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The Impact of Global Liquidity on Financial Landscapes and Risks in the ASEAN-5 Countries

by Tao Sun

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I N T E R N A T I O N A L M O N E T A R Y F U N D

IMF Working Paper

Asia and Pacific Department

The Impact of Global Liquidity on Financial Landscapes and Risks

In the ASEAN-5 Countries

Prepared by Tao Sun

Authorized for distribution by Luis Breuer

September 2015

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Abstract

This paper analyzes the transmission of global liquidity to the ASEAN-5 countries (ASEAN-5), including the impact on financial landscapes and risks to financial stability. It finds that global liquidity transmission and changing financial landscapes have contributed to increases in risks to financial stability in ASEAN-5. Therefore, policymakers in ASEAN-5 should prepare for possible liquidity tightening, strengthen regulation of nonbanks, and establish a comprehensive financial stability framework. A number of countries are well-advanced in this process.

JEL Classification Numbers: E58, F34, G23

Keywords: global liquidity, financial landscape, financial stability.

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I. INTRODUCTION¹

Global liquidity has been expanding since the early 2000s, and the strong post-crisis monetary policy easing by major central banks spurred a further surge. The money supply of the G4 (the United States, the United Kingdom, Euro Area, and Japan)—a proxy for global liquidity—rose from US\$ 18 trillion in 2003 to US\$ 35 trillion in 2014. Foreign exchange reserves—a proxy for official liquidity—increased four-fold from US\$ 3.2 trillion in 2003 to over US\$ 12 trillion in 2014. International debt security issuance by emerging market—a proxy for private liquidity—increased four-fold from US\$ 638 billion in 2003 to US\$ 2.6 trillion in 2014. The external loans and deposits to emerging markets—another proxy for private liquidity—increased four-fold from US\$ 734 billion in 2003 to US\$ 3.1 trillion in 2014.

This expansion and transmission of the global liquidity has dramatically changed the global financial landscape. This is evidenced by the growth of nonbanks and credit expansion in many jurisdictions. In addition, near-zero policy rates and large asset purchases by the Federal Reserve and other major central banks have boosted asset prices and fueled investor appetite for risk.

The expected normalization of monetary policy in the United States raises concerns about a possible global liquidity crunch and capital flow reversal. Empirical evidence suggests that systemic risk can arise from various sources, including cross-border financial flows. Looking forward, if asset prices inflated by quantitative easing (QE) are not validated by fundamentals (e.g., GDP growth, urbanization, and population growth), the repricing and transfer of risk against the backdrop of diminished market liquidity could prove destabilizing. Moreover, the shift in monetary policy stance in major advanced economies might trigger global liquidity volatility and systemic instability. Therefore, the liquidity transmission and its financial stability implications for emerging economies attract much attention.

ASEAN-5—Indonesia, Malaysia, the Philippines, Singapore, and Thailand—the focuses of this paper, warrant a closer look for a number of reasons. ASEAN-5 were among the fastest growing regions in the world, benefiting from strong exports and FDI inflows. They have strengthened trade and financial integration and have made great strides in poverty reduction. They have experienced similar capital inflow patterns coupled with changing financial landscape. In the medium term, most of ASEAN-5 countries face similar challenges, such as addressing infrastructure bottleneck and aging problems.

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Against that background, this paper asks three main questions:

- How has the expanded global liquidity been transmitted to ASEAN-5?
- How have the financial landscapes changed in ASEAN-5?
- What are the financial stability implications for ASEAN-5?

The main conclusion is that the global liquidity transmission and changing financial landscapes have contributed to changes in risks to financial stability in ASEAN-5.

Specifically, this paper finds strong evidence of increases in international debt security issuance and external loans and deposits in ASEAN-5. The paper also finds that nonbank financial institutions (nonbanks hereafter) have developed quickly in ASEAN-5, in particular in Thailand and Indonesia (albeit from a relatively low base). Moreover, ASEAN-5, especially Thailand and Malaysia, seem to have seen larger increases financial vulnerability, as evidenced by increasing household debt². As a result, the global financial market volatility associated with the expected monetary tightening by the Federal Reserve may expose some economies to credit, liquidity, and exchange rate risks. These risks are nontrivial given the weak global economic recovery, lingering uncertainties about the full ramifications of the China slowdown and rebalancing, heightened concerns about financial instability, and ongoing repricing of risks.

Having a good understanding of evolving cross-border financial flows, changing financial landscapes and ensuing risks can help tailor policy responses. These developments and challenges point to the need for the authorities to seriously consider measures—including further improving a comprehensive financial stability framework to monitor systemic risk—to prevent any external and domestic shocks from severely damaging the financial stability in ASEAN-5.

This paper contributes in four ways. The paper investigates how global liquidity transmitted to ASEAN-5. It also discusses the changing financial landscapes in ASEAN-5. The paper then goes on to investigate the evolving financial stability situation in ASEAN-5. Building on this prior analysis, the paper discusses financial stability policies, particularly macroprudential policies, in ASEAN-5.

The paper is organized as follows. The second section reviews the literature. The third describes the global liquidity transmission to ASEAN-5. The fourth depicts the changing financial landscapes in ASEAN-5. The fifth discusses the risks and maps the financial stability in ASEAN-5. The sixth concludes with policy suggestions.

² To cover a broad picture of various sources of risks, including credit, liquidity, market, and macroeconomic risks, this paper uses the term of financial stability.

II. LITERATURE REVIEW

There has been substantial theoretical and empirical work on global liquidity expansion and transmission, shadow banking and nonbank development, and financial stability surveillance.

A. Global Liquidity Expansion and Transmission

The literature on global liquidity covers various topics, with global liquidity transmission being a major issue. Borio (2007) points out that one of the five major changes in the financial system over the past three decades is the globalization of finance. Cross-border financial linkages have greatly expanded in the form of cross-border portfolio investment as well as cross-border service provision.

BIS (2011) discusses global liquidity from a financial stability perspective, using two liquidity concepts. One is official liquidity, which can be used to settle claims through monetary authorities and is ultimately provided by central banks. The other is private liquidity, which is created to a large degree through cross-border operations of banks and other financial institutions. Furthermore, the BIS highlights that understanding the determinants of private liquidity is of particular importance. The reason is that this international component of liquidity can be a potential source of instability because of its own dynamics or because it amplifies cyclical movements in domestic financial conditions and intensifies domestic imbalances.

Psalida and Sun (2011) find strong positive links between G-4 liquidity expansion and asset prices, such as equities, in the liquidity-receiving economies. Global liquidity also has a strong positive link with the accumulation of official reserves and with equity portfolio inflows in liquidity-receiving economies. Moreover, the association between excess equity returns, excessive credit growth, and global liquidity has implications for rising risks to financial stability in the liquidity-receiving economies.

Shin (2012) distinguishes two phases of global liquidity. The first phase, starting roughly in 2003 and lasting until the 2008 crisis, had global banking at its center, and its central theme was the transmission of looser financial conditions across borders through the acceleration of banking sector capital flows. The second phase of global liquidity started around 2010. In this second phase, the main stage was the bond market, especially the market for emerging market debt securities that are open to international investors. As for the main players, global banks have increasingly given way to asset managers and other “buy side” investors who have global reach. The transmission of financial conditions across borders has taken the form of “reaching for yield,” the decline of risk premiums for debt securities, and the explosion in international debt security issuance that has ensued in order to satisfy demand.

He and McCauley (2013) analyze the transmission of major economies’ monetary policy to East Asia, focusing on China, Hong Kong SAR, and Korea. They divide the

transmission into five somewhat overlapping channels—the first three price channels and the latter two quantity channels. They find that lower bond yields from large-scale central bank bond purchases in major markets seem to be transmitted to lower bond yields in local currency bond markets that are integrated into global bond markets. Moreover, the authors point out spillovers of monetary accommodation merit attention because any instability arising from these spillovers carries a risk of blow-back effects to major economies.

IMF (2014a) presents evidence of commonality in global financial conditions. This commonality is then related to specific drivers of global financial conditions through a range of transmission channels, including cross-border banking and portfolio flows. The empirical analysis shows a range of price and quantity factors—including measures of risk, bank leverage, and interest rates in financial centers—that drive these flows in part. Country-specific policies, including exchange rate and prudential frameworks, are shown to affect the transmission of global conditions. The IMF therefore defines global liquidity operationally as the factors that drive the supply of funding from international financial centers and thereby affect the ease of global financing. These factors include the nature and composition of investors, financial innovation, general risk appetite, balance sheets of global financial and nonfinancial entities, and policy settings in key economies, including prudential and financial regulation and monetary policy.

