

By

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Within the general theme of the seminar this contribution will focus on the transmission channels of global liquidity, through banks and capital markets, the impact on exchange rates and interest rates in EME, the impact on financial institutions, households and non-financial companies as well as possible policy responses to volatile capital flows.

The fallout from global liquidity developments on EME has been likened to a 'financial tsunami'<sup>6</sup> with a rapid succession of devastating inflows and sudden reversals, inflicting damage on the domestic economies of EME in its wake.

### 1. Transmission Channels

Definitions of global liquidity were offered in the previous contribution by E.Poole. Global liquidity is transmitted to EME through a number of channels, price as well as quantity channels. Dong He and R McCauley distinguish 5 such channels<sup>7</sup> of which 3 are price channels and 2 are quantity channels of transmission of monetary policy in advanced economies (AE) to emerging market in East Asia:

- 1.1. Central banks set lower policy rates than they would otherwise in response to very low interest rates in key currencies in order to lessen pressure for currency appreciation.
- 1.2. Large-scale bond purchases reduce bond yields not only in the bond market where the purchases are made but also to varying extents in other bond markets through portfolio balance effects.
- 1.3. Higher interest rates than in key currencies lead to upward pressure on exchange rates.
- 1.4. Low yields in key currencies lead to easier financial conditions given stocks of foreign currency credit and spur a shift of liabilities into foreign currency, especially if domestic currency is expected to appreciate.
- 1.5. Capital flows cross-border into local currency bond and equity markets.

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<sup>&</sup>lt;sup>6</sup> China repeatedly advances such a view of capital flows: International Monetary Institute of Renmin University China (2014): Internationalisation of RMB, the 2014 Report, p 2. www.imi.org.cn

<sup>&</sup>lt;sup>7</sup> Dong, He and Robert McCauley (2013), "Transmitting Global Liquidity to East Asia: Policy Rates, Bond Yields, Currencies and Dollar Credit," *BIS Working Papers*, No. 431, October, Available at: www.bis.org/publ.

Taking each one in turn they functioned even without necessarily triggering capital flows (except 1.5).

#### Ad 1: Lower Domestic Policy Rates

If one applies the Taylor rule as an indicator for the level of desirable interest rates, determined by domestic factors, such as the deviation of inflation from the targeted path of inflation and the output gap, the actual policy rates can be plotted with the Taylor rule rates. As the Graph 1 below shows, in both AE as well as EME policy rates have been below the Taylor rule rates for most of the time since the beginning of the millennium. The graph also suggests that the gap might be bigger and thus more scope for adjustment in EME than in AE.



### Graph 1: The Taylor (1999) Rule and Policy Rates<sup>1</sup>

Source: Dong He and R McCauley BIS WP 431.

### Ad 2: Global Bond Markets

As global bond markets show strong substitution across currencies and maturities along the yield curve, the massive bond purchases in one country have major repercussions and spillover on other bond markets. Therefore the policy stance in one country has a strong effect on the policy rates in other countries.

The argument runs as follows: as central banks in AE purchase bonds with longer duration, this reduces the duration of private bond holdings. In order to balance their duration, asset managers increasingly purchase EME bonds which are close substitutes. Close substitutes are determined by market risk, credit risk and other decision parameters (such as vulnerability indicators) of asset managers investing in bond funds.

The Institute of International Finance distinguishes 3 categories of vulnerability indicators in EME.<sup>8</sup> These are: (i) external financing vulnerabilities, (ii) domestic financing vulnerabilities, (iii) policy vulnerability. These indicators, together with the outlook for market risk determine the degree of substitutability of bonds.

Central banks in EME add to the bond purchases of AE by accumulating foreign exchange in order to resist appreciation. By investing these mostly in bond purchases in AE they thus stand 'shoulder to shoulder' with AE central banks. They re-enforce the first round effects.

