



INTERNATIONAL FINANCIAL ARCHITECTURE
FOR STABILITY AND DEVELOPMENT/
CRYPTO-ASSETS AND FINTECH

**Capital Flows and International
Financial Architecture**

Eiji Ogawa (Hitotsubashi University)
Junko Shimizu (Gakushuin University)

Submitted on March 14, 2019

Revised on March 31, 2019

Abstract

Capital flows are affected by external factors as well as domestic factors. The monetary authorities should have a closer and timely observation of market participants' expectation of US interest rates and their global risk aversion. They should cope with contagion effects in capital flows among emerging market countries at a regional and global levels. For the purpose, they should secure and promote international cooperation for crisis prevention and management. In order to gather the latest information on capital flows and others to be monitored, they should have specific surveillance collaboration between the IMF and regional surveillance organizations.



Challenge

Tightening monetary policy in the United States and international global liquidity shrinks brought by the reversal of quantitative easing (QE) monetary policies have exposed financial vulnerabilities and led to market pressures and capital outflow in emerging countries. In particular, the influence of the latest interest rate hikes in the United States on capital flows varies in each region and country. In addition to the interest rate hike in the United States, more risk-averse market participants have depressed capital inflows to emerging market countries and moreover caused capital outflows from them in a situation of higher global risk in the recent years. The capital flows in emerging market countries tend to reflect in domestic financial markets and, in turn, real sector of domestic economy. Accordingly, the monetary authorities in emerging market countries should be cautious about market participants' expectation of interest rates in the United States and their risk aversion against global risks as well as domestic economic fundamentals.

Response of capital outflow to its own shock might be not temporary but persistent. If it is true, capital outflows would continue for some time once it faced in capital outflow. It is important for the monetary authorities to take an initial action to stop capital outflow. Moreover, given that the contagion effects of a larger emerging market country's capital outflow on other emerging market countries means external diseconomies against other countries, it is not only at a country level but also at regional and global levels that the monetary authorities should cope with it. For the purpose, the monetary authorities should secure international coordination and promote international cooperation in the global and regions for collecting the latest information on capital flows to monitor surge in capital inflow, its sudden stop and abrupt capital outflow.

It is necessary to construct a database of daily capital flows. They have a limitation in collecting data and monitoring cross-border capital transactions at a country level. Therefore, a regional or global level of cooperation are necessary for coping with them. The IMF might have an initiative for a global level of cooperation. On one hand, the monetary authorities in a region can make such a regional financial cooperation which includes a regional



surveillance organization. Both of them are so complementary that they should make collaboration for the purposes. It is essential for both of them to enhance regional economic surveillance and response to future possible financial crisis.

Proposal

Watching quarterly capital flow data in emerging market countries after the Global Financial Crisis (GFC), movements in each of capital flows have varied by regions and countries. In Asia, the foreign direct investment (FDI) flows were the largest and stable among the capital flows. They stayed net capital inflow in most of the period. The size of gross FDI inflows was USD 303 billion in 2017¹, which was doubled compared to that in 2005, while the size of gross FDI outflow was USD 187 billion, which was almost 5 times that in 2005. On the other hand, portfolio investment (PI) flows have exhibited more volatility and experienced large outflow since 2015. One striking feature of capital flows in Asia is that asset side of both on FDI and PI were growing. In particular, the PI outflows (net acquisition of financial assets) in Asian countries amounted USD 288 billion in 2017, which was larger than the PI inflows (net incurrence of liabilities), USD 206 billion in the same year. Such a structural capital outflow pressures, including portfolio diversification by households and overseas direct investment by companies in Asia, should be considered as an economic maturing process rather than as financial stress. However, careful monitoring should be indispensable because of their increasing in gross capital flows. Comparing with Asia, capital flows in other emerging market regions stayed less and moderate. In Latin America, DI inflows were USD 144 billion, which was larger than PI inflows, USD 98 billion, in 2017. In Eastern Europe, DI and PI inflows tend to be inactive after the GFC and were USD 62 billion and USD 60 billion in 2017, respectively.

Analyzing the external (push) and domestic (pull) factors of capital flows in emerging market countries by using monthly data, external factors, such as

¹ We use 12 emerging Asian countries including China, 10 Latin American countries, and 14 Central and Eastern European countries including Russia.