Belke and Gros (2010) find that the key drivers of asset prices are global liquidity conditions. They show that liquidity will first show up in asset price inflation and only later in consumer goods inflation. This renders it difficult for central banks to exit from their current expansive monetary policy stance if they continue to focus only on price stability. The authors argue that mopping up the excess liquidity will be one major task for central banks worldwide, and will need to be done in a coordinated fashion.

Some studies explore the possible adverse spillovers to emerging markets of global liquidity volatility and capital flow reversals. Eichengreen and Gupta (2014) argue that countries that experienced rapid capital inflows and strong currency appreciation pressures during 2010–12 saw a sharp reversal in the 2013 episode of market volatility. Rey (2013) shows a global financial cycle in capital flows, asset prices, and credit growth, and that this cycle (proxied by VIX) is mainly driven by monetary policy settings of the United States—affecting leverage of global banks and cross-border capital/credit flows. Moreover, Rajan (2014) raises concerns about financial sector risks that may build up with prolonged use of unconventional monetary policies in advanced economies due to increased leverage by banks and corporate, large cross-country capital flows, and excessive risk-taking by investors in a globally low-interest-rate environment.

Capital flow and exchange rate volatility can adversely affect macroeconomic stability through both real and financial-sector channels, especially in small open economies (IMF, 2014b). When the exchange rate strengthens on the back of strong inflows, firms in the tradable sector may become uncompetitive. This may lead to a resource reallocation that may

be costly to undo, should the appreciation turn out to be temporary. Strong inflows can also fuel domestic credit booms and, when they induce greater use of foreign-denominated liabilities, may lead to balance sheet structures that are vulnerable to reversals (Caballero and Krishnamurthy, 2003; Caballero and Lorenzoni, 2009; and Korinek, 2010).

B. Shadow Banking and Nonbank Development

The definitions of shadow banking and nonbanks vary across studies. Most studies define shadow banking by the nature of the entity that carries it out. Shadow banking is usually less regulated than traditional banking and lacks a formal safety net (for example, Claessens and Ratnovski, 2014). Other definitions focus instead on instruments (McCulley, 2007; Mehrling and others, 2013) or markets (Gorton and Metrick, 2012). The Financial Stability Board (FSB) describes it as “credit intermediation involving entities and activities outside the regular banking system.” The IMF (2014c) defines shadow banking as financial intermediaries or activities involved in credit intermediation outside the regular banking system, and therefore lacking a formal safety net. The IMF also introduces a new definition of shadow banking based on nontraditional (noncore) funding—in this “activity” concept, financing of banks and nonbank institutions through noncore liabilities constitutes shadow banking, regardless of the entity that carries it out.³

The academic discussions of shadow banking and nonbanks highlight various angles. Borio (2007) summarizes the change in the financial system over the past three decades. One of the five major changes is the rapid growth of new players, such as hedge funds and private equity firms. Basu (2010) groups the types of nonbank institutions in the United States into the structured investment vehicles, conduits, money market funds, monoline insurers, counterparties, broker-dealers, and rating agencies.

Claessens (2012) assesses shadow banking from the perspective of economics. That literature discusses shadow banking from the perspective of securitization, private money, and collateral. Specifically, the literature highlights four areas: (1) challenges arising from securitization to create safe assets, such as Pozsar (2008), Pozsar and others (2010), Stein (2010), Acharya and others (2012); (2) demand for private money as one of key factors that contributed to the development of shadow banking, such as Pozsar (2011), Gorton and others (2012), and Turner (2012); (3) risks arising from private money creation, for example Gennaiolo and others (2012), Gorton and Metrick (2012), Martin and others (2011), Stein (2012), Greenwood and others (2012); and (4) the importance of intensive use of collateral for the shadow banking operations, such as Singh and Aitken (2010), and Singh (2011).

³ Noncore funding has become an important source of funding besides the core funding (e.g., retail deposit). For instance, in the United States, noncore funding sources include federal funds purchased, Federal Home Loan Bank (FHLB) advances, subordinated notes and debentures, CDs of more than \$100,000 (jumbo CDs) and brokered deposits. Aside from a blip during the 2000–01 recession, reliance on these noncore funds has increased steadily at banks of all sizes over the last decade.

The IMF (2014c) argues that some key drivers behind the growth of shadow banking are common to all countries, although it takes vastly different forms across and within countries. The tightening banking regulation, ample liquidity conditions, and demand from institutional investors tend to foster nonbanking activities. The IMF points out that shadow banking can play a beneficial role as a complement to traditional banking by expanding access to credit or by supporting market liquidity, maturity transformation, and risk sharing. It often, however, comes with bank-like risks, as seen during the 2007–08 global financial crisis. The U.S. shadow banking system appears to contribute most to domestic systemic risk; its contribution is much less pronounced in the euro area and the United Kingdom. The challenge for policymakers is to maximize the benefits of shadow banking and nonbanks while minimizing systemic risks.

C. Assessing Financial Stability

Dattels and others (2008) summarize a number of approaches to assessing financial stability. Earlier approaches highlight stress in individual market segments. Such studies rely on so-called early-warning indicators to help predict crises in the banking system, and currency, debt, and equity markets, using qualitative (e.g., charting) or econometric approaches. Kaminsky, Lizondo, and Reinhart (1998) develop a systematic quantitative early-warning system to predict currency crises. Berg, Borensztein, and Pattillo (2004) develop various models to predict currency and balance of payments crises. A more recent example is Aspachs and others (2006), who develop a metric of financial fragility for a range of countries, based primarily on the probability of default of the banking system.

Another strand of research uses aggregate indicators to encompass a broader definition of financial stability. Fell and Schinasi (2005), among others, detail the measurement challenges related to assessing financial stability. There are a number of examples of such aggregated indices. Illing and Liu (2003) establish a composite financial stress index for Canada, encompassing the banking sector, currency, equity, and debt markets. Van den End (2006) constructs a financial stability conditions index for the Netherlands and six OECD economies and compares it to various thresholds of instability. Hadad and others (2007) build a financial stability index using Indonesia as a case study, focusing on the local banking system and on equity and bond markets.

As part of efforts to step up financial stability surveillance, many central banks regularly publish financial stability reviews (FSRs) or conduct internal assessments of risks and exposures in the financial system. Cihak (2006) provides a survey of the available financial stability reports and the underlying indicators.

Other studies assess financial stability based on a broader set of risks, rather than combining all variables into a single indicator. The Bank of England (BoE) assessment is based on a model of the probability and impact of possible key threats to financial stability, including global parameters (Haldane, Hall, and Pezzini, 2007) while also relying on

qualitative analysis. The BoE approach focuses on a streamlined number of key vulnerabilities (albeit in the U.K. financial system), and takes a systematic approach to assessing vulnerabilities.

IMF (2007) produces a Global Financial Stability Map to monitor changes in global financial stability from multilateral dimensions. The map is developed to interpret the risks and conditions that affect financial stability in a graphical manner. Cervantes and others (2014) produced the Country Financial Stability Map to provide an empirical framework for explicitly linking these various aspects of IMF surveillance in its member countries. Their map identifies potential sources of macrofinancial risks particular to a country and also enables an assessment of these risks in a global context.

III. GLOBAL LIQUIDITY TRANSMISSION

A. Global Liquidity Expansion

Global liquidity, both official and private, has been expanding rapidly since the early 2000s.

- The balance sheets of central banks in the G4—Japan, the Euro Area, the United Kingdom, and the United States—have been growing rapidly since the global financial crisis. For example, the Federal Reserve’s assets grew from US\$ 925 billion in 2007 to US\$ 4.5 trillion in 2014. While growing only from US\$ 2.2 trillion in 2007 to US\$ 2.7 trillion in 2014, ECB’s assets are expected to grow faster along with ECB’s quantitative easing in March 2015. The Bank of Japan’s assets grew from US\$ 1 trillion in 2007 to US\$ 2.5 trillion in 2014 (Figure 1).
- Along with the balance sheet expansion, the money supply in the G4 grew from US\$ 18 trillion in 2003 to US\$ 35 trillion in 2014 (Figure 2), though slowing in growth in 2014.

