periods, which were marked by the COVID-19 pandemic and the Russia-Ukraine war (Fig. 4b).

For Greece, RV primarily reacted to Global EPUs in the early sub-periods, followed by local EPUs (Figure 5b). Over time, local EPU became the dominant driver, followed by Global EPU. Greece's RV also responded to European and US EPUs in similar magnitudes. The strong impact of local EPU can be attributed to numerous significant economic and policy issues in Greece, including its 2010 request for financial support from the IMF, EU, and ECB, the downgrading of Greece's credit rating, the European debt crisis, political uncertainties, and the 2015 referendum on the EU bailout conditions. Although the referendum rejected the bailout terms, a package was eventually agreed upon, and capital controls were introduced in June 2015.

Japan's RV primarily responded to local EPU, followed by Global and US EPUs (Figure 16b). Similarly, US RV was mostly influenced by Global and local EPUs, with a relatively small contribution from European EPU, which accounted for about 5% of the variance, increasing slightly after Brexit (Fig. 11b). US RV's response to Chinese EPU was limited, except for certain sub-periods, such as during the US-China trade war and the election of President Trump, when it rose sharply. By contrast, the RV of most other retained stocks was minimally affected by Chinese EPU (Figures 1b-20b).

Regarding the influence of regional EPUs, their contribution to the forecast error variance of most RVs was generally lower than that of Global and US EPUs, with few exceptions in more recent sub-periods. For example, the RV of European stocks was primarily driven by Global and US EPUs, with European EPU playing a minor role (Figures 1b-8b). Similarly, Asian RVs showed limited responses to variations in Chinese EPU, with a few exceptions in certain sub-periods (Figures 15b-18b).

4.2. Stock Return Responses to EPU

The responses of stock returns to EPU variations are plotted in Figures 1a to 20a. Compared to the results for RV, the dominance of Global and US EPUs is also evident in the case of stock returns, although to a lesser extent. For instance, the returns of Croatia (Figure 2a), the UK (Figure 10a), Ireland (Figure 7a), France (Figure 3a), Mexico (Figure 14a), and Spain (Figure 9a) were predominantly driven by Global and US EPUs. Similar patterns are observed for several other countries, though with variations during certain sub-periods.

For Germany, stock returns initially responded primarily to Global EPU, followed by US and European EPUs in the earlier sub-periods (Figure 4a). However, as time progressed, the influence of Global EPU decreased, while the response to local EPU increased. In the most recent sub-periods, Germany's returns were mainly driven by local and US EPUs. Italy's stock returns were initially driven by Global EPU, followed by European, US, and local EPUs during the first sub-periods (Figure 6a). Over time, the influence of European EPU became more pronounced, while the contributions of Global and US EPUs diminished before rising again in the later sub-periods.

In contrast, some stock returns were primarily influenced by local EPUs, followed by Global EPU. For example, the returns of Korea (Fig. 17a), India (Fig. 15a), the Netherlands (Fig. 8a), and Greece (Fig. 5a) followed this pattern. Greece's stock returns, in particular, responded mainly to local EPUs, followed by Global and European EPUs (Figure 5a), which is consistent with the RV response. This is likely due to Greece's prolonged period of economic and policy challenges, as discussed earlier. Similarly, Japan's stock returns were driven by Global EPU in the early sub-periods, with local EPU playing a larger role in the later sub-periods (Figure 16a). Singapore exhibited similar patterns (Fig. 18a).

Similar to RV responses, most stock returns showed minimal reaction to Chinese EPU.

For each stock, the total response of both returns and RV to EPUs was calculated, and the differences (total RV response minus total return response) were determined. These differences are displayed in Figure 21, which shows that the RV response to EPUs is consistently higher than the return response across all retained series. This finding is logical, as EPUs are measures of uncertainty, which tends to have a more pronounced effect on volatility than on returns.

4.3. Impact of Main Trade Partners

Some authors have suggested that the dynamics of domestic stock markets should be more responsive to the EPUs of their main trading partners, as economic integration facilitates the transmission of foreign EPU shocks (Uddin et al., 2020). However, our results do not support this hypothesis. The European countries in our sample have the majority of their trade partnerships with other European countries, yet their stock returns and RVs reacted mainly to Global and US EPUs rather than to European EPU (e.g., Croatia (Figure 2b), France (Figure 3b), Germany (Figure 4b), the Netherlands (Figure 7b), and Spain (Figure 8b)). For instance, Croatia's top trade partners are from Europe and Central Asia, and the US ranks only 10th in terms of trade volume. Despite this, Croatia's stock returns and RVs were more influenced by Global and US EPUs than by European EPU (Figure 2a).

In contrast, the contribution of Chinese EPU to the forecast error variance of US stock returns increased over time (Figure 11a), which can be attributed to the growing trade relationship between the US and China.