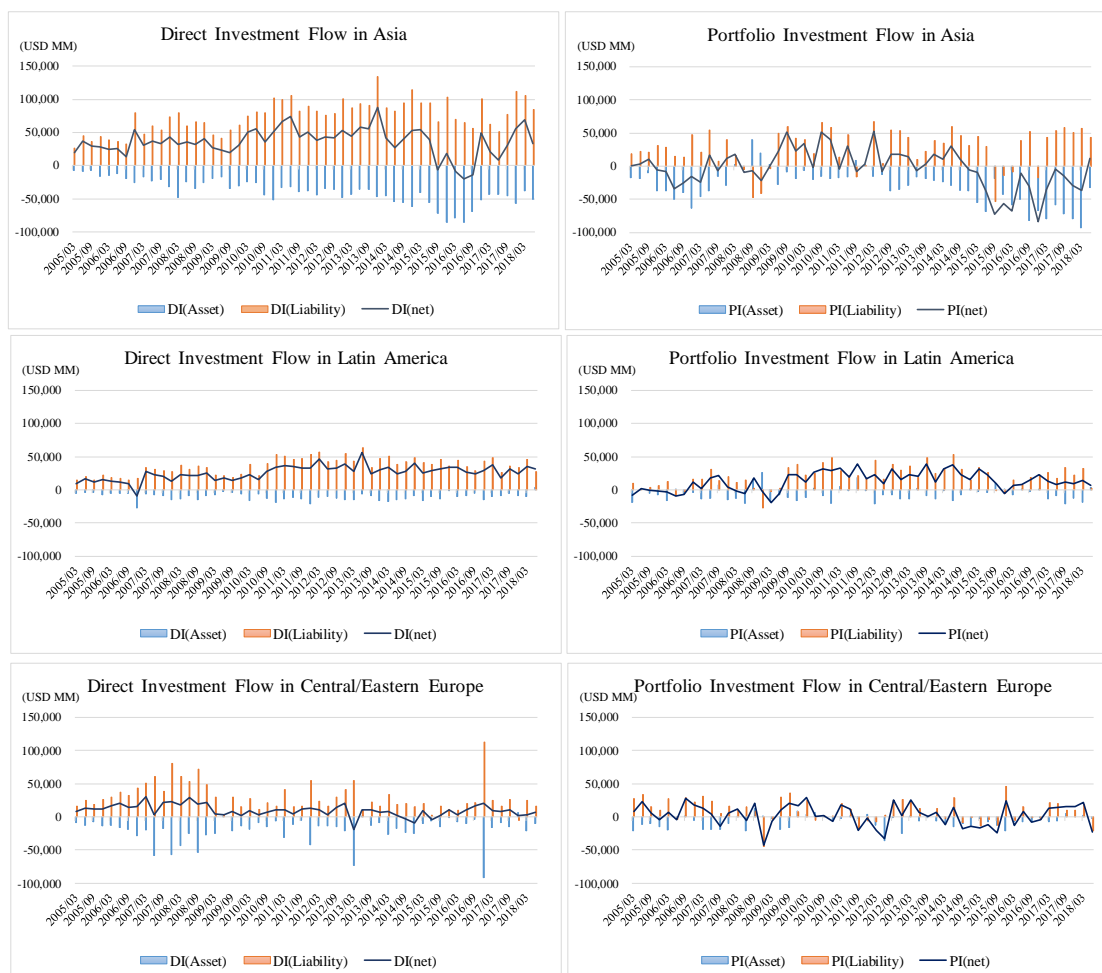


interest rate in the United States and global market risk appetite, seemed to influence on their movements, while the domestic fundamental factors, such as industrial production also matter particularly in DI inflows into emerging market countries. Recent PI outflows were mainly affected by the interest rate hike in the United States and emerging market country currencies' depreciations against the US dollar, which suggests that ongoing Federal Reserve Board (FRB)'s raising the interest rate and strong dollar made carry trades in emerging market country currencies less attractive. In addition, impacts of the US interest rate on DI flows varied by the regions. It is general that the US interest rate hike had a negative impact on DI flows in emerging market countries. On the other hand, such a negative impact was cancelled in the case of Asian emerging market countries.