Figure 1. Expanding Central Bank Assets
(In trillions of U.S. dollars)

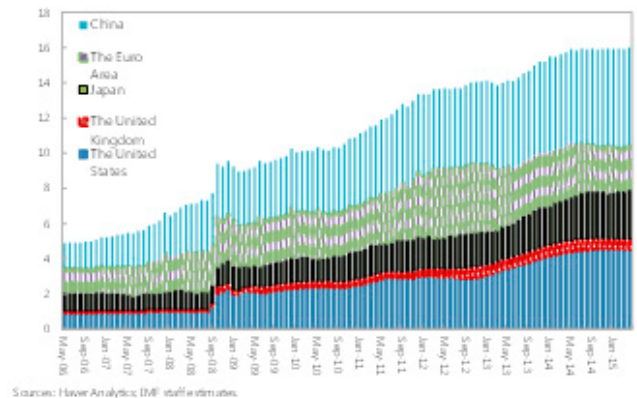
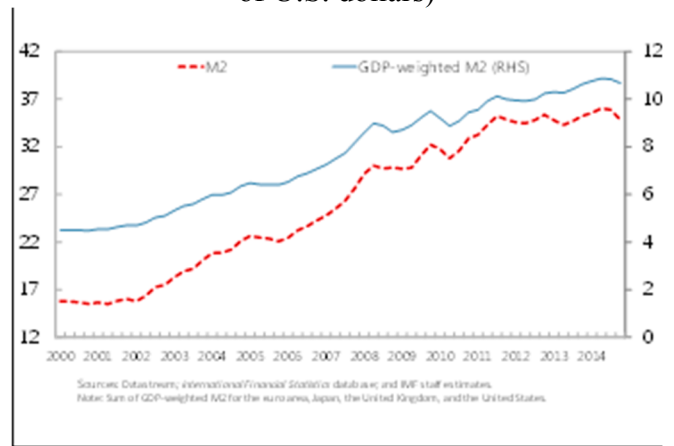


Figure 2. Expanding Global Liquidity (In trillions of U.S. dollars)

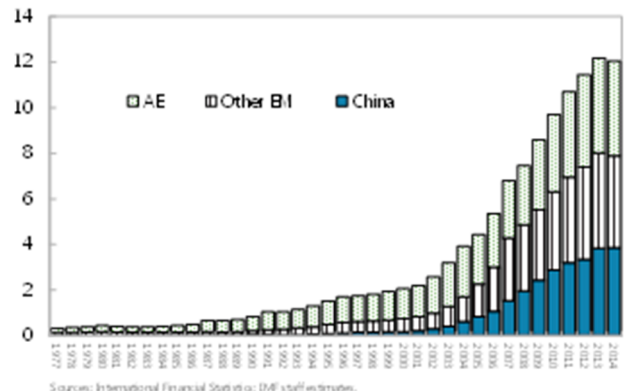


- A core component of official liquidity, foreign exchange reserves increased rapidly in the last decade, with China and other emerging markets accounting for two-thirds of international reserves, although they fell a bit in 2014 after many years of increase (Figure 3).

Private liquidity, proxied by international debt security issuance and external loans and deposits, increased rapidly as well.

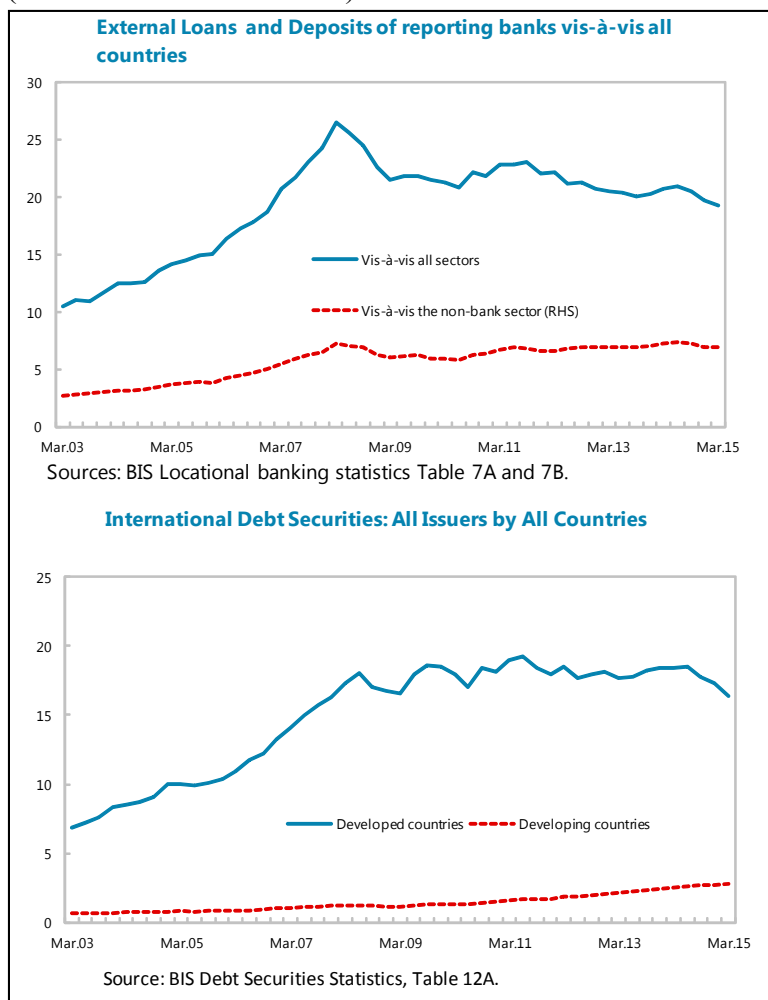
External loans and deposits doubled from US\$ 10 trillion in 2003 to US\$ 21 trillion in 2014, International debt security issuance tripled from US\$ 6.8 trillion in 2003 to US\$ 23 trillion in 2014⁴ (Figure 4).

Figure 3. Growing International Reserves: AE, China, and Other Ems
(In trillions of U.S. dollars)



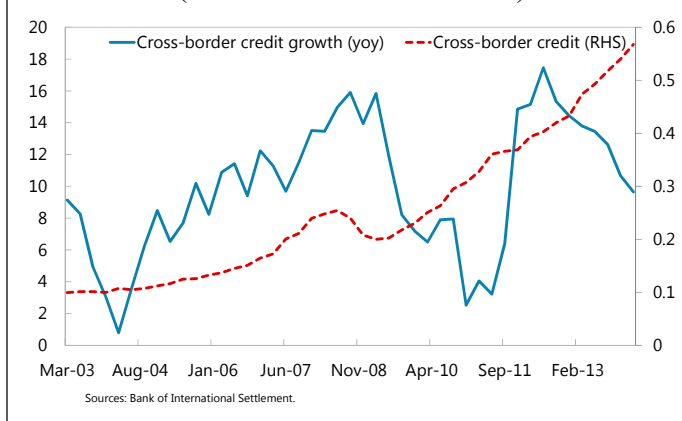
⁴ Because residence-based figures ignore debt issued by offshore affiliates, they actually underestimate the amount of external debt incurred by nationals; therefore, we use nationality-based figures to reflect the international debt security issuance. Nationality is determined by the location of the reporting entity's controlling parent institution. Residence is determined by the location of the reporting entity.

Figure 4. Increasing Cross-Border Financial Flows of All Countries
(In trillions of U.S. dollars)



Against the backdrop of global liquidity expansion, cross-border flows to Asia have soared. For instance, cross-border credit to Asia increased six-fold from US\$ 100 billion in 2003 to US\$ 600 billion in 2014, though slowing in growth in 2014 (Figure 5).

Figure 5. Growing Cross-Border Credit to Asia
(In trillions of U.S. dollars)

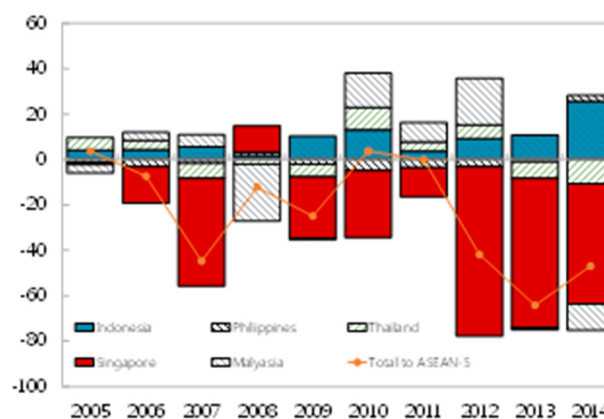


B. Transmission to ASEAN-5

The global liquidity transmission to ASEAN-5 can be observed from three perspectives. Net portfolio investment in ASEAN-5 increased to the peak in 2010, both external bank loans and international debt security issuance expanded three times between 2003 and 2014.

