

First draft

Asian Exchange Rates – Is there Room for Cooperation?

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Introduction

Before the Asian Financial Crisis (AFC), many Asian countries had pegged their national currencies to the US Dollar. After the economic downturn in the late 1990s many countries opted for a different regime, many switched to a free float. Although the US Dollar peg has been abandoned in many cases, it still plays an important role for the national currencies. But what role do other key currencies play for Asian exchange rate volatility?

Exchange rate volatility is closely connected to issues of trade and therefore of crucial importance for Asian economies that are all dependent on international trade. At the latest since the Chinese¹ accession to the WTO in 2001, it plays an ever increasing role in the world economy. Alongside, China has taken steps to liberalize its currency, the Chinese Renminbi (RMB)² and to promote it as international currency. With the Global Financial Crisis in 2008, not only the US economy weakened considerably but also its currency faced a loss. Therefore, this study investigates the links between the US Dollar (USD), the Euro,

¹ 'China' refers to the People's Republic of China.

² The Chinese RMB is also called the Yuan.

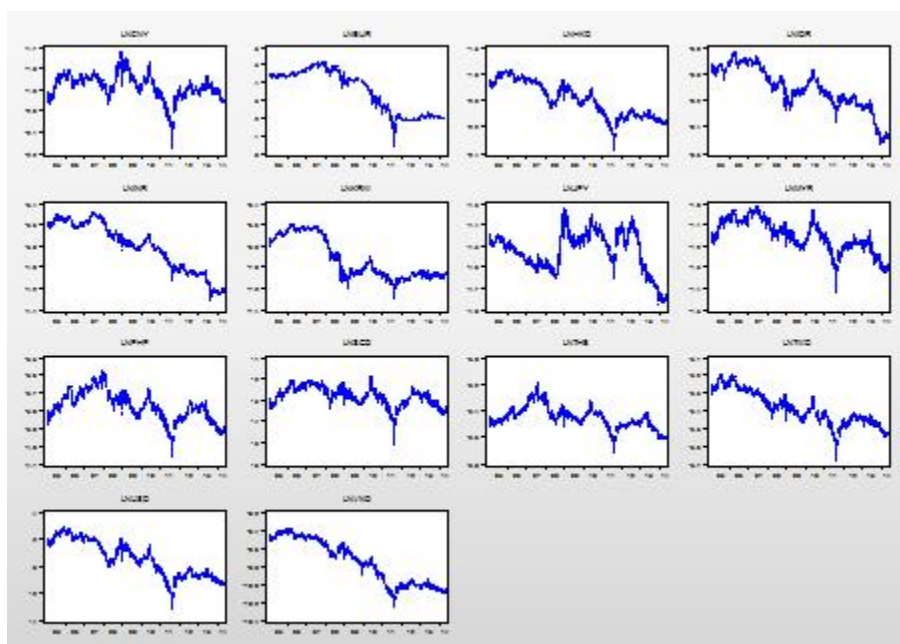
the Japanese Yen (JPY) and the Chinese Yuan (CNY) on the volatility of a set of ten Asian currencies. In order to capture changes in the key currencies' influence on Asian currencies, the sample covers the period from January 2005 until May 2014. Importantly, this paper makes use of market driven data, i.e. the spot exchange rate in order to analyze the market impact of key currency fluctuations on Asia. With this, it builds on an earlier analysis by Azis and Puttanapong (2008) who analyzed the effects of the AFC on the basket composition driving Asian exchange rate changes. The study at hand extends their study to the GFC to evaluate if and how their results have changed. Subsequently, the paper analyses the potential for regional exchange rate cooperation based on a VAR analysis of exchange rates, inflation and real economic growth.

The remainder of the paper is organized as follows: after introducing the data and the estimation method in section 2, section 3 presents and discusses the estimation results for the base estimation. Section 4 shows and discusses the results of a series of rolling regressions over the sample period. Based on a VAR analysis, section 5 discusses implications for exchange rate cooperation in the region.

Data and Estimation Method

The sample contains daily spot exchange rate data for ten Asian countries and entities (Thailand, Singapore, Philippines, Viet Nam, Hong Kong SAR, Malaysia, Taiwan/China, Indonesia, India and the Republic of Korea) as well as four key currencies – the US Dollar, the Euro, the Japanese Yen and the Chinese Yuan. The exchange rate data is taken from the PACIFIC Exchange Rate service³ and covers working days from the beginning of January 2005 until the end of May 2014. Figure 1 plots the log exchange rates for the fourteen entities included in the study.

Figure 1: Exchange rate development in sample currencies



³ <http://fx.sauder.ubc.ca/data.html> provided by University of British Columbia.

A model developed by Frankel and Wei (1994) for high frequency data is used to assess the weights of key currencies in the changes of Asian exchange rates.

$$\Delta e_t^j \equiv \alpha + \beta_1 \Delta e_t^{USD} + \beta_2 \Delta e_t^{EUR} + \beta_3 \Delta e_t^{JPY} + \beta_4 \Delta e_t^{CNY} + \varepsilon_t$$

with Δe_t^j representing the daily change in the log exchange rate of currency j one date t . ε_t is the disturbances. All exchange rates are measures against the Swiss Franc as a neutral currency. The advantages of using the Swiss Franc are that it is frequently traded in international markets but is not closely linked to Asian currencies.

In the above model, the estimated standard error of the residual is interpreted as measure for the exchange rate's volatility; the β_j coefficients are interpreted as the respective weights in a currency basket of key currencies influencing changes in the national currency. This interpretation is based on the idea that every country attempts to stabilize its currency against a basket of several currencies, i.e. the key currencies. For purely free floating currencies, none of the coefficients should be statistically significant and the standard error of the residual is expected to be large. In contrast, for single currency pegs, the estimated coefficient for the target currency should be close to unity and statistically significant whereas all other coefficients should be close to zero. Other currency arrangements are somewhere between these two extremes, thus with the coefficients of several key currencies are expected to be statistically significant. The Chinese Yuan has long had a close relationship to the US Dollar and was pegged to it until 2005. Under the pressure of China's trading partners, the Chinese government allowed the RMB to appreciate by 2.1% and officially ended its de facto peg in the same year (Anderlini 2012). Therefore, the Chinese Yuan is longer directly correlated with the US Dollar. This allows starting the analysis by estimating the above model since China's decision suggests that there is no collinearity issue. The correlation between the US Dollar and the Chinese RMB over the full sample is -0.02 and the hypothesis of zero correlation cannot be rejected. Although a coefficient variance decomposition yields some small condition numbers, only one of the proportions associated with the smallest condition number, namely the value for the Japanese Yen, is larger than 0.5 and hence, over the full sample no strong indication for correlation of the US Dollar and the Chinese Yuan exchange rates are found⁴. For the remaining currencies, the correlation coefficients range from -0.006 for the Euro and the US Dollar to 0.58 for the Japanese Yen and the Chinese Yuan.

Based on the IMF's exchange rate classification, table 1 summarizes the Asian currencies' exchange rate regimes at the beginning and the end of the sample period. Although more countries allow a free floating currency at the end of the sample period, only four countries do so in 2013 while six entities have some kind of arrangement in place.

Table 1: Exchange Rate Arrangements based on IMF Classification: 2005

⁴ Bai Perron's multiple breakpoint test (sequentially testing L+1 vs. L breaks) further indicated that there are indeed breakpoints in the sample, but that the breaks are not unified across the sample countries. Again, no breakpoint is detected for the Vietnamese Dong.

(Free) Float	Managed Float (no predetermined path)	Currency Board	Fixed Peg Arrangement
Korea	Singapore	Hong Kong SAR	Malaysia
Philippines	Indonesia		Viet Nam
	Thailand		
	India		
	Taiwan/China		

Exchange Rate Arrangements based on IMF Classification: 2013

(Free) Float	Crawl-like Arrangement Peg	Currency Board	Other Managed Arrangement	Stabilized Arrangement
Korea	Singapore	Hong Kong SAR	Malaysia	Viet Nam
Philippines	Indonesia		Taiwan/China	
Thailand				
India				

Results

This describes the estimation results for periods of six months each (see the appendix for the detailed result tables). The results suggest that the weights of the key currencies have changed over the sample period. After having pegged its currency to the USD Dollar since 1998, the Malaysian government announced a floating regime vis-à-vis a basket of currencies in 2005. However, the estimation results indicate that changes in the Ringgit are indeed strongly influenced by the Chinese Yuan and, although to a lesser extent, by the Euro since 2008. Changes in the Indian Rupee and the Korean Won are mostly driven by the Euro and the Chinese RMB, the US Dollar and the Japanese Yen only occasionally appear significant. As expected from theory, all four key currencies influence changes in the Singapore Dollar, yet the influence of individual key currencies changes over time. While the US Dollar played a more important role at the beginning of the sample, the Euro gained momentum since 2006 and the Chinese Yuan followed suit from 2007 onward. Toward the end of the sample, the Japanese Yen also becomes significant.

This approach further allows distinguishing between pre- and post-crisis behavior of Asian exchange rates. The degree to which the coefficient of the US Dollar deviates from unity indicates how flexible or independent the respective currency is vis-à-vis the US Dollar (Baig 2001). For the all currencies except the Indonesian Rupiah, the coefficient of the US Dollar declines in the subsamples after the Global Financial Crisis. For two of the floating regimes, i.e. the Philippine Peso and the Thai Baht, this decline is less pronounced, similarly for the Vietnamese Dong.

Overall, the Chinese Yuan becomes important for changes in virtually all Asian currencies from 2008 onward, i.e. after the Global Financial Crisis. Yet, the sharp fluctuations from that time onward may distort

the results. In order to counter this effect, a series of rolling regressions was conducted for the above model over the full sample period. The next section presents the results.

Since the sample covers the Global Financial Crisis, a structural break point test is conducted. Visual inspection suggests that the collapse of Lehmann Brothers in fall 2008 did not lead to a structural break but that a break appears to have taken place in September 2011. All currencies in the data set exhibit a sharp cut during that time. Based on the graphical inspection, a Chow breakpoint test on a structural break in September 2011 supports this argument for all currencies except the Vietnamese Dong⁵. Since the Chow test requires a given date for the break, the Quandt-Andrews breakpoint test was conducted. For all currencies again except the Vietnamese Dong, the Null of no structural break can be rejected. Additionally, this test provides the most likely breakpoint in the sample period. Interestingly, the test does not indicate a single structural break affecting the entire region. Much rather, breaks are different for different currencies. While the Indonesian Rupiah, the Korean Won and the Philippine Peso faced structural breaks in October and November 2008, the Thai Baht faced a break in February 2007, the Hong Kong Dollar in November of the same year, the Malaysian Ringgit in January 2011 and the Indian Rupee in January 2009.