Beside the external (push) factors on capital flows in emerging market countries, there are various domestic (pull) factors. As Hannan (2018) indicated, the relative importance of these factors has varied over time and differs depending on the type of capital flows. Comparing emerging market countries by region, the Asian countries have kept constant capital inflows, particularly in FDI since 2016 despite the monetary tightening in the United States (Figure 1). Some macroeconomic indicators are pointed out as the factors that keep high level of FDI inflows in Asia; sound government finance supported by high GDP growth rate plus high savings rate, relatively low external debt ratios to exports, which declined below 100% in Asian emerging market countries except for Indonesia, Lao and Myanmar, constant current account surplus, materialized in 8 out of 12 emerging market countries in Asia in 2017, and high level of foreign reserve accumulations. We need to identify these factors carefully to suggest a policy recommendation and to monitor them in future surveillance.



Figure 1: Capital inflow/outflow movement in emerging market countries by region



Note: Asia: 12 emerging Asian countries including China, Latin America: 10 Latin American countries, Central/Eastern Europe: 14 Central and Eastern European countries including Russia and Turkey.

Above the sound macroeconomic fundamentals in Asia have been supported by FDI not only from advanced economies, but also intra-regional economies in recent years. According to Asian Development Bank (ADB) report 2016, increasing intra-regional FDI has been attributed to the rise and expansion of global value chains, and the quality of local governance exerts a highly significant and positive effect on both Greenfield FDI (where foreign firm build production facilities) and M&A (where foreign firms acquire existing local firms). These experiences suggest us the importance to monitor not only the movement of capital inflows and outflows, but also the business



environment to expand prospects for FDI inflows and areas which the capital inflows are used for.

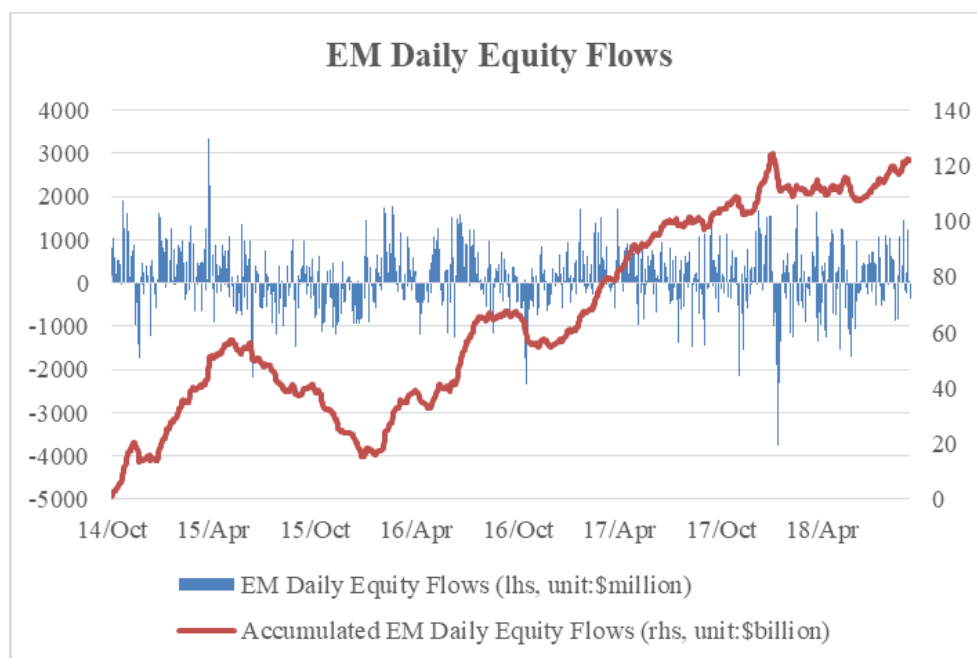
We (Ogawa, Shimizu, and Luo (2019)) investigated effects of the interest rate hike in the United States and the higher global risk on capital flows in emerging market countries on a daily basis during a sample period from 11 November 2015 to 2 October 2018. We used Institute of International Finance (IIF) Daily Portfolio Flows database² to analyze determinants of portfolio capital flows in emerging market countries on a daily basis. The IIF data reports net portfolio flows transacted by non-residents in emerging market countries. The portfolio flows are classified into equity flows and debt flows. In the IIF Portfolio Flows database, each classification of portfolio flows covers different samples of emerging market countries. Specifically, equity flows data covers ten emerging market countries: Indonesia, India, Korea, Thailand, South Africa, Brazil, the Philippines, Vietnam, Taiwan, and China; debt flows data covers data of six emerging market countries: Indonesia, India, Thailand, South Africa, Hungary, and Mexico.