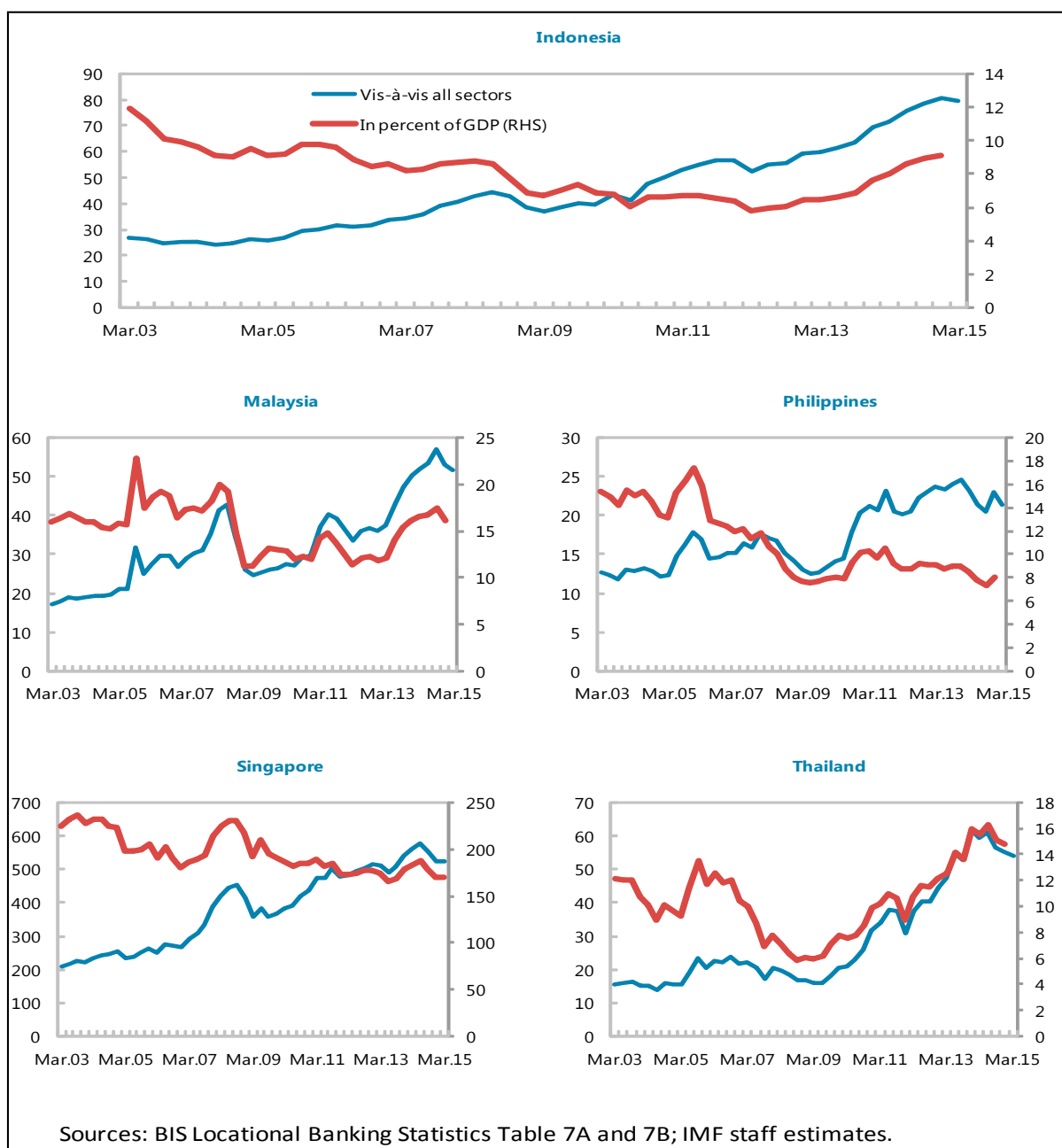
- **Portfolio inflows.** Net portfolio investment in ASEAN-5 moved to inflows of US\$ 4 billion in 2010 from outflows of US\$ 45 billion in 2007.⁵ The Federal Reserve's tapering talk and the associated global financial market turmoil was associated with net portfolio outflows in 2013 and 2014 in ASEAN-5 (Figure 6).

Figure 6. Net Portfolio Investment in ASEAN-5
(In billions of U.S. dollars)

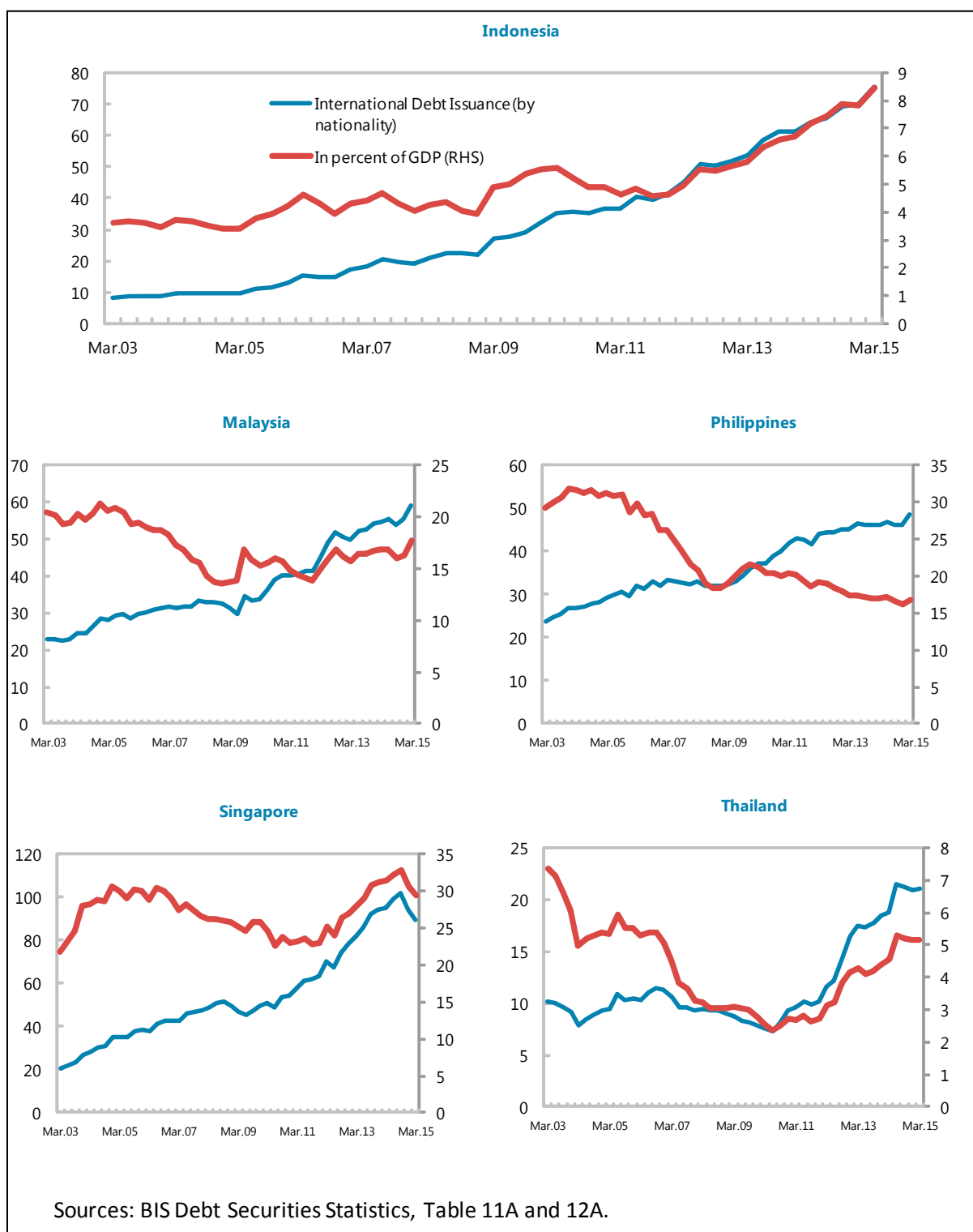


- **External bank loans and deposits.** ASEAN-5 also saw an increase in external loans and deposits, rising from US\$ 284 billion in 2003 to US\$ 787 billion in 2014 (Figure 7). There appeared to be some differences in the timing of inflows. For instance, Indonesia and Singapore witnessed a rapid increase in external loans and deposits in the period 2003–2008. However, external bank loans and deposits to Thailand doubled between 2010 and 2014. And Malaysia saw an increase in the period 2003–2014, despite a temporary drop in 2009.