Figure 1.a: Belgium stock return reaction to EPUs

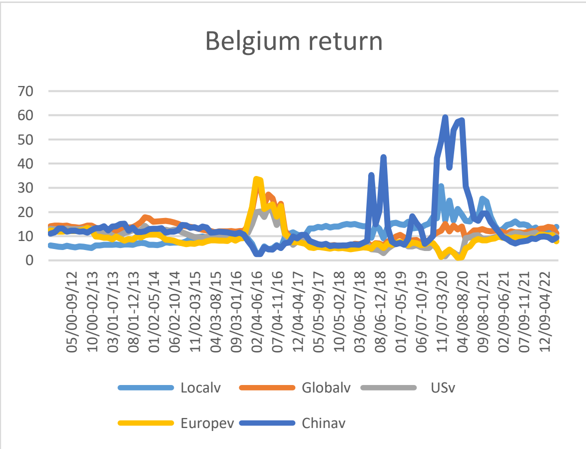


Figure 1.b: Belgium stock RV reaction to EPUs

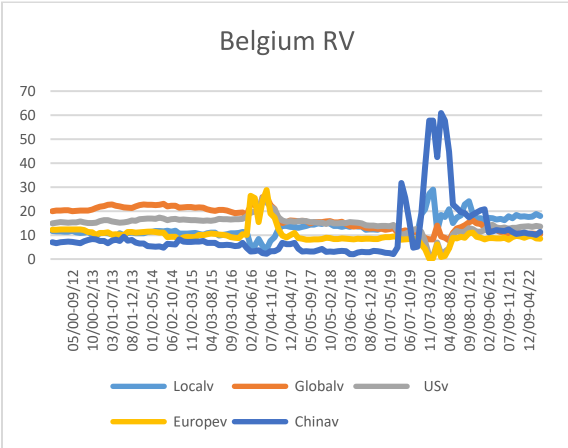


Figure 2.a: Croatia stock return reaction to EPUs

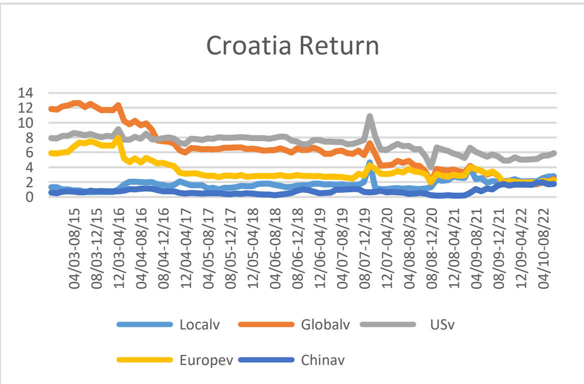


Figure 2.b: Croatia stock RV reaction to EPUs

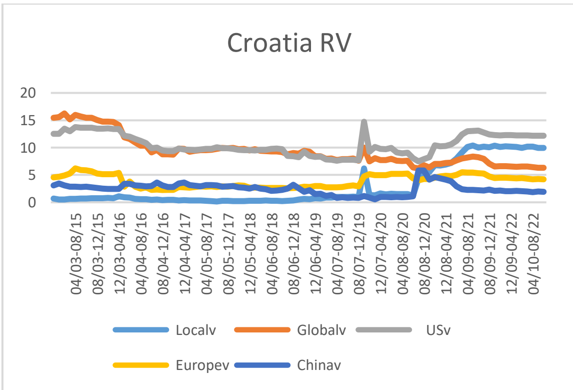


Figure 3.a: France stock return reaction to EPUs

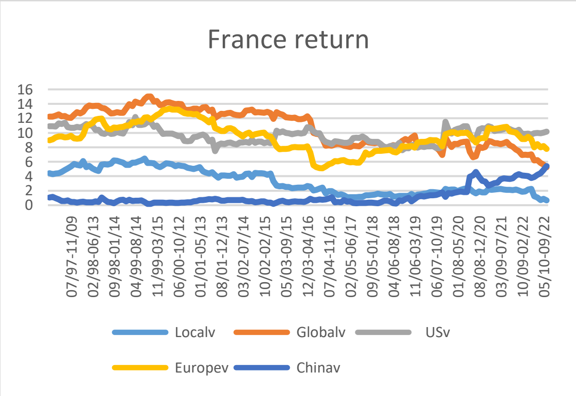


Figure 3.b: France stock RV reaction to EPUs

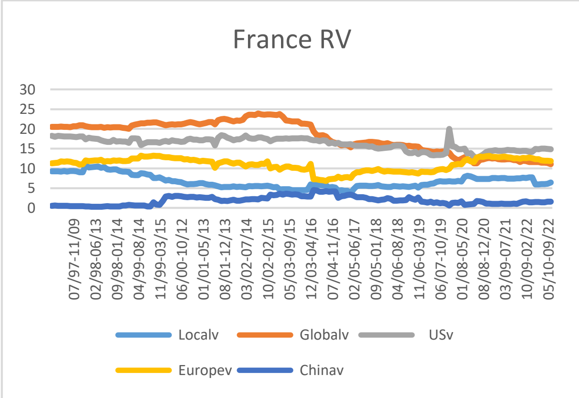


Figure 4.a: Germany stock return reaction to EPUs

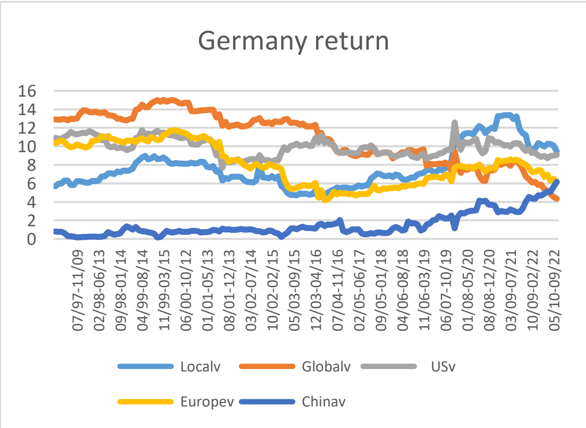