Rolling Regression

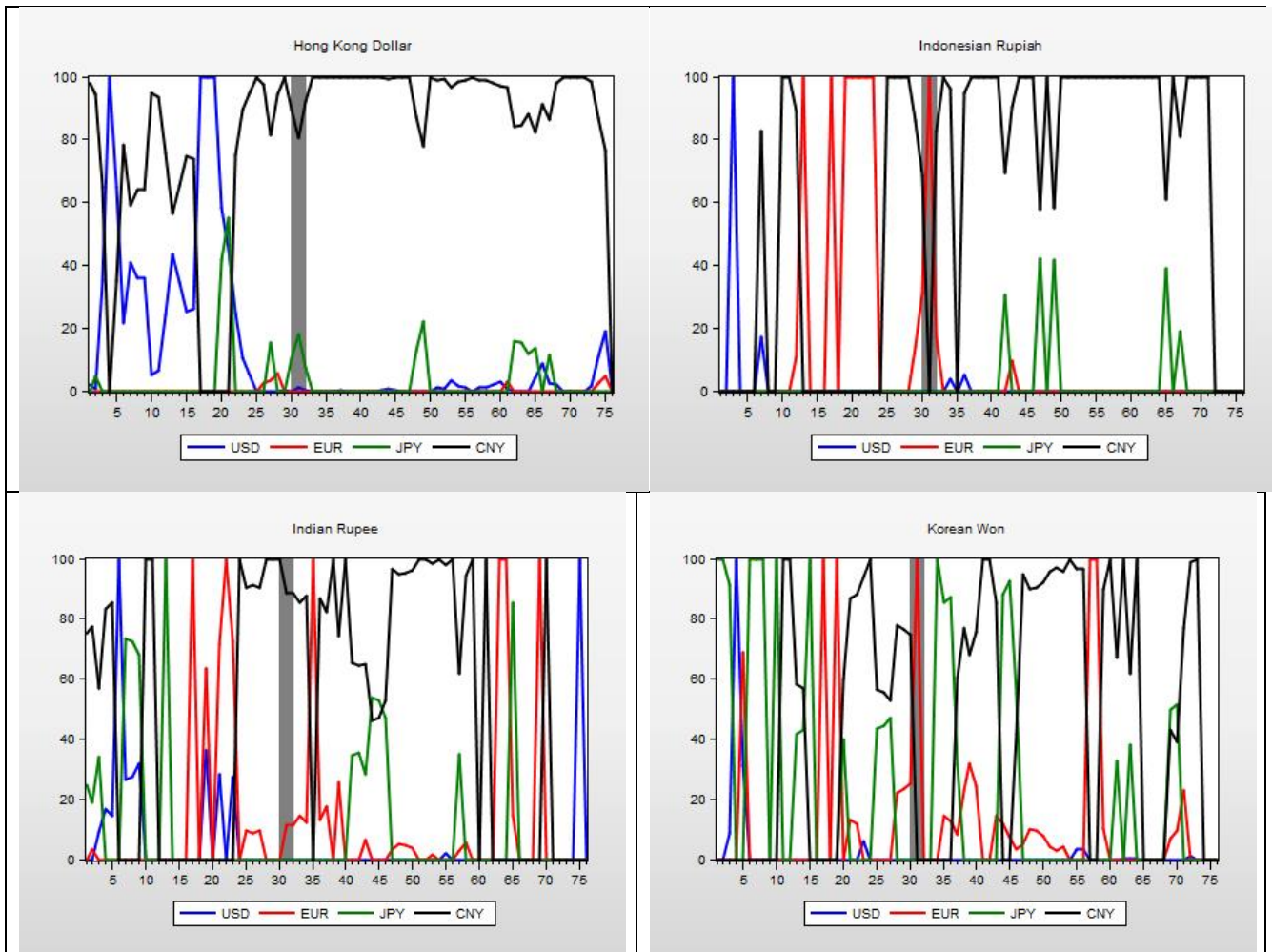
Since the exchange rates show sharp fluctuations over the sample period, a series rolling regression is performed. To that end, the whole sample is split into subsamples of 90 observations. Rolling the sample over by 30 observations in each round, 75 rolls were conducted in total. Subsequently, the statistically significant coefficients are normalized and displayed as percentage shares of total changes in the respective national currencies. The following figures present the results of the rolling regressions and underline that the basket composition of driving currencies changed over the sample period. For instance, changes in the Indonesian Rupiah were mainly driven by changes in the US Dollar and the Euro in the first half of the sample period but were subsequently about equally driven by changes in the Chinese Yuan and the Japanese Yen. Similarly, the Hong Kong Dollar was driven by the US Dollar and the Chinese Yuan in the beginning of the sample period but later on the importance of the US Dollar faded in favor of a stronger role for the Japanese Yen. Interestingly, however, the Malaysian Ringgit and the Philippine Peso were again stronger influenced by the Euro since mid-2013, after the Euro had virtually had had no impact on the two exchange rates from even before the GFC. For the Indian Rupee, the US Dollar became significant again in early 2014.

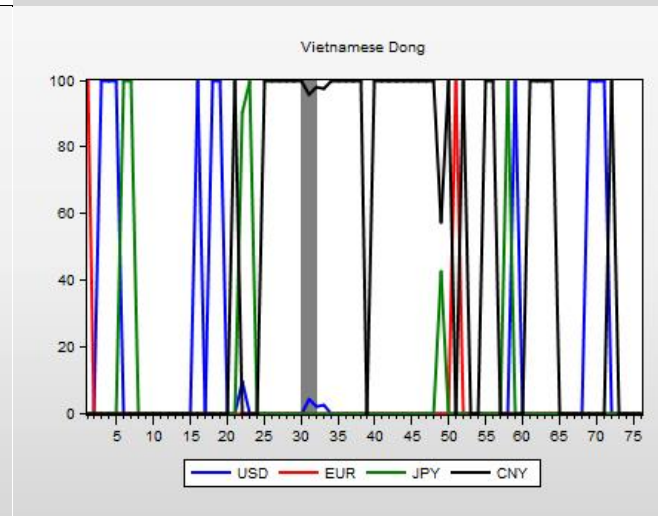
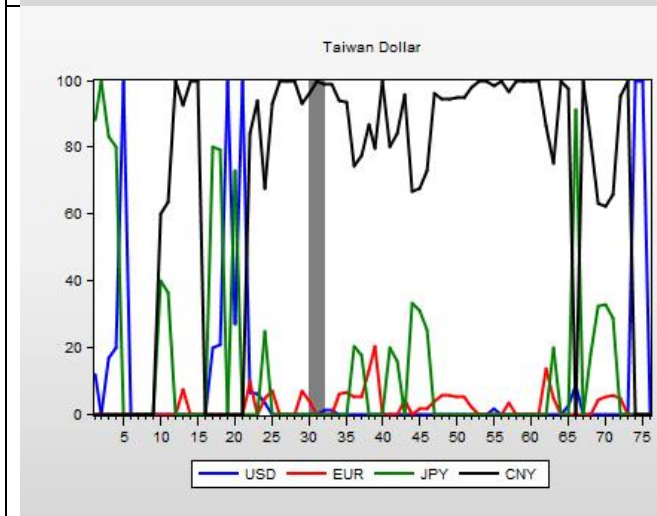
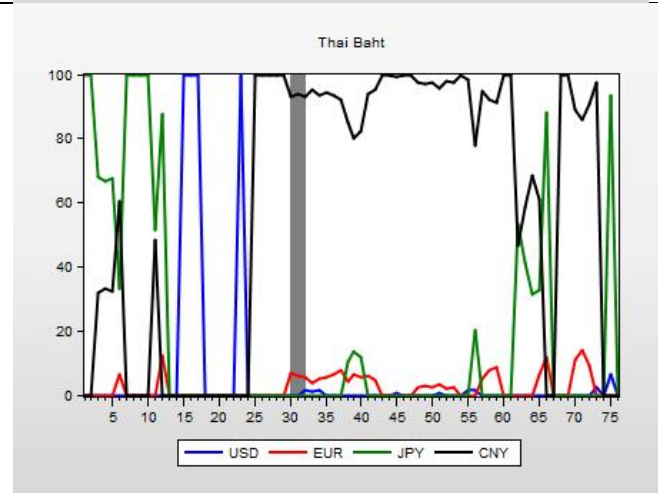
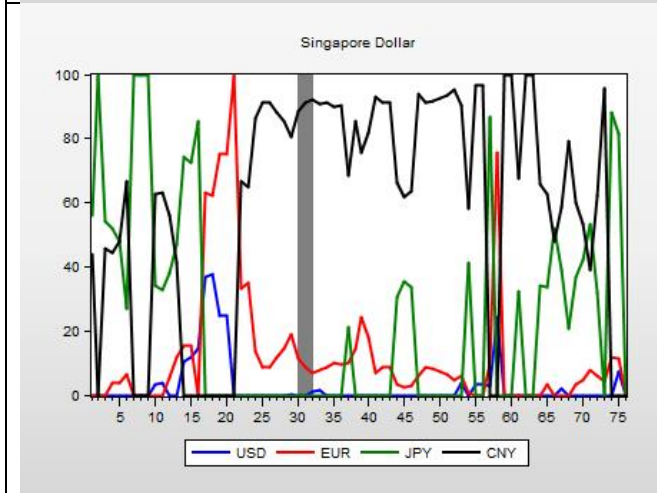
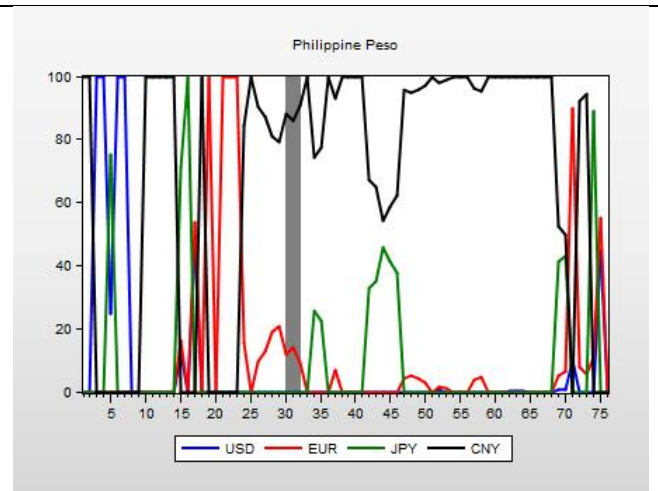
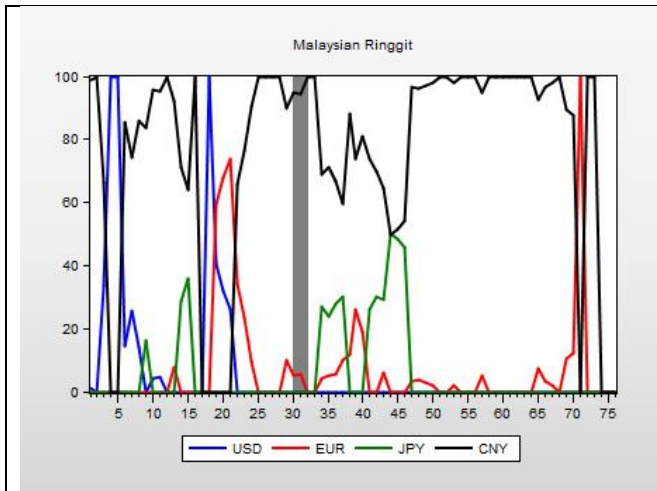
The Indian Rupee, the Korean Won and, to a lesser extent, the Singapore Dollar are driven by a mixed basket of key currencies, yet the shares of the key currencies are fluctuating over the sample. Particularly for the Singapore Dollar, the influence of the Chinese Yuan has increased in the second half of the sample. While its average weight at the beginning of the sample was around 30%, it rose to approximately 80% on average after the GFC. Another interesting case is the Vietnamese Dong which appears

⁵ All three test statistics of the Chow break point test for all countries indicate that the Null of no breaks can be rejected at all significance levels, only for India the Null can only be rejected at the 5% level for all three test statistics.

to be driven by no particular key currency at any point in time. Instead, each of the four key currencies appears to be nearly fully driving the Dong at single points in time. According to theory, a currency regime with no rigid peg should feature a target currency coefficient close to unity. However, the Vietnamese government maintains a stabilized exchange rate regime with the US Dollar de facto functioning as anchor currency (IMF 2013). Overall, the results indicate that the importance of the US Dollar for Asian currencies has declined since the Global Financial Crisis while the influence of the Japanese Yen and the Chinese Yuan gained momentum. This underlines earlier findings for instance by Azis and Puttanapong (2008) who showed that the influence of the US Dollar had declined already after the Asian Financial Crisis.

Figure 2: Rolling Regression Results





Exchange Rates, Macroeconomic Stability and Cooperation Potential

Since exchange rate volatility could threaten growth as well as macroeconomic stability, the choice of exchange rate regime is crucial to Asian countries. By the means of a vector autoregressive (VAR) analysis, this section investigates the effect of exchange rate volatility on growth in the ten Asian sample countries. The underlying idea is to determine a) the effect of a joint exchange rate shock to the other variables in the model and b) the effect of a joint regional shock on the exchange rates. Since the VAR measures the effect of a shock to one variable on all other variables in the system, this procedure allows analyzing the potential for exchange rate cooperation. The imposed shock mirrors the residual covariance structure of the model, thus allowing investigating the orthogonalized responses. The reaction is measured for every variable for 24 quarters after the shock.

To capture growth as well as stability aspects, real GDP growth as well as changes in the Consumer Price Index (CPI), i.e. inflation, as included in the estimation besides the exchange rate. The sample spans from Q1 2005 to Q4 2013. Quarterly exchange rate data is obtained by averaging the daily rates from the PACIFIC Exchange Rate service; all exchange rates are expressed vis-à-vis the US Dollar. Real GDP and CPI data are taken from the IMF's IFS database and from CEIC. The following graphs plot the data used for the VAR estimations.