⁵ If Singapore is excluded, net portfolio investment to ASEAN-4 increased from US\$ 3 billion in 2007 to US\$ 33 billion in 2010.

Figure 7. External Loans and Deposits to ASEAN-5 (In billions of U.S. dollars)

- **International debt security issuance.** ASEAN-5 saw a rapid increase in international debt security issuance, which rose three-fold from US\$ 86 billion in 2003 to US\$ 288 billion in 2014 (Figure 8). All ASEAN-5 saw a doubled expansion in international debt security issuance in the period 2010–2014.

Figure 8. International Debt Security Issuance by ASEAN-5 (In billions of U.S. dollars)

In sum, Thailand saw big increases in external loans and international debt security issuance in the period 2010–2014, and Malaysia saw big increases in external loans and international debt security issuance in the period 2003–2014. Indonesia and Singapore saw increases in external loans in the period 2003–08 and international debt security issuance in the period 2010–2014.

C. Econometric Study on Liquidity Transmission to ASEAN-5

Panel data specifications are employed to estimate the impact of global liquidity on liquidity transmission, capital flows, and financial stability for a monthly sample of ASEAN-5 covering the period from January 2003 to June 2015.⁶ The dependent variables tested in the estimations for liquidity transmission are approximated by foreign exchange reserves (which is a proxy for official liquidity as discussed in section III). The dependent variables tested in the estimations for capital flows are approximated by external loans and deposits, as given by the BIS locational banking statistics (Table 7A – 7B). The dependent variables tested in the estimations for financial stability are approximated by equity returns (in local currencies) and financial stress index.⁷

We use two groupings of explanatory variables in the panel specifications:

- Domestic or fundamental factors include economic growth, real exchange rate, the growth in money supply (M2), the inflation rate based on consumer prices, and crisis dummy for the global financial crisis.
- Global factors include proxies for: (i) global liquidity defined as the growth rates of broad money in the euro area, Japan, the United Kingdom and the United States;⁸ (ii) a market risk premium defined as the implied volatility of the at-the-money option on the S&P 500 index (VIX).

Table 1 shows that, in the case of ASEAN-5, global liquidity is positively associated with foreign exchange reserves, reflecting the transmission of global liquidity to ASEAN-5.

We perform regressions using external loans and deposits as dependent variables to capture the links between global liquidity and capital flows. In this test, we take global liquidity as an independent variable and control for domestic and other global factors. The results in Table 1 show that global liquidity has a significant impact on external loans and deposits.

Global liquidity is also positively associated with equity returns. This relationship further supports the view that both global and domestic liquidity may have provided support to the rising equity prices during 2003–15. In addition, the effect of global liquidity is three times as large as that of domestic liquidity, and the exchange rate appreciation can also drive up equity prices.

⁶ The period 2003–15 is chosen because it can capture the rapid increase in global liquidity.

⁷ Financial stress is defined as a period when the financial system of a country is under strain and its ability to intermediate impaired. When measuring stress, the index primarily relies on price movements relative to past levels or trends to proxy for the presence of strains in financial markets and on intermediation

⁸ Baks and Kramer (1999) use similar approaches to define global liquidity.

We also check the possible implication of high global liquidity for financial stability by replacing equity returns with financial stress index as dependent variables. As expected, global liquidity is positively associated with financial stress.

Table 1. Fixed-Effects Panel Least-Square Estimation of the Determinants of Liquidity Transmission, Capital Flows, and Financial Stability -Monthly Observations (January 2003–June 2015), ASEAN-5

	Foreign Exchange Reserve	External Loans and Deposits	Equity Return	Financial Stress Index
Constant	-0.016 (-0.988)	0.226 (1.337)	0.271*** (11.042)	-0.198** (-1.975)
Global Market Conditions				
Global Liquidity (1 lag)	1.469*** (19.870)	5.469*** (6.748)	0.824*** (7.273)	1.568*** (3.157)
VIX	0.002*** (2.851)	0.006 (0.799)	-0.005*** (-5.245)	0.005 (1.113)
Domestic Macroeconomic Factors				
M2 (1 lag)	0.169*** (2.685)	-2.261*** (-3.446)	0.249** (2.575)	0.236 (0.616)
Real exchange rate (1 lag)	1.017*** (12.976)	2.320*** (2.827)	1.081*** (8.997)	1.604*** (3.328)
GDP	-0.009 (-0.689)	0.179 (1.337)	0.028 (1.428)	0.193** (2.465)
Inflation (1 lag)	-0.005** (-2.426)	-0.042** (-2.095)	-0.028*** (-9.682)	-0.007 (-0.603)
Crisis dummy	-0.125*** (-5.274)	-0.324 (-1.307)	-0.400*** (-10.968)	-0.074 (-0.510)
Adjusted R ²	0.204	0.097	0.860	0.268
Monthly sample	Jan 2003-June 2015	Jan 2003-June 2015	Jan 2003-June 2015	Jan 2003-June 2015
No. of cross-section	5	5	5	5
No. of observations	750	735	750	715
Note: *** p<0.01, ** p<0.05, * p<0.1				
Sources: IMF, World Economic Outlook database and International Financial Statistics database; World Bank, World Development Indicators database; Bloomberg L.P.; and Datastream.				

IV. CHANGING FINANCIAL LANDSCAPES IN ASEAN-5

Large cross-border financial inflows have amplified domestic financial expansion in ASEAN-5. The ensuing financial innovation and deregulation have affected the structure of the financial system, leading to changes in the financial landscapes in ASEAN-5.

Nonbanks in each ASEAN-5 country have grown in general, though at different paces⁹ (Figure 9 and 10).

- In Singapore, nonbanks' asset-to-GDP ratio increased from less than 100 percent in 2006 to 120 percent in 2013. The non-commercial-bank short-term funding as a share of total funding of all financial institutions grew from 22 percent in 2006 to 24 percent in 2012, and declined a bit in 2013.

⁹ Nonbanks refer to non-commercial banks, including securities firms, leasing companies, credit card companies, invest and trust companies, finance companies, asset management companies, investment banks, specialized government credit institutions, and other nonbank credit institutions.

- In Thailand, these institutions developed rapidly. Excluding specialized financial institutions, non-commercial-banks' asset-to-GDP ratio increased from 13 percent in 2006 to 21 percent in 2013, and non-commercial-bank assets as a share of total assets of all financial institutions grew from 10 percent in 2006 to 14 percent in 2013.
- In Indonesia, while still small, nonbanks grew steadily with asset-to-GDP ratio increasing from less than three percent in 2006 to five percent in 2013. And non-commercial-bank assets as a share of total assets of all financial institutions grew from six percent in 2006 to nine percent in 2013.
- In Malaysia, nonbanks developed at a slower pace than its peers recently, with their asset-to-GDP ratio remaining high around 26–28 percent during 2011 and 2013. However, the shares of nonbank assets, credit, and liquidity declined during 2011 and 2013.
- In the Philippines, nonbanks developed steadily, with their asset-to-GDP ratio remaining around 10 percent during 2006 and 2013. However, the shares of nonbank assets, credit, and liquidity declined since 2011.

Along with the growing nonbanks are the changing financial landscapes in ASEAN-5.

For example, the commercial bank credit-to-GDP ratio in Thailand was about 121 percent in 2014, and the deviation from the trend (the trend is defined as the average of credit-to-GDP ratio during 2000–2014) was about 20 percent in the same period. However, if credit by nonbanks were included, all financial institution credit-to-GDP ratio in Thailand would increase to 173 percent, and its deviation from the trend would be as high as 36 percent (Figure 11 and 12). Another example is Malaysia, whose commercial bank credit-to-GDP ratio was about 131 percent in 2014, and the deviation from the trend was about 11 percent of GDP. However, if credit by nonbanks were included, all financial institution credit-to-GDP ratio would increase to 143 percent, and its deviation from the trend would be 13 percent.

