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International monetary policy spillovers between Japan and the Rest of the World: A GVAR Framework

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Abstract

We evaluate the impact of international monetary policy spillovers from the US and China on the real exchange rate of Japan. While China remains the top largest trading partner to Japan, the US occupies the second position, indicating potential policy spillovers from these countries to Japan. Adopting the GVAR modelling technique, the outcomes from our findings suggest: (i) the US monetary policy shocks significantly affect Japanese foreign exchange dynamics, causing Yen to depreciate in the instance of a positive shock to US monetary policy; (ii) monetary policy shocks from China and the Euro Area do not constitute a considerable swing in Yen's exchange rate; (iii) the US monetary policy shock is insignificant in influencing monetary policy conduct of Japan, at least in the short term; (iv) these findings are robust to calm and turbulent periods. Thus, we offer the implications of our findings for policymakers and investors seeking stability as a macroeconomic goal and a stable economy for investment.

Keywords: Monetary policy; Spillovers; Exchange rate; Global VAR; Uncertainty; Japan
JEL Code: E52; F31; C10; D81

1. Introduction

The significance of Japan in global economic activities is rather at the centre. By GDP, the country is the third largest economy with 4.231 trillion USD, coming after the US and China, whose GDP are respectively 25.463 trillion USD and 17.963 trillion USD³. Its dominant stance in the global arena has been aged long. Right in the 1980s, Japan was very close to the US economy, gaining the status of second largest economy in the world and with a highly commending GDP that was very close to that of the US. In terms of industrial strength, the country plays host to manufacturing companies like Toyota, Sony and Panasonic, which are globally known for efficiency and innovation in the manufacturing process. For the fact that the population composition is more composed of aged groups, its economic production is more of a way to strengthen international trade and investment among countries of the world. As a result, its formidable sectors have been very much active in banking, retailing, and telecommunication. The trade innovation in the country has been much targeted to stimulating local demand and discouraging high foreign influx of goods into the country, particularly from China, as a way to ensure economic stability.

³ See world meter analysis with the cite: <https://www.worldometers.info/gdp/gdp-by-country/>

Further analysis of the country resonates more in her trade relationship with other countries of the world. The manufacturing sector is the country's main dominating sector for exports, where it accounts for 86% of total merchandise, with metal having 4% and the agricultural sector 1%. Accordingly, its imports comprise 58% of manufacturing products, 20% from minerals and 10% from foods. Given the 2022 data, total exports into the country stand at 751 billion USD and imports at 874 billion USD, which signals a negative trade balance in merchandise trade balance data (see OEC data, 2024⁴). The key implication here is that Japan's economy is more open to other countries in the world. Its population composition, which occupies the 10th largest population in the world, gives some impetus to its market dominance. Some of its trade partners are China, USA, Taiwan and Australia in that order. While China, the US and Taiwan are responsible for more than 46% of its total exports, the same countries, with the exclusion of Taiwan but the inclusion of Australia, account for around 45% of its total imports. This further gives a stance of well interconnectedness of the country with the rest of the world. Given this stance, any economic imbalance in one of these countries may signal some influence on the macroeconomic policy stance of Japan's economy.

The theoretical guidance on the transmission of monetary policy across countries has been extensively discussed in prior studies (for example, see Salisu, 2024). The main theme of this discussion resonates more with the necessity of the monetary anchor to pay close attention to cross-country impacts of global monetary policy transmission, particularly through financial channels. The additional emphasis from this literature has further offered that monetary policy spillover shock could possibly rise due to macroeconomic variable imbalance in the economy. This is possible through exchange rate routes, interest rates and asset prices (see Can et al., 2020). However, the choice of each variable will largely depend on the monetary policy target and its impact is expected to take lieu of the policy instrument that is engaged. For example, in instances where inflation is targeted, the use of a short-term interest rate is possible, but its impact might be more aggressive than when other channels are used.

Another alternative channel has been described as currency invoicing (see Zhang, 2022). In this case, the monetary policy spillover significantly manifests in the country that depends so much on foreign currency (especially the dollar or Euro) for trade settlement. As a result, the

⁴ <https://oec.wor>

monetary policy conduct of such foreign currency tends to pose a significant threat to local macroeconomic variables. Again, it is more likely that international monetary policy spillovers are connected through the international flow of capital and interconnectedness among credit and bank operations with wider evidence for trade channels. However, given the nature of the Japanese economy, which is much more connected to advanced economies like the US and China, the monetary policy conducted in these economies is bound to have a ripple effect on the local economy. Our main concern here is to put this stance to a critical evaluation of the Japanese economy in relation to its connection with the rest of the world, which, in a way, has not been extensively documented by the existing literature.

We largely rely on the Global Vector Autoregressive model (GVAR). Emphatically, various prior works have emphasized their stance through GVAR (see Salisu, 2024 and various works cited therein). GVAR essentially allows for modelling shocks to macroeconomic variables through impulse-response functions in any economy (see Aor et al., 2021; Ahmaed et al., 2021; Sikiru and Salisu, 2021; Tumala et al., 2021; Salisu et al., 2022a; Salisu et al., 2023; Hammed and Salisu, 2023; Tian and Wang, 2024; Salisu, 2024). Unlike many prior findings, we adopt the methodology here to model how monetary policy spillovers can possibly be transmitted to the domestic economy via global monetary policy conducted in advanced economies like the US, Euro and China. Additionally, the GVAR database in the current study is updated to cover the period between 1979 Q2 to 2023 Q3 (see Mohaddes and Raissi, 2024). This suggests that our outcomes would be reflective of the current economic reality globally.

Our findings are noteworthy and have implications for policymakers and investors. While US monetary policy significantly affects the Japanese real exchange rate, with an increase in US rates causing the Japanese Yen to depreciate, China's monetary policy has no notable impact on the Japanese exchange rate despite the significant trade relationships between Japan and China. Similarly, monetary policy shocks from the US have little effect on Japan's monetary policy conduct.

In addition to these highlights in this opening, this study covers other important sections. While we discuss stylized facts in Sections 2 and 3, we further present methodology and results in Section 3. Section 4 concludes the study with policy recommendations.

2. Stylized facts about Japan and the rest of the world

Over time, Japan has established itself as a major economic player on the global stage. Its economic activities position it as the third largest economy in the world, and with approximately 130 million people domiciling in Japan, it is the tenth most populous country worldwide, making it a significant potential market for global production. However, Japan equally has formidable trade relations with many countries, among which are China, the US, Australia and Taiwan. This relationship with many of these countries, especially through trade, suggests that Japan's economy may be affected by macroeconomic policies that play out in these countries. Arising from this, we take a casual evaluation of the Japanese monetary policy rate with policy rates that operate in the US and China [her main trade partners]. Additionally, the exchange rate regimes in these countries are discussed vis-à-vis Japanese Yen as we further render important trend and pattern analyses on trade volumes between Japan and these two countries. For easy flow of discussions, our evaluation is partitioned into three sub-sections: Monetary Policy Operations; Exchange Rate Regime Operation and Trade Relation Analysis.

A. Monetary Policy Operations

The monetary policy conduct in Japan has been a mix of expansionary and contractionary policies, with the highest and lowest rates being 9.0% in 1980 and 2.5% in 1988, respectively. Particularly, monetary policy operations in Japan around this period (including the period characterised by the Asian financial crisis) ranged from a hawkish stance to fight inflation in the latter part of 1970 and early 1980s to dovish measures aimed at defying appreciation of the Yen in the mid-1980, and then to mitigate the risks associated with the asset bubble of 1990s. All through the crisis, the monetary policy in Japan was maintained at around 0.5% till 2001, when it was further reduced to 0.1%. However, prior to the global financial crisis of 2007, the policy rate was slightly raised to 0.75%, while an attempt to fight this crisis saw the apex bank reducing the rate to 0.3%. Importantly, the conduct of monetary policy in the country has been to operate a contractionary monetary policy in response to global crises, which, by implication, strengthens local production for higher exports and increased GDP.

Figure 1.
Japan's monetary policy rate between 1979 and 2024⁵.

Note: The chart presents the Japanese monetary policy rate from 1979 through 2023.