Figure 3: real GDP growth in 10 sample entities

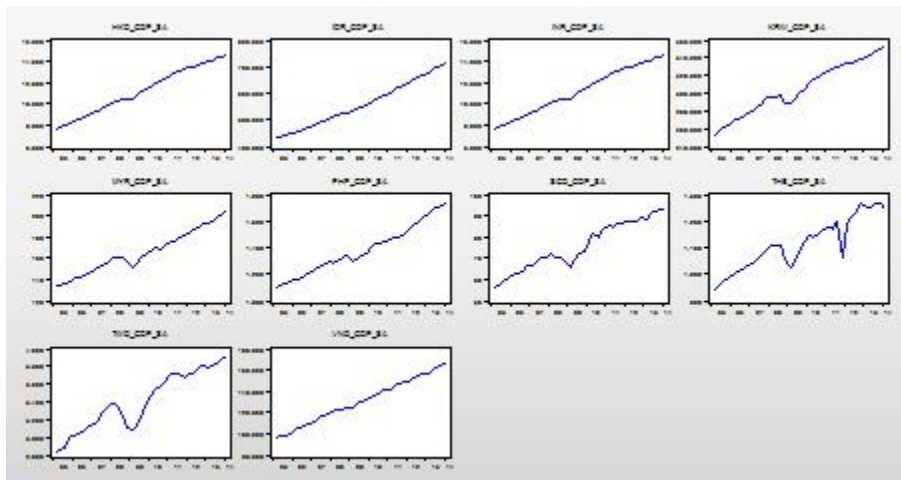
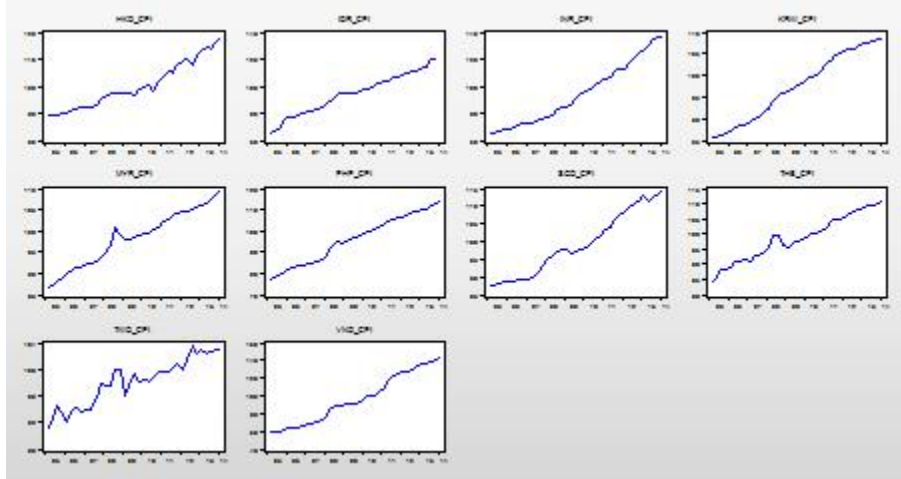


Figure 4: Inflation in 10 sample entities



The model can be written as follows:

$$\Delta \ln Y_t = c_1 + \sum_{j=1}^i \beta_1 \Delta Y_{t-j} + \sum_{j=1}^i \beta_2 \Delta E_{t-j} + \sum_{j=1}^i \beta_3 \Delta P_{t-j} + e_{1t}$$

$$\Delta \ln E_t = c_2 + \sum_{j=1}^i \delta_1 \Delta Y_{t-j} + \sum_{j=1}^i \delta_2 \Delta E_{t-j} + \sum_{j=1}^i \delta_3 \Delta P_{t-j} + e_{2t}$$

$$\Delta \ln P_t = c_3 + \sum_{j=1}^i \phi_1 \Delta Y_{t-j} + \sum_{j=1}^i \phi_2 \Delta E_{t-j} + \sum_{j=1}^i \phi_3 \Delta P_{t-j} + e_{3t}$$

where $\Delta \ln Y_t$ is the real GDP growth rate, $\Delta \ln E_t$ is the difference of the log exchange rate of the local currency against the US Dollar and $\Delta \ln P_t$ is the difference of the log CPI. e_{1t} , e_{2t} and e_{3t} are the respective shocks to the system. Based on Augmented Dickey Fuller unit root tests, all series are stationary⁶. The optimal lag length of the VARs was selected by the LR criterion with i indicating the respective lag length of the VARs⁷. The autocorrelation LM test indicates that the resulting VARs are by and large free of serial correlation up to order eight, there is no heteroscedasticity and all VARs are stable.

Using Cholesky Orthogonalization, the following impulse response functions of the real GDP growth rate and inflation to a one standard deviation shock to the exchange rate are obtained. Figures 3 to 12 show the results. The first column of figures shows the responses in price levels, i.e. inflation, to a shock in the exchange rate. Except for Korea, Singapore and Hong Kong all results are statistically significant. The magnitude of the effect ranges from -0.006 in India to 0.01 in Viet Nam. The inflationary pressure in

⁶ The series for Hong Kong/China's CPI and the real GDP for Viet Nam are used in the 2nd difference to obtain stationary series.

⁷ The resulting lag lengths are as follows: 1 lag for Singapore, 2 lags for Malaysia, the Philippines and Korea, 3 lags for Hong Kong/China, Viet Nam and Taipei-China, 4 lags for Thailand, India and Indonesia.

most countries subsided after about two quarters. However, while the results for seven out of the ten countries are significant, the response directions vary across countries: while Indonesia, Thailand and India all face a decrease of inflation after an exchange rate shock, Taipei-China, Viet Nam, Malaysia and the Philippines face increasing inflationary pressure. Thus, there is no regionally homogenous reaction to an exchange rate shock.