While the global liquidity transmitted to ASEAN-5 and the financial landscapes were changing, there are some differences within ASEAN-5. The wide dispersion of credit-to-GDP ratio ratios, international debt securities, and external loans and deposits suggest that ASEAN-5 could be grouped into three sub-groupings, roughly based on the level of financial development. Specifically, Indonesia and the Philippines could be grouped as low level, Malaysia and Thailand as middle level, and Singapore as high level. Bearing this distinction in mind is necessary to better understand the risks to financial stability as discussed in section V.

Moreover, while the rapid development of nonbank can symbolize the financial deepening and a more diversified financial system, they could also be sources of potential risks. Nonbanks are typically less transparent in data collection than commercial

banks. And some of them are not in the regulators' radar screen. These potential risks will be discussed in the following section.

Figure 9. Nonbank Development in ASEAN-5: Ratios of Assets, Credit, and Liquidity to GDP

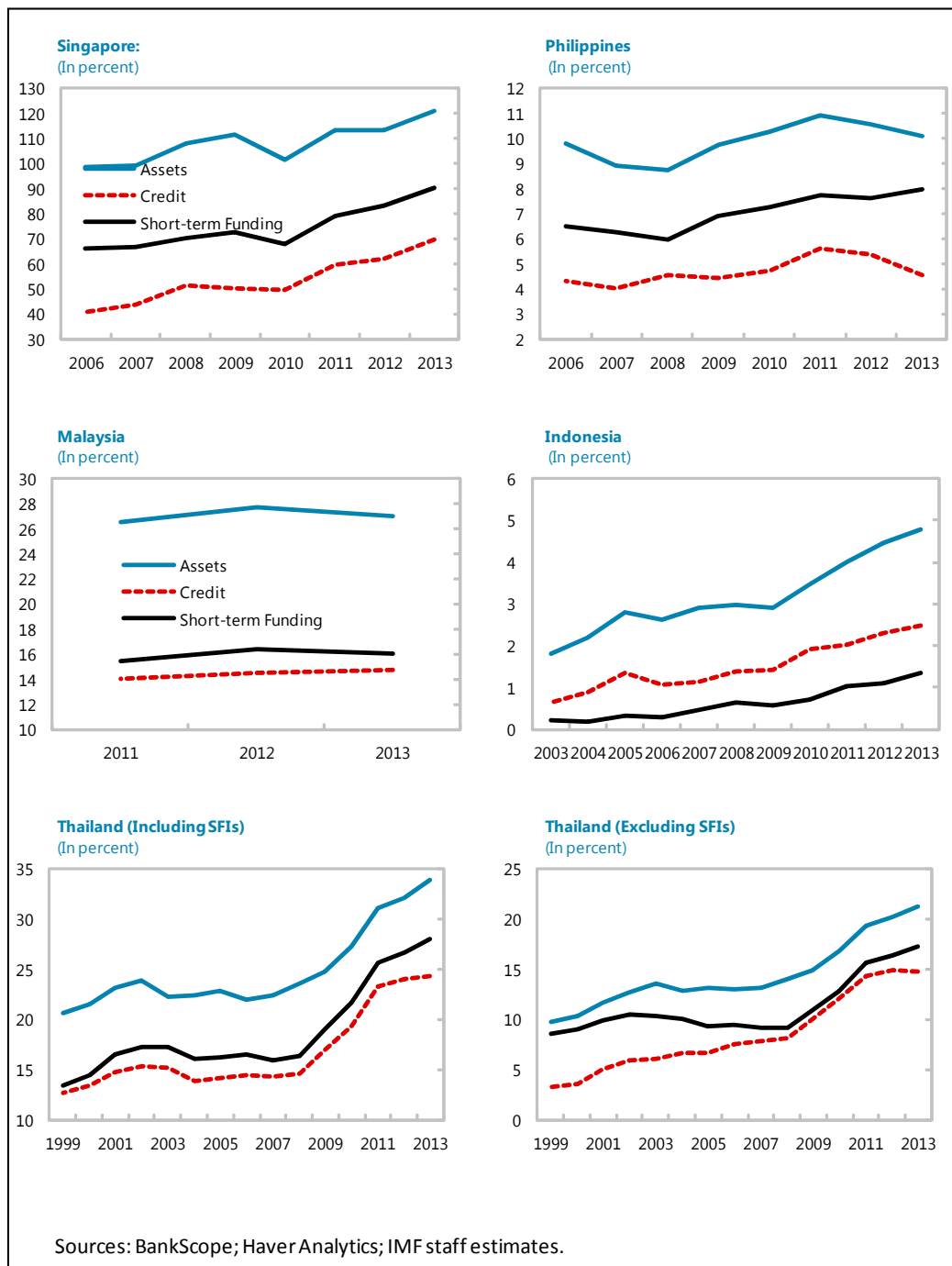


Figure 10. Nonbank Development in ASEAN-5: Shares in Total Assets, Credit, and Liquidity