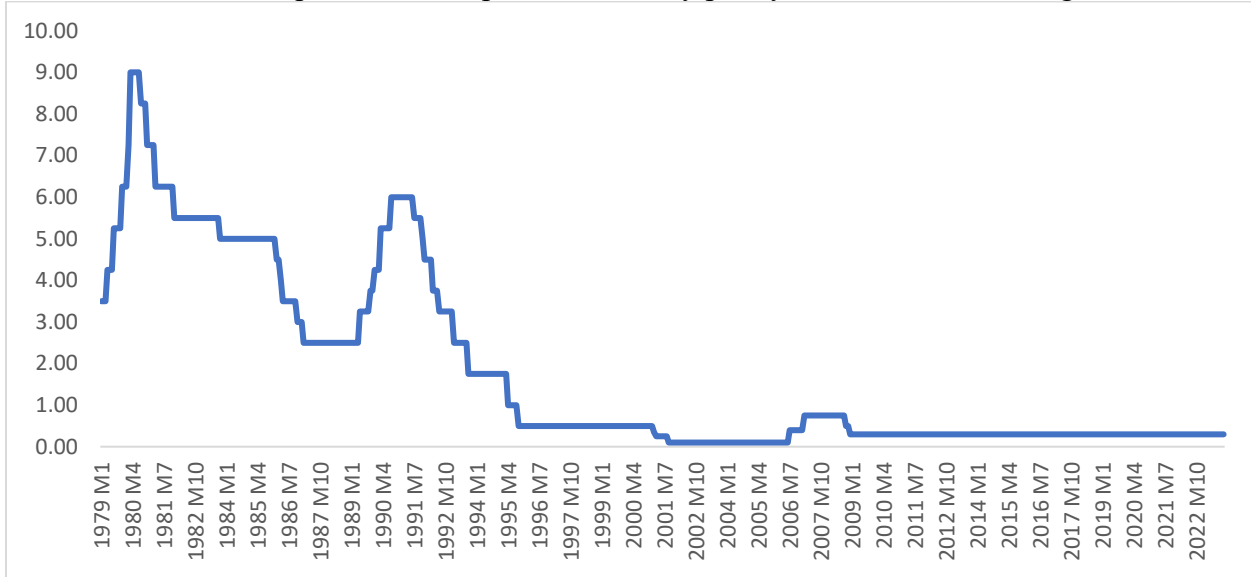
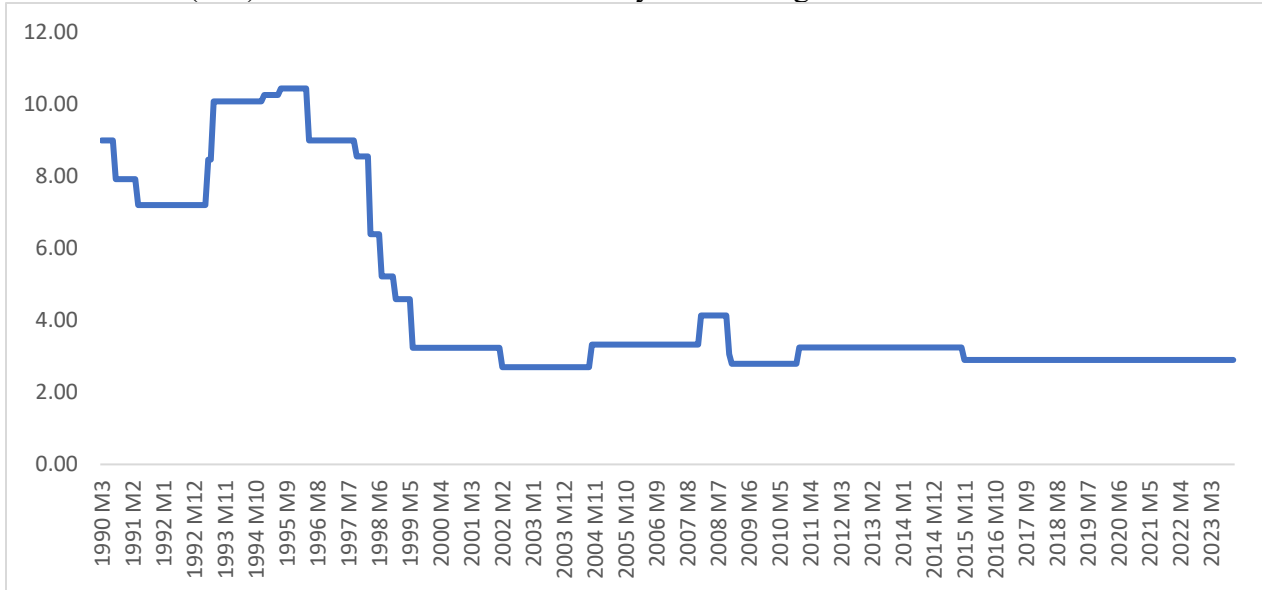


Figure 2.
China's Monetary Policy rates (1990 – 2023)

This figure shows the movements in the policy rate of China between 1990 to 2023. The policy (rate) decision has been consistently constant right from 1999 to date



⁵ As a measure of policy rate, we use immediate interest rate by the central bank of Japan (Bank of Japan) and it is sourced from <https://fred.stlouisfed.org>. Similar data is employed for China monetary policy rate from the same source.

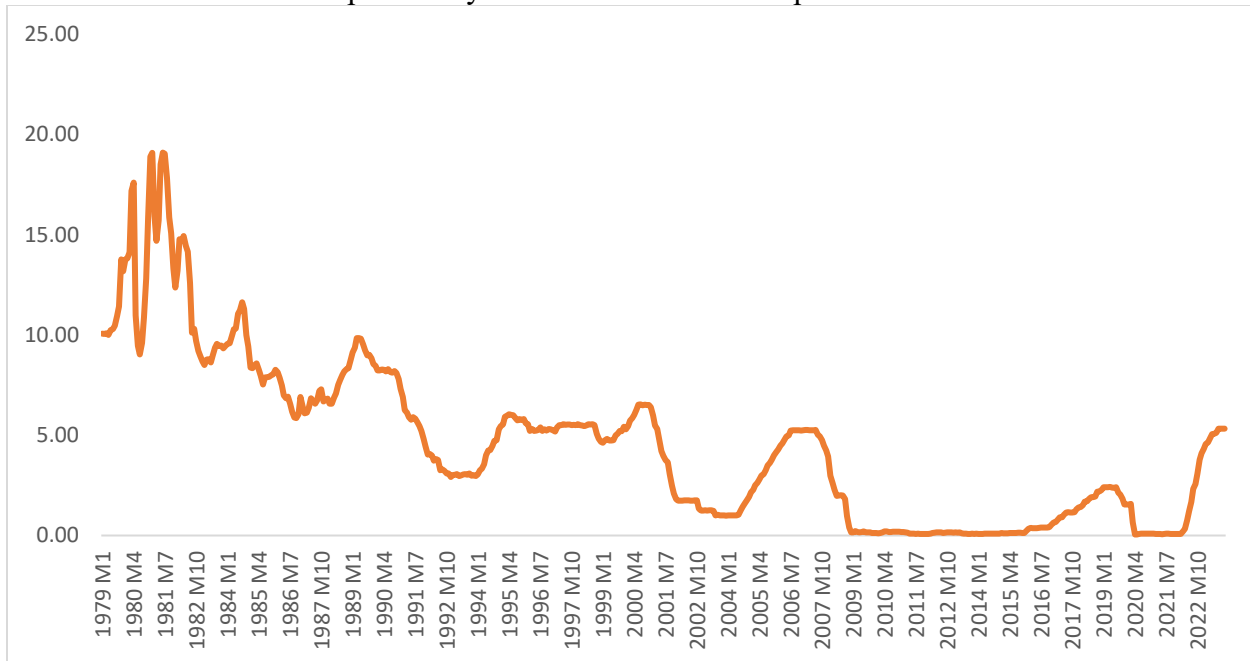
A similar stance is found in the monetary policy conduct in China as with Japan. This can be explained on the ground that the two countries are in the same region [east Asia] and are likely to respond to global activities in the same way. Right from 1990, the monetary policy rate in China ranged between 10.5% and 9.0% till 1997, when it fell to 8.6% and further to 3.4% before the half of 1999. While this rate was hovering around 3 to 4% till the period of the global financial crisis, the Chinese apex bank readjusted this rate downward to 2.8% in response to the crisis. Although the rate was raised to 3.25% in the period around the years of the taper tantrum [a period of market volatility occasioned by a reduction in the purchase of bonds by the US Federal Reserve], the bank has since maintained a monetary policy rate of 2.9%. However, there is a relatively higher policy rate in China compared to Japan, and this may possibly explain the gap in their export-import trade relationship.