Figure 3: Hong Kong - China

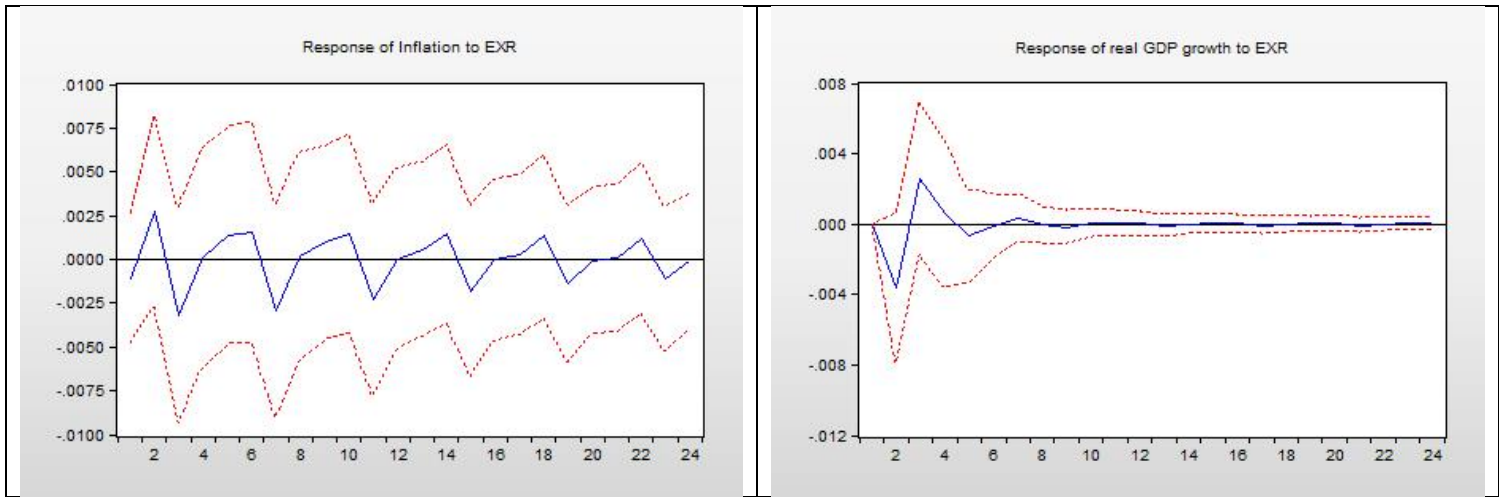


Figure 4: Indonesia

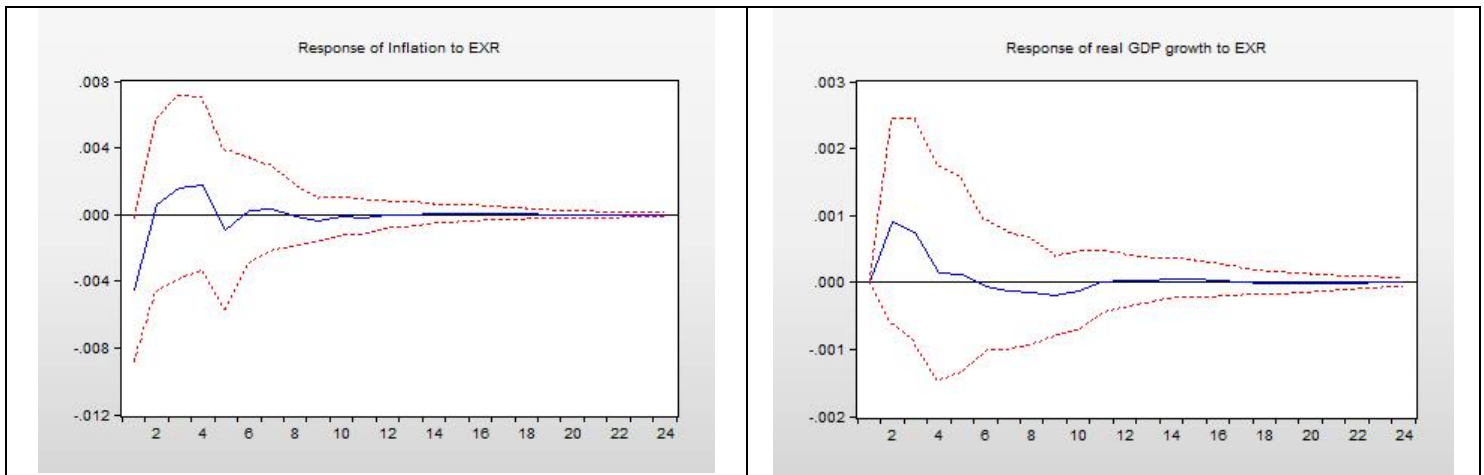


Figure 5: India

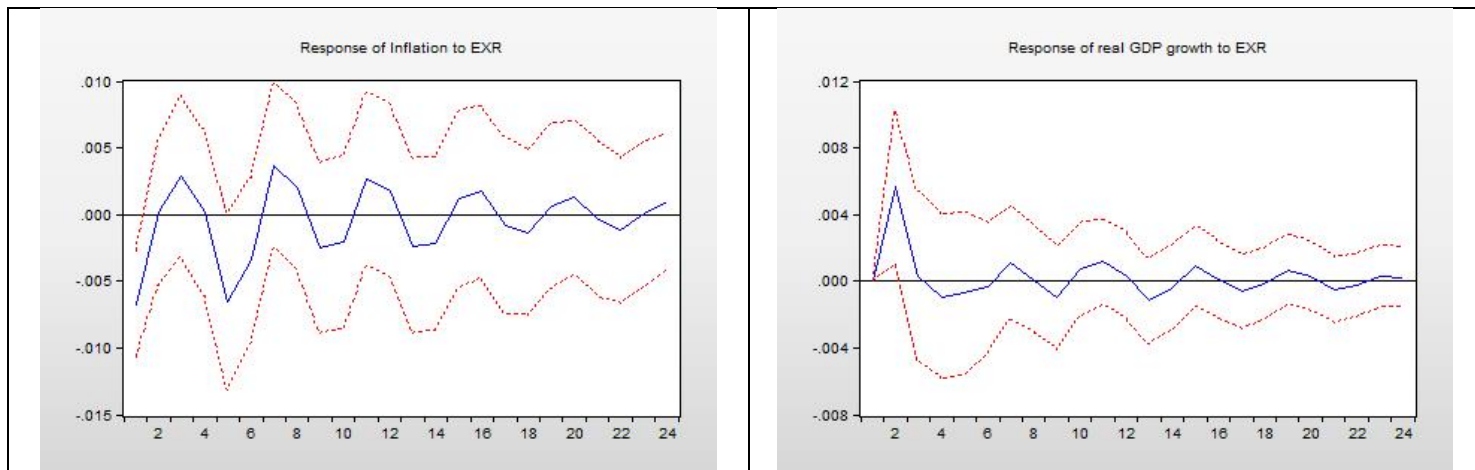


Figure 6: Korea

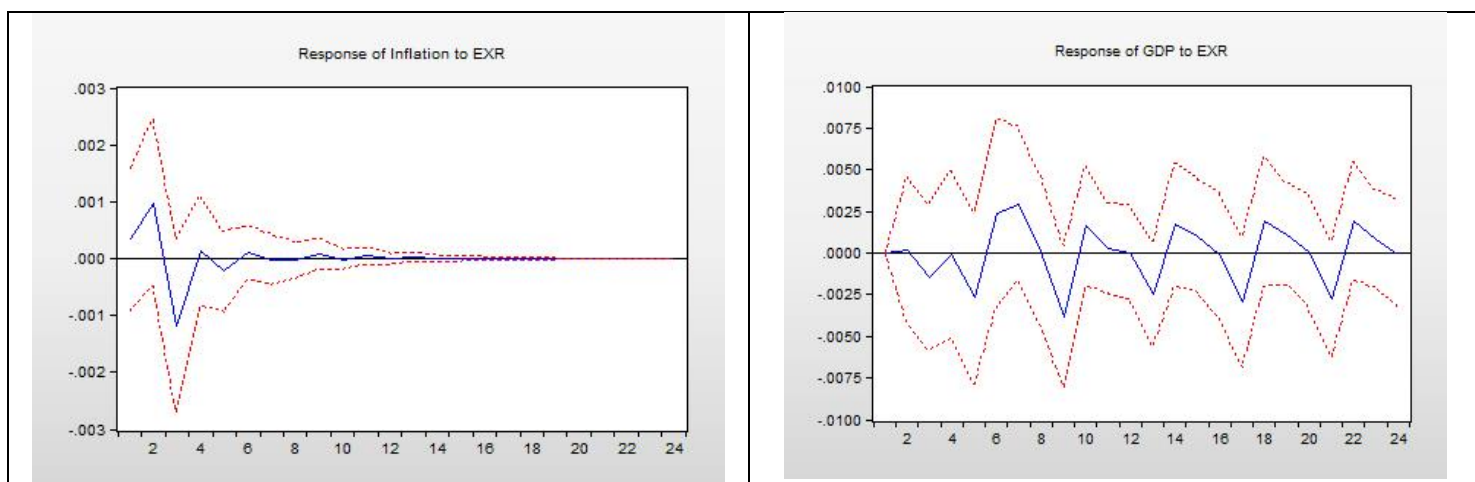


Figure 7: Malaysia

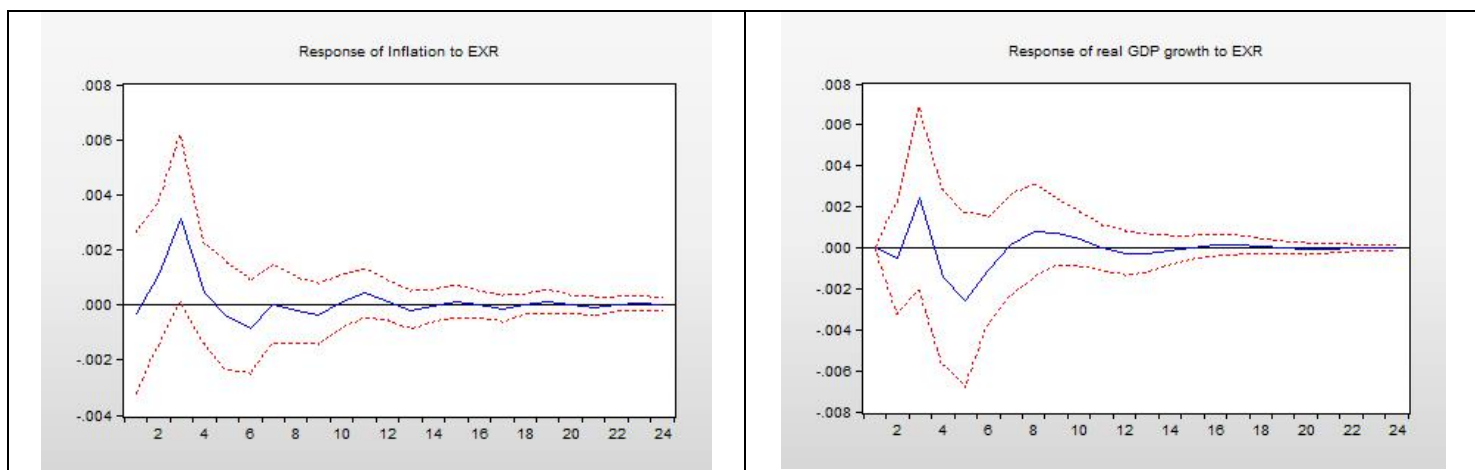


Figure 8: The Philippines

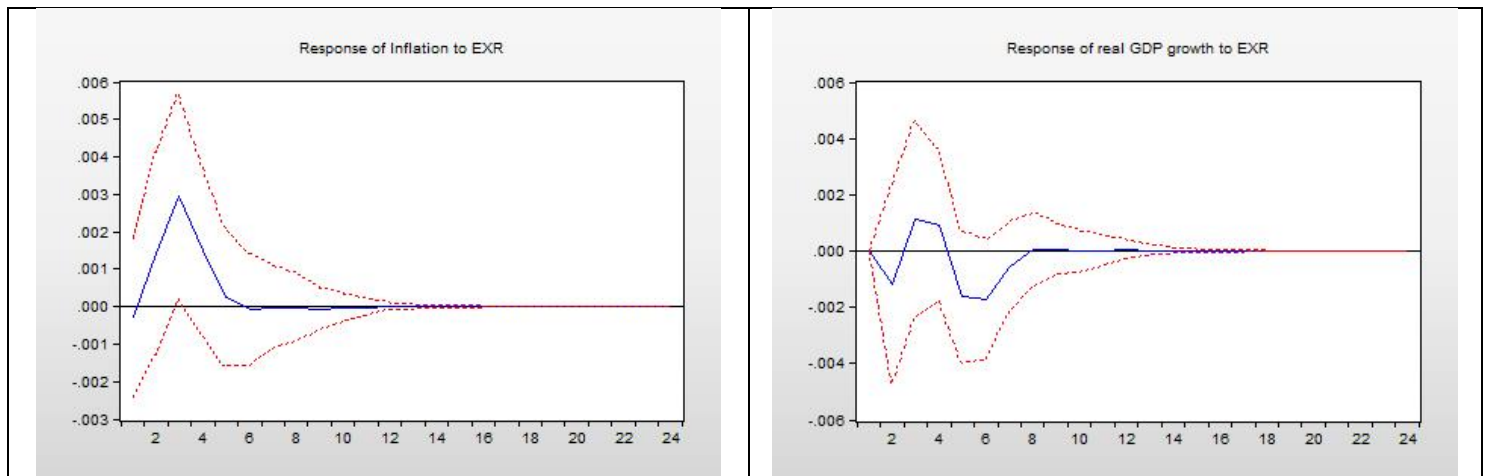


Figure 9: Singapore

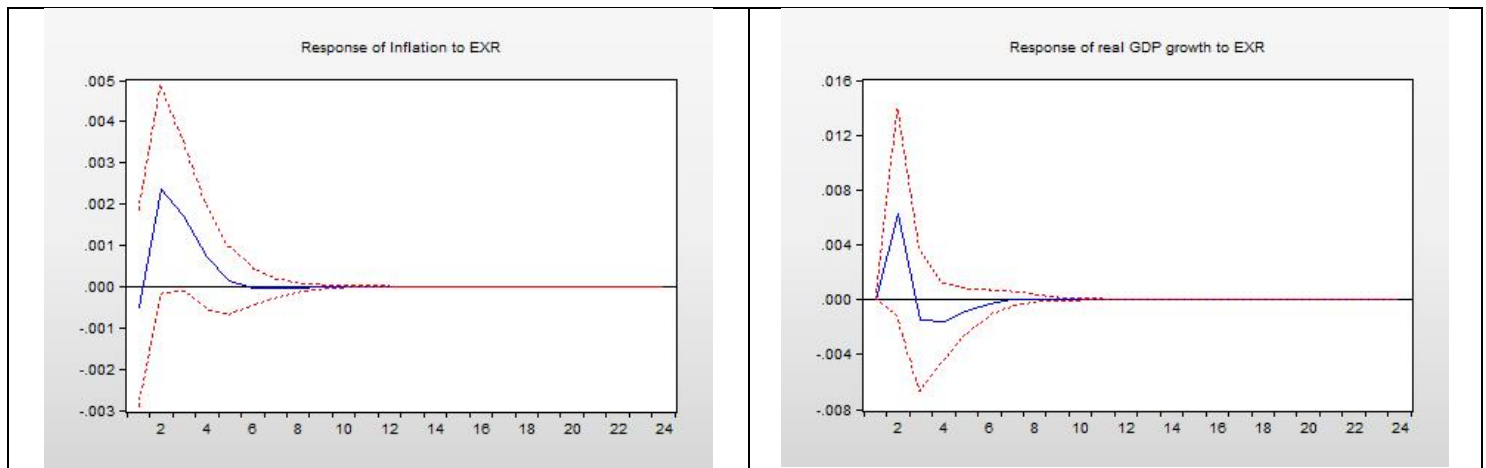


Figure 10: Thailand

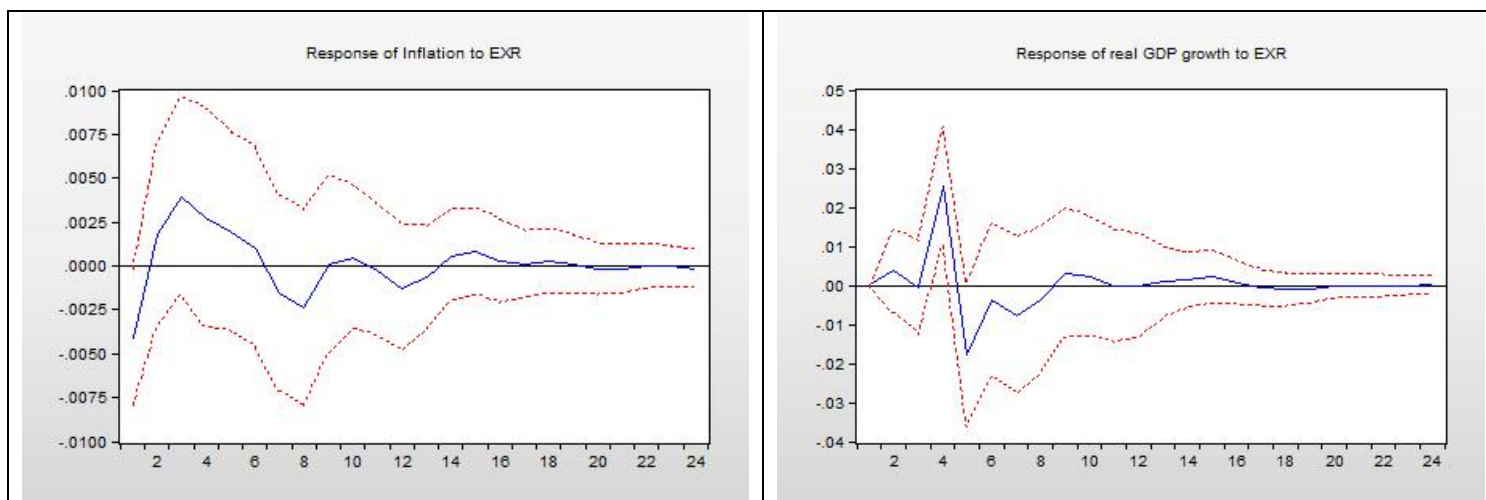


Figure 11: Taipei-China

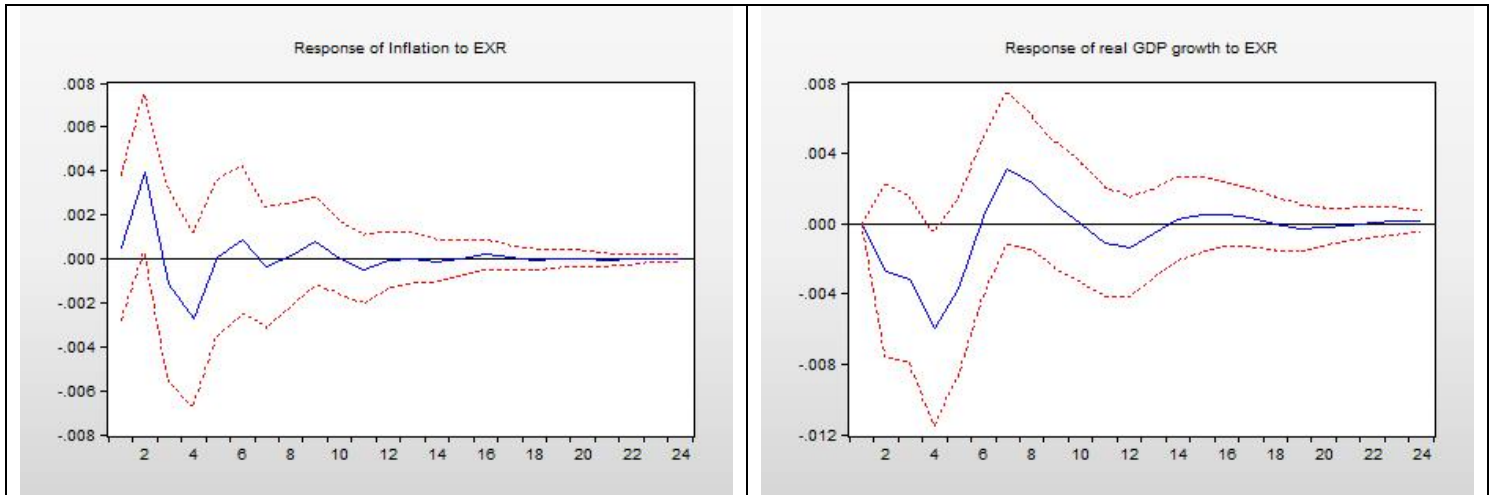
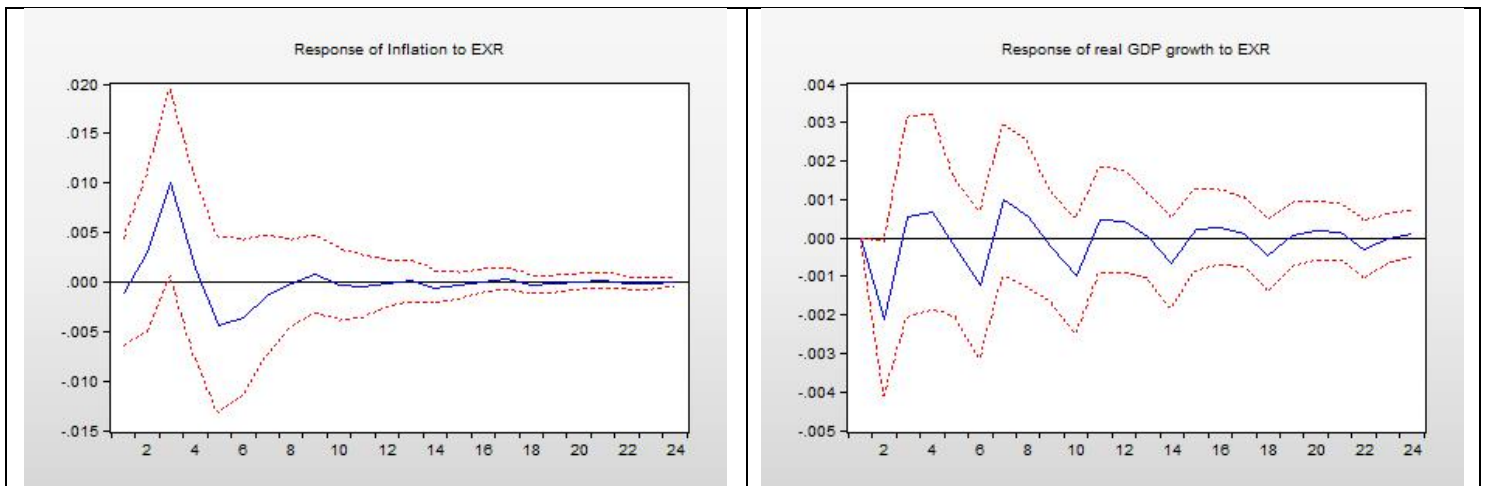


Figure 12: Viet Nam



The second column of figures depicts the response of real GDP growth to a one standard deviation shock to the exchange rate. While the responses in six sample countries are insignificant, only the results for India, Thailand, Taipei-China and Viet Nam are significant whereas. Further, the responses of the latter four are diversely directed: following an exchange rate shock India and Thailand face an increase in real GDP growth; Taipei-China and Viet Nam face a decrease. In Thailand and Taipei-China, the positive responses only materialize after four quarters. The above findings contrast Azis and Puttanapong's (2008) results where all statistically significant responses were aligned in the same direction for real GDP growth as well as inflationary pressure.

Taken together, the findings do not suggest that there is much room for exchange rate cooperation now. For individual countries, the exchange rate remains an important policy variable whose flexibility would be hampered by exchange rate cooperation. The above results reflect this importance.

In order to determine the potential of exchange rates to act as shock absorbers, the response of inflation and the exchange rate to a symmetric shock was analyzed (see the appendix for the graphic results). In four of the sample entities the response was significant; for Taipei-China, India, Korea and Indonesia an increase (decrease) in the real GDP growth led to exchange rate appreciation (depreciation). This suggests that compared to the results from Azis (2009), the number of entities with significant responses, i.e. where the exchange rate functions as shock absorber has doubled. Also, the magnitude of the response has changed: while Azis finds a magnitude ranging between -0.005 and 0.003, the magnitude in the present study ranges from 0.01 for the Taiwan Dollar to 0.03 for the Korean Won. For these four countries, exchange rate cooperation would diminish exchange rate flexibility and thus deprive them of an important adjustment mechanism. This further underlines the above argument against exchange rate cooperation in the region.

Robustness Checks

The results in the rolling regression of the main text are based on a 95% confidence interval (CI). In order to check the robustness of the results, a significance level of 10% and 1% was also applied to the estimated coefficients. Subsequently, the new statistically significant coefficients were again normalized to obtain the key currencies' weights. By and large the different CIs yield the same results as the base model. By construction, some key currencies play a stronger role under the 90% CI than under the base model (95% CI). For instance, the US Dollar plays a larger role for the Indonesian Rupiah before the GFC and for the Malaysian Ringgit across the entire sample. Vice Versa, the 99% CI tends to remove the influence of some key currencies. For example for the Thai Baht, the influence of the Japanese Yen is almost eliminated under the 99% CI, at the same time increasing the Euro's weight in the basket.

- *Hong Kong: results do not change much under different significance levels.*
- *Indonesia: under 10% and 1% the USD plays a larger role before the GFC, afterwards the same results as for 5%, influence of USD & EUR fade away, for 10% larger influence of the Japanese Yen*
- *India: for 1% no key currency signif. At end of sample (after roll 60 = from 2013 on?), for 10% mix of drivers, RMB plays signif. Role, Yen increasingly important, EUR and USD also again important, since 2014 only USD signif.*
- *Korea: mixed influence of all key currencies for all signif. Levels, for 1% USD only signif. In beginning of sample, at 10% also signif. Again at very end, at 1% EUR as strong driver, at 10% mainly Yen and RMB*
- *Malaysia: similar picture for 1% and 5%, for 10% USD again signif. At sample end and larger role for Yen*
