

Asia in a Changing Global Liquidity: Dancing With the System

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HAVE WE FULLY CONSIDERED the myriad ways in which the dynamics of global liquidity might create, and have we fully contemplated the risk that it might pose to financial stability? What provokes me to raise these questions is the following trepidation. First, even as the world economy has been increasingly more interdependent, national policy continues to rule irrespective of its spillovers to other countries and the talk of policy coordination, cooperation, and all that. No example is more profound than ‘financial nationalism’ as in the recent quantitative easing (QE) and ultra-easy monetary policy in advanced economies. Second, in the world of finance, uncertainty is a rule rather than the exception. As the size and complexity of finance expand rapidly, far more than in the real sector, its behavior is too difficult to predict even with regulations in place. Yet, the response of agents does not seem to reflect the intricacy.

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The Setting

In contrast with the pre-1997/98 Asian Financial Crisis (AFC), many Asian countries today register excess savings. During 2000s, the liquidity was further boosted by capital inflows going through the banking sector. This is phase-one of global liquidity. Following the QE policy in the United States (US), the flows began dominated by those going to capital market, especially the debt market. This is phase-two. Since the QE tapering tantrum in May last year, and given the future normalization of monetary policy in advanced economies, the global liquidity may have entered phase-three.¹ In this phase, volatility may return. The implication of surging inflows and excess savings was an ample liquidity with lower cost of borrowing, both of which spurred credit and growth in Asia.

But something else is also happening. The preference of agents towards investing in financial assets increased. This has some bearing not only on macro-financial and real sector development but also on the effectiveness of standard macroeconomic policy.

The purpose of this article is to highlight the reaction of economic agents to the changing sphere of capital flows and global liquidity by using the case of selected Asian countries, and to conjecture about its implications. To capture the preference of agents, I use the flow-of-fund (FOF) data from each country. Despite the fact that the driver, size, volatility, and protagonist of capital flows are different than in the past, the response of agents is largely the same and predicted. Though rational from private perspective, it may not be socially optimal since it can elevate the risk of financial instability and even worsens inequality.

What started it?

The decade of 2000 began with an easy money policy in advanced economies. Interest rates fluctuations in the US and Eurozone could not have been more pronounced. Responding to the 2000 recession and the events of 11 September 2001, the US Federal Funds rate fell precipitously from over 6% in 2001 to a mere 1% by summer of 2003. Over the same period, the European Central Bank (ECB) rate dropped from over 4% to 2%. Fears of asset bubbles subsequently led to interest rate increases in the

1 Iwan J. Azis and Hyun Song Shin, "How Do Global Liquidity Phases Manifest Themselves in Asia?" Asian Development Bank Monograph (2013), <http://www.adb.org/sites/default/files/pub/2013/global-liquidity-phases.pdf>

US and Europe. By late 2007, on the eve of recession and subprime crisis, the rates had doubled in Europe, rising more than five-fold in the US. As the recession began in December 2007, the Federal Reserve drastically shifted gears again, lowering interest rates steadily from more than 5% to 2% by mid-2008. The subsequent collapse of Lehman Brothers in September forced the Federal Reserve to be even more aggressive in pushing down rates, with the Federal Funds rate reaching 0.25% by the end of 2008 until now. The fall of interest rates in the Eurozone was not less dramatic, with a steady decline from over 4% in 2007 to 1% shortly after the Lehman crisis, to 0.5% in mid-2013, and 0.25% at the present.

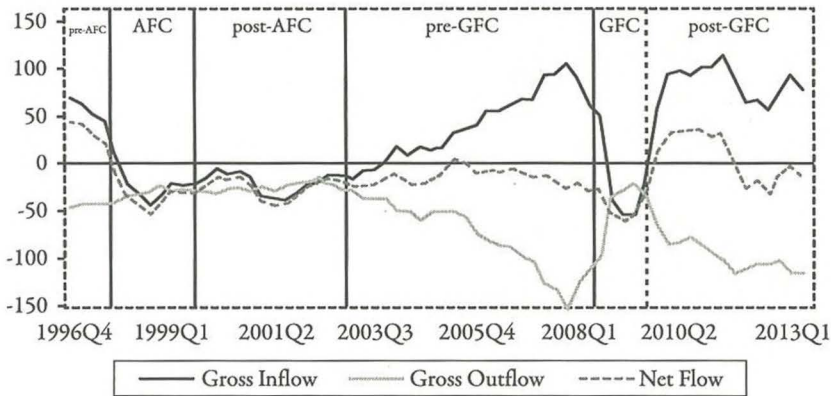
The global liquidity situation has changed since then. Massive amount of capital flew out from advanced economies to emerging markets.² Asia is among the biggest recipient. Much of these inflows were intermediated through the banking sector (hence labeled bank-led flows). The global liquidity entered phase-one.

Then came the global financial crisis (GFC) in 2008. It interrupted the flows, albeit very briefly. By autumn 2010, a large amount of flows returned but this time predominantly going to the capital market especially the local currency (LCY) bond market (labeled debt-led flows). The “push” came from the elevated risk and falling yields in the US following the unprecedented QE policy by the Fed. QE is essentially a large scale asset purchase program to halt the precipitous fall in asset prices. After twice adjusted, by late December 2012 the monthly purchase reached \$85 billion/month. Phase-two of global liquidity began.

The reflection of the two phases of global liquidity in Asia is shown in Chart 1, where the surge of inflows occurred in the decade of 2000, peaking before the GFC, and re-surfing after a brief interruption to reach an even higher peak than before the GFC. Interestingly, unlike in the pre-AFC period, outflows from the region also increased as the capacity and ability of investors to invest outside the region have been enhanced significantly. Market infrastructure and regulations have also improved and more harmonized. Notice that the size of the flows exceeded that prior to the AFC, and also with a much higher volatility.

2 Mckinnon (2012) argues that the easy money policy in advanced economies provokes global monetary instability through capital flows led by “carry traders” who exploit interest rate differentials across countries. He further note that the policy has been also less effective than originally thought in producing the recovery (e.g, in the US). Similarly, Azis (2010) argues that a premature recovery in the US is unlikely sustainable, suggesting that fundamental and structural changes--especially in the US financial system--are more needed than forcing a quick growth recovery. See Ronald Mckinnon “Zero Interest Rates in the United States Provoke World Monetary Instability and Constrict the U.S Economy,” *SIEPR Policy Brief*, Stanford University (2012); and Iwan J. Azis, “Predicting a Recovery Date from the Economic Crisis of 2008,” *Socio-Economic Planning Sciences* 44: 2010, pp. 122-129.