In this recent time, even when countries like the US considered increasing the monetary policy rate [to the tune of 5.3%] as an option to fight rising prices across the globe, countries like Japan and China from East Asia maintained a steady rate of 0.3% and 2.9%, respectively. Over time, the US Fed rate has been much more volatile, especially between the period of 1979 and 1996, with several ups and downs trends. This trend explains that Japan's monetary policy regime has always been done to follow the US, and in most of these periods, Japan was the second-largest economy before it was overtaken by China in 2010. However, while the Fed rate soared from 0.12% in 2015 to the peak of 2.42% in 2019 and then continued to fluctuate afterwards, the rate in Japan has remained constant at 0.30%. This thus suggests that Japan's economy which now has a divided attention between two powerful economies unlike before, appears to be more focused on China than on the US.

Figure 3.

The US Fed funds rate between 1979 and 2023.

The chart presents the US monetary policy rate from 1979 through 2023. Importantly, the policy decision was often made every two months from 1979 to 2023, in recent times, in an attempt to specifically address the COVID-19 pandemic.



B. Exchange Rate Regimes

We find it imperative to further elaborate on economic connections between Japan and the rest of the world, especially its two main trade partners, China and the US, using the exchange rate route. As presented in Figures 4 and 5, the exchange rates between the Japanese Yen are graphed alongside the Chinese Yuan and the USD from 1979 to 2024. Between 1979 and 1986, one Chinese Yuan was exchange for the range of 40 to 160 Japanese Yen (see Figure 4). Although during these periods, China has not constituted a formidable threat to Japan in terms of global economic competition, the stronghold feature and age-long dominance of the Chinese economy in the East Asian region could possibly explain this stance. Following these periods, the value has hovered between 10 and 15 Yen to one Yuan. Meanwhile, in recent periods, the rate has depreciated from 21 Yen to a Yuan, likely due to the impact of the Russian-Ukraine war. Unlike other developed countries such as Japan, which have imposed a sanction on Russia, China has further intensified its trade ties with Russia during the war period. The initial appreciation of the Yen against the Yuan

can be attributed to the steady expansionary policy stance implemented alongside China’s policy rate.

Regarding the Japanese Yen/USD exchange rate, the Yen was characterized by high depreciation against the USD between the 1979 and 1986 periods, with the exchange rate oscillating between 200 Yen and 265 Yen per USD. Although Japan's monetary policy was entirely expansionary during this period, the interest rate was still far below the Fed rate, which was high enough to attract many investors from Japan to divest in the US – a phenomenon that would necessarily require higher demand for the USD. Following this period, the Yen has been appreciating against the USD, reaching a low of 78 Yen/USD in 2012 before the taper tantrum (when it suddenly surged to 118Yen/USD between 2013 and 2016) and then to another low of 105 Yen/USD after COVID-19. However, the current rate of 153 Yen to one USD could be explained by the ongoing war between Russia and Ukraine (see Figure 5).

Figure 4.

Monthly exchange rate of Japanese Yen to Chinese Yuan (1979 – 2024).

Monthly exchange rate of Japanese Yen to Chinese Yuan (1979 – 2024). The graph plots the rate at which the Japanese Yen is being exchanged for a unit of the Chinese Yuan. In relative term, a downward trend would suggest an appreciation and otherwise for an upward movement.

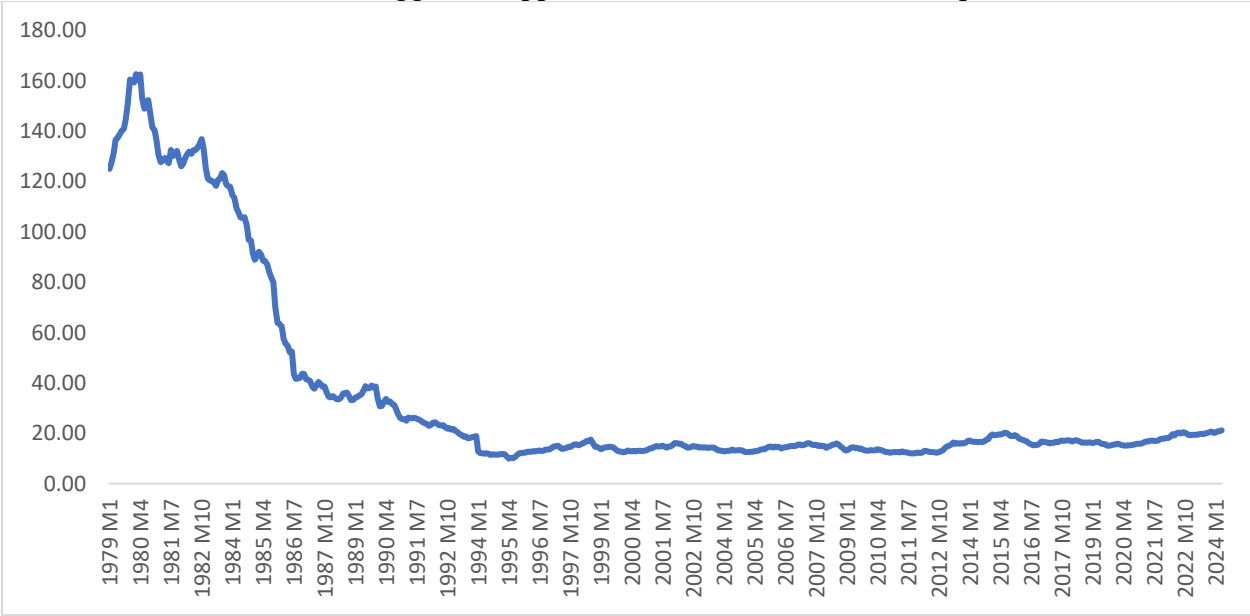
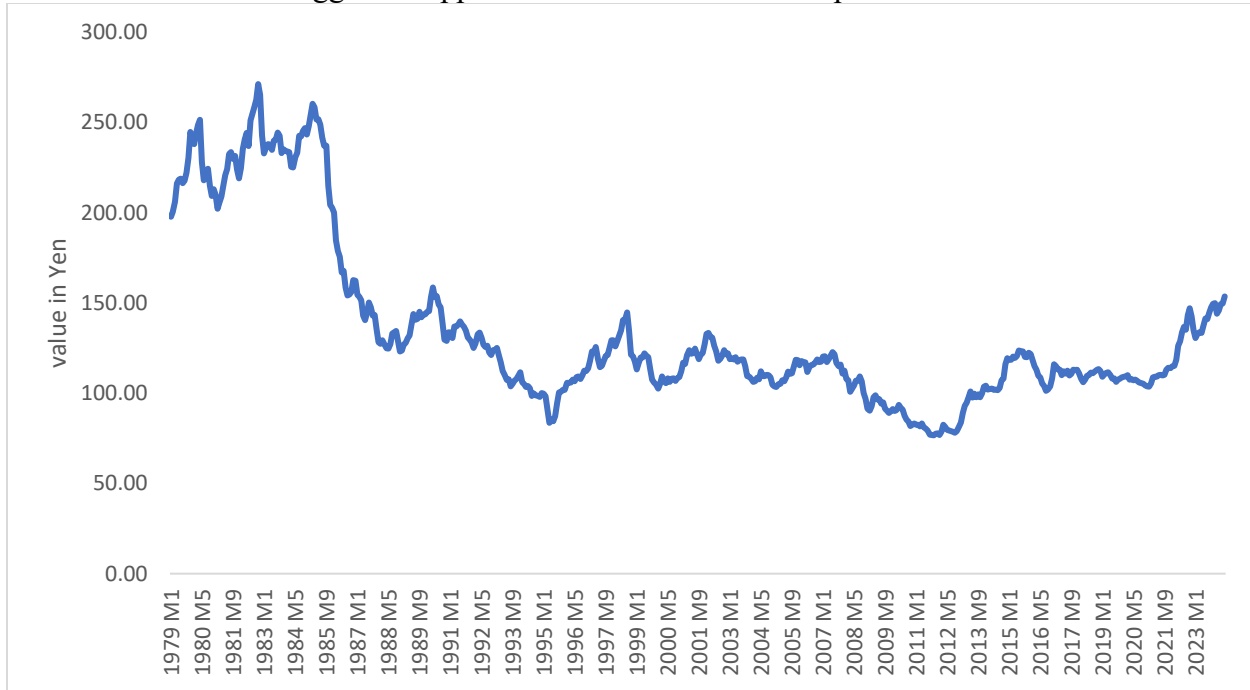


Figure 5.