- *The Philippines: similar result, only for 1% USD again signif. At very end*
- *Singapore: very similar results for 10%, also at 1% but less influence of the Yen (less constant over time, but if signif. Then very strong influence) and more of the EUR*
- *Thailand: at 1% influence of Yen almost eliminated but EUR stronger*
- *Taipei-China: quite similar results, USD's influence down after GFC, then again at sample end, Yen influence is less under 1%*

- Viet Nam: under 1%, influence of EUR and Yen completely eliminated, RMB starts to become influential only after GFC, USD not signif. After GFC only towards the end of the sample again, for 5% and 10% EUR has overall very limited influence, Dong in turns driven by USD, Yen and RMB with Yen having less influence at 5%

Conclusion

Starting from the analysis of the role different key currencies play in exchange rate fluctuations in Asia, this study finds that during and after the Global Financial Crisis the importance of the US Dollar has declined while the Chinese Yuan and partly also the Japanese Yen gained momentum. This also indicates that China is pushing the internationalization of the RMB. Only in late-2013, the Indian Rupee, the Taiwan Dollar and to a lesser extend the Vietnamese Dong have again been considerably influenced by the US Dollar.

A structural break test suggested that while the Global Financial Crisis had a significant impact on exchange rate fluctuations in the region, there is no common structural break for all sample countries. This indicates that each country's exchange rate may have been affected at different times in the aftermath of the GFC. To further analyze the region's interdependence, a VAR analysis was conducted. The results suggest that in some countries an exchange rate shock has significant effects on real GDP growth, although the responses are not aligned into the same direction. As for the inflation, seven entities reacted significantly to an exchange rate shock, although the directions of the responses are not aligned; three entities facing lower inflation whereas four countries face higher inflationary pressure. Analyzing the response of the exchange rates to a real GDP shock indicated that exchange rates function as shock absorbers in the region. All these imply that the exchange rate has an important role as a "stabilizer," suggesting that the idea of exchange rate cooperation by using a basket system is off the table. This is despite the co-movements of the regional exchange rate away from the US dollar.

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Appendix

Result Tables from Regressions on Sub-Samples

Hong Kong Dollar

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	-9.15E-06	-0.008632	-0.005248	0.040911*	0.921611**	0.996897	2.169782	0.000175
07/2005 12/2005	3.89E-05 ⁺	-0.126157**	0.007121	-0.017200	0.087864**	0.995097	1.931846	0.000243
01/2006 06/2006	9.24E-05 ⁺	-0.095703**	-0.025953	0.013111	0.302797*	0.997942	1.870556	0.000189
07/2006 12/2006	5.55E-05*	-0.089326**	-0.010312	0.030330	0.205434**	0.991958	2.051201	0.000233
01/2007 06/2007	4.71E-05*	-0.102300**	-0.000480	0.013061	0.049334	0.987376	2.214041	0.000230
07/2007 12/2007	0.000116**	-0.043099**	-0.011756	0.104000*	0.413277**	0.966210	1.812440	0.000464
01/2008 06/2008	0.000233**	1.22E-05	-0.029601**	0.121712*	0.894612**	0.977714	1.732484	0.000599
07/2008 12/2008	4.32E-05	-0.001039 ⁺	0.003632	0.101471**	0.864587**	0.981919	2.227025	0.000765
01/2009 06/2009	4.81E-07	-0.000821	-0.000702	-0.011361	0.932425**	0.996855	2.847439	0.000289
07/2009 12/2009	1.59E-06	-6.41E-06	-0.001515	-0.004575	0.938379**	0.997644	2.420761	0.000152
01/2010 06/2010	5.24E-05	-0.000970 ⁺	0.001662	0.004859	0.893794**	0.988473	2.013769	0.000346
07/2010 12/2010	0.000108 ⁺	2.59E-06	-0.000787	0.091564 ⁺	0.895275**	0.967579	2.210372	0.000658
01/2011 06/2011	6.69E-05	0.004296**	-0.003053	0.066824	0.752353**	0.952295	2.440854	0.000639
07/2011 12/2011	7.91E-05	0.003111*	-0.001113 ⁺	0.047268	0.822881**	0.990570	2.244822	0.000531
01/2012 06/2012	-6.82E-05	0.005297**	-0.012615	0.074887*	0.689482**	0.978451	1.802253	0.000401
07/2012 12/2012	4.45E-05	0.000300	-0.007687	0.120260**	0.825914**	0.968562	2.317152	0.000432
01/2013 06/2013	4.20E-05	0.001287*	0.001137	-0.012350	0.831775**	0.982951	2.100897	0.000378
07/2013 12/2013	5.25E-05*	0.000189	-0.001915	-1.73E-05	0.863357**	0.989709	1.646555	0.000251
01/2014 05/2014	-3.81E-05 ⁺	0.048191**	-0.003078	0.000958	0.052668 ⁺	0.986293	2.025159	0.000215

Note: ** indicates significance at 1%, * at 5% and + at 10%.