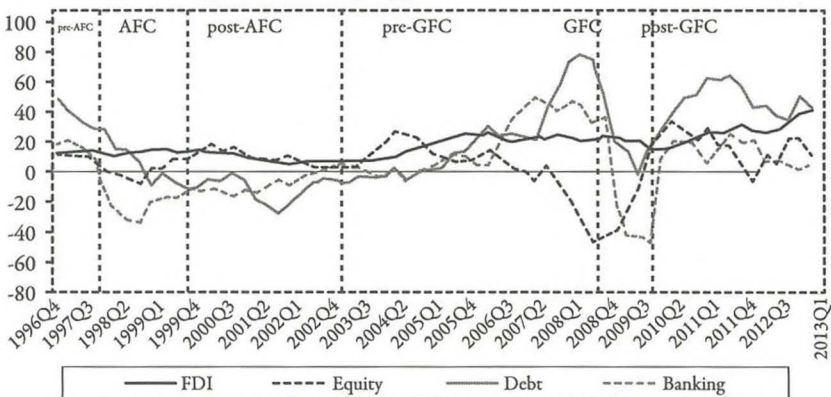
Chart 1. Gross Capital Flows in Selected Asian Economies (\$ billion)



Source: Processed from IMF, *Balance of Payment Statistics* (BPM5 and BPM6), Based on a 4-quarter moving sum. Inflows refer to bank flows from other investment in liability side (assigned a positive value); for outflows, in the asset side (assigned a negative value)

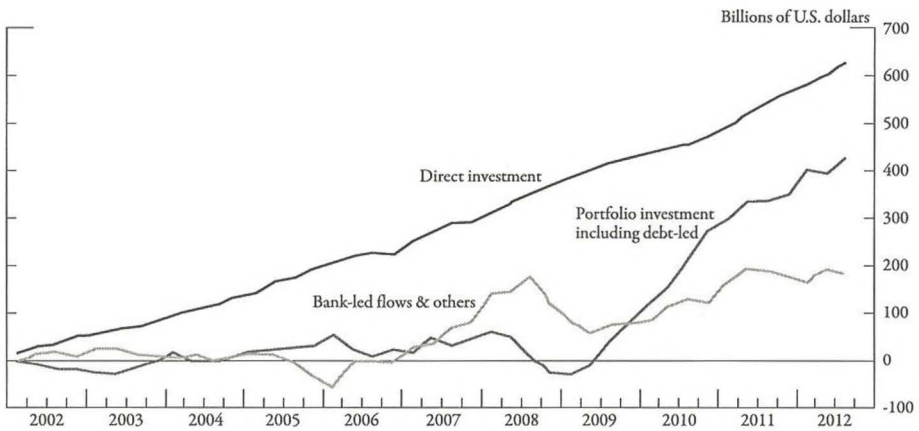
Breaking down capital flows into four types: (1) “FDI” or foreign direct investment; (2) “equities” consisting of equity portfolios; (3) “debt” comprising of debt securities and others including derivatives; and (4) “bank” defined as capital flows intermediated by the banking sector, Chart 2 shows the trend of each. Clearly, bank-led flows preceded debt-led flows. Noticeable is the turnaround from negative to positive levels during the second half of the 2000s. For comparison, Chart 3 exhibits a similar trend in all emerging market economies.

Chart 2. Gross Capital Flows By Type in Selected Asian Economies (\$ billion)



Source: Processed from IMF, *Balance of Payment Statistics* (BPM5 and BPM6)

Chart 3 Gross Capital Flows By Type in Emerging Market Economies



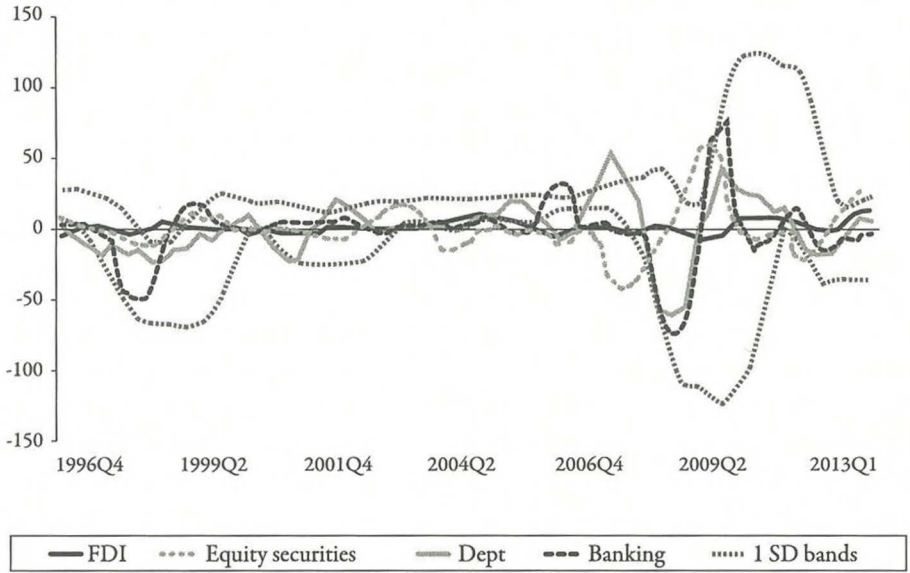
Source: Institute for International Finance

To understand better the extent of volatility, however, one needs to consider the following classification:³ (1) “Surges” is when there is a sharp increase in inflows; (2) “Stops” is when there is a sharp decrease in inflows; (3) “Flight” is a sharp increase in outflows; (4) “Retrenchment” is a sharp decrease in outflows. Based on this classification, the trends of inflows and outflows in Charts 4 and 5 confirm that changes exceeding one standard deviation (beyond 1 SD band) occurred most frequently in debt-led and bank-led flows. More specifically:

- Surges: equity-led in 1999Q2-Q3; debt-led in 2002Q1-Q3; and bank-led in 2009Q4 and 2010Q2
- Stops: equity-led in 2006Q4-2007Q1, 2008Q1-Q3, 2011Q3-Q4; debt-led in 1997Q1-Q3 and 2001Q1-Q3; and bank-led in 1997Q4-1998Q2 and 2008Q4-2009Q1
- Flight: equity-led in 2007Q2-Q4; debt-led in 2009Q4-2010Q2; and bank-led in 2002Q4-2003Q2; 2006Q1-Q2
- Retrenchment: equity-led in 2008Q2-2009Q1; debt-led in 1998Q1-Q2; and bank-led in 1996Q4-1997Q1, 1998Q3-Q4, 2002Q1-Q2, 2004Q4-2005Q2