Monthly exchange rate of Japanese Yen to USD (1979 – 2024).

Monthly exchange rate of Japan Yen to USD (1979 – 2024). The graph plots the rate at which the Japanese Yen is being exchanged for a unit of the USD. In relative terms, a downward trend would suggest an appreciation and otherwise an upward movement.



C. Trade Relation Analysis

Japan has often maintained a cordial trade relation with many advanced and emerging economies of the world. Of these countries, the US and China appear as the largest trading partners. This is evident in Figures 6 and 7, where, on the one hand, exports to the US from Japan have been consistently lower than their imports from the US, while their imports from China have consistently exceeded their exports to China. In other words, Japan exported more goods to the US and imported more from China during the period under consideration. In 2022 alone, Japan exported goods worth 128 billion USD to China, mainly consisting of machinery, integrated circuits, and cars with respective values of 13.1 billion USD, 8.3 billion USD and 7.7 billion USD. In this same year, her total imports from China totalled 144 billion USD, where broadcasting equipment, computers and office machines were the top imported items (having respective values of 15 billion USD, 10.4 billion USD and 3.9 billion USD). Right from 1988, the total trade balance between the two countries has been characterized by a trade deficit for Japan (see Figure 8).

Between April 2023 and April 2024, exports to China have risen by 141 billion Yen and imports by 207 billion Yen (see WITS, 2022A⁶ and OEC data, 2024⁷).

At the same time, Japan-US trade relations have been much more significant over time. The US has been the country's second-largest trade partners before Australia and Taiwan. In the year 2022, total export to the US from Japan was valued at 130 billion USD, comprising cars, motor vehicle parts and accessories and machinery. This value represents an increase of 1.5% on the annual average from 2017 to 2022. Also, the total imports import was 65.6 billion USD where leading products were petroleum gas, packaged medicament and corn. Recently, between April 2023 and April 2024, the total exports to the US were 1.8 trillion Yen, and the total imports from the US were 1.11 billion Yen. However, while trade relations between China and Japan have largely featured a deficit balance, the US was characterized by a surplus balance. The implication here is that Japan exports more to the US than to China and imports less from the US than from China – a situation that explains the renewed interest of Japan in the Chinese economy rather than the US'. However, due to higher exports to the US than to China, Japan may suffer a great deal from the US monetary policy shock than it would from China, the same situation China would face from Japan (see WITS, 2022A⁸ and OEC data, 2024⁹).

⁶ <https://wits.worldbank.org/>

⁷ See the link for the data at <http://oec.world/en/profile/bilateral-country/jpy/partner/chn>

⁸ <https://wits.worldbank.org/>

⁹ See the link for the data at <http://oec.world/en/profile/bilateral-country/jpy/partner/usa>

Figure 6.

US-Japan trade relation (1988 – 2021)

This chart presents the most recent available trade relation (data) between Japan and the United States, using the total imports and exports volumes.

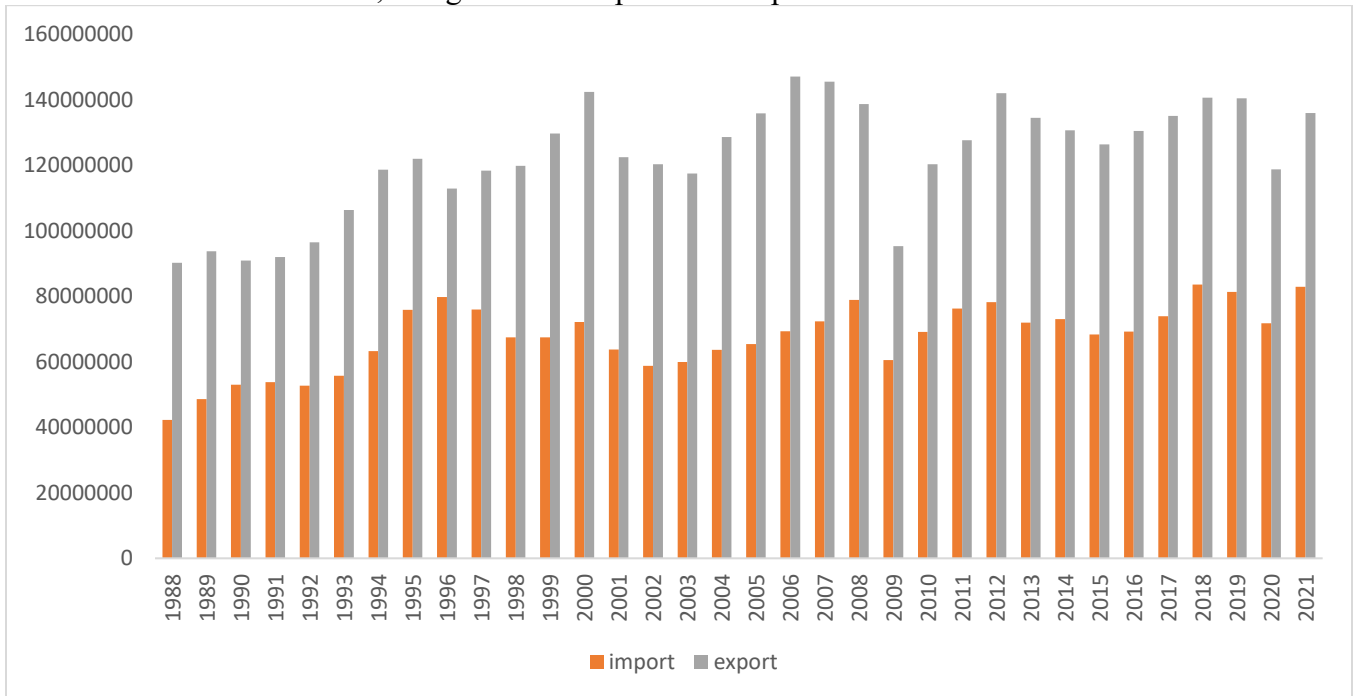


Figure 7.

China – Japan trade relation (1988 – 2021)

This chart presents the most recent available trade relationship (data) between India and China, using the total imports and exports volumes.