#### Ad 3: Upward Pressure on Exchange Rates

Various AE central banks have applied different unconventional policies, either in quantitative terms (BoJ) or price (bond yield) terms (FED). Markets compare the relative policy stances of two central banks by applying two methods. Either they plot the bilateral exchange rates against the relative size of two central bank balance sheets (Graph 2: approach 1), or they use the interest rate differentials in the traditional form of carry trade (Graph 2: approach 2).



### Graph 2: Approach 1: Compare Balance Sheets of Central Banks

Source: Dong He and R. McCauley, BIS WP 431.

<sup>&</sup>lt;sup>8</sup> Bykere, Arpitha, (2014), "Heat Map of Selected Vulnerability Indicators in Emerging Economies," IIF Capital Flows to Emerging Markets, May, pp. 8, Available at: www.iif.com.





<sup>1</sup> Two-year US Treasury notes versus two-year Japanese government bonds. <sup>2</sup> Ratio of five-year US Treasury notes to five-year Japanese government bonds.

Sources: Bloomberg; national data.

Source: Dong He and R. McCauley, BIS WP 431.

In any case, the EME central banks are faced with a dilemma. They are under pressure to replicate the policy stance in AE to avoid excessive exchange rate appreciation. The further the yield curve in EME moves downward the lower the pressure on the exchange rate.

However, Asian central banks have resisted this mechanism, also avoiding increased pressure on the exchange rate, thus adding foreign exchange reserves which resulted in expanded central bank balance sheets with adverse domestic consequences (Graph 3).



#### **Graph 3: Central Bank Assets and Foreign Exchange Reserves**

<sup>1</sup> Based on 12-months-ahead average inflation expectations. <sup>2</sup> Ten-year nominal term premium (sum of the real risk premium and the inflation risk premium) as derived from econometric term structure models.

Sources: IMF, International Financial Statistics; OECD, Main Economic Indicators; Bloomberg; Consensus Economics; Datastream; BIS calculations.

Source: BIS Global Liquidity Indicators, October 2014.

The market reaction, mostly downward adjustment of interest rates measured in 10-year bond yields in various EME to the QE1 phase was far more severe than to the QE2 phase (Graph 4).



Graph 4: Difference in EME Reaction to QE1 and QE 2

Source: Dong He and R. McCauley, BIS WP 431.

During the recent tapering phase, a sudden withdrawal or even reversal of 'carry trade' risks had a profound impact on EME<sup>9</sup>. The exposed currencies were those which served as carry trade target currencies, such as the BRR the RUR and the INR, but also AE currencies such as the AUD and the NZD (see Graph 5).

The impact of reversal was stronger on those countries which accepted portfolio inflows to finance current account deficits. The proportion of government bonds under foreign ownership has risen to 45% in Malaysia, which is more than the 35% in Poland, Hungary, Mexico and Indonesia<sup>10</sup>.

<sup>&</sup>lt;sup>9</sup> The Financial Times mentions that some USD 2 trn is invested in local EME debt.

<sup>&</sup>lt;sup>10</sup> Financial Times, 30 September 2014, pp. 2.



#### **Graph 5: Carry Trade by Currencies and Net Positions**

<sup>1</sup> Information based on active funds reporting to HFR database. Most recent data are subject to incomplete reporting. <sup>2</sup> HFRI Monthly Performance Indices calculated by Hedge Fund Research; 12-month moving average. <sup>3</sup> Carry-to-risk ratios reflect the attractiveness of carry trades by measuring the ex ante, risk-adjusted profitability of a carry trade position such that the one-month interest rate differential is divided by the implied volatility of one-month at-the-money exchange rate options. Aggregates for possible target currencies are obtained by averaging the relevant currency pairs.

Sources: Bloomberg; HFR; BIS calculations.

Source: BIS Global Liquidity Indicators, October 2014.

#### Ad 4: Shift Into Foreign Currency Denominated Debt

Low interest rates in major currencies provide an incentive for corporates (not households, as in emerging Europe) to substitute foreign currency credit, mostly dollar-denominated, for local currency credit. In addition, expectations of currency appreciation provide a further incentive in the form of potential capital losses on liabilities<sup>11</sup>.