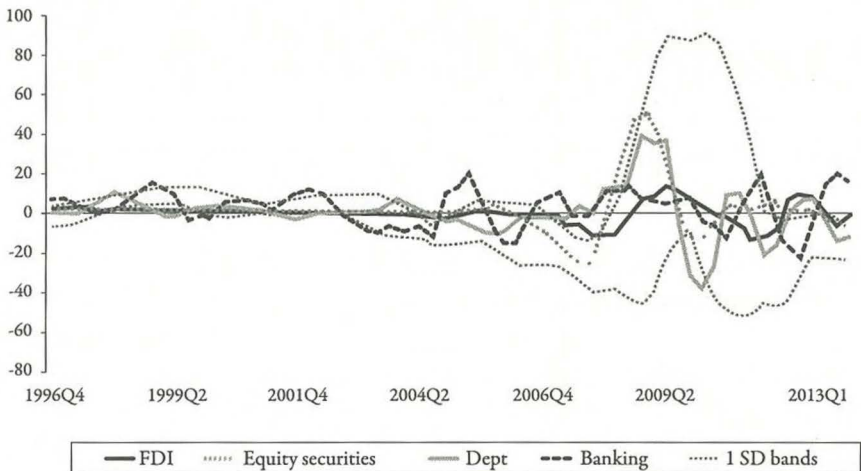
3 Kristin J. Forbes and Francis Warnock, “Capital Flow Waves: Surges, Stops, Flight and Retrenchment,” *Journal of International Economics*, 88(2): 2012.

Chart 4 Changes of Gross Capital Inflows in Selected Asian Economies (\$ billion)



Source: Processed from IMF, *Balance of Payment Statistics* (BPM5 and BPM6), Based on a 4-quarter moving sum. Inflows refer to the liabilities side.

Chart 5 Changes of Gross Capital Outflows in Selected Asian Economies (\$ billion)



Source: Processed from IMF, *Balance of Payment Statistics* (BPM5 and BPM6), Based on a 4-quarter moving sum. Outflows refer to the assets side.

It will be shown later that bank-led flows led to rapid credit growth that could elevate the risk of procyclicality. On the other hand, debt-led flows that lend a boost to the region's capital market could trigger a reversal when the perceived risk in the US market falls. This came into reality in mid-May 2013 when the Fed's announced its intention to reduce the amount of asset purchases. Even with no actual tapering yet, markets in some countries rattled, causing a double-blow: weakening exchange rate and fluctuating capital market.⁴ With continued tapering in the coming months and years (phase-three), the risk of volatility in financial market is likely to endure. Such a risk may co-exist with tighter liquidity if the tapering is accompanied by interest rates reversal in the US and other advanced economies. The spillover channel of the latter may not be the same as in the QE tapering, and the affected countries can be different as well (those with larger debt may be hit more severely).

But in reality the transmission from liquidity conditions to elevated risk and vulnerability goes beyond mere macroeconomic channels. It needs a conduit. This is where the role of economic agents (households, firms, financial institutions, fund managers, and government) comes into play. Their behavior, driven by the prevailing incentive system, can affect financial stability. In some cases, it can help bringing any aberration back into equilibrium but in others it may exacerbate the disequilibrium and amplify the volatility.

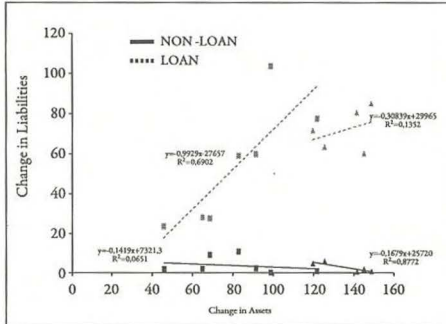
Agents' Behavior

Let us begin with the following question: Is the above episode any different than in the past? We have seen earlier that the size and fluctuations of capital flows prior to the crisis were unquestionably larger, and the driver of the flows was predominantly a "push" factor, i.e., a perceived high risk in advanced economies. Banks were the protagonists during phase-one, and fund managers during phase-two. From the intensity of the repercussions alone, these differences should have altered the whole nature of the risks. Whether such risks will lead to a crisis, however, is not easy to predict. The point is, this time the episode of capital flows are different than in the past. As these flows occurred in a region which has undergone a dramatic shift from excess-investment to excess savings, the difference with the past is even more pronounced. Yet, the response of economic agents has been largely unchanged.

4 Azis and Shin, "How Do Global Liquidity Phases Manifest Themselves in Asia?"

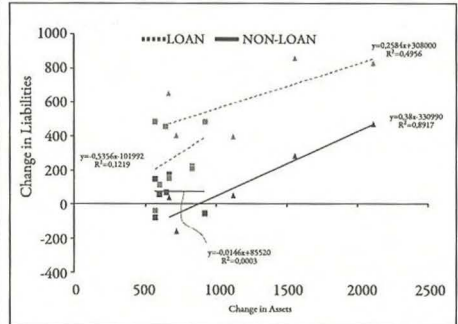
Chart 6. Non-Core Liabilities as a Driver of Assets Holding in Selected Asian Countries: Household Sector

(a) Rep. of Korea, 2000-11 (KRW trillion)



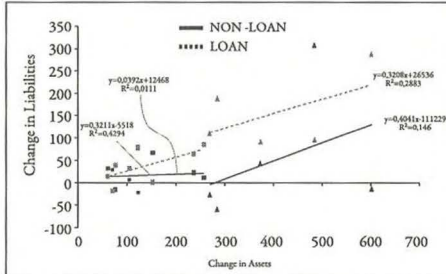
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
 Source : Bank of Korea Flow-of-Funds data (various years).

(b) Thailand, 2000-11 (THB billion)



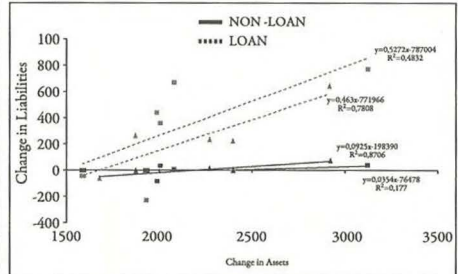
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
 Prior to 2009, all household liabilities are in the form of loans.
 Source : NESDB Flow of Funds data (various years).