Figure 4.b: Germany stock RV reaction to EPUs

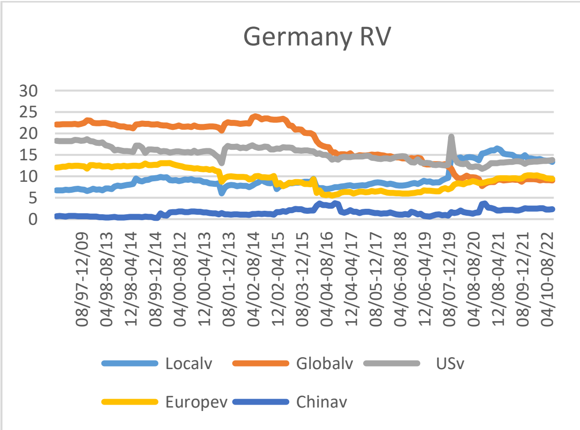


Figure 5.a: Greece stock return reaction to EPUs

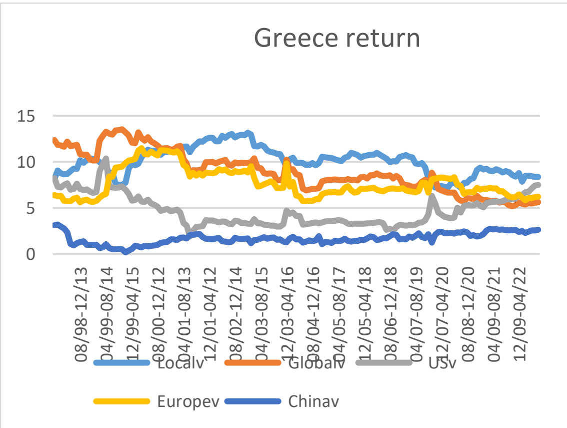


Figure 5.b: Greece stock RV reaction to EPUs

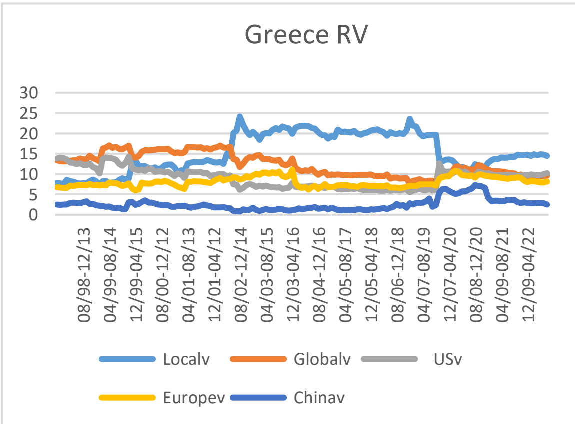


Figure 6.a: Italy stock return reaction to EPUs

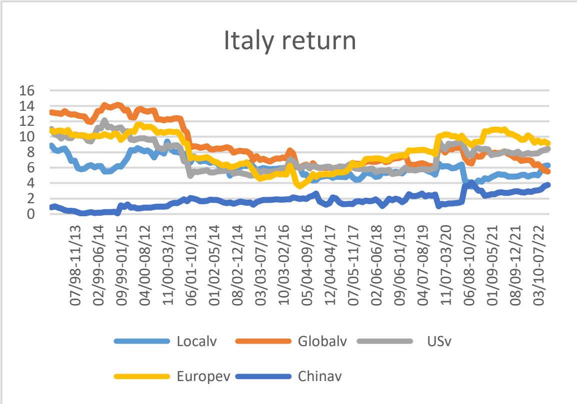


Figure 6.b: Italy stock RV reaction to EPUs

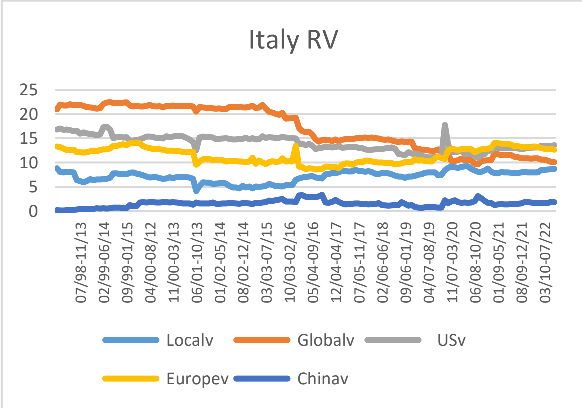


Figure 7.a: Ireland stock return reaction to EPUs

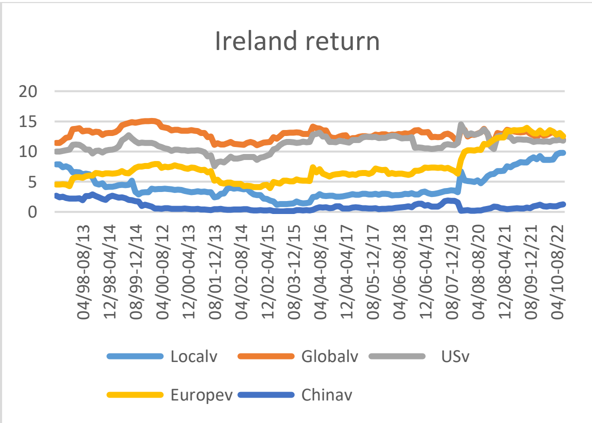


Figure 7.b: Ireland stock RV reaction to EPUs

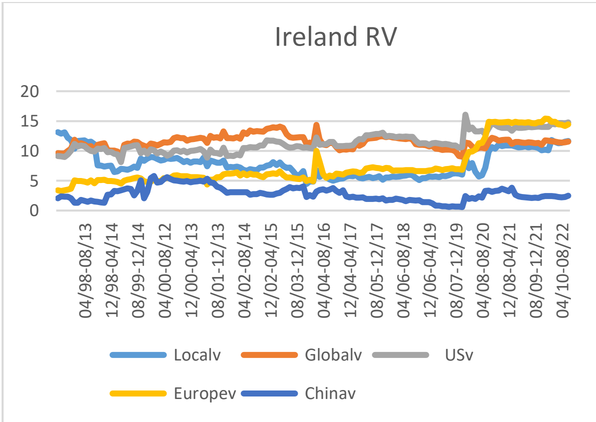