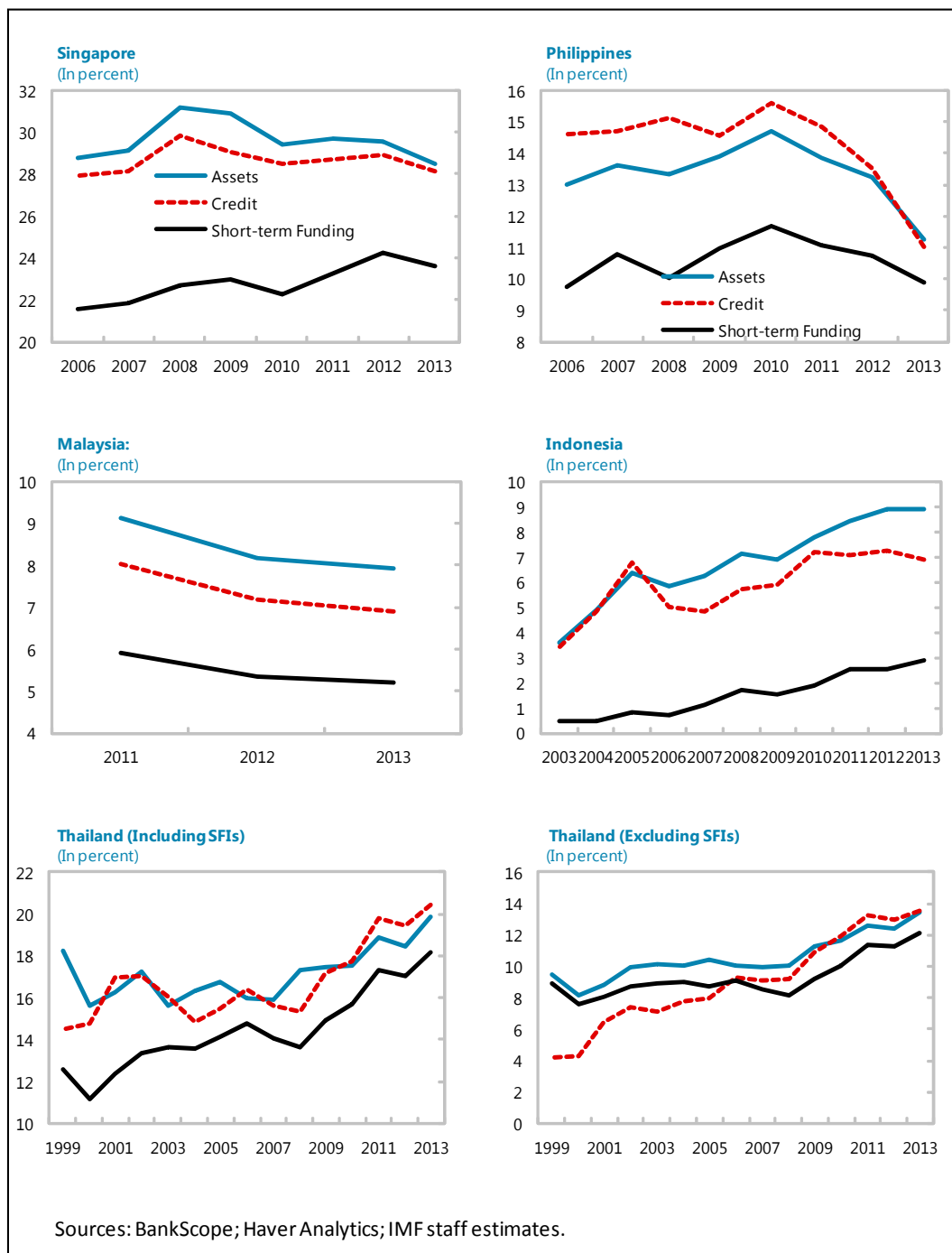


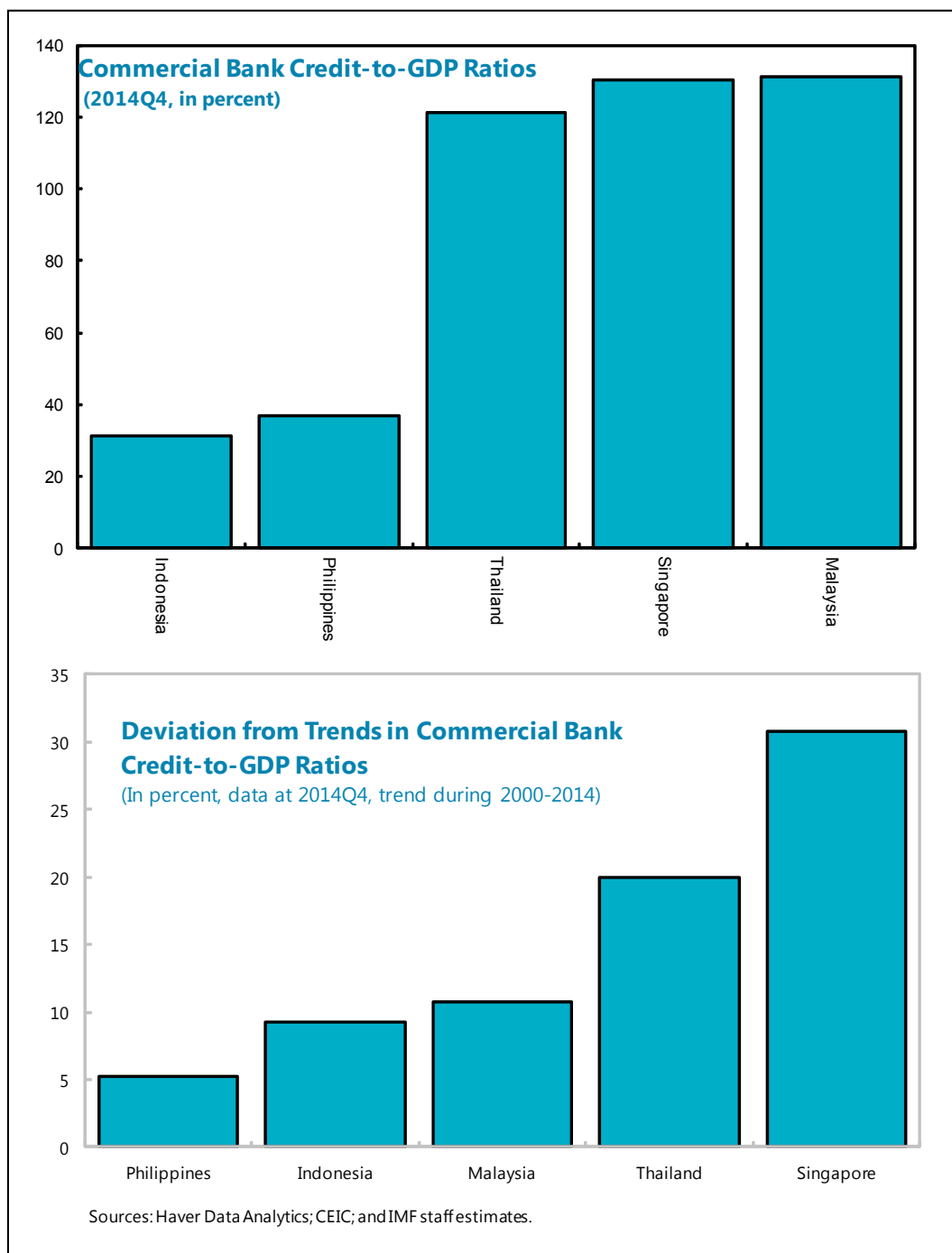
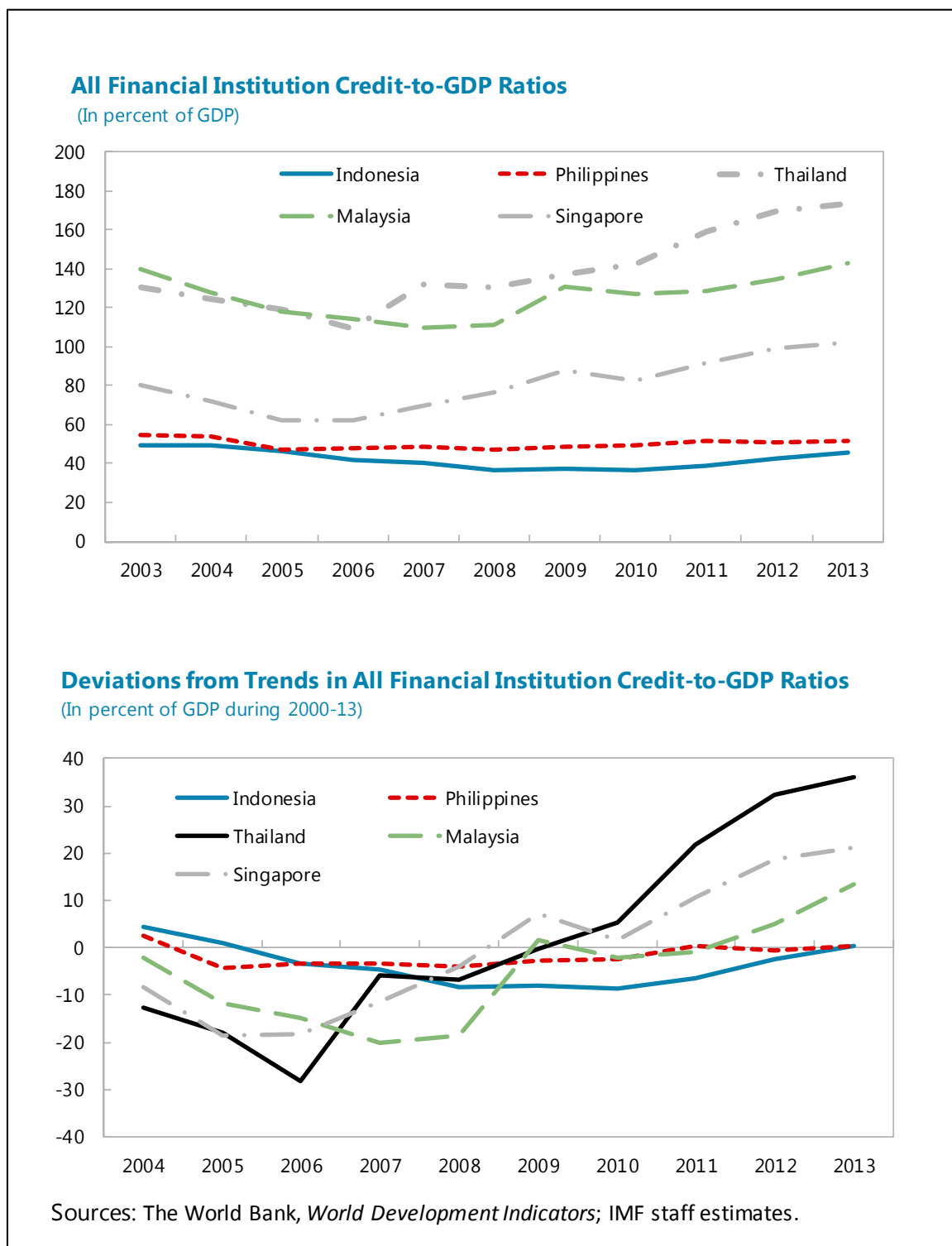
Figure 11. Commercial Bank Credit-to-GDP in ASEAN-5: Ratios and Deviations

Figure 12. All Financial Institution Credit-to-GDP in ASEAN-5: Ratios and Deviations

V. FINANCIAL STABILITY IMPLICATIONS FOR ASEAN-5

A. Increasing Risks in ASEAN-5

The global liquidity transmission and the changes in the financial landscapes have led to increasing risks to financial stability in ASEAN-5. Booming cross-border financial flows and rapid credit growth have created risks to financial stability in ASEAN-5.