(c) Indonesia, 1999-11 (IDR trillion)



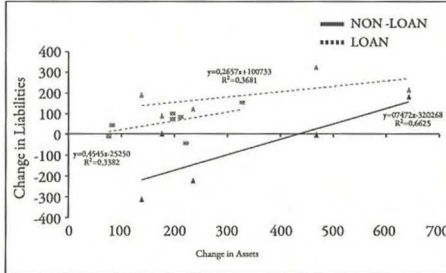
Note : in order to capture change in behavior the period is divided into 1999-2006 (squares) and 2007-11 (triangles).
 Source : BPS-Statistics Indonesia Flow of Funds data (various years).

(d) Taipei, China, 2001-11 (NTD billion)



Note : in order to capture change in behavior the period is divided into 2001-2006 (squares) and 2007-2011 (triangles).
 Source : Central Bank of Taipei, China Flow of Funds data (various years).

(e) Philippines, 2000-11 (PHP billion)



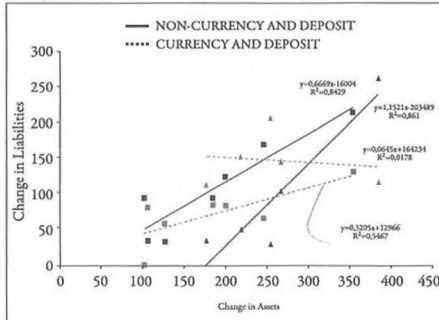
Note : in order to capture change in behavior the period is divided into 2000-2006 (squares) and 2007-2011 (triangles).
 Prior to 2009, all household liabilities are in the form of loans.
 Source : BPS-Statistics Indonesia Flow of Funds data (various years).

Tracing the FOF data and comparing the pre and post GFC periods, Chart 6 shows that although loans remained the dominant source of funds for households spending (dotted lines are above solid lines), the elasticity of loan liabilities with respect to assets declined over time, and the elasticity of non-core liabilities (non-loan) increased, except in Korea. Increased elasticity of non-core liabilities is even more noticeable

in financial institutions and firms during phase-one (before the GFC).⁵ Compared to core liabilities (currency and deposits), the non-core liabilities in financial institutions have generally moved in-sync with changes in total assets during phase-two, with an increasing elasticity.

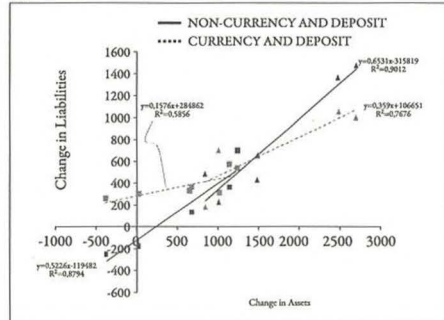
Chart 7. Non-Core Liabilities as a Driver of Assets Holding in Selected Asian Countries: Financial Institutions

(a) Rep. of Korea, 2000-11 (KRW trillion)



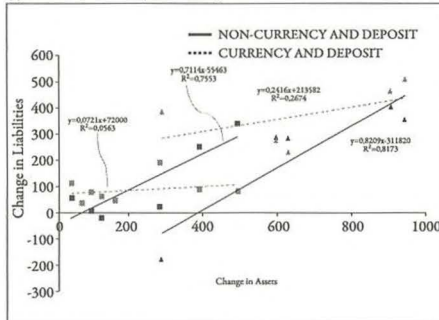
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : Bank of Korea Flow-of-Funds data (various years).

(b) Thailand, 2000-11 (THB billion)



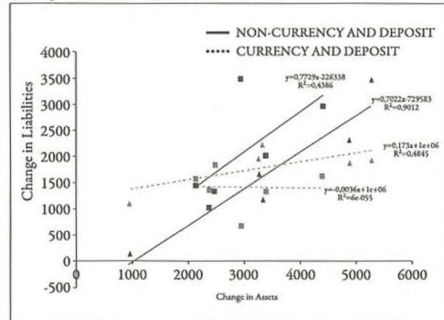
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : NESDB Flow-of-Funds data (various years).

(c) Indonesia, 1999-11 (IDR trillion)



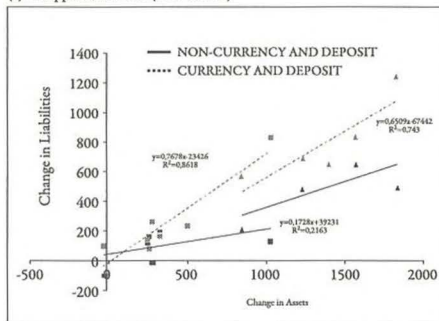
Note : in order to capture change in behavior the period is divided into 1999-2006 (squares) and 2007-11 (triangles).
Source : BPS Statistics Indonesia Flow-of-Funds data (various years).

(d) Taipei, China, 2001-11 (NTD billion)



Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : Central Bank of Taipei, China Flow-of-Funds data (various years).

(e) Philippines, 2000-11 (PHP billion)



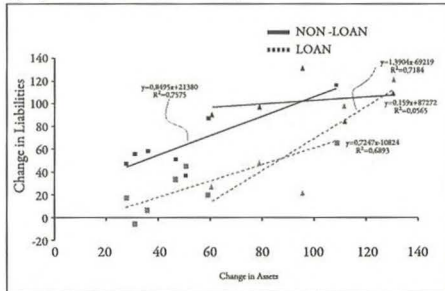
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : BPS Statistics Indonesia Flow-of-Funds data (various years).

⁵ Financial institution in the Philippines is the only exception, although after the GFC their preference towards non-core sources increased.

Increased preference towards non-core or non-loan sources by corporate sector is clearly detected during phase-one. The elasticity of loan liabilities with respect to changes in total assets even turned negative, while the elasticity of non-loan liabilities either increased (except in Korea) or remained high after the GFC.