Figure 8.a: Netherlands stock return reaction to EPUs

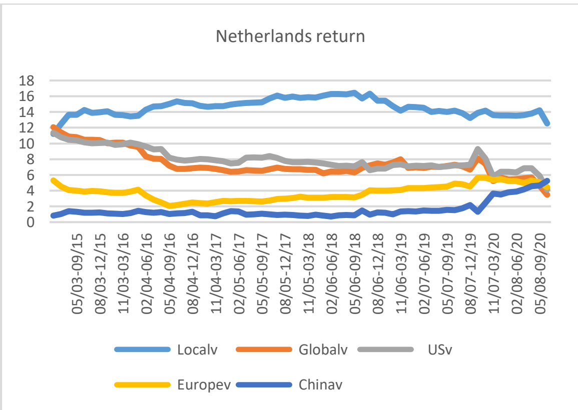


Figure 8.b: Netherlands stock RV reaction to EPUs

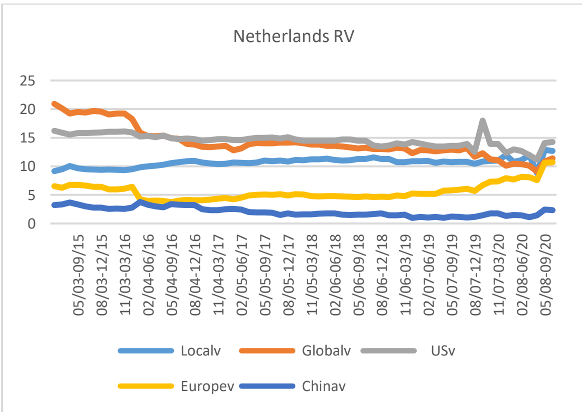


Figure 9.a: Spain stock return reaction to EPUs

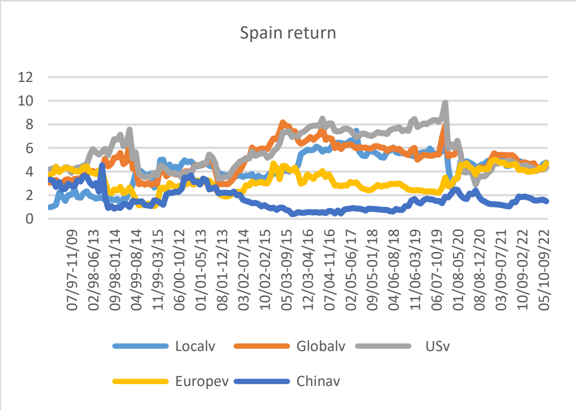


Figure 9.b: Spain stock RV reaction to EPUs

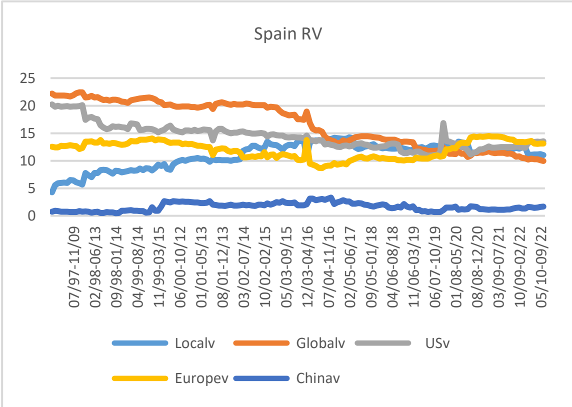


Figure 10.a: UK stock return reaction to EPUs

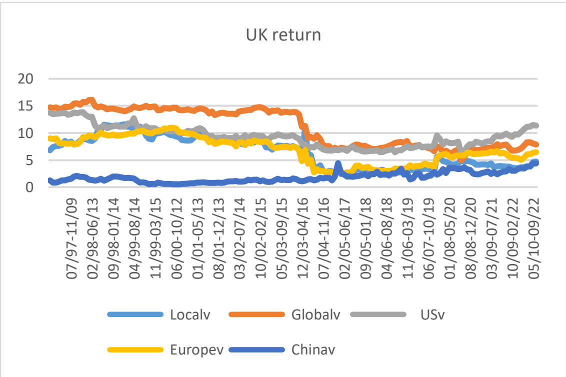


Figure 10.b: UK stock RV reaction to EPUs

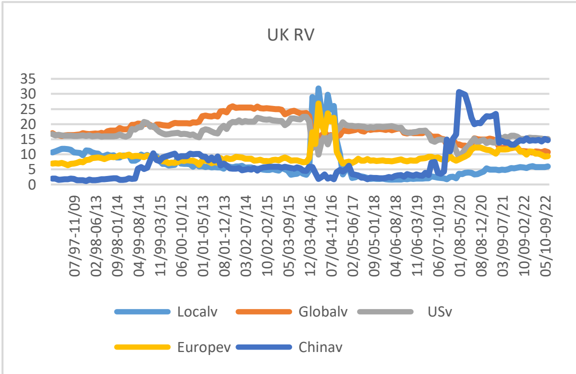


Figure 11.a: US stock return reaction to EPUs

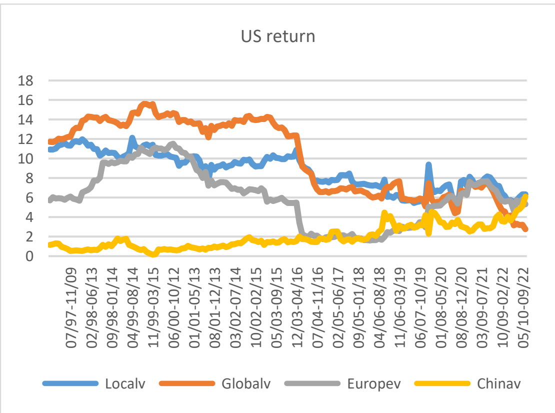