Figures 2.1 and 2.2 show the daily portfolio flows and the accumulated flows for each classification on an aggregated data base. Both of the equity flows and debt flows have experienced a large increase during the recent US interest hike from December 2015. The accumulated inflows have largely increased and reached USD 120 billion in equity and USD 80 billion in debt. Furthermore, considerable plunges or fluctuations in both equity flows and debt flows are found during some periods of increasing global risk aversion, e.g. in the mid 2015 (the China shock), June 2016 (the Brexit shock), and November 2016 (the Trump shock), implying the negative effect of global risk aversion on portfolio flows in emerging market countries. Particularly in January 2018, the equity flows and the debt flows simultaneously plunged accompanying with the US interest hike and the higher global risk aversion after global equity sell-off.

² See more details on <https://www.iif.com/>. We would like to thank Mr. Kurauchi, Advisor, MUFG Bank, Ltd. (concurrently Managing Director, Institute for International Monetary Affairs) for his support on organizing and using the data in the article.

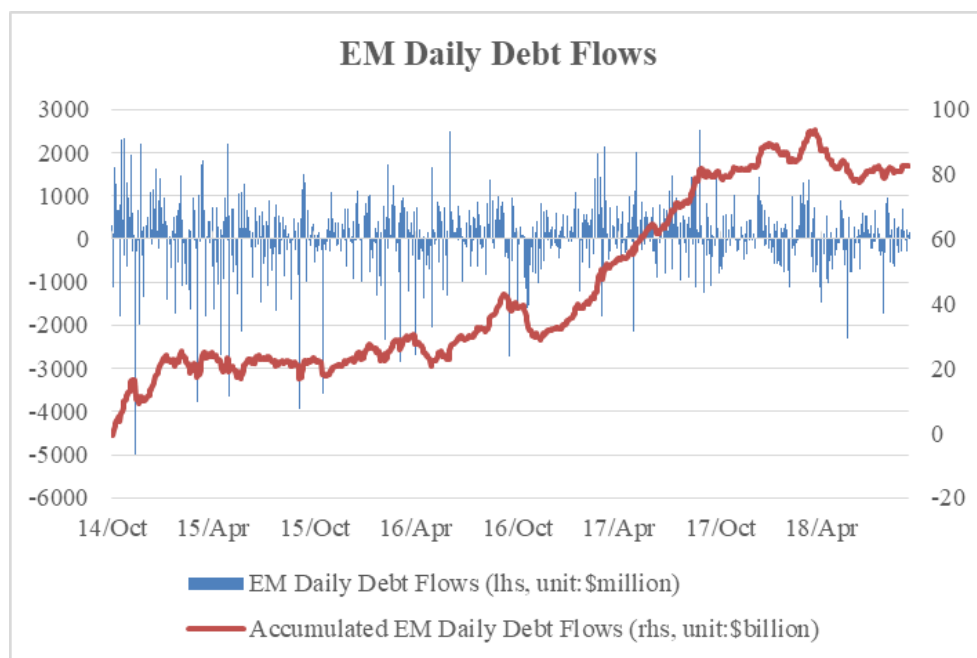


Figure 2.1: Daily portfolio flows in emerging market countries



Note: This figure shows the daily equity flows measuring the daily net purchase (or sales) of stocks and the accumulated sum of the daily equity flows in ten emerging market countries, which include Indonesia, India, Korea, Thailand, South Africa, Brazil, the Philippines, Vietnam, Taiwan, and China.