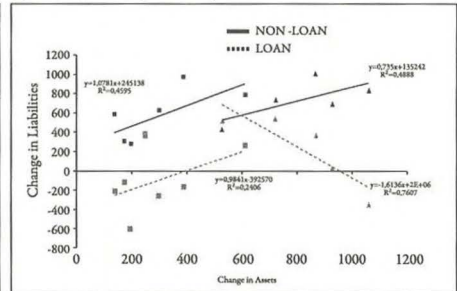
Chart 8. Non-Core Liabilities as a Driver of Assets Holding in Selected Asian Countries: Corporate Non-Financial Sector

(a) Rep. of Korea, 2000-11 (KRW trillion)



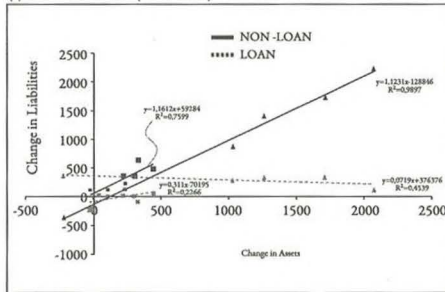
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : Bank of Korea Flow of Funds data (various years).

(b) Thailand, 2000-11 (THB billion)



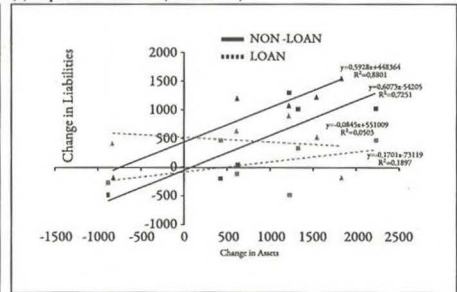
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : NESDB Flow of Funds data (various years).

(c) Indonesia, 1999-11 (IDR trillion)



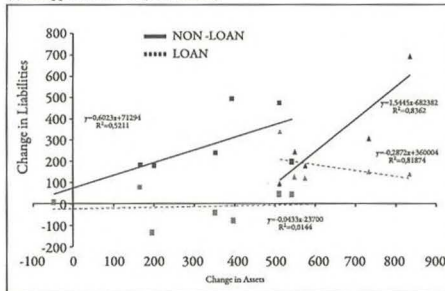
Note : in order to capture change in behavior the period is divided into 1999-2006 (squares) and 2007-11 (triangles).
Source : BPS-Statistics Indonesia Flow of Funds data (various years).

(d) Taipei, China, 2001-11 (NTD billion)



Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : Central Bank of Taipei, China Flow of Funds data (various years).

(e) Philippines, 2000-11 (PHP billion)



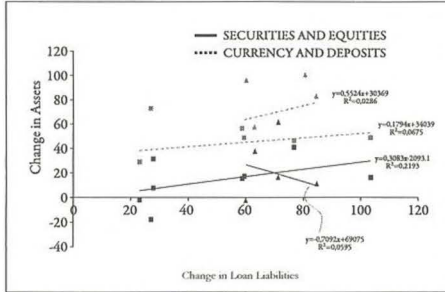
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : BPS-Statistics Indonesia Flow of Funds data (various years).

Thus, movements in total assets have been generally more correlated with movements in non-core liabilities across all agents. The question is,

with a growing preference towards non-core sources of funding where did most spending go? Was there a notable change in the way agents spend their increased liquidity?

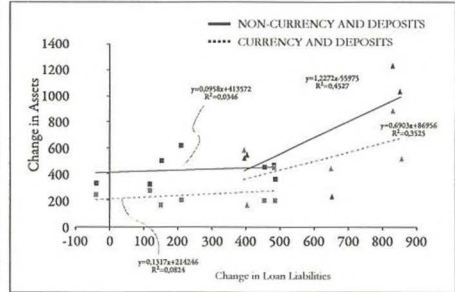
Chart 9. Non-Core Liabilities as a Driver of Non-Core Assets in Selected Asian Countries: Household Sector

(a) Rep. of Korea, 2000-11 (KRW trillion)



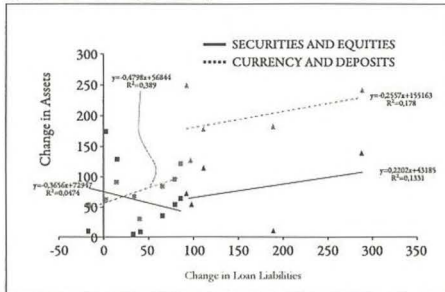
Note : in order to capture change in behavior the period is divided into 2000-2006 (squares) and 2007-2011 (triangles).
 Source : Bank of Korea Flow of Funds data (various years).

(b) Thailand, 2000-11 (THB billion)



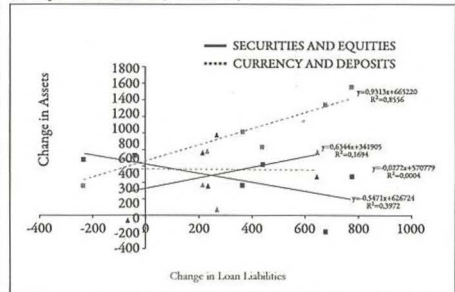
Note : in order to capture change in behavior the period is divided into 2000-2006 (squares) and 2007-2011 (triangles).
 Source : NESDB Flow of Funds data (various years).

(c) Indonesia, 1999-11 (IDR trillion)



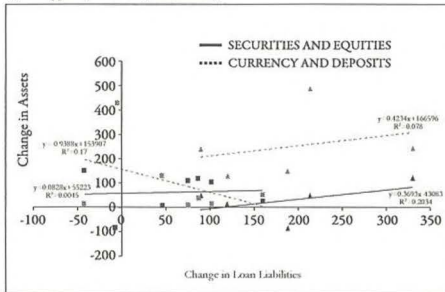
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 Source : BPS Statistics Indonesia Flow of Funds data (various years).

(d) Taipei, China, 2001-11 (NTD billion)



Note : in order to capture change in behavior the period is divided into 2001-2006 (squares) and 2007-2011 (triangles).
 Source : Central Bank of Taipei, China Flow of Funds data (various years).

(e) Philippines, 2000-11 (PHP billion)



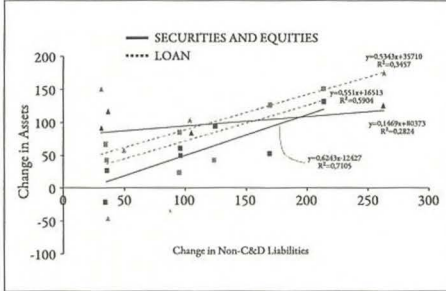
Note : in order to capture change in behavior the period is divided into 2000-2006 (squares) and 2007-2011 (triangles).
 Source : BPS Flow of Funds data (various years).