Indian Rupee

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	3.39E-05	-0.007096	0.005956**	0.071342**	0.104139**	0.573485	2.463941	0.000500
07/2005 12/2005	1.85E-05	-0.024328**	-0.005834	0.003192*	-0.001687	0.320737	2.364507	0.000878
01/2006 06/2006	-0.000223	-0.159070	0.032561	0.205966	-0.972055	0.435072	2.514282	0.000896
07/2006 12/2006	-2.77E-06	-0.007464	-0.040473	0.029950 ⁺	0.087591	0.463353	2.421062	0.000536
01/2007 06/2007	2.10E-05	-0.021606	-0.033412 ⁺	-0.048203	-0.046148	0.257415	2.501678	0.000646
07/2007 12/2007	9.23E-05	-0.003890**	-0.066444**	0.072857	0.044410	0.409959	2.679346	0.000593
01/2008 06/2008	4.35E-05**	-1.44E-05	-0.007246*	0.008129	0.191689**	0.732016	2.676286	0.000522
07/2008 12/2008	9.53E-05	8.05E-05	-0.035266**	0.007858	0.171430**	0.556236	1.859832	0.001193
01/2009 06/2009	-3.93E-05	-0.003698 ⁺	-0.003414**	-0.050105	0.120922**	0.554987	2.160192	0.000840
07/2009 12/2009	-6.43E-05	2.06E-05	-0.014647*	0.023800	0.158366**	0.473424	2.203453	0.000603
01/2010 06/2010	-7.31E-05	0.001277	-0.006962 ⁺	-0.095336**	0.232451**	0.502544	2.722095	0.000598
07/2010 12/2010	1.98E-05	1.57E-05	-0.001897**	0.098392	0.174807**	0.755782	2.911177	0.000460
01/2011 06/2011	-2.36E-05	-0.000364	0.002274*	0.031267	0.209756**	0.661765	2.890765	0.000451
07/2011 12/2011	6.94E-05**	0.001127*	-0.000624 ⁺	0.006365 ⁺	0.197506**	0.824545	2.204564	0.000624
01/2012 06/2012	2.62E-05	-0.001623	0.007552	-0.018494	0.252592**	0.482421	2.880566	0.000608
07/2012 12/2012	5.99E-05	6.75E-05	0.006720*	-0.093076	0.232267**	0.541539	2.681665	0.000481
01/2013 06/2013	4.59E-05	-0.000447	-0.001041	-0.023893	0.223119*	0.743890	2.603603	0.000394
07/2013 12/2013	0.000189	0.001057	2.00E-05 ⁺	0.027347	0.125633	0.248296	2.147521	0.000754
01/2014 05/2014	-7.45E-05	-0.006182 ⁺	-0.008041	0.065470	0.209724	0.153615	2.517995	0.000657

Note: ** indicates significance at 1%, * at 5% and + at 10%.

Indonesian Rupiah

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	-1.93E-05	-0.000211	-0.031543	0.138192	0.461690	0.920876	2.371047	0.000456
07/2005 12/2005	7.98E-05	-0.041951*	-0.028368	0.175160	0.102807	0.848225	1.919185	0.000661
01/2006 06/2006	-0.000272	-0.023952 ⁺	-0.020228	0.226952	0.237932	0.861060	1.837067	0.000753
07/2006 12/2006	-6.29E-05	-0.023932	-0.015957*	0.162783	0.210327	0.730118	2.259567	0.000717
01/2007 06/2007	-0.000160 ⁺	-0.049966	-0.067995 ⁺	0.066868	-0.088057	0.394376	2.162724	0.001172
07/2007 12/2007	6.50E-07	-0.026376	-0.062255**	-0.026205	0.099370	0.675220	2.485069	0.000894
01/2008 06/2008	0.000326	8.34E-06	-0.038462	-0.095585	0.463029**	0.802331	2.105384	0.001060
07/2008 12/2008	0.000183	-0.001541	-0.049361**	-0.136183	0.445850**	0.661976	2.279363	0.002185
01/2009 06/2009	1.09E-05	-0.007660	-0.034124	-0.053490	0.215551**	0.595596	1.912690	0.001602
07/2009 12/2009	-3.13E-05	5.41E-05	-0.054398	-0.086293	0.272909**	0.445766	2.191955	0.001070
01/2010 06/2010	-9.43E-05	0.000279	-0.015096	-0.378012**	0.465821**	0.541108	2.074612	0.001181
07/2010 12/2010	2.21E-06	-1.82E-05	-0.017425	-0.058713**	0.420724**	0.775947	1.982130	0.000986
01/2011 06/2011	6.58E-05	-0.001130	-0.008634	-0.009653	0.446688**	0.709721	2.577625	0.000932
07/2011 12/2011	0.000377	-0.007720	-0.002429	-0.175313	0.577491**	0.823116	1.833396	0.001301
01/2012 06/2012	7.55E-05	-0.004379	-0.025370	-0.036939	0.388722**	0.230008	1.905698	0.001392
07/2012 12/2012	6.13E-05	0.000570	-0.051847	-0.192234*	0.293903**	0.162129	1.934647	0.001469
01/2013 06/2013	0.000123	0.003377	-0.013977	0.043701	0.190839**	0.439671	2.008869	0.001335
07/2013 12/2013	0.000121**	0.002359	-0.048414	0.042324	0.200552 ⁺	0.171864	2.023283	0.002255
01/2014 05/2014	-0.000156	0.015312	-0.027213	-0.134578	0.153913*	0.522115	2.191377	0.000889

Note: ** indicates significance at 1%, * at 5% and + at 10%..

Korean Won

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	-3.16E-05	-0.011728	0.004987	0.202518**	0.057091	0.540054	2.420056	0.000629
07/2005 12/2005	-3.27E-05	-0.018929*	-0.027568+	0.099366	0.033429	0.582624	2.009020	0.000594
01/2006 06/2006	-0.000354	0.014596	0.057352	0.187189	0.396242	0.496914	2.803547	0.001056
07/2006 12/2006	-1.57E-05	-0.000803	-0.000613	0.199573**	0.224724*	0.697464	2.144211	0.000450
01/2007 06/2007	1.47E-05	-0.016009*	-0.027099*	-0.006284	0.073827	0.667562	2.295618	0.000364
07/2007 12/2007	6.03E-05	-0.004726	-0.028565*	-0.030349	0.202615**	0.709433	2.271022	0.000466
01/2008 06/2008	0.000219**	-3.34E-05	-0.017747	-0.176820*	0.288522**	0.699212	1.906404	0.000853
07/2008 12/2008	5.50E-05	-0.000180	-0.055788*	-0.242788	0.205113*	0.183354	1.996683	0.003353
01/2009 06/2009	6.15E-05	-0.004474	-0.027981*	-0.205763*	0.141729	0.281850	2.126612	0.001779
07/2009 12/2009	-0.000113	6.83E-06	-0.056791**	-0.067275	0.186008**	0.426325	2.279147	0.000797
01/2010 06/2010	-6.32E-05	-0.000981	-0.033748**	-0.187506*	0.173373*	0.253714	1.804353	0.001271
07/2010 12/2010	-5.44E-05	-3.09E-06	-0.017330**	-0.097526	0.215482**	0.588669	2.453879	0.000861
01/2011 06/2011	-8.20E-06	-0.001354	-0.008371**	-0.058714	0.265391**	0.634304	2.300326	0.000643
07/2011 12/2011	0.000106	-0.003777	-0.002257 ⁺	0.012254	0.245491**	0.665360	2.232873	0.001055
01/2012 06/2012	-2.84E-05	-0.001595	-0.012177	-0.045221	0.220749**	0.507762	2.200461	0.000484
07/2012 12/2012	-5.68E-05	0.000325	-0.003267	-0.020583	0.196413**	0.625621	2.524849	0.000428
01/2013 06/2013	5.16E-05	0.002045*	-0.009416*	0.099439**	0.135102**	0.638166	1.982373	0.000634
07/2013 12/2013	-5.36E-05	-0.002286 ⁺	-0.009635	0.014573	0.253760**	0.619473	2.188761	0.000467
01/2014 05/2014	-7.61E-05	0.012096**	0.006317	-0.113240	0.095825	0.514406	2.020464	0.000515

Note: ** indicates significance at 1%, * at 5% and + at 10%.

Malaysian Ringgit

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	4.24E-06	-0.007628	0.002640	0.021842	1.589210**	0.997521	2.819429	0.000255

07/2005 12/2005	6.08E-05	-0.214952**	-0.007165	-0.175850	0.128314	0.963175	1.667691	0.001132
01/2006 06/2006	-0.000306	-0.073985	-0.084744	0.597512 ⁺	0.988387	0.966360	2.107470	0.001286
07/2006 12/2006	-0.000141	0.034643	-0.061983	0.712579*	1.772741**	0.787611	2.064216	0.002176
01/2007 06/2007	-5.83E-05	-0.198535**	-0.137451 ⁺	-0.375427	-0.169496	0.701376	2.195421	0.002357
07/2007 12/2007	6.76E-05	-0.021738	-0.358192**	0.243187	0.924383**	0.711102	1.825522	0.002698
01/2008 06/2008	0.000418	-8.18E-05	-0.058823	-0.107911	1.524714**	0.791745	2.178255	0.003476
07/2008 12/2008	0.000333	-0.001873	-0.048300 ⁺	-0.103019	1.419830**	0.841026	2.363369	0.003923
01/2009 06/2009	0.000182	0.004625	-0.101164**	-0.469662*	1.441349**	0.774179	2.410003	0.003940
07/2009 12/2009	-0.000201	1.39E-05	-0.237113**	-0.176327	1.174094**	0.721046	2.190453	0.002624
01/2010 06/2010	-0.000700	0.003917	-0.060183	-1.260989**	1.783252**	0.462228	2.091950	0.005126
07/2010 12/2010	-0.000119	2.89E-06	-0.054588**	-0.199574	1.502420**	0.832411	2.285883	0.002903
01/2011 06/2011	-1.83E-07	0.002991	-0.026414*	0.052640	1.447594**	0.782369	2.455105	0.002788
07/2011 12/2011	0.000410	-0.001024	-0.007156 ⁺	-0.326224	1.485583**	0.844004	1.924956	0.003814
01/2012 06/2012	-2.24E-05	-0.007294	0.011964	-0.112865	1.469781**	0.581312	2.191864	0.003091
07/2012 12/2012	-6.03E-05	0.001355	-0.096149**	-0.188530	1.248704**	0.666584	2.161353	0.002314
01/2013 06/2013	0.000227	0.005678	-0.079262**	0.284347	1.101447**	0.679810	1.875554	0.003559
07/2013 12/2013	0.000445	0.002598	-0.059129	-0.282643	1.081518**	0.449980	1.794545	0.003816
01/2014 05/2014	-0.000300	0.009952	-0.056717	0.283974	0.977684**	0.620640	1.789415	0.002154

Note: ** indicates significance at 1%, * at 5% and + at 10%.

Philippine Peso

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	1.00E-05	-0.020886*	0.024012	-0.001390	0.287915*	0.778370	1.992208	0.000817
07/2005 12/2005	-0.000111 ⁺	-0.052991**	-0.026983	0.070763	0.044576	0.857725	2.091338	0.000643
01/2006 06/2006	-2.09E-05	-0.181797*	0.033763	-0.205666	-0.780765	0.831866	2.584559	0.000887
07/2006 12/2006	-0.000140*	-0.004481	-0.015033	0.190523*	0.419943**	0.802891	1.960369	0.000637
01/2007 06/2007	-8.39E-05	-0.031147	-0.049188 ⁺	0.005072	0.154936	0.545803	2.011252	0.000927
07/2007 12/2007	-0.000156	-0.016483	-0.106821**	0.174446	0.183446	0.464751	2.106614	0.001452
01/2008 06/2008	0.000285*	-3.10E-05	-0.057800**	0.090591	0.425744**	0.757251	2.543136	0.001255
07/2008 12/2008	8.97E-05	-0.001617	-0.042501**	0.028905	0.363628**	0.751691	2.400215	0.001590
01/2009 06/2009	4.85E-05	-0.000882	-0.013104	-0.158594**	0.467535**	0.792022	2.030637	0.001270
07/2009 12/2009	-6.91E-05	2.72E-05	-0.045934 ⁺	-0.095545	0.387135**	0.561718	2.558842	0.001138
01/2010 06/2010	-6.73E-05	0.001195	-0.003747	-0.275280**	0.459026**	0.470222	2.095358	0.001259
07/2010 12/2010	-6.30E-05	1.32E-05	-0.020522**	-0.046796	0.422480**	0.786660	1.834292	0.000997
01/2011 06/2011	4.53E-05	-0.002251	-0.006619*	-0.028940	0.537947**	0.801444	2.247382	0.000807
07/2011 12/2011	7.11E-05	-0.004544	-0.000572	-0.009413	0.536046**	0.895505	2.154073	0.001013
01/2012 06/2012	-0.000107	-0.003074	-0.008033	0.010606	0.449714**	0.609018	2.411272	0.000886
07/2012 12/2012	-1.52E-05	0.000539	-0.019307 ⁺	0.039446	0.352257**	0.712187	2.131620	0.000682
01/2013 06/2013	5.58E-05	0.004284**	-0.013667 ⁺	0.153531**	0.265938**	0.734794	1.775563	0.000972
07/2013 12/2013	9.01E-05	0.001187	-0.026811**	0.122487 ⁺	0.291023**	0.697141	1.981593	0.000746
01/2014 05/2014	-8.93E-05	0.006837	-0.023858	-0.053307	0.264362*	0.562503	2.230101	0.000770

Note: ** indicates significance at 1%, * at 5% and + at 10%.