Non-US banks (in HK and other offshore centres) are able to provide these loans as their loan-to-deposit ratios in foreign currencies have been rather low. Most of the funding is provided by non-US banks which obtain the funds directly from the QE of the FED, where they hold half of the banks' reserves (Graph 6) by now<sup>12</sup>.

Exporters in Asia, notably Korea have been able to convert their local currency credit into USD credit by swapping their export returns.

<sup>&</sup>lt;sup>11</sup> Dong, He and Robert McCauley, (2013), Ibid, p 11.

<sup>&</sup>lt;sup>12</sup> McCauley, Robert and Patrick McGuire, (2014), "Non-US Banks' Claims on the Federal Reserve," *BIS Quarterly Review*, March, Available at: www.bis.org/publ.



### Graph 6: Non-US Banks' Consolidated Claims on the US

Source: R. McCauley and P. McGuire, BIS QR 3/2014.

# Ad 5: Capital Flows through Bond and Equity Markets

The ample availability of USD and other AE currencies at historically low interest rates has motivated non-financial enterprises which straddle borders to borrow in these currencies and transfer the proceeds to subsidiaries in other parts of the world. Thus they have taken on the character of quasi financial intermediaries (Graph 7)<sup>13</sup>.





Source: Hyun Shin et al., WP 14/2014, IMF.

<sup>&</sup>lt;sup>13</sup> Chung, Kyuil; Jong-Eun Lee; Elena Loukoianova; Hail Park and Hyun Song Shin, (2014), "Global Liquidity through the Lens of Monetary Aggregates," Working Paper, 14/09, pp. 5, IMF, Available at: www.imf.org.

In addition, as international banks have been reluctant to expand lending for a number of reasons, borrowing through the bond market has expanded rapidly since the GFC. It is interesting to note that the borrowing by all sectors, notably the non-financials from EME on a nationality basis has expanded faster than that on a residence basis. This substantial offshore issuance was not captured by conventional external debt statistics<sup>14</sup>, only by BIS securities statistics (Graph 8). International debt securities<sup>15</sup> amount to about 20% of total outstanding securities.



#### Graph 8: Growth in EME Bond Issues

Source: Hyun Shin et al., IMF WP 14/2009.

### 2. Channels of Dispersion of Global Liquidity

Whereas the banks were prominent before the GFC in channeling funds to EME, in the aftermath of the GFC the capital markets, both bonds and equity took over this role. Bearing in mind the push/pull framework<sup>16</sup>, the borrowers in EME as full factor, borrowed heavily in the international capital markets (see above). This borrowing was recorded as portfolio inflows in EME (Graph 9).

<sup>&</sup>lt;sup>14</sup> Gruic, B.; H. Masazumi and Hyun Song Shin, (2014), "Recent Changes in Global Credit Intermediation and Potential Risks," *BIS Review*, September, Available at: www.bis.org/publ.

<sup>&</sup>lt;sup>15</sup> International debt securities (IDS) are if any of the following characteristics is different from the country of residence of the issue: country where the security is registered, law governing the issue, or market where the issue is listed. See BIS Securities Statistics www.bis.org/statistics.

<sup>&</sup>lt;sup>16</sup> See contribution by Bank Indonesia in Session 2.

# Graph 9: Gross Capital Inflows into EME

The share of portfolio flows in gross capital inflows has grown since the global financial crisis.



Source: IMF GFSR March 2014.

The Institute for International Finance (IIF) confirms this trend, distinguishing debt and equity flows (Graph 10)<sup>17</sup>.



**Graph 10: EME Capital Inflows b Component** 

<sup>&</sup>lt;sup>17</sup> Institute of International Finance, (2014), Capital Flows to Emerging Markets, 29 May, Available at: www.iif.com.