The calculated elasticity reveals that households in all countries except Korea increased their preference for investing in securities and equities (Chart 9). Note that even in Korea the share of household investment in securities and equities was in fact also high. The lines in Charts 6 to

11 only show the *changes in level*.⁶ A similar behavior is detected among financial institutions in the Philippines, Indonesia and Taipei, China, with a stronger preference for securities and equities, while those in Korea and Thailand leaned more towards bank lending.

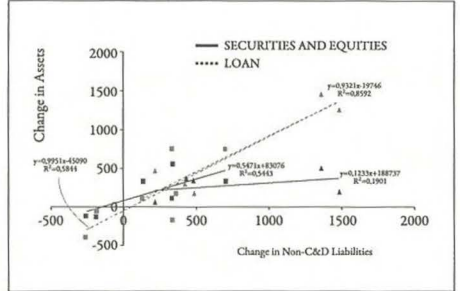
Chart 10. Non-Core Liabilities as a Driver of Non-Core Assets in Selected Asian Countries: Financial Institutions

(a) Rep. of Korea, 2000-11 (KRW trillion)



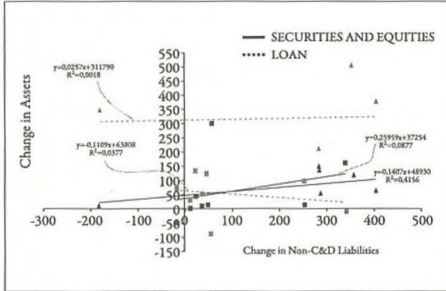
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : Bank of Korea Flow-of-Funds data (various years).

(b) Thailand, 2000-11 (THB billion)



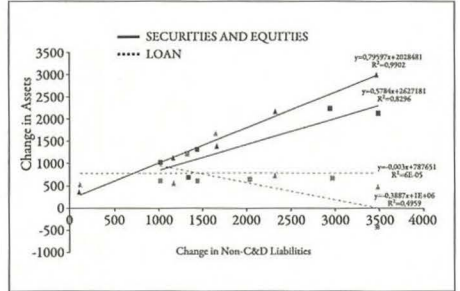
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : NESDB Flow of Funds data (various years).

(c) Indonesia, 1999-2011 (IDR trillion)



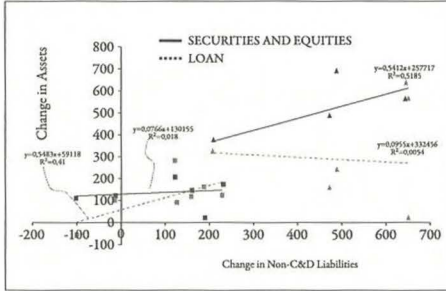
Note : in order to capture change in behavior the period is divided into 1999-2006 (squares) and 2007-2011 (triangles).
Source : BPS-Statistics Indonesia Flow of Funds data (various years).

(d) Taipei, China, 2001-11 (NTD dollars)



Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : Central Bank of Taipei, China Flow of Funds data (various years).

(e) Philippines, 2000-11 (PHP billion)



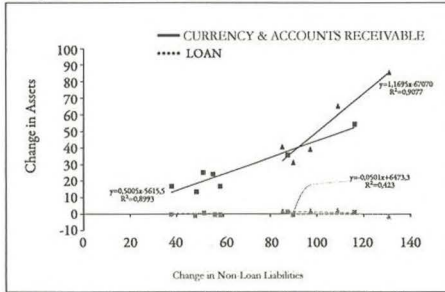
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles).
Source : BPS Flow of Funds data (various years).

6 See Iwan J. Azis and Damaris Yarcia, *Economy-Wide Vulnerability in Asia: Flow-of-Fund Analysis*, (Cheltenham: Edward Elgar, forthcoming).

Based on the elasticity comparison, such a preference applied not only during phase-one but also in phase-two, if not stronger. A closer look reveals even in Korea the slope for securities and equities is greater than for loan during phase-one (0.59 versus 0.55). The inclination to invest more in securities and equities was more unanimous in non-financial firms. In all cases, the slope for financial assets was higher than for loans during phase-one, and it is even higher after the GFC.

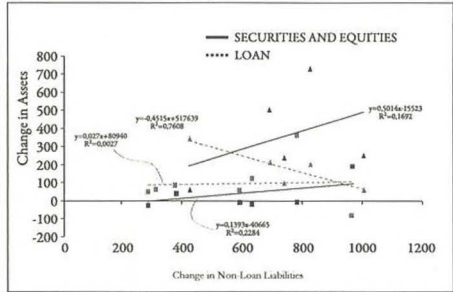
Chart 11. Non-Core Liabilities as a Driver of Non-Core Assets in Selected Asian Countries: Corporate Non-Financial Sector

(a) Rep. of Korea, 2000-11 (KRW trillion)



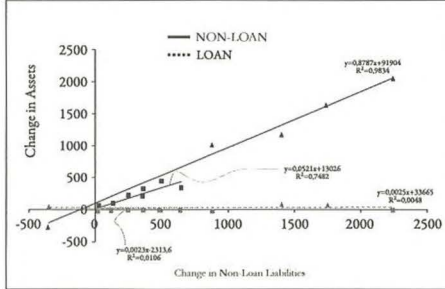
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles). Source : Bank of Korea Flow-of-Funds data (various years).

(b) Thailand, 2000-11 (THB billion)



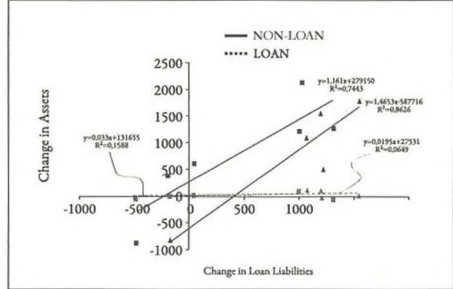
Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles). Source : NESDB Flow of Funds data (various years).

(c) Indonesia, 1999-2011 (IDR trillion)



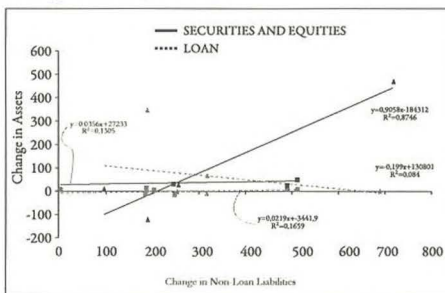
Note : in order to capture change in behavior the period is divided into 1999-2006 (squares) and 2007-2011 (triangles). Source : BPS-Statistika Indonesia Flow of Funds data (various years).