Figure 11.b:) US stock RV reaction to EPUs

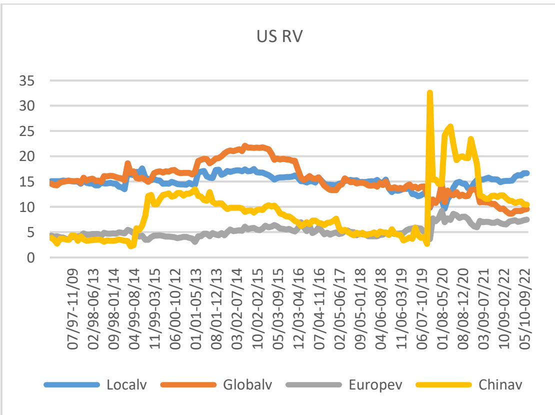


Figure 12.a: Canada stock return reaction to EPUs

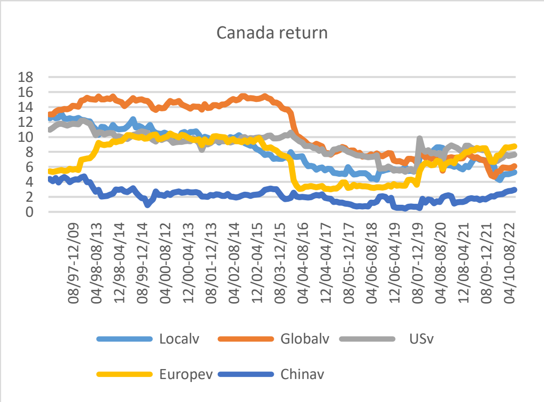


Figure 12.b: Canada stock RV reaction to EPUs

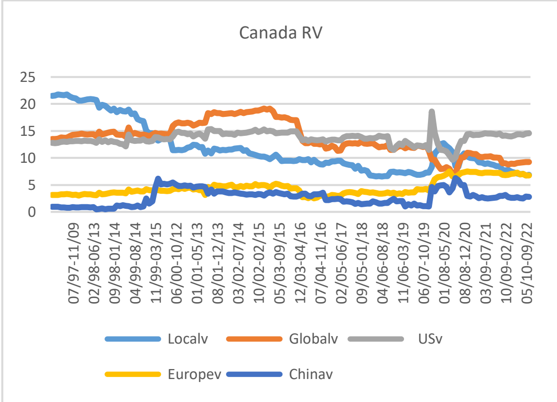


Figure 13.a: Chile stock return reaction to EPUs

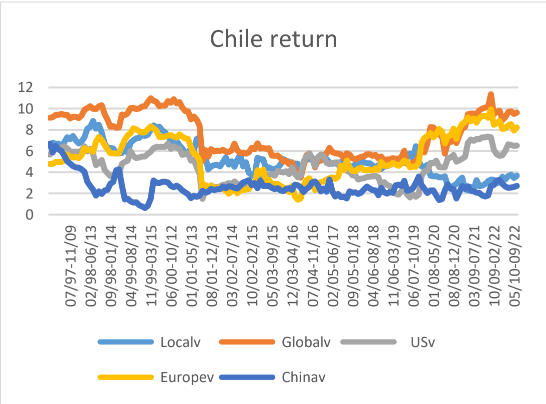


Figure 13.b: Chile stock RV reaction to EPUs

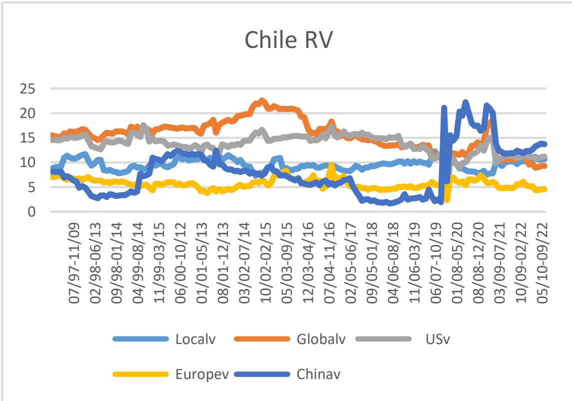


Figure 14.a: Mexican stock return reaction to EPUs

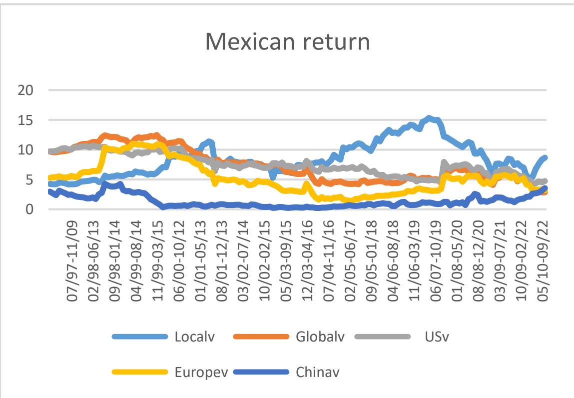


Figure 14.b: Mexican stock RV reaction to EPUs

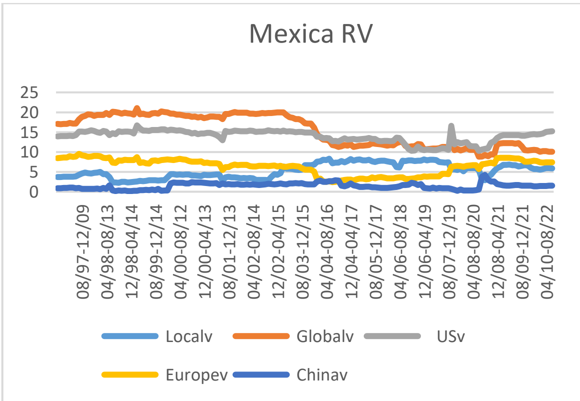