Singapore Dollar *

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	-9.45E-05	-0.096548	-0.033034	4.528432**	2.387905**	0.870642	2.279721	0.005226
07/2005 12/2005	-0.000126	0.113671	-0.289646	2.520244**	5.563614**	0.890863	2.233310	0.006574

01/2006 06/2006	-0.002568	-1.611943*	0.730039	4.755247*	-6.024957	0.911117	1.987499	0.007595
07/2006 12/2006	-0.000540	-0.360683*	-0.767055**	4.109850**	1.602882	0.849499	2.291735	0.006731
01/2007 06/2007	0.000541	-0.526783**	-0.964407**	1.310932	0.765845	0.798538	1.878819	0.007241
07/2007 12/2007	-0.000266	-0.173439*	-1.467496**	0.996442	2.962320**	0.783447	1.923898	0.009479
01/2008 06/2008	0.000730	3.05E-06	-0.506938**	-0.190410	4.821252**	0.882217	1.962865	0.008510
07/2008 12/2008	0.000343	0.021404+	-0.543706**	-1.395225*	5.594863**	0.832233	2.256812	0.015082
01/2009 06/2009	0.000387	0.070590*	-0.585755**	-0.659203	5.668041**	0.832857	2.233941	0.011883
07/2009 12/2009	-0.000702	-0.000104	-0.900665**	-0.222113	3.920790**	0.853218	2.473361	0.006077
01/2010 06/2010	-0.001450	0.031499+	-0.374997**	-2.467579**	6.836259**	0.732745	1.905893	0.011800
07/2010 12/2010	-0.000785	8.97E-06	-0.328656**	0.175024	4.446387**	0.859437	1.899290	0.009162
01/2011 06/2011	-0.000108	0.022363	-0.204956**	0.412890	3.524172**	0.840935	1.885510	0.007290
07/2011 12/2011	0.001241	-0.045845	-0.051844**	0.037492	3.627556**	0.763272	1.938226	0.013606
01/2012 06/2012	-0.000748	-0.012950	-0.110769	-0.111552	3.796395**	0.550811	2.248396	0.009266
07/2012 12/2012	-0.000556	0.002205	-0.195041 ⁺	1.514912*	4.053924**	0.765040	2.492401	0.007190
01/2013 06/2013	0.000775	0.007856	-0.157598*	2.500384**	4.064691**	0.800781	2.017969	0.008697
07/2013 12/2013	0.000494	-0.032955 ⁺	-0.284998**	2.134214**	4.209945**	0.762555	2.066419	0.006728
01/2014 05/2014	-0.000571	0.068426	-0.301926**	1.284317	2.409313**	0.742783	2.072511	0.005562

Note: ** indicates significance at 1%, * at 5% and + at 10%.

Thai Baht

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	8.10E-05	-0.015268	-0.007450	0.455833**	0.205949**	0.819559	2.284960	0.000680
07/2005 12/2005	-1.31E-05	-0.008752	-0.018033	0.277425**	0.324698**	0.864135	1.922028	0.000618
01/2006 06/2006	-0.000676*	-0.076366	0.037068	0.530906	-0.142767	0.693017	1.977391	0.001256
07/2006 12/2006	-0.000111	-0.041992	-0.047590	0.284551*	0.008039	0.533561	1.825422	0.001125
01/2007 06/2007	-0.000405	-0.161789*	0.146848	0.017674	-0.815749	0.093678	2.445859	0.003388
07/2007 12/2007	-0.000105	-0.028092	-0.057149	-0.100592	0.183108	0.302649	2.024826	0.002235
01/2008 06/2008	0.000445	-1.33E-05	-0.035759	-0.381359 ⁺	0.512279**	0.527073	1.550115	0.002142
07/2008 12/2008	9.67E-05	-0.001154	-0.026212**	0.092344*	0.417232**	0.913695	2.056371	0.000933
01/2009 06/2009	-4.65E-05	-0.001066	-0.016564**	0.034157	0.418505**	0.920464	2.225004	0.000729
07/2009 12/2009	-4.94E-05	1.08E-05	-0.028112**	0.049815*	0.473952**	0.959952	1.932662	0.000343
01/2010 06/2010	-8.55E-05 ⁺	0.000261	-0.007793*	-0.005600	0.495001**	0.921000	1.703644	0.000501
07/2010 12/2010	-8.99E-05	3.01E-06	-0.008486**	0.086859 ⁺	0.458357**	0.901913	1.647753	0.000655
01/2011 06/2011	0.000104	0.002146	-0.011885**	0.081495	0.397154**	0.840097	1.927385	0.000730
07/2011 12/2011	0.000116	-0.006534*	-0.001119	0.141601 ⁺	0.520270**	0.912179	1.782898	0.000977
01/2012 06/2012	-2.64E-05	-0.001417	-0.003492	0.129932*	0.327632**	0.664219	2.133359	0.000733
07/2012 12/2012	-3.98E-05	2.77E-05	-0.018564*	0.145473**	0.322444**	0.806568	2.314834	0.000508
01/2013 06/2013	1.94E-05	0.001320	-0.022819**	0.146075*	0.333043**	0.622800	1.990262	0.001201
07/2013 12/2013	0.000180*	0.000741	-0.024548*	-0.029413	0.335482**	0.589693	1.811279	0.000946
01/2014 05/2014	-6.54E-06	0.020531**	-0.017876	0.105796	0.036503	0.625809	1.993213	0.000717

Note: ** indicates significance at 1%, * at 5% and + at 10%.

Taiwan Dollar

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	-5.68E-05	-0.028050 ⁺	-0.025782	0.466231**	0.089788	0.721794	2.155101	0.000970
07/2005 12/2005	9.89E-05	-0.070224**	-0.025848	0.065506	-0.029362	0.799183	2.111467	0.000883
01/2006 06/2006	-0.000377	0.002507	0.155449	-0.355613	0.721967	0.701215	2.300170	0.001384
07/2006 12/2006	7.18E-05	0.012557	-0.012730	0.168451*	0.621800**	0.825504	2.026027	0.000646
01/2007 06/2007	8.84E-06	-0.069070**	-0.008746	0.055363	-0.137791	0.819002	1.649529	0.000500
07/2007 12/2007	5.78E-05	-0.019252**	-0.020438 ⁺	0.024812	0.286383**	0.900627	1.868963	0.000461

01/2008 06/2008	-6.65E-06	-6.86E-07	-0.018256	-0.092736	0.550469**	0.864893	1.865927	0.000942
07/2008 12/2008	0.000183	-0.001524 ⁺	-0.020638**	0.045257	0.417196**	0.880346	2.081832	0.001089
01/2009 06/2009	8.39E-06	-0.000355	-0.023373**	-0.054972	0.449872**	0.828263	2.042581	0.001137
07/2009 12/2009	-6.37E-05	-5.54E-06	-0.049521**	-0.012363	0.447369**	0.813867	2.271025	0.000747
01/2010 06/2010	-2.14E-05	0.000192	-0.008163	-0.195053**	0.536800**	0.796783	2.359479	0.000826
07/2010 12/2010	-0.000137 ⁺	1.17E-06	-0.016532**	0.042744	0.420316**	0.843675	2.048187	0.000825
01/2011 06/2011	3.36E-05	0.000599	-0.011123**	0.035444	0.462894**	0.790982	2.144378	0.000881
07/2011 12/2011	0.000162 [*]	-0.002163	-0.001307	-0.016864	0.553358**	0.942322	2.179174	0.000815
01/2012 06/2012	-6.04E-05	0.000159	-0.004761	-0.027201	0.496698**	0.867217	2.117339	0.000587
07/2012 12/2012	-1.10E-05	0.000276	-0.013730 ⁺	-0.010952	0.427288**	0.855095	2.342611	0.000477
01/2013 06/2013	5.76E-05	0.000130	-0.013512**	0.164117**	0.389365**	0.839036	1.978189	0.000666
07/2013 12/2013	4.10E-05	-0.000791	-0.015755 [*]	0.044446	0.425647**	0.860290	1.933472	0.000503
01/2014 05/2014	-3.60E-05	0.016047 ⁺	-0.000880	-0.076188**	0.221347	0.798022	2.072460	0.000492

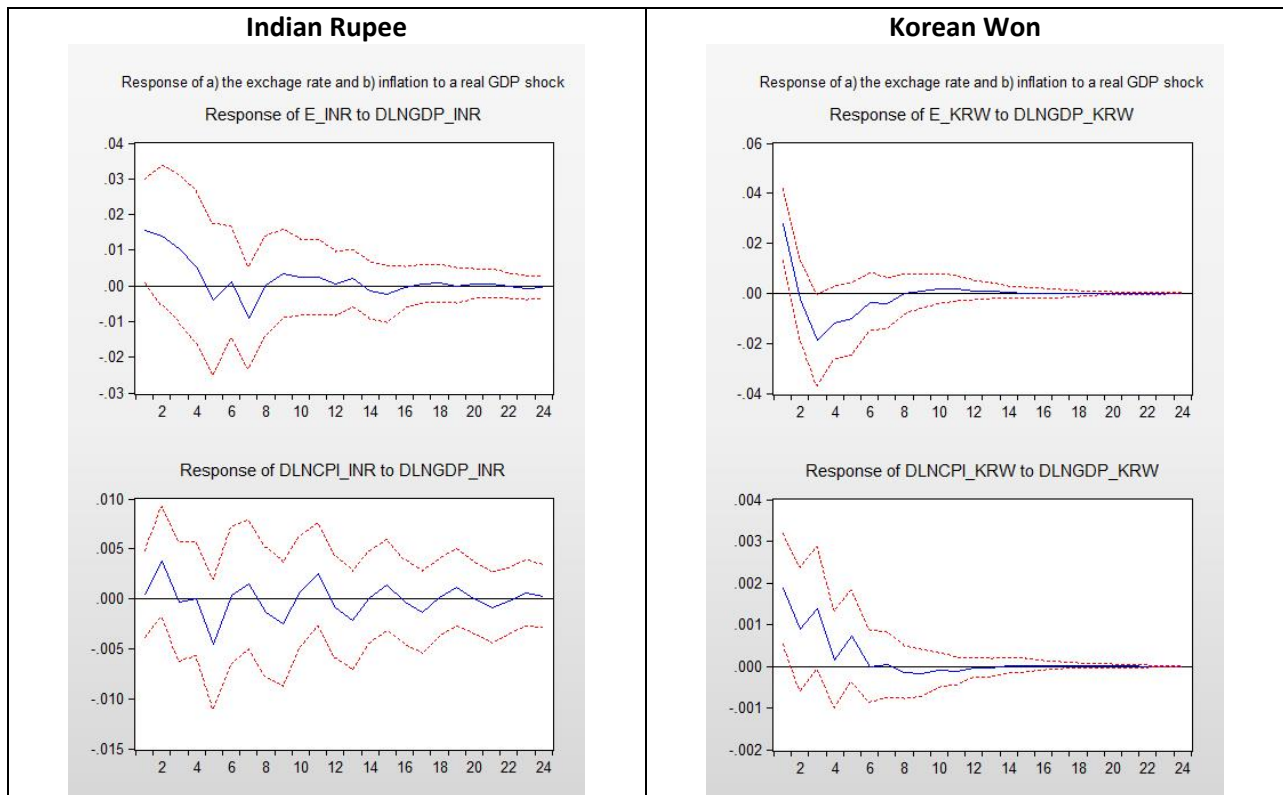
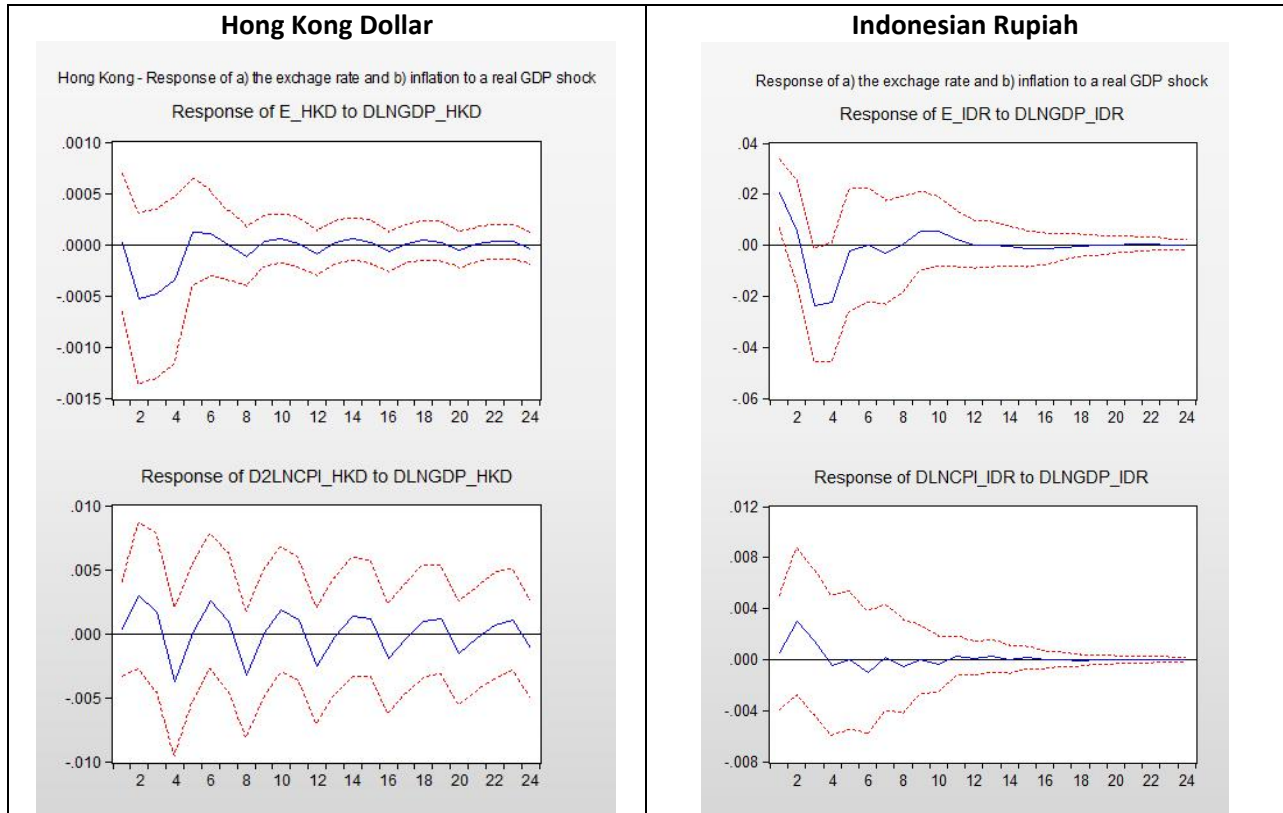
Note: ** indicates significance at 1%, * at 5% and + at 10%.