(d) Taipei, China, 2001-11 (NTD billion)



Note : in order to capture change in behavior the period is divided into 2001-06 (squares) and 2007-11 (triangles). Source : Central Bank of Taipei, China Flow of Funds data (various years).

(e) Philippines, 2000-11 (PHP billion)



Note : in order to capture change in behavior the period is divided into 2000-06 (squares) and 2007-11 (triangles). Source : BPS Flow of Funds data (various years).

Hence, it is abundantly clear that during phase-one of global liquidity economic agents accumulated more funding from non-traditional sources as more funds available through increased bank-led flows. Having ample liquidity, their preference towards investing in financial assets such as securities and equities also increased. In some cases, this behavioral pattern continued after the GFC (phase-two). Nothing irrational about such behavior; this has been always the case in the past when liquidity increased due to massive capital inflows. However, the implications on financial instability may deem it non-optimal.

One of the implications of increased liquidity driven by non-core liabilities is a surge in credit growth. By expanding the sample coverage to ten countries and using quarterly data of bank's balance sheet, this is also revealed by the following regression model.⁷

Note that the model used here incorporates the role of financial structure of both lenders and borrowers to account for asymmetric information and micro behaviors of agents, rather than using only macroeconomic variables.⁸ Why financial structure of borrowers? When firms also act as lenders to other firms, frictions in the credit market are likely to amplify, propagating real and nominal shocks to the economy.⁹ In a principal-agent problem, credit and investment cycle can be affected in several ways. A depressed collateral value of the firm due to falling asset prices, or a worsening firm's balance sheet caused by a double mismatch in firm's leverage, can raise the agency costs imposed by asymmetric information

7 The economies included are: PRC, Japan, Hong Kong, China, Republic of Korea, Singapore, Taipei, China, Indonesia, Malaysia, Philippines, and Thailand

8 This "credit channel" hypothesis was discussed in details in B.S. Bernanke, M. Gertler, and S. Gilchrist, "The Financial Accelerator and the Flight to Quality," *Review of Economics and Statistics* 78(1): 1996, pp. 1-15; T. Adrian and H. S. Shin, "Money, Liquidity and Monetary Policy," *American Economic Review* 99(2): May 2009; where lending is not only determined by the size of a bank's available funds but also by changes in net worth and external finance premia of both borrowers and lenders. There is another stream of research that put the emphasis on limited commitment—rather than the asymmetric information—between financial intermediary (lender) and firm (borrower). For example, Marcet and Marimon argue that in some cases the presence of limited commitment has more pervasive effects on investment spending than the asymmetric information framework. See A. Marcet and Ramon Marimon "Communication, Commitment, and Growth", *Journal of Economic Theory* 58: 1992, pp. 219-249. See also Timothy J. Kehoe and David K. Levine "Debt-Constrained Asset Markets", *Review of Economic Studies* 60: 1993, pp. 865-888.

9 Joseph Stiglitz and Bruce Greenwald, *Towards a New Paradigm in Monetary Economics*, (Cambridge: Cambridge University Press, 2004)

between borrowers and lenders.¹⁰ In such circumstances, there is an incentive for borrowers to pass off risky or potentially bad projects as good projects to lenders. This can lower the probability that loan is repaid, or raise the probability that firm will go bankrupt. While the causality between the interest rates and bankruptcy can work in both ways, it will nonetheless lead to a higher cost of external finance (higher interest rate).¹¹

Why financial structure of lenders? The balance sheet problem can occur in the banking side too, e.g., large holding of non-liquid assets (government bonds), and considerable size of non-performing loans (higher defaults). In such a case, the collateral of financial intermediaries is likely to fall. This will force lenders to undertake portfolio reallocations that may result in credit rationing. In such circumstances, at any given interest rate fewer funds are made available.

All the above suggest that credits are sensitive to the net worth if agency costs associated with asymmetric information are present, in which case the effectiveness of monetary policy tends to be more limited.

Hence, in Table 1 the growth of credit is influenced by changes in the net worth of lenders (model-1), and of lenders and borrowers (model-2). The notion that earnings from higher bond yield may 'crowd out' credit is tested in model-3, where the sign of the coefficient is as expected but not significant. Only after accounting for these variables the non-core liabilities are inserted to see their contribution to credit growth. The results clearly show that growth of non-core liabilities significantly affect the growth of credit. As discussed earlier, it was the surge of bank-led flows that drove non-core liabilities to go up. This happened especially during phase-one.

10 Stiglitz and Weiss (1981) demonstrate the effect of lenders' inability to distinguish between different types of borrowers on credit restrictions through the agency cost. Williamson (1987) shows that even if lenders know the risk characteristics of different borrowers, there is an incentive of lenders to verify the borrowers' claim and monitor the project, and this will raise costs that can lead to credit rationing. See Joseph Stiglitz and Andrew Weiss "Credit Rationing in Markets with Imperfect Information", *American Economic Review*, 71: 1981, pp. 393-410; and Stephen Williamson, "Costly Monitoring, Loan Contracts and Equilibrium Credit Rationing", *Quarterly Journal of Economics*, 102: 1987, pp. 135-145.

11 The cost difference between external finance and internally generated finance is a measure of agency cost which are likely increasing in recessions and decreasing in booms.

Table 1. Determinants of Credit Growth: Role of Non-Core Liabilities

Independent variables	Model 1	Model 2	Model 3
GDP Growth	0.065** (1.97)	0.0826** (2.26)	0.026 (0.84)
Change in Banks' Net Worth $t-1$	0.042** (2.15)	0.049** (2.24)	0.054*** (2.95)
Change in Nominal Interest Rates $t-1$	-0.728*** (-2.62)	-0.976*** (-3.12)	-1.348*** (-4.10)
Change in Non-core liabilities $t-1$	0.536*** (18.74)	0.635*** (20.65)	0.384*** (11.3)
Change in Corporate Net Worth $t-1$	- -	0.018 (0.72)	- -
Change in Share of Government Bond Holdings $t-1$	- -	-0.008 (-0.48)	- -
Change in Government Bond Yields	- -	- -	-0.002 (-0.39)
Constant	.042*** (5.42)	.029*** (7.32)	.062*** (9.09)
R-squared			
within	0.484	0.484	0.294
between	0.897	0.901	0.920
overall	0.613	0.613	0.551

Note: z - values in parenthesis.

*** - significant at 1%

** - significant at 5%

* - significant at 10%

Entering phase-two, the protagonists are the fund managers especially those of institutional investors. They too drove procyclical investment behavior for a number of reasons.