The changing role of banks and capital markets in dispersing external financing to EME is well captured in the subsequent graph by Turner from the BIS, quoted by Hyun Shin (Graph 11)<sup>18</sup>:



Graph 11: Sources of Financing in EME

Source: P. Turner quoted in Hyun Shin, 2013.

The type of institutional investors (the push factor) has changed as well, from national retail investors to global institutional investor. In 2013 the only flows were generated by global investors which are mostly operating out of offshore financial centres (see Graph 12).

<sup>&</sup>lt;sup>18</sup> Hyun, Song Shin, (2013), "The Second Phase of Global Liquidity and the Impact on Emerging Economies, Keynote Address at the Federal Reserve Bank of San Francisco Asia Economic Policy Conference, November.



Graph 12: Foreign investors in EME



#### Source: J.P. Morgan.

Note: Global retail investors consist of European and U.S. mutual funds and Japanese investment trusts. Global institutional investors include investors with long-term strategic mandates such as pension funds, insurance companies, and official funds. Local institutional investors encompass emerging market insurance companies and pension funds. Some market participants consider the figures underestimate the assets and flows from global institutional investors.

Source: IMF GFSR, March 2014.

On the investor side, mostly institutional investors in AE in search for yields absorbed EME bonds and equities. This resulted in surging portfolio inflows.

The IMF showed the rapid growth of funds under management of global and national institutional investors and mutual funds in its GFSR March 2014 (graph 13).

It has also compared the investment constraints of institutional investors. A comparison of risk tolerance, time horizon, need for liquidity and regulatory constraints shows a varied pictures which determined the investment behavior of these funds. Heavily indebted EME borrowers would be well advised to know the behavioral pattern of asset managers holding securities issued by them. They would be well advised to attract investors with a high risk tolerance, longer time horizon, less need for liquidity and high regulatory constraints.

# Graph 13: Size of Institutional Investors and Mutual Funds

(Trillions of U.S. dollars, unless indicated otherwise)

	1995	2000	2005	2007	2009	2011	2012
Assets under management of mutual funds and institutional investors							
Selected advanced economies <sup>1,2</sup>							
Total assets	22	35	5	68	65	70	76
Total as percent of GDP	96	143	159	179	172	167	180
Mutual funds	6	13	19	26	25	26	29
Of which							
Share of open-end funds in total mutual fund assets (percent) <sup>3</sup>	94	97	96	97	97	97	97
Institutional investors	16	23	34	41	40	44	47
Share of institutional investors in total assets (percent)	72	64	64	61	61	63	61
Selected emerging market and other economies <sup>2,4</sup>							
Total assets			2.3	4.4	4.8	6.4	
Total as percent of GDP <sup>5</sup>			32	36	37	36	
Mutual funds			0.8	1.9	1.9	2.3	
Institutional investors			1.5	2.5	2.9	4.1	
Share of institutional investors in total assets (percent) <sup>5</sup>			65	59	60	62	
International reserves, excluding gold							
Advanced economies <sup>1</sup>	0.7	0.8	1.3	1.5	1.8	2.3	2.5
Emerging market and other economies <sup>4</sup>	0.4	0.7	2.0	3.6	4.7	5.9	6.2

Source: IMF GFSR, March 2014<sup>19</sup>.

# 3. Impact of Capital Flow Surges and Reversals on EME Exchange Rates and Interest Rates

During the period of surge of inflows in the aftermath of the GFC during 2010 and 2011 they caused upward pressure on exchange rates and downward pressure on domestic interest rates (Graph 14). Central banks often resisted appreciation, adding to their foreign exchange reserves. Central bank balance sheets expanded, causing more domestic liquidity, credit expansion and buoyant asset prices, notably in the real estate and stock markets. Occasionally inflationary pressures were building up.

During the reversal of these capital inflows, notably 2Q2013 and 1Q2014 (the tapering phase) the opposite happened. Exchange rates came under pressure and domestic interest rates started to rise (Graph 14). Central banks resisted depreciation and lost moderate amounts of foreign exchange reserves. In domestic asset markets, the sell-off of stocks and bonds caused a decline in stock and bond indices, partially cushioned by domestic purchases. As a result central bank balance sheets started to contract, adding to the credit squeeze.