Figure 15.a: India stock return reaction to EPUs

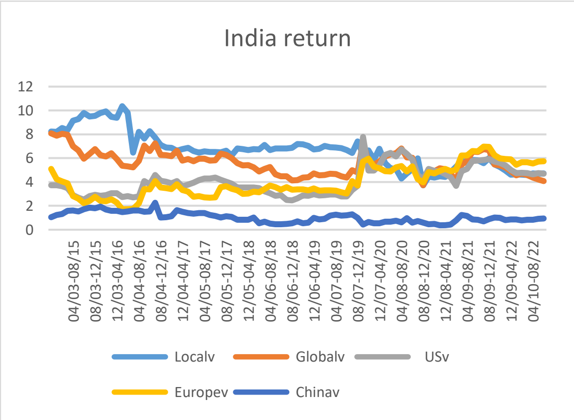


Figure 15.b: India stock RV reaction to EPUs

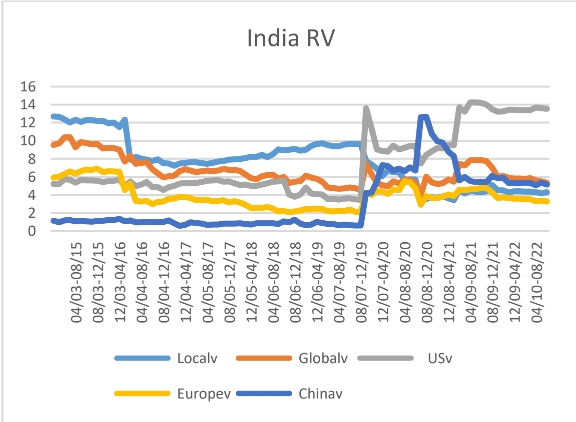


Figure 16.a: Japan stock return reaction to EPUs

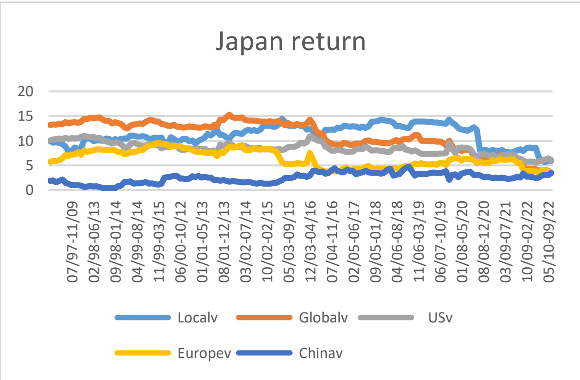


Figure 16.b: Japan stock RV reaction to EPUs

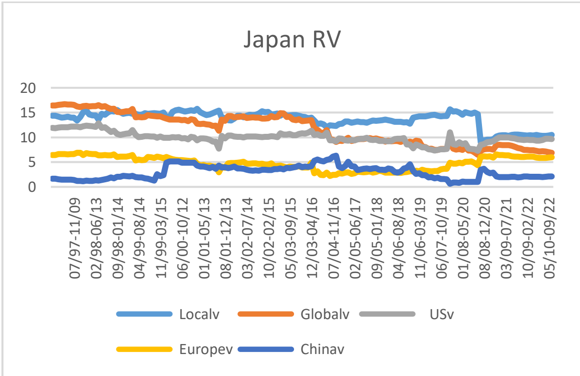


Figure 17.a: Korea stock return reaction to EPUs

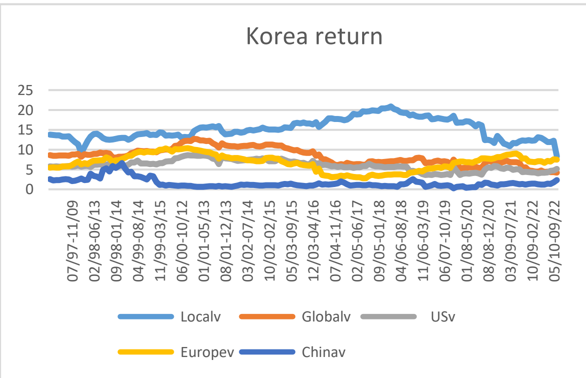


Figure 17.b: Korea stock RV reaction to EPUs

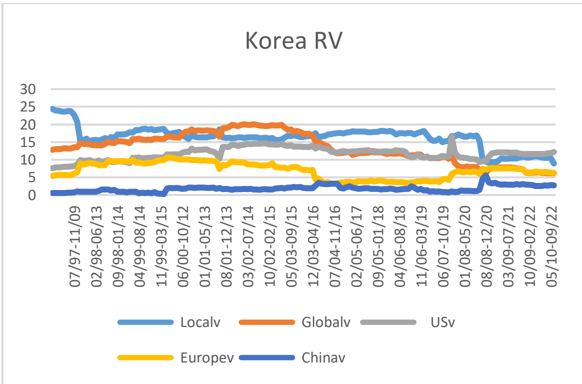


Figure 18.a: Singapore stock return reaction to EPUs

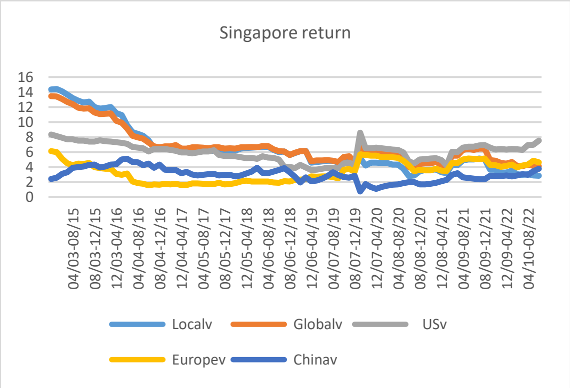