Figure 2.2: Daily portfolio flows in emerging market countries



Note: This figure shows the daily debt flows measuring the daily net purchase (or sales) of bonds and the accumulated sum of the daily debt flows in ten emerging market countries which include Indonesia, India, Thailand, South Africa, Hungary, and Mexico.



Vector autoregressive (VAR) models were used to analyze determinants of portfolio capital flows in emerging market countries. For equity flows determination, a 7-variable VAR is employed. The variables include the US interest rate (market rates or market participants' expectations on future interest rate (FF futures)), the interest rate in an emerging market country, the US equity price, the equity price in an emerging market country, the global risk (VIX), the exchange rate of emerging market country currency against the US dollar, and the equity portfolio flows in an emerging market country. Among these variables, the US monetary policy and the global risk aversion are shown more exogenous than financial variables in emerging market countries. On one hand, VAR models for debt flows have five variables which include the US interest rate (market rates or market participants' expectations on future interest rate (FF futures)), the interest rate in an emerging market country, the global risk, the exchange rate of emerging market country currency against the US dollar, and the debt portfolio flows in an emerging market country. Moreover, we conducted VAR model analysis for each of equity flows and debt flows to analyze contagion effects of portfolio flows among emerging market countries on a daily basis.

We obtained the following empirical results. Firstly, we found that both market participants' expectations of future interest rate hike and a higher global risk aversion of market participants decreased portfolio flows (both equity flows and debt flows) in most of the sample emerging market countries though not all are statistically significant. Secondly, exchange rate depreciation of emerging market country currencies and plunges in equity prices in emerging market countries significantly lead to portfolio outflows of most of the sample emerging market countries, showing large driving power of portfolio flows in emerging market countries. Thirdly, for all of the sample emerging market countries, portfolio outflows (both equity outflows and debt outflows) tend to significantly lead to further outflows. Fourthly, we also found that the portfolio outflows from emerging market countries significantly decrease their domestic equity prices and depreciate their currencies against the US dollar. Finally, we found wide contagion effects of portfolio flows among emerging market countries, showing that under the circumstance of a global portfolio outflows from emerging market countries, portfolio outflows from emerging market countries are reinforced and



become more serious especially among the emerging market countries with highly regional economic and financial nexus.

Given the movements in capital flows in the emerging market countries on quarterly, monthly, and daily base, it is indispensable for the monetary authorities to have a closer and timely look at emerging market countries' fundamentals and capital flows at a country level. They should be cautious about market participants' expectation of interest rates in the United States and global risk aversion of market participants when they face possible capital outflows. For the reason, they should monitor not only such an actual policy interest rate as the FF rate but also such the FF futures which shows market participants' expectation of changing the FF rate in the near future. Moreover, they should watch movements in both global risk and global risk aversion of market participants to monitor that both of them could affect capital outflows.

Our empirical finding that accumulated response of capital flow to its own shock is persistent implies that capital outflows would continue for some time once it faced in capital outflow. In addition, the outflowing capital would not return to emerging market countries in the short run. It is important for the monetary authorities to take an initial action to stop capital outflow. Moreover, given the contagion effects of a larger emerging market country's capital outflow on other emerging market countries, it is not only at a country level but also a regional and global levels that they should cope with it. For the purpose, the monetary authorities should secure international coordination and promote international cooperation. In order to gather the latest information on both capital flows and domestic fundamentals, we look for specific surveillance collaboration between the IMF and regional organizations such as European Stability Mechanism (ESM) in Europe, ASEAN+3 Macroeconomic Research Office (AMRO) in Asia, and Fondo Latinoamericano De Reservas (FLARE) in Latin America.

Capital outflows from emerging market countries tend to make their home currencies depreciate against the US dollar, which is another large concern of emerging market countries. In fact, most of emerging market country currencies have depreciated in 2018. Their degrees of depreciation largely differed as investors pull capital from particularly unstable countries (Figure 3). The depreciation rates of Latin American currencies were the largest