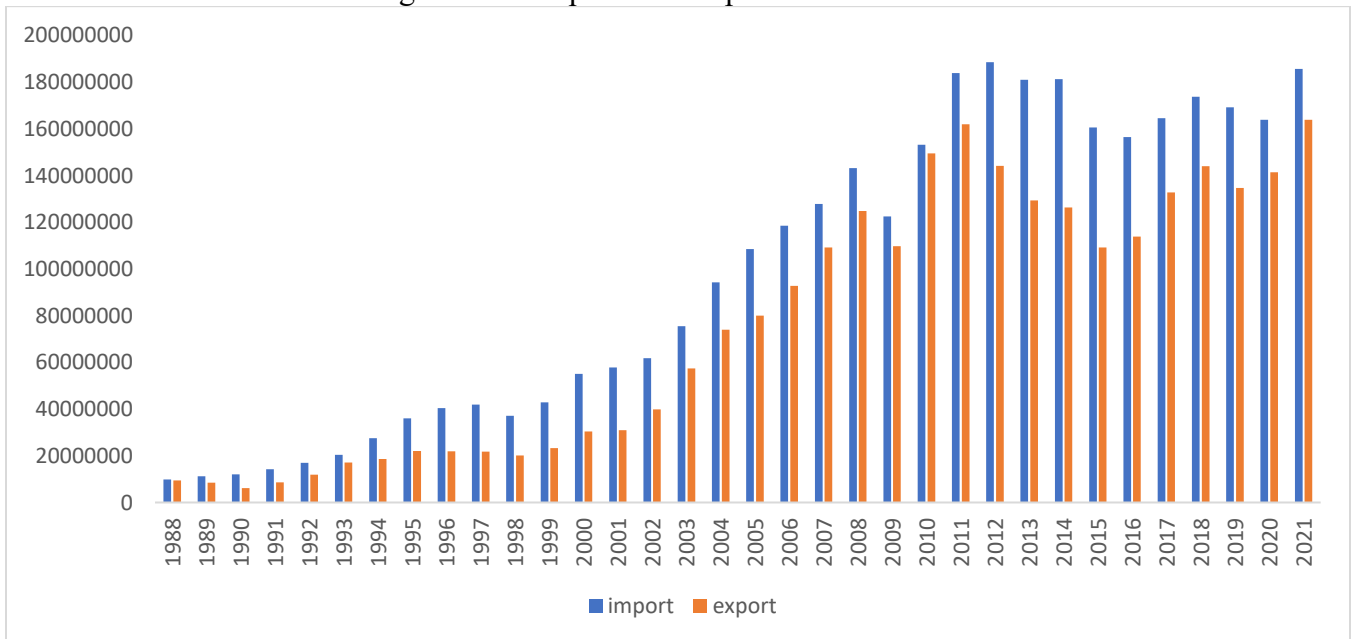
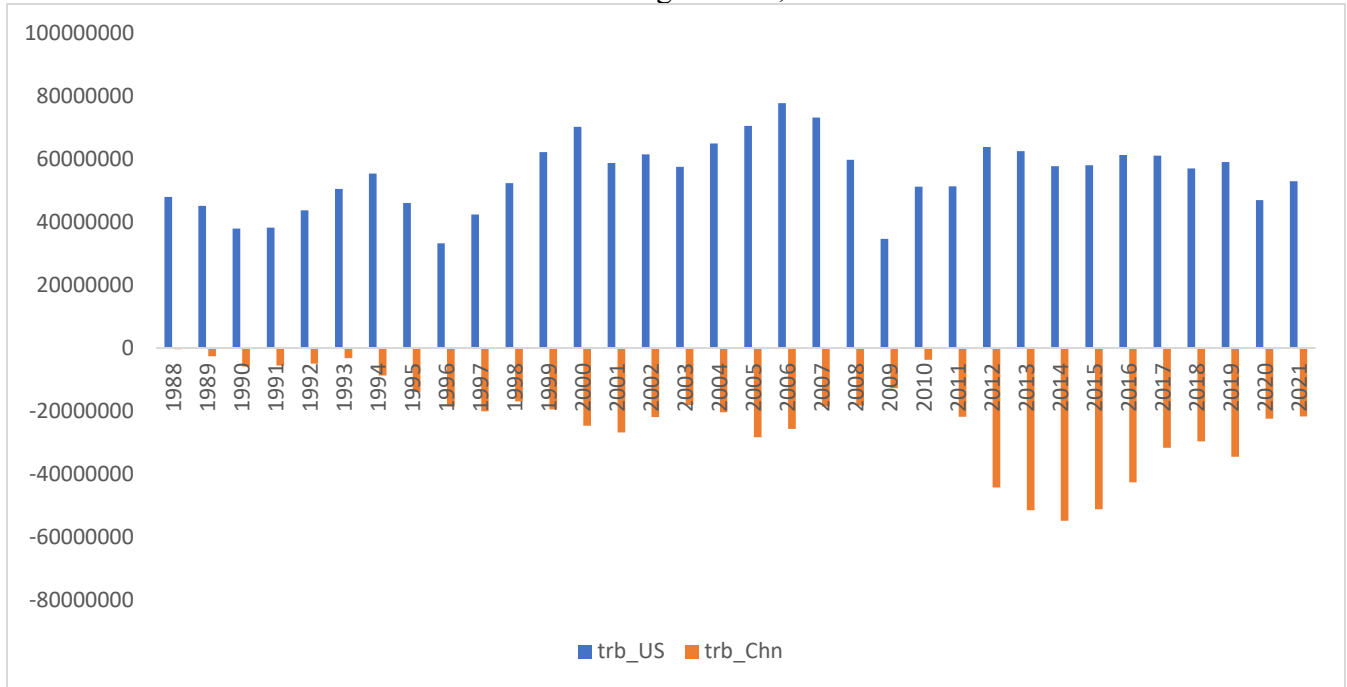


Figure 8.

Trade deficit between Japan and its trade partners [China and US] (1988 – 2021).

This chart presents the trade balance between Japan and its main trade partners i.e. China and US. While its trade relation with China is all through deficit, that of US is found to be otherwise.



3. Methodology and Results

A. Methodology

In a way to ensure a robust analysis, we employ the Global Vector Autoregressive model developed by Chudik & Pesaran (2013) and Smith & Galesi (2014). Particularly, we utilize the recently provided updated version whose scope extends till quarter 3 of 2023. In this approach, individual countries are essentially indicated as $VARX^*(p_i, q_i)$ models across $N+1$ group of advanced and emerging markets economies such that: $i = 1, 2, \dots, N+1$. Given its global impact, the inclusion of US stands as the $(N+1)^{th}$ country and it is to serve as the reference country which will constitute a shock to global monetary policies for the developed countries via the real economic indices for Japan economy.

The term $VARX^*(p_i, q_i)$ in the model gives an instance that the endogenous variables are rather set to functions as a representative of the foreign and common variables while the country-specific endogenous variables are captured as the real GDP, inflation, real equity prices, real

exchange rate, and short interest rate. However, the variables for global variables are the commodity prices, metal prices, and a measure of monetary policy spillover which in this case, is the short-term interest rate. A typical GVAR is present thus:

$$x_{it} = \sum_{\lambda=1}^{p_i} \Gamma_{i\lambda} x_{i,t-\lambda} + \Pi_{i0} x_{it}^* + \sum_{\lambda=1}^{q_i} \Pi_{i\lambda} x_{i,t-\lambda}^* + \Psi_{i0} G_{it} + \sum_{\lambda}^{s_i} \Psi_{i\lambda} G_{i,t-\lambda} + \mu_{it} \quad (1)$$

Given this equation, the variable x_{it} is a $k_i \times 1$ vector of country-specific variables given as i where the i runs from 1 to $N+1$ (such that $N = 32$) in a period, say t (where $t = 1, 2, 3, \dots, T$). Also, the variable x_{it}^* is the corresponding $k_i^* \times 1$ vector of foreign variables computed as trade-weighted counterparts of the domestic variables. Therefore, $x_{it}^* = \sum_{j=1}^N w_{ij} x_{jt}$ from where $\sum_{j=1}^N w_{ij} = 1$,¹⁰ and $w_{ii} = 0$. The external common (global) factors are represented with G_{it} and their values are repeated for all the cross-sections. On the other parameters, $\Gamma_{i\lambda}$, for which $\lambda = 1, 2, 3, \dots, p_i$, is a $k_i \times k_i$ matrix of unknown parameters for local variables while Π_{i0} (where $\lambda = 0, 1, 2, \dots, q_i$) is a $k_i^* \times k_i^*$ matrix of unknown parameters for foreign variables, and $\Pi_{i\lambda}$ (where $\lambda = 0, 1, 2, \dots, s_i$) is a $r_i \times r_i$ matrix of unknown parameters for external common factors which are repeated for all the cross-sections; while μ_{it} is a vector (i.e., $k_i \times 1$) of error terms. As a requirement for this approach, all variables representing foreign and common factors are taken as weakly exogenous in this model.

The equation (1) as presented is thus an equation model that is stacked together to build a large GVAR model which by implication gives an instance to evaluate the effect of the global monetary policy shock on Japan economic activities. More importantly, the GVAR model in this case, presents a domestic variable for both advanced and emerging market economies by referencing the GVAR toolbox of Smith and Galesi (2014). We make use of the updated version with scope running through quarter 3 of 2023 by Mohaddes and Raissi (2023)¹¹.

¹⁰ w_{ij} is the weighting matrix obtained from the IMF Direction of Trade flows data.

¹¹ See link to the data at: <http://www.econ.cam.ac.uk/people-files/emeritus/mhp1/GVAR/GVAR.html>.