Vietnamese Dong

Time	Const.	USD	EUR	JPY	CNY	R2-adj.	DW	S.E. of regression
01/2005 06/2005	8.04E-06	-0.004548	-0.009356	0.049804	0.129884	0.533807	2.971945	0.000552
07/2005 12/2005	-6.00E-06	-0.026234**	0.006692	0.129093 [*]	-0.025959	0.533518	3.024865	0.000590
01/2006 06/2006	-3.29E-05	0.001042	0.015153	0.182305	0.154885	0.520648	2.419280	0.000612
07/2006 12/2006	1.99E-05	-0.019851	-0.002754	-0.109246	0.031722	0.475008	2.729499	0.000520
01/2007 06/2007	-1.07E-06	-0.035086**	-0.006313	0.077592	-0.130421	0.347978	2.938592	0.000597
07/2007 12/2007	9.84E-06	-0.005290	0.011851	-0.101841 ⁺	0.156888 [*]	0.413661	2.730393	0.000587
01/2008 06/2008	9.31E-05	-1.93E-06	0.000396	0.090923	0.204582**	0.627874	2.579009	0.000691
07/2008 12/2008	4.10E-05	-0.000540	0.003109	-0.003891	0.194701**	0.783760	2.473344	0.000649
01/2009 06/2009	2.12E-05	-0.001683	0.005662	-0.006904	0.163194**	0.756378	2.728883	0.000575
07/2009 12/2009	3.18E-05	7.05E-05	-0.005151	0.036805	0.181295**	0.104197	2.851173	0.001771
01/2010 06/2010	3.59E-05	-0.001215	-0.003356	0.005706	0.184914**	0.459814	2.756346	0.000826
07/2010 12/2010	4.62E-05	-2.40E-05	0.004848	0.038682	0.215561**	0.510772	2.684645	0.000790
01/2011 06/2011	7.11E-05	-0.002583	0.002413	-0.050605	0.273878**	0.285434	2.303686	0.000950
07/2011 12/2011	5.77E-05	0.002250	0.000512	0.053068	0.180198**	0.676884	2.947645	0.000918
01/2012 06/2012	-2.07E-05	0.000779	0.010582	0.017165	0.128368 [*]	0.237719	2.939304	0.000818
07/2012 12/2012	9.63E-06	2.47E-05	-0.014483	0.032799	0.171114**	0.386186	2.339295	0.000607
01/2013 06/2013	-4.25E-05	0.004217**	0.002686	0.039322	0.003558	0.391036	2.626472	0.000696
07/2013 12/2013	3.51E-05	-0.001704	0.002568	-0.058171	0.251259**	0.330718	2.735854	0.000741
01/2014 05/2014	1.98E-05	0.004401	-0.010694	0.301166 [*]	-0.020111	0.155091	3.008020	0.000785

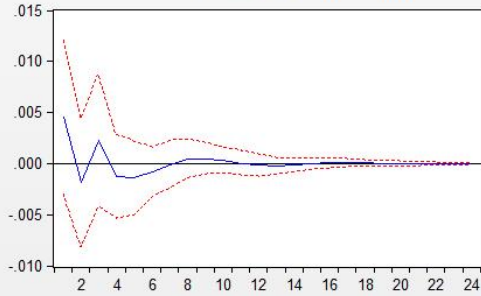
Note: ** indicates significance at 1%, * at 5% and + at 10%.

Impulse Response Functions (IRFs) for a symmetric shock to real GDP

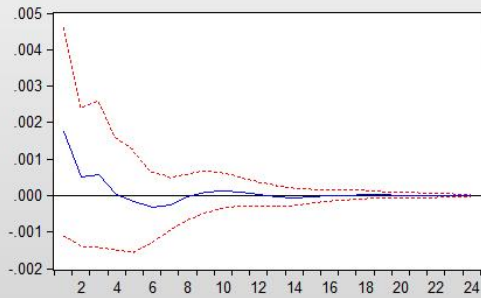


Malaysian Ringgit

Response of a) the exchange rate and b) inflation to a real GDP shock
Response of E_MYR to DLNGDP_MYR

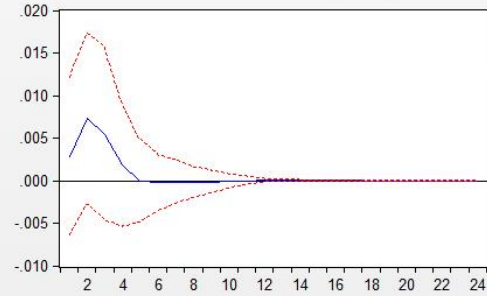


Response of DLNCPI_MYR to DLNGDP_MYR

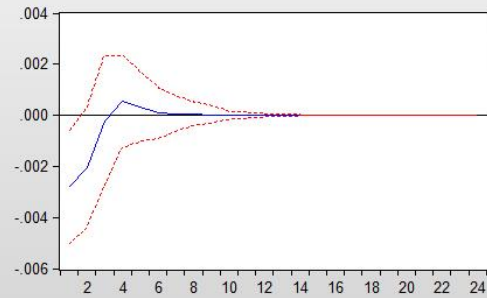


Philippine Peso

Response of a) the exchange rate and b) inflation to a real GDP shock
Response of E_PHP to DLNGDP_PHP

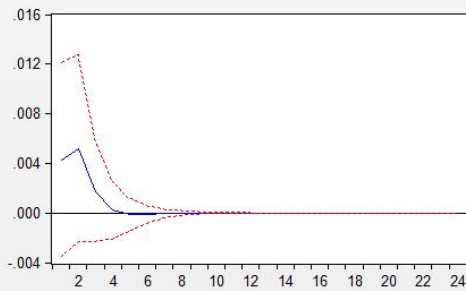


Response of DLNCPI_PHP to DLNGDP_PHP

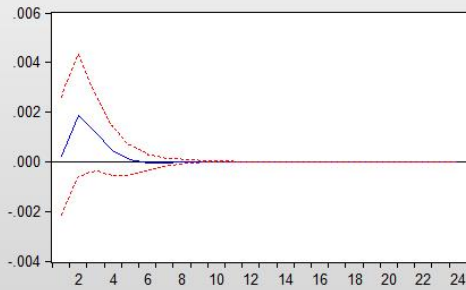


Singapore Dollar

Response of a) the exchange rate and b) inflation to a real GDP shock
Response of E_SGD to DLNGDP_SGD

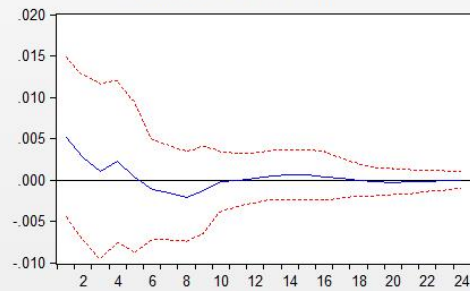


Response of DLNCPI_SGD to DLNGDP_SGD

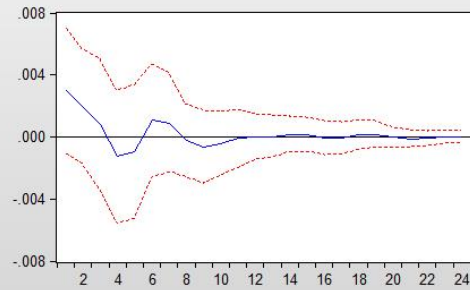


Thai Baht

Response of a) the exchange rate and b) inflation to a real GDP shock
Response of E_THB to DLNGDP_THB



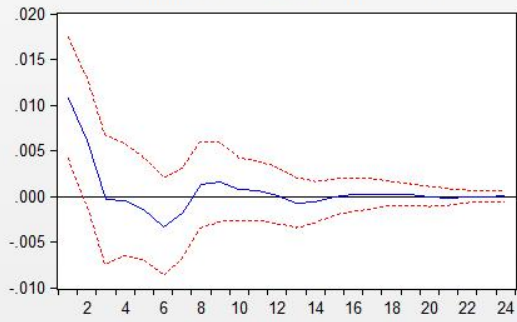
Response of DLNCPI_THB to DLNGDP_THB



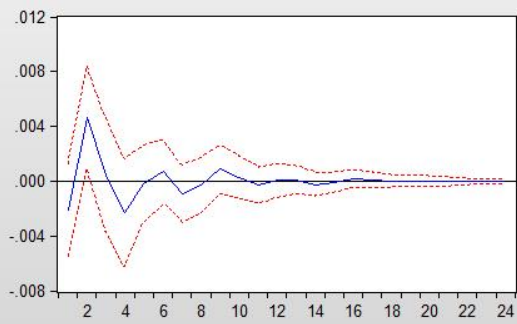
Taiwan Dollar

Response of a) the exchange rate and b) inflation to a real GDP shock

Response of E_TWD to DLNGDP_TWD



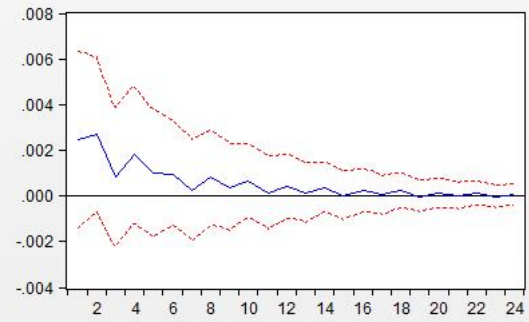
Response of DLNCPI_TWD to DLNGDP_TWD



Vietnamese Dong

Viet Nam - Response of a) the exchange rate and b) inflation to a real GDP shock

Response of E_VND to D2LNGDP_VND



Response of DLNCPI_VND to D2LNGDP_VND