Figure 18.b: Singapore stock RV reaction to EPUs

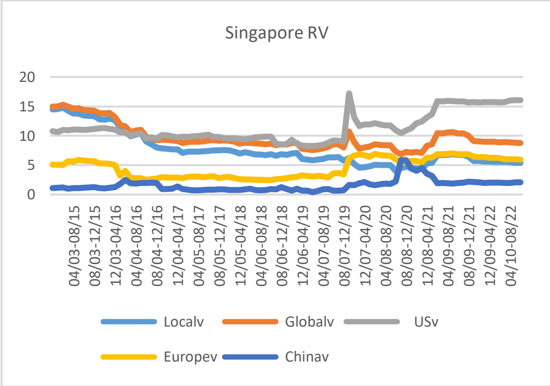


Figure 19.a: Russian stock return reaction to EPUs

Figure 19.b: Russian stock RV reaction to EPUs

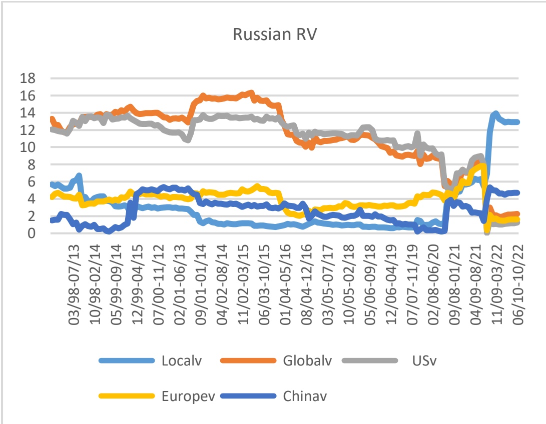


Figure 20.a: Australia stock return reaction to EPUs

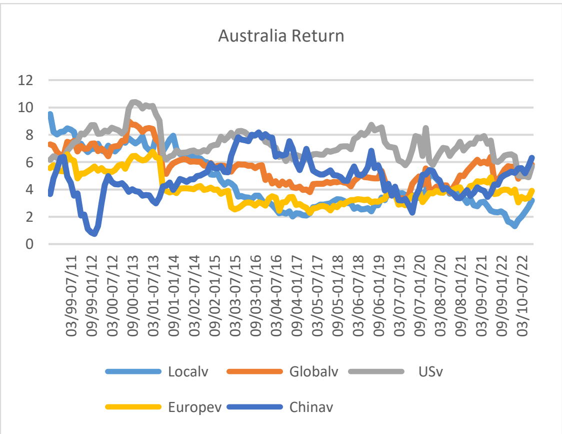


Figure 20.b: Australia stock RV reaction to EPUs

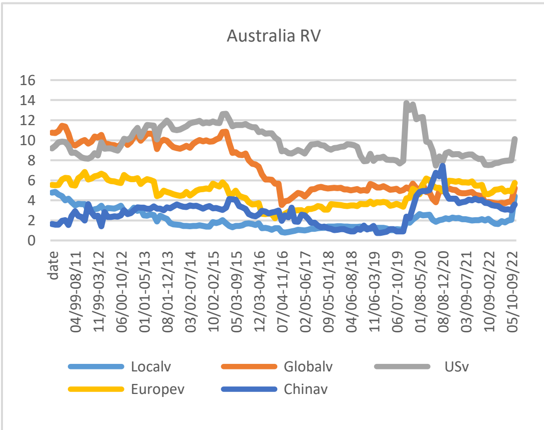
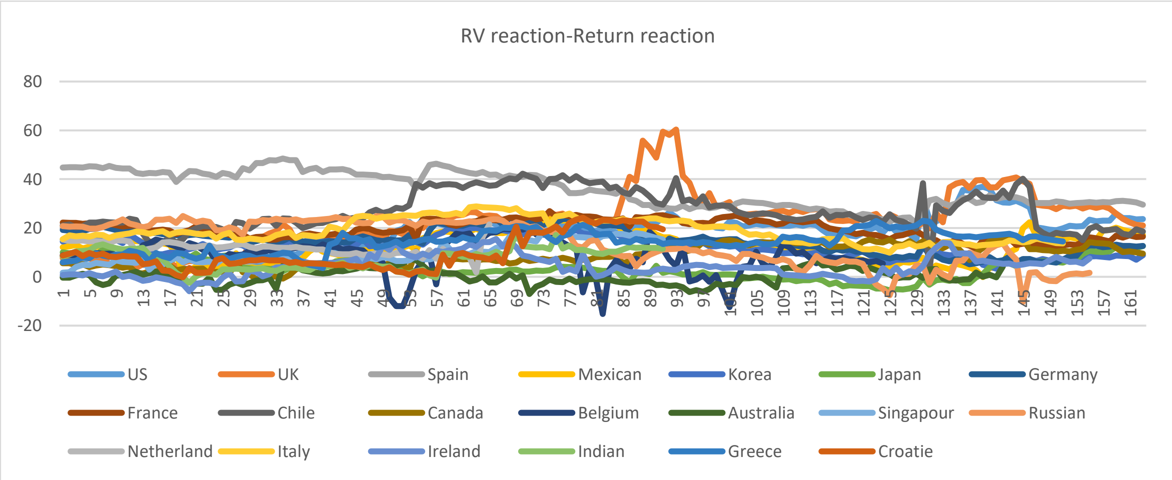


Figure 21: Differences between total reaction of RV to EPUs – total reaction of return to EPUs



A summary of these findings are given in the following table (Table 1).