B. Results

In this section, we focus mainly on the outcome from our analysis which largely revolves around the impact of international monetary policy shocks on the Japanese economy. To have a detailed evaluation, we sectionalize the impact of the shock into two. While the first attends to how China's monetary policy shock spillovers play out in the Japanese economy, the second establishes a similar stance by referencing the US monetary policy spillovers. We further explore how the Japanese economy responds to shocks emanating from other trading partners, such as the Euro Area. Moreover, in our evaluation, we assess the implication of country-specific economic policy uncertainty (EPU) [such as the US] as a mediating factor in the behaviour of the shock. In other words, a shock to monetary policy in the US is emphasized for Japanese real exchange in the presence or otherwise of EPU in this country. In this regard, the study reports Impulse Response Functions (IRFs) from the GVAR with a coordinated focus on different scenarios. In the IRF presentation, the thick lines in the graph are median responses, and the dotted lines stand for (5 to 95%) lower and upper bootstrapped error bands, which, by implication, measure the significance level of the IRFs.

The response of the Japanese real exchange rate to the US monetary policy shock is presented in Figure 9. It is evident that the US monetary policy implementation has a strong impact on real exchange rate movement in Japan. On average, we find that a 1% positive shock to the US monetary policy rate results in a 1.4% depreciation of the Japanese real exchange rate. While this impact is immediate, it is found to be mostly significant at the 8th horizon and remains so for a longer period. This clearly establishes the significance of the US economy on the Japanese foreign exchange dynamics. The implication from the result is that when the US raises its policy rate, it constitutes an opportunity for the US to attract more investors from Japan since a higher policy rate, in relative terms, leads to higher returns. However, such an investment shift implies that more Yen are offered for sale in exchange for a unit of Dollars, and the pressures constitute a threat for the Yen to depreciate in the foreign exchange markets. This further explains the intricacy already established in Figures 3 and 5, wherein a downward trend in the Yen's exchange rate usually follows a similar pattern to the Fed fund rate, suggesting that the Yen appreciates when the Fed rate is lowered relative to the Japanese monetary policy rate. This outcome mirrors the finding by Deng et al. (2022) and Salisu (2024), who respectively demonstrate that a depreciation of the

exchange rate in BRICS and India against US Dollars is usually preceded by a positive shock to US monetary policy.

As previously emphasized, China currently stands as the largest trading partner of Japan, surpassing the US in this instance. As such, it is expected that its international monetary policy mechanism would have many implications for Japanese exchange rate dynamics. Nonetheless, the opposite is the case in our own analysis. China's monetary policy rate turns out to have no significant impact on Japanese exchange despite the magnitude of the trade alliance between the two countries. Figure 10 gives the response of the Japanese exchange rate to a shock innovation to China's policy rate. While the impact, on average, is found to be approximately 0.4% given a 1% shock innovation, it is essentially not significant both in the immediate and long-run periods. Even though the trade balance between Japan and China is largely deficit, which ordinarily suggests some element of higher dependency on Chinese products and an indication of a significant relationship, the monetary policy implementations of the two countries are rather similar all years through. More emphatically, the similarity in the trend of policy rates of Japan and China (see Figures 1 and 2) possibly neutralizes the impact that could have played out from the trade reliance stance on China. Consequently, due to the monetary policy stance implemented, the Japanese Yen gains more (appreciation) on the Yuan than it does on the Dollar (refer to Figures 4 and 5 also). Again, given China's status as the largest investment destination for Japanese companies, most importations into China are possibly those coming from Japanese companies housed in China.

We further present the response of the Japanese real exchange rate to the Euro monetary policy shock in Figure 11. We find that the monetary policy in Euro has no significant impact on the exchange rate in Japan. This result is more likely given Japan's trade alliance with the Euro. Specifically, the trade relation between them has been very cordial, but Japan only stands as the 7th largest partner for Euro exports and imports of goods, unlike the US and China. Japan's trade partnership with top countries like China and the US importantly suggests that its activities are more priced in Dollars [and or Yuan] rather than Euro. This could underscore the reason for the insignificance stance between the Euro policy rate and Japan's exchange rate.

Further analysis, which entails evaluating the impact of the US monetary policy shock on the Japanese short-term interest rate, is conducted. Figure 12 indicates that the short-term interest responds insignificantly to the US policy shock. This outcome offers important implications for the conduct of Japanese monetary policy. An increase in the US policy rate raises the tendency for

Japanese investors to divest in the US. In order to prevent this, monetary policy authority in Japan may essentially favour policy hikes to discourage such tendencies. Thus, as the nexus between the Japanese short-term interest rate and the US monetary policy shock plays out, the Japanese Yen is expected to depreciate against the Dollar. This is obtainable in Figure 3 under the stylized facts.

Figure 9.

The figure presents the impulse response function [IRF] of the Japanese exchange rate response to a one-standard deviation of positive U.S. monetary policy shock. The median response is represented in solid lines, and the (5%-95%) lower and upper bootstrapped error bands are shown as dotted lines.

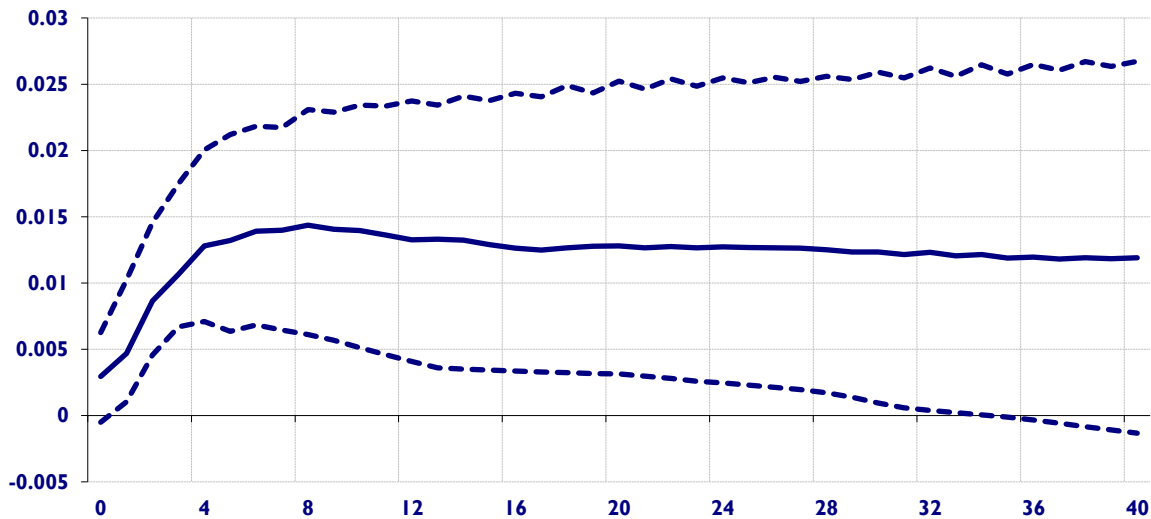


Figure 10.

The figure presents the impulse response function [IRF] of the Japanese exchange rate response to a one-standard deviation of positive China monetary policy shock. Note: see note to figure 9.

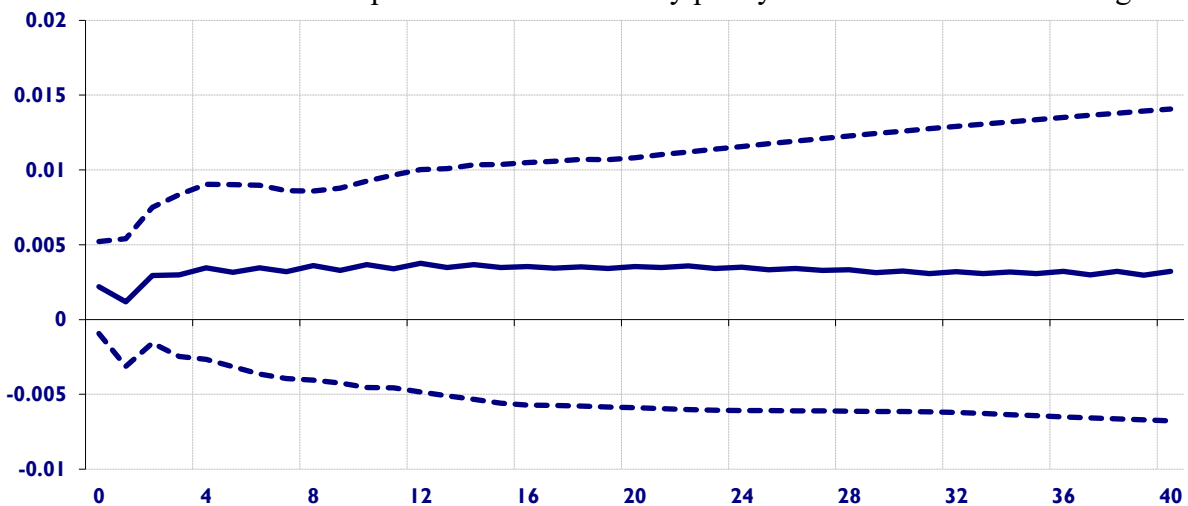


Figure 11.