<sup>&</sup>lt;sup>19</sup> The figure of total assets in 2005 should be 55 instead of 5.



#### Graph 14: Recent Developments of EME Exchange Rates and Interest Rates

The black vertical lines indicate key tapering announcements on 22 May and 18 December 2013, and the large depreciation of the Argentine peso on 23 January 2014.

<sup>1</sup> High-yield option-adjusted spreads on an index of local currency bonds issued by financial and non-financial corporates. <sup>2</sup> Yield on local currency-denominated debt minus yield on US dollar-denominated debt. <sup>3</sup> JPMorgan GBI-EM Broad Diversified index, yield-to-redemption. <sup>4</sup> JPMorgan EMBI Global Diversified index, stripped yield-to-maturity. <sup>5</sup> US dollars per unit of local currency. <sup>6</sup> Simple average across Argentina, Brazil, Chile, Colombia, the Czech Republic, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Thailand and Turkey.

Sources: Bank of America Merrill Lynch; Datastream; BIS calculations.

Source: BIS Quarterly Review, March 2014.

# 4. Impact of Capital Flows on Banks, Other Financial Institutions, Households and Non-Financial Corporations during Tapering

Banks and other financial institutions are set to suffer losses from the bond-market sell-off of the securities held in their portfolios. This will be partially made up by an improvement in the net interest margins and investment income.

Another negative effect might arise from the deterioration in the repayment capacity of households and non-financial corporates which might undermine the profitability of banks. Finally, the depreciation of the local currency will affect profitability of banks as well as add additional burden on households and corporates in servicing their foreign currency denominated debt.

Non-financial corporates who substituted foreign currency (see graph 7) debt for their local currency debt will suffer additional debt service burden from the depreciation. In addition they may face the rollover risk of their foreign currency loans. The deterioration in corporate leverage might have second round effects on banks.

Growth will also suffer from a slowdown in the housing market as a result of the moderation in residential mortgage credit growth. Higher interest rates will affect the price of existing mortgages and deter borrowers from subscribing new mortgages. The debt burden after the booming years preceding this reversal is likely to become heavier. This in turn will adversely affect the consumption of durable goods adding to the slowdown in economic growth.

# 5. Policy Options

A lot has been written about the policy options. The clearest presentation of available options is by Singh (2009)<sup>20</sup>. During the period of large capital inflows the basic choice is accepting exchange rate appreciation or face the monetary policy dilemma. During the capital flow reversal the same choice offers itself, allow the exchange rate to depreciate or face a monetary policy dilemma in the opposite direction.

During the period of tapering, central banks have resorted to the following measures:

- 5.1. Providing domestic liquidity by e.g., lowering reserve requirements.
- 5.2. Loosening macro-prudential measures to provide more credit and to prop up asset prices. These measures have not been very effective.
- 5.3. Encourage capital inflows, such as portfolio inflows; again these measures have not been very effective.
- 5.4. Supporting asset prices from domestic investors when foreign investors leave; has worked in some countries.

# Conclusion

This contribution has highlighted the various channels of transmission for global liquidity to affect domestic economies in EME. The role of intermediary has shifted from the banking sector to the institutional investors and the non-financial enterprises. EME need to better understand the behavior of asset managers and the role of non-financials in channeling global liquidity to EME. The relative borrowing costs for the borrowers and the relative yields and risk premia for the investors seem to be crucial for understanding the new paradigm in global financial intermediation.

<sup>&</sup>lt;sup>20</sup> Singh, Sukhdave, (2009), "The Nexus between Monetary and Financial Stability: The Experience of Selected Asian Economies," Monetary Policy Frameworks for Emerging Markets, Edited by Gill Hammond et al., Edward Elgar Publishing.

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