Table 1: Summary results

Country /Region	Primary Driver of RV	Primary Driver of Returns	Role of Local EPU	Role of Regional EPU	Role of Chinese EPU
USA	Global EPU, US EPU	Global EPU, US EPU	Moderate	N/A	Increasing (US-China trade)
Europe (General)	Global EPU, US EPU	Global EPU, US EPU	Minimal	Lower than Global/US	Minimal
Germany	Global EPU, US EPU	Transition from Global and US EPU to Local EPU over time	Increasing (COVID-19, war periods)	Moderate (Temporary)	Minimal
UK	Global EPU, US EPU	Global EPU, US EPU	Increasing (Brexit period)	Minimal	Minimal
Greece	Mainly Local EPU, Global EPU	Local EPU	Dominant (Financial crises)	Minimal	Minimal
Japan	Local EPU, Global EPU	Global EPU, Local EPU	Increasing over time	Minimal	Minimal
China	Local EPU	Local EPU	Dominant	N/A	N/A
India	Local EPU	Local EPU	Dominant	Minimal	Minimal
Russia	Global EPU, US EPU	Global EPU, US EPU	Increasing (Ukraine conflict)	Minimal	Minimal
Australia	Global EPU, US EPU	Global EPU, US EPU	Moderate	Minimal	Minimal
Mexico	Global EPU, US EPU	Global EPU, US EPU	Minimal	Minimal	Minimal

5. CONCLUSION

This research investigates the predictive power of both domestic and foreign Economic Policy Uncertainty (EPU) on the returns and realized volatility (RV) of 20 global stock indices over a span of more than 20 years by using the dynamic connectedness approach. The study provides significant insights into how fluctuations in EPU influence the stability and predictability of global stock markets, offering several key findings and contributions to the existing literature.

Firstly, the empirical results demonstrate that the impact of EPU on realized volatility is generally more pronounced than on stock returns. Across the sample, the Global EPU consistently emerges as the dominant driver of realized volatility, followed by the US EPU. This pattern is evident in countries such as Croatia, Belgium, Italy, and Mexico, among others. The US EPU's influence is particularly strong in markets with close financial ties to the US, highlighting the cross-border transmission of policy uncertainty from major economies to smaller or more interconnected financial markets. For instance, British RV exhibited heightened sensitivity to Global and US EPUs during the Brexit period, indicating how specific regional events can amplify the effect of foreign EPUs.

Secondly, domestic EPUs also play a significant role in certain markets, especially during periods of heightened local uncertainty. For example, Greece and Japan experienced stronger local EPU effects on both RV and returns due to economic and policy turbulence specific to their regions, such as Greece's sovereign debt crisis and Japan's ongoing economic challenges. However, the overall contribution of local EPUs to stock market dynamics is typically lower than that of Global and US EPUs. The findings suggest that while domestic economic policy uncertainty matters, the broader, global economic environment has a more substantial influence on market volatility.

Thirdly, stock returns, though less sensitive to EPU variations compared to RV, still exhibit significant responses to both Global and US EPUs. The results show that stock returns in developed markets like Germany, France, and Italy were largely driven by Global and US EPUs, particularly during the early sub-periods. However, the influence of local EPUs on stock returns has grown in recent times, as seen in Germany and Japan, reflecting the changing dynamics of local versus global factors over time.

A key takeaway from the study is the minimal impact of Chinese and European EPUs on most stock markets outside their respective regions. This is an intriguing finding given the increasing global importance of China and the European Union in international trade and economic policy. For instance, US stock market volatility was only marginally affected by Chinese EPU, except during specific periods like the US-China trade war. This underscores the ongoing dominance of US economic policy uncertainty in driving global market behavior.

Additionally, the study challenges the assumption that the EPUs of a country's major trade partners exert more influence on its stock market than global EPUs. For example, European countries in the sample, despite their close trade ties with other European nations, responded more to Global and US EPUs than to European EPU. This highlights the complex nature of economic integration and the fact that financial linkages may not always align with trade relationships in determining market sensitivity to policy uncertainty.

From a practical perspective, these findings offer valuable insights for both investors and policymakers. For investors, understanding how global and local EPUs affect market returns and volatility is crucial for risk management and portfolio diversification. The study suggests that investors should pay close attention to Global and US EPUs, especially during periods of heightened uncertainty, and adjust their strategies accordingly to mitigate risks. For policymakers, the results underscore the importance of coordinating economic policies at the international level. Given the global transmission of policy uncertainty, particularly from major economies like the US, efforts to stabilize global markets should include concerted actions to reduce uncertainty at both domestic and international levels.

In conclusion, this study highlights the significant role that both domestic and foreign EPUs play in shaping the return and volatility dynamics of stock markets worldwide. By incorporating a dynamic connectedness model and a comprehensive dataset spanning over two decades, this research provides a nuanced understanding of how economic policy uncertainty affects financial markets over time. The findings emphasize the importance of considering both local and global factors in financial forecasting and offer important implications for future research on economic policy uncertainty and its effects on financial markets.

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