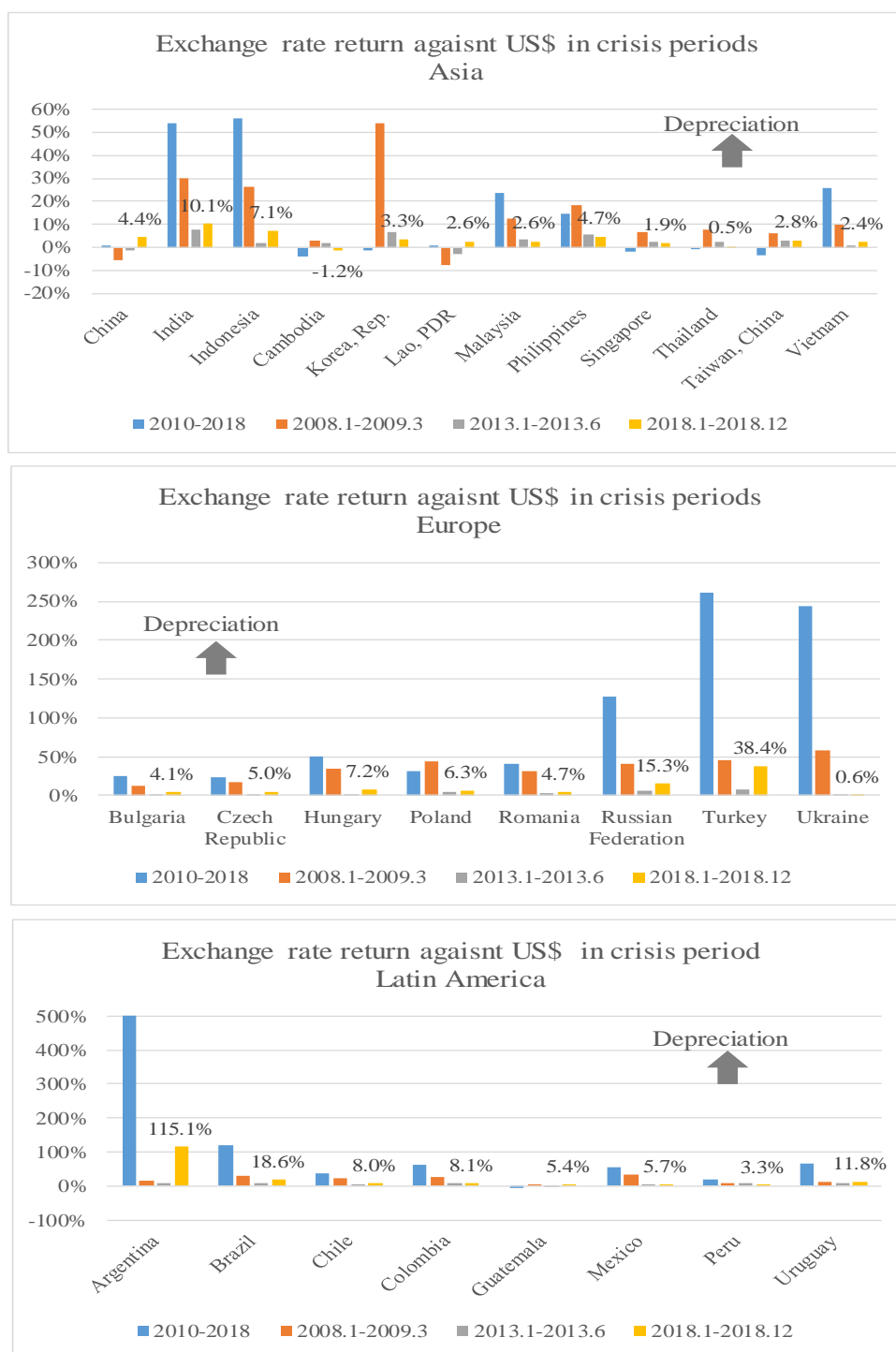


among the three regions. In particular, the Argentine peso has depreciated by 115% against the US dollar in 2018. Also, the Turkish lira has depreciated by 38%, which was the worst in European countries. On the other hand, Asian country currencies were stable by comparison, notably the Thai baht, which did not lose their value in 2018. However, we should pay attention to contagion effects of currency devaluations. Most of emerging market countries tend to accumulate large external debts that are denominated in US dollars instead of their home currencies.