The figure presents the impulse response function [IRF] of the Japanese exchange rate response to a one-standard deviation of positive Euro monetary policy shock. Note: see note to figure 9.

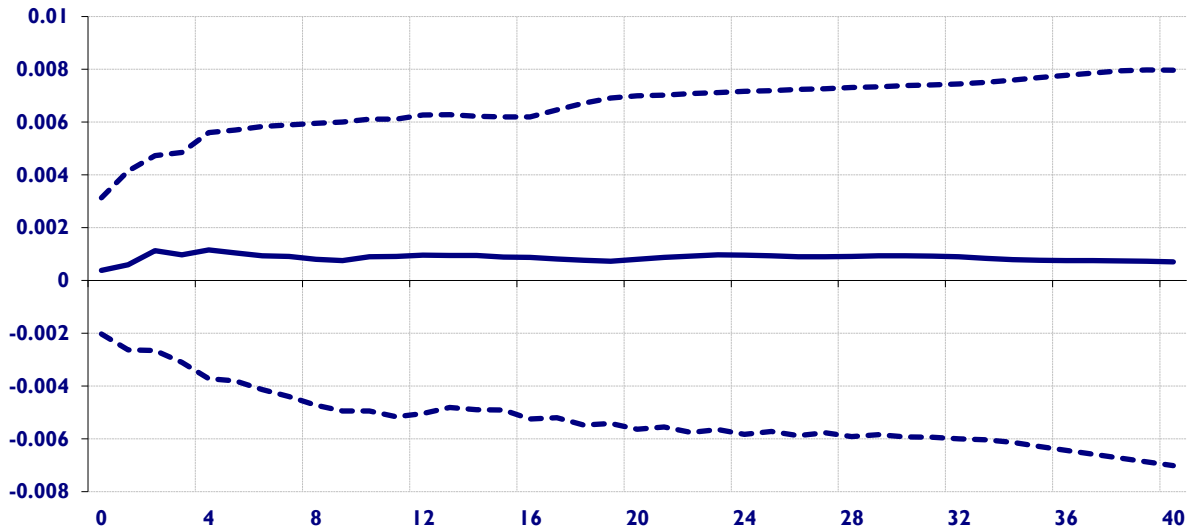
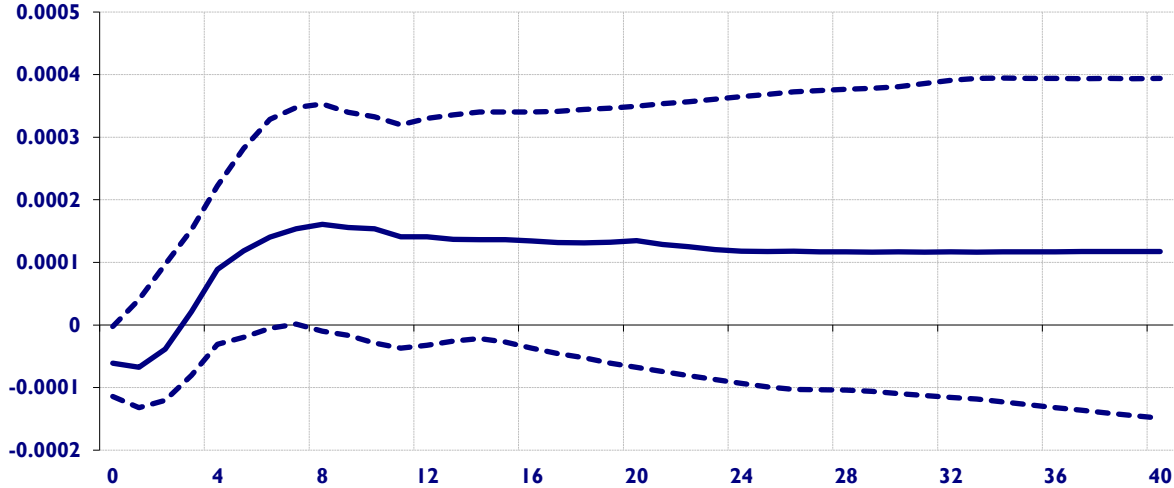


Figure 12.

The figure presents the impulse response function [IRF] of the Japanese short-term interest rate response to a one-standard deviation of positive U.S. monetary policy shock. Note: see note to figure 9.



As a way of providing additional analysis, we offer to establish possible connection between US economic policy uncertainty (EPU) and Japanese real exchange rate (see also Lakdawala, 2021). The same scenario is equally carried out for the Euro's EPU. This approach is motivated by the need to understand how global, rather than regional uncertainties (hence, the exclusion of China's EPU) could impact Japan's economy and policy actions. We present the

outcomes for all the cases in Figures 13 and 14. However, the result indicate that Japanese exchange is less affected by EPU of all the ‘regions’ (the US and Euro Area) considered. In other words, the outcome suggests that Japanese investors often stabilise their investment portfolio in the face of rising economic policy uncertainty in the US and the Euro. This is a remarkable outcome for Japanese economy as it suggests that Yen may not depreciate significantly against dollar or Euro in periods of rising global economic crisis. Salisu et al. (2022b) report similar result for the safe haven property of Yen during oil crisis.

In subsequent analysis, we also investigate possible response from Japanese exchange rate to monetary policy shock when there is high economic policy uncertainty. This essentially represents a case of monetary policy regime in the time of high economic policy uncertainty. In other word, we try to experiment a scenario where US government raises policy rate unexpectedly in the period of economic policy uncertainty and see how Japanese real exchange rate would respond. This is essentially different from the initial two cases when each is separately considered. However, the outcome here is similar to when the analysis is offered for economic policy uncertainty. With what we have conducted here (see Figure 15), Japanese exchange rate does not significantly respond to US policy shock even when there is high economic policy uncertainty. This outcome is also similar to when Euro is considered (see Figure 16). This importantly suggests that the concern investors do not often exhibit much animal spirit to shift their investment choice, particularly when similar economic challenges are foreseen in alternative country of investment choices.

Figure 13.

The figure presents the impulse response function [IRF] of the Japanese exchange rate response to a one-standard deviation of positive U.S. economic policy uncertainty. Note: see note to figure 9.

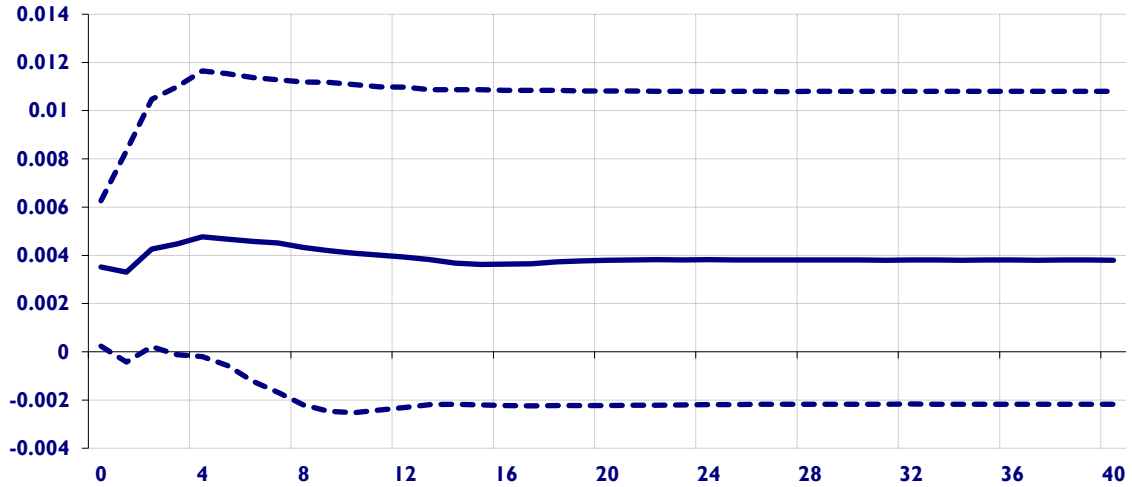


Figure 14.