But 'who' actually moves the financial market? It is no doubt that fund managers could play a major role here. When they are becoming more bullish about the financial markets and potential high return opportunities in Asia, the risk of heightened procyclical investment behavior is up. Pressures on short-term performance may drive them to jump into quick return-but-riskier investment. This is despite the fact that long-term investment would allow them to reap risk premiums that are difficult to achieve in the short-run. Piling up cash and other low-return liquid assets can send a negative signal to clients about their capability, hence their reputation too. The disclosure and reporting requirements showing

their underperformance will put them at risk of being dismissed.¹² This ‘reputation effect’ can be stronger than the drive to align institutions and investors’ long-term horizons (principal-agent problem).

Difficulties in assessing risks could play a role as well. When this happens, the projected liquidity-needs under a standard asset and liability management (ALM) model cannot be accurately generated. Even a traditional risk measurement such as Value at Risk (VAR) likely underestimates the underlying risk because during a boom period like in phase-two the volatility tends to be small. Yet, a crisis usually occurs precisely when inappropriate responses to market dynamics resulted in excessive risk taking and rapid reversals in positions that fund managers took. Only after a crisis happens they start to assess the underlying default and liquidity risks more rigorously.

Another incentive system for fund managers that has not changed from the past is the biasness in compensation and reward structure.¹³ Even with more or tighter regulations, the practice of giving more reward on the upside and less penalty on the downside continues to motivate fund managers to be procyclical.¹⁴ Investing in more risky assets that can contribute to building asset bubbles and propagating financial instability predominates the need to evaluate long-term fundamental values of assets and losses when market is volatile.¹⁵

In sum, the growing liquidity associated with a surge of bank and debt-led inflows has altered agents’ behavior in a way that is predicted. This is no different than in the past episodes of inflows, despite the fact that this time the driver, nature, intensity and protagonists of the flows are different. Extending more loans and diversifying spending by investing in short-term financial assets when there is plenty of cheap money is ‘rational’ from the agents’ perspective. But since the resulting procyclicality can threaten financial stability and exacerbate income inequality (only a tiny portion of the society could afford investing in the fast growing financial

12 As a result, fund managers focusing on long-term performance may not see long-term gains realized.

13 Raghuram G. Rajan “Has Financial Development Made the World Riskier?” *Proceedings*, Federal Reserve Bank of Kansas City, August 2005, pp. 313–69.

14 If anything, some regulations tend to even exacerbate the procyclicality. One example is the strict market-to-market valuation or rigid capital requirements. Such a rule can reduce long-term investors’ ability to ride out short-term volatility. Pension fund managers and life insurers may stay away from long-term investing. See World Economic Forum, *The Future of Long-term Investing* (Geneva: 2011).

15 David Marginson and Laurie McAulay, “Exploring the Debate on Short-Termism: a Theoretical and Empirical Analysis,” *Strategic Management Journal*, 29(3): 2008, pp. 273–92.

sector¹⁶), such a behavior may not be socially optimal.

To counter excessive inflows, the usual response of monetary authority is to conduct a sterilized intervention to dampen the exchange rate appreciation at the cost of higher interest rates. Despite the well-known 'impossible trinity,' practically all countries did it, only different in degree. When strong inflows continue and inflation benign, the authority is willing to lower the rates. This predicted policy response is consistent with its main mandate for price stability. The problem is, the threat of financial instability caused by agents' behavior in response to capital flows is equally—if not more—serious than inflation. This is precisely the reason why maintaining financial stability has increasingly become an additional mandate of monetary authority in most countries.¹⁷ Such a new mandate cannot be fulfilled by simply using the interest rate policy. Additional mandate requires additional instrument. Indeed, as shown by Azis & Shin¹⁸ the evidence has shown that the interest rate policy alone has failed to halt bank and debt-led flows. Even if it has some degrees of success, the adverse repercussions exceed the benefits.

Epilogue

It has been argued in Acemoglu¹⁹ and Azis²⁰ that a new crisis can be rooted in new vulnerabilities and transmitted through new channels which we may or may not be able to detect. We likely do not recognize new vulnerabilities before the actual crisis occurs. The painful reality is

16 See Iwan J. Azis, "Integration, Contagion, and Income Distribution," in Peter Nijkamp, Adam Rose, Karima Kourtit (Eds.), *Regional Science Matters*, (New York: Springer, 2014)

17 Capital flows and financial stability nexus has been hotly debated in recent years, focusing on the early preach on financial sector liberalization (FSL) and capital account liberalization (KAL). Most experts reveal that the original concept of FSL and KAL is flawed (see, for example, CIEPR, 2012). They now admit that the "First Best" approach of FSL—where frictionless outcomes are emphasized—is faulty and should be replaced by a "Second-Best" approach in which financial regulation is given far greater importance, and where capital controls are no longer taboo. After decades of preaching the virtues of cross-border capital flows, the IMF has also finally admitted that some restrictions on capital flows can help protect an economy from financial turmoil. Central to the analysis is the need to maintain financial stability, not just price stability, by way of macroprudential policy. International Monetary Fund, *The Liberalization and Management of Capital Flows: An Institutional View* (Washington D.C.: 2012).

18 Azis and Shin, "How Do Global Liquidity Phases Manifest Themselves in Asia?"

19 Daron Acemoglu "The Crisis of 2008: Structural Lessons for and from Economics." *Centre for Economic Policy Research (CEPR) Policy Insight*, 28: 2009.

20 Iwan J. Azis, "Asian Regional Financial Safety Nets? Don't Hold Your Breath," *Public Policy Review* 8(3): 2012; and Iwan J. Azis, "Capital Market in the Context of Financial Safety Nets," in *Asian Capital Market Development and Integration: Challenges and Opportunities* (Oxford University Press: 2014).

that, there remains much uncertainty about what happens in the financial markets given a surge in capital flows driven by 'financial nationalism.' The only thing we can be certain about the recent episode is that, the driver of the flows is different than from the past, and so are the size and volatility of the flows. Thus, the 'game' has changed.

Yet, agents' responses have not. Not only the reactions of households, financial institutions, non-financial firms, and fund managers have not changed, the corrective measures by policy makers are also the same as in the past. Everyone dances with the system. The problem is, the step-making, the risk-assessing, and the response sensing needed in a markedly different environment seem missing. The kernel of truth is, we are still living in a financially vulnerable world.