Accordingly, our next concern is the choice of settlement currencies in emerging market countries. In Asia and Latin America, the US dollar is still dominant in international trade and international investment settlements. This results in the region's continued exposure to the US monetary policy. In Asia, however, economic and financial integration has been deepening and local currency usage has also shown an upward trend in recent years. It is because a sudden liquidity shortage of the US dollar during the GFC period have highlighted the risks of such an overdependence on the US dollar. In addition, regional currencies' asymmetric response to the US dollar observed during crisis periods, might have a negative impact on production networks expanding in the region. The greater use of local currency will better shield the region from outside shocks. Following the RMB internationalization, not only the RMB, but also the Thai baht and the Korean won, have been utilized to a certain extent for trade settlement within the region (Figure 4). Bilateral swap arrangements (BSAs) have also been facilitated by China and Japan (Table 1). A Local Currency Settlement Framework (LCSF) has been explored among some countries of the ASEAN as well. Moreover, both the Asian Bond Market Initiative (ABMI) and the Asian Bond Funds (ABF) have supported establishment and developments in the regional local currency bond markets. We need to promote such an expanding local currency usage in the region, which will deepen the financial markets in emerging market countries.



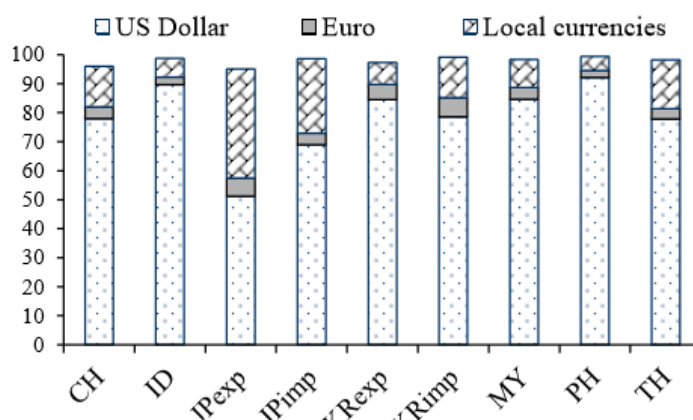
Figure 3: Emerging market country currencies' movements in crisis periods by region



Note: All exchange rate returns are based on monthly closing rate against the US dollar.



Figure 4: Composition of trade settlement currencies in the ASEAN+3 Region in 2017



Source: Compiled by author, with data from Korea Customs Service (<http://www.customs.go.kr/kcshome/site/index.do?layoutSiteId=english>); Ministry of Finance, Japan (<http://www.mof.go.jp/english/>); Bank of Thailand (<http://www.bot.or.th/english/Pages/BOTDefault.aspx>); Bank of Indonesia (<http://www.bi.go.id/en/Default.aspx>); and The People's Bank of China, (<http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3461233/index.html>) etc.

Source: Sussangkarn et al. (2019).

Table 1: Bilateral swap arrangements in Asia

	Other members	Size in local currency (bn)	Currency	Size in USD (bn)	Note
PBOC	BOK	360.0	RMB	52.5	
	HKMA	400.0	RMB	58.3	
	BNM	180.0	RMB	26.2	
	BI	200.0	RMB	29.2	
	MAS	300.0	RMB	43.7	
	BOT	70.0	RMB	10.2	
	BOJ	200.0	RMB	29.2	
JMOF	BI	JP→ID:22.76	USD/JPY	22.8	One way
	BSP	JP→PH: 12 PH→JP: 0.5	USD/JPY	12.0	Two way
	BOT	JP→TH: 3 TH→JP: 3	USD/JPY	3.0	Two way
	MAS	JP→SG: 3 SG→JP: 1	USD/JPY	3.0	Two way
BOJ	MAS	1100.0	JPY	9.7	
BOK	BI	10700.0	KRW	9.6	
	BNM	5000.0	KRW	4.5	
MAS	BI	9.5	SGD	6.9	
Total				320.8	

Note: 1. In addition to the above, a JMOF-BNM USD currency swap was agreed in principle in May 2017.

2. Exchange rate (as of 5 December 2018): 1USD=RMB6.860, 1USD=JPY112.93, 1USD=KRW1112.0, 1USD=SGD1.3677.

Source: ASEAN+3 Central Banks/ Ministry of Finance websites.

Source: Sussangkarn et al. (2019).