The figure presents the impulse response function [IRF] of the Japanese exchange rate response to a one-standard deviation of positive Euro economic policy uncertainty. Note: see note to figure 9.

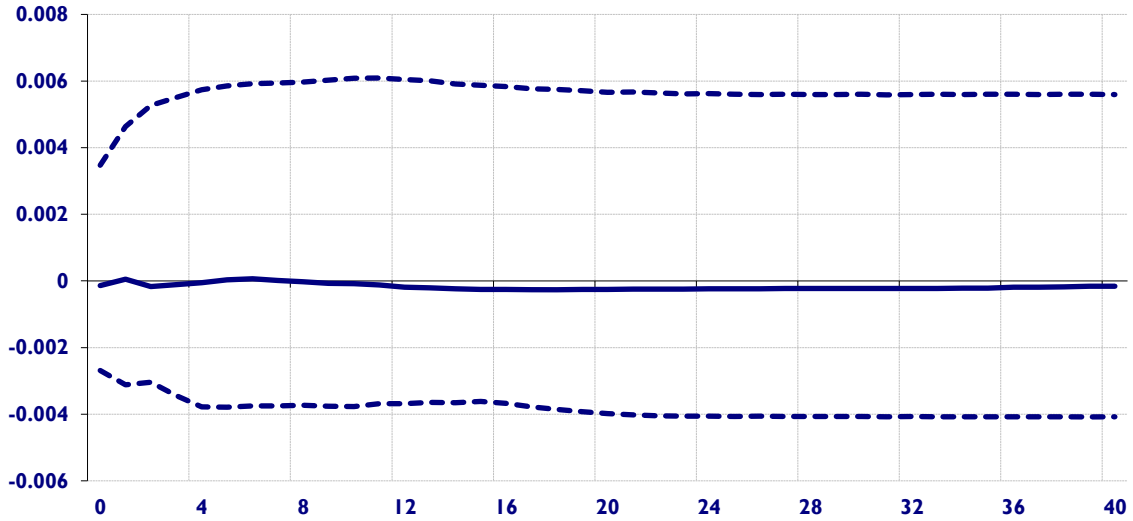


Figure 15.

The figure presents the impulse response function [IRF] of the Japanese exchange rate response to a one-standard deviation of positive U.S. EPU during high monetary policy rate. Note: see note to figure 9.

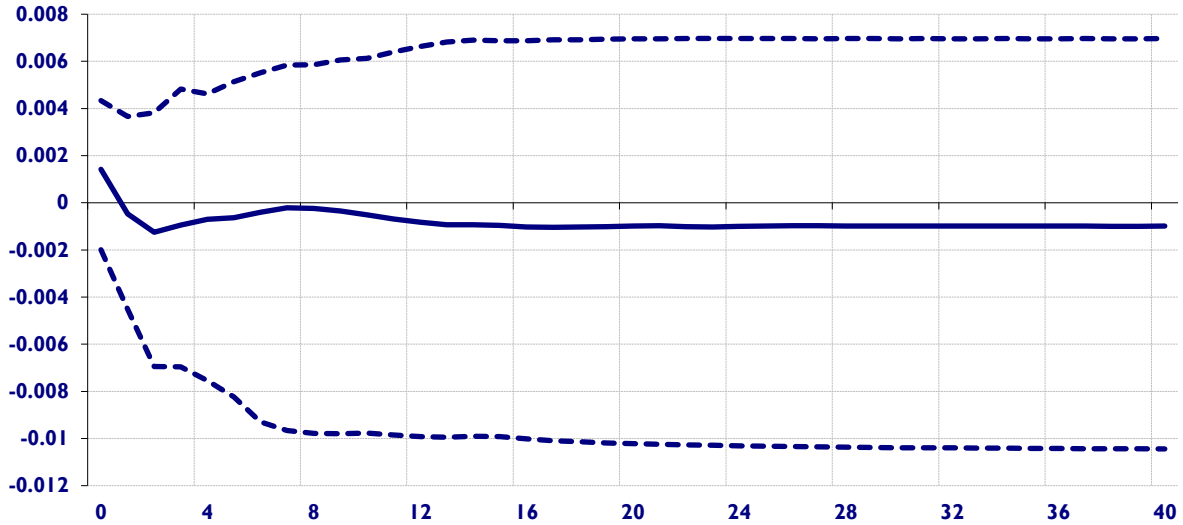
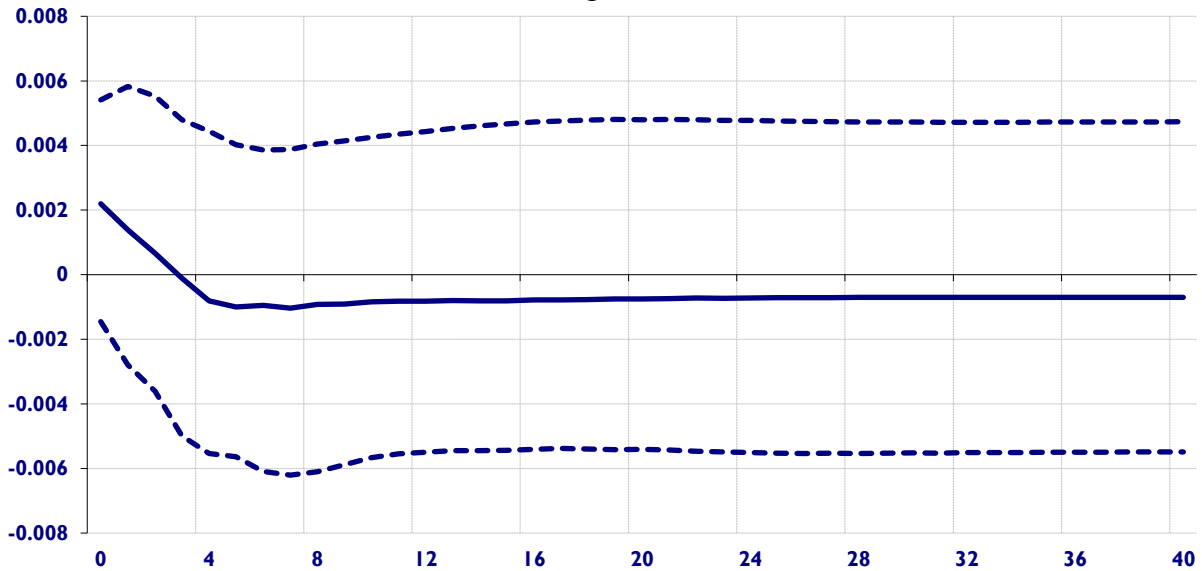


Figure 16.

The figure presents the impulse response function [IRF] of the Japanese exchange rate response to a one-standard deviation of positive Euro EPU in the time of high policy rate. Note: see note to figure 9.



4. Conclusion

We evaluate the implications of international monetary policy spillovers from US and China for the real exchange rate of Japan. The study's motivation stems from the long-standing trade relationships between these countries and Japan, with China being Japan's largest trading partner, and the US occupying the second position. The consistent trade-surplus in favour of Japan over the US underscores significant trade flows and potential policy spillovers among these countries. Given the foregoing, we investigate these spillovers using the updated global VAR data spanning from Q2 1978 to Q3 2023.

We find that international monetary policy spillovers from the US and China have distinct effects on Japan's real exchange rate. Particularly, our analysis shows that the US monetary policy exerts a pronounced impact on the Japanese Yen, with positive shocks to US interest rates leading to notable depreciation of the Yen. This effect is immediate and most pronounced over a prolonged period. In contrast, despite China's long-standing trade position with Japan, our findings indicate that Chinese monetary policy shocks do not significantly affect the Yen's exchange rate. This pattern persists even after accounting for policy uncertainty across the US, and the Euro Area. Consequently, it is evident that only US monetary policy has an overarching influence on Japan's exchange rate dynamics. Nonetheless, this influence does not extend to Japan's monetary policy conduct as shocks to US monetary policy does not significantly impact Japan's short-term interest rate. These findings have important implications for investors seeking a stable investment environment, as the Japanese economy appears resilience to economic policy uncertainties from different part of the world. Additionally, our results are vital for monetary authorities as they monitor global policy trends, providing valuable insights for making informed decisions aimed at maintaining economic stability in Japan.

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