Since the US dollar is used as a global settlement currency both in international trade and international financial transactions, the response to liquidity shortage at a crisis time is mainly prepared in the US dollar, however, the liquidity responses in Regional Financial Arrangement (RFA) are different in each region. For example, in Europe, the proportion of euro settlement is high, and ESM's liquidity response is centered on the euro. As for foreign currencies, a mechanism is established to supply using the currency swap agreement with the US, Japan, Switzerland and the United Kingdom (UK). In Asia, the Chiang Mai Initiative Multilateralisation (CMIM) as a multilateral currency swap arrangement provides the US dollar liquidity support in response to urgent short-term US dollar liquidity difficulties and balance of payments difficulties of member countries. In the future, as a research made by AMRO (2019) suggested, it is desirable to broaden the option of currency in dealing with liquidity crisis, based on the situation of currency use in trade and capital transactions. This will alleviate excessive dependence on the US dollar and bring it to avoid excessive effects from US monetary policy changes.

In addition to the above multiple initiatives, BSAs with major countries in the region plays a major role as a regional safety networks and a crisis prevention. In fact, BSAs with the FRB were utilized mainly in developed countries at the GFC period, which indicates that the relationship with the FRB is also indispensable. In cooperation with the financial crisis management, it is also necessary to clarify the involvement of the private sector (including international financial institutions as well as rating agencies) in financial crisis prevention. In crisis management, crisis prevention requires the private sector to suppress moral hazard and self-control over excessive speculation.

Lastly, we propose two ways to strengthen the surveillance on emerging capital flows. First, promote timely disclosure of information and investigation on capital flows by RFAs. For example, AMRO (2016, 2017) inform the regional economic factors to support soundness of Asian economies despite of the reversal of QE policies. These disclosure will be useful to serve as supplements to the IMF survey in the future as a proof of safety, not a warning of risk. Second, collect data of daily capital flows by central banks and monetary authorities. Our empirical analysis on daily capital flows is limited to a part of emerging market counties due to data



constraint that daily data of capital flows are available for them. It is necessary to construct a database of daily data on capital flows for all of the emerging market countries. For the purpose, all of the monetary authorities should monitor capital flows on the daily base to collect data on them. The monetary authority of each country has a limitation in monitoring and collecting cross-border capital transactions. Therefore, it is necessary to make international cooperation on a regional or global base for construction of a database on international capital flows.

References

- Asian Development Bank (ADB), 2016, Special Theme Chapter: What Drives Foreign Direct Investment in Asia and the Pacific? Asia Economic Integration Report. Manila: (https://aric.adb.org/pdf/aeir/AEIR2016_special-theme-what-drives-fdi-in-asia-and-the-pacific.pdf)
- ASEAN+3 Macroeconomic Research Office (AMRO), 2016, “Non-Financial Corporate Bond Financing in Foreign Currency: Trends and Risks in ASEAN+3 Emerging Economies (AMRO Thematic Study)”, (<https://amro-asia.org/non-financial-corporate-bond-financing-in-foreign-currency-trends-and-risks-in-asean-3-emerging-economies/>)
- ASEAN+3 Macroeconomic Research Office (AMRO), 2017, “ASEAN+3 Regional Economic Outlook 2017”, (<https://amro-asia.org/asean3-regional-economic-outlook-areo-2017/>)
- Chalongphob Sussangkarn, Junko Shimizu, Lu Feng, Soyoung Kim and Beomhee Han, Jae Young Lee, Jinho Choi, Hongbo Wang, 2019, Local Currency Contribution to the CMIM, ASEAN+3 Macroeconomic Research Office, (AMRO Thematic Study). (<https://amro-asia.org/local-currency-contribution-to-the-chiang-mai-initiative-multilateralisation/>)
- Hannan, Swarnali Ahmed, 2018, Department Revisiting the Determinants of Capital Flows to Emerging Markets—A Survey of the Evolving Literature, IMF Working Paper Research, WP/18/214.
- Ogawa, Eiji, Junko Shimizu, and Pengfei Luo, 2019, “Effects of US Interest Rate Hike and Global Risk on Daily Capital Flows in Emerging Market Countries,” RIETI Discussion Paper Series, No. 19-E-019.