- Increases in risk appetite and accommodative monetary and financial conditions, as evidenced by the yield spread compression (Figure 13).
- Rapid credit expansion. Credit expanded to both corporate and household sectors. While declining after 2007, nonfinancial corporate debt-to-equity ratios in ASEAN-5 warrant a close look (Figure 14). Moreover, household debt-to-GDP ratios in Thailand and Malaysia have risen rapidly, indicating potential credit risk¹⁰ (Figure 15).
- Growing nonbanks. Nonbanks became increasingly important players in ASEAN-5, with growing interconnectedness with other parts of financial sector and real economy.

Figure 13. Bond Yields in ASEAN-5 and the United States (In percent)

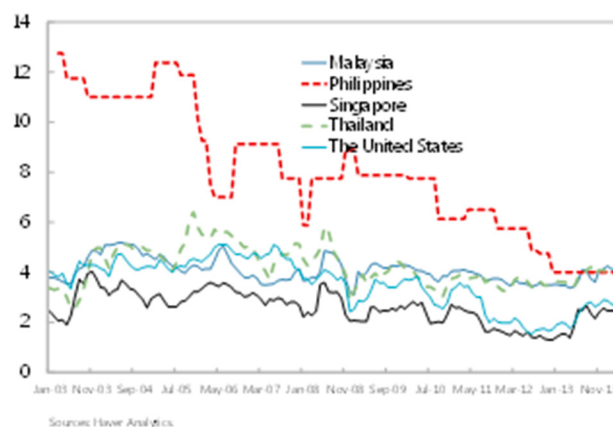


Figure 14. Nonfinancial Corporate Debt-to-Equity Ratio (In percent)



¹⁰ More than two thirds of household loans in Thailand were used for consumption (including purchases of cars and other durables), farming, and business, with the remainder used to buy real estate and land. And some of the increased household loans were policy-induced after the 2007–08 global financial crisis, including those from specialized financial institutions. However, mitigating the risks are strong financial buffers, with household financial assets at about twice the level of household debt.

- Increasing liquidity risk. The expected increases in U.S. interest rates could trigger liquidity risk. The easing financial conditions supported by global liquidity transmission run the risk of less capital inflows if the U.S. interest rate increases. An example is Thailand in the late 1990s, when the Federal Reserve raised interest rates, leading to a sharp decline in international debt security issuance (Figure 16).
- Emerging exchange rate risk. Exchange rate risk may arise from the high share of foreign currency borrowing by nonfinancial corporates in several ASEAN-5 economies. For example, the shares of foreign currency borrowings in total borrowings have been quite high since 2007 in the Philippines and Indonesia. And Thailand also witnessed an increase in the rate of foreign currency borrowings in 2012 (Figure 17). However, the share of foreign current borrowings in total borrowings in Thailand declined in 2013 and 2014, indicating a lower exchange rate risk.

Figure 15. Household Debt in Some Asia Economies (In percent of GDP)

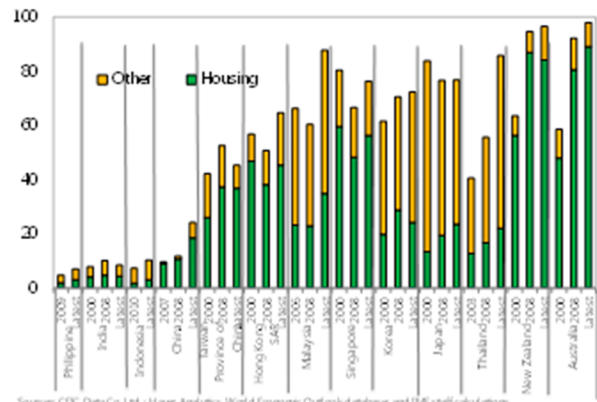


Figure 16. U.S. Interest Rate and International Debt Security Issuance in Thailand (In billions of U.S. dollars)

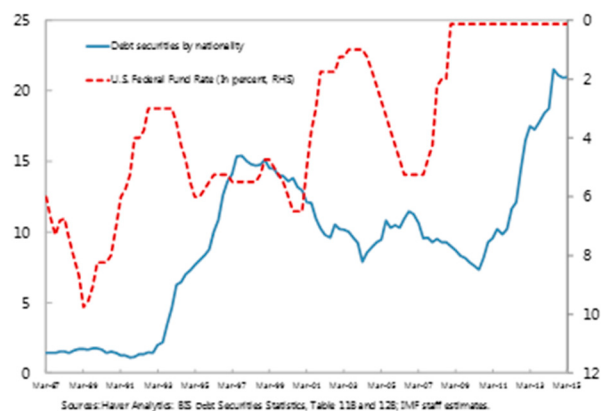
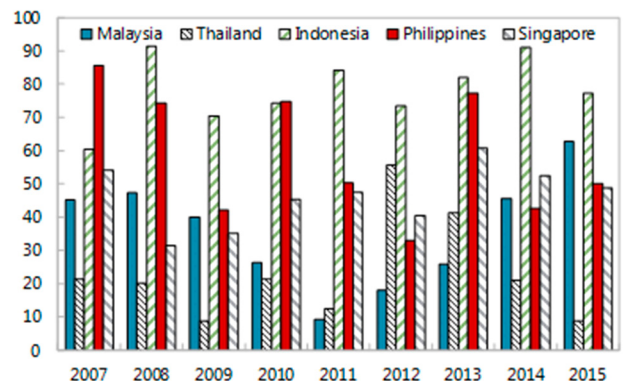


Figure 17. Foreign Currency Borrowing of Nonfinancial Corporates in ASEAN-5 (In percent of total borrowings each year)



B. Mapping Financial Stability for ASEAN-5

To capture the increasing risks, we map the financial stability conditions in ASEAN-5.

The starting point of the Country Financial Stability Map (CFSM) is the Global Financial Stability Map (GFSM), which was developed by the IMF's Monetary and Capital Markets Department and introduced in the April 2007 GFSR. The GFSM utilizes macro-financial variables to visually communicate changes in risks and conditions affecting global financial stability (see Dattels and others, 2010). It assesses four broad risks and two conditions affecting financial stability, namely, macroeconomic, credit, and market and liquidity risks, plus risk appetite and monetary and financial conditions.

The CFSM attempts to emulate the GFSM in capturing a diverse range of sources of instability, contagion and interactions, but from an individual-country perspective. The CFSM complements the GFSM by (i) mapping the various categories of macro-financial risks and conditions for individual countries along the lines of the GFSM, over two specified periods in time; (ii) juxtaposing individual-country against corresponding global developments as reflected in the GFSM (Cervantes and others, 2014).

A comparison shows that Malaysia, Singapore, and Thailand appear to have seen larger increases in risks to financial stability (Figure 18). The main contributors to the major risks are illustrated in Figure 19.

- Indonesia's financial stability risk increased in market and liquidity risk mainly due to lower stock market liquidity and higher foreign liabilities of banking sector. Therefore, normalization of U.S. monetary policy and the associated liquidity tightening may exert create pressure on market liquidity.
- Malaysia's financial stability risk increased in macroeconomic risk, credit risk, and market and liquidity risk in the past six years mainly due to rapid growth in household debt. As a result, the uncertainties in global economic recovery and associated slower domestic export may result in lower GDP growth, higher credit risk (particularly household debt) and market and liquidity risk.
- Philippines' financial stability risk increased in monetary and financial conditions mainly due to rapid growth in bank credit. Therefore, the authorities may need to strengthen monitoring of bank credit quality and consider capital injection when necessary.
- Singapore's financial stability risk increased in monetary and liquidity risk mainly due to growth in domestic credit. Similarly, normalization of U.S. monetary policy may create tightening pressure on market and liquidity in Singapore. However, underpinned by a healthy domestic funding position, the banking system would likely be able to continue lending to non-bank borrowers and support the Singapore

economy, even if the global financial conditions were to tighten suddenly (Monetary Authority of Singapore, 2014).

- Thailand's financial stability risk increased in credit risk, macroeconomic risk, and market and liquidity risk mainly due to slower trade growth and higher foreign liabilities of banking sector and household debt. A surge in global financial market volatility could be transmitted as domestic macroeconomic and credit risks, particularly against the backdrop of vulnerabilities in the nonbanks and SFIs and growing linkages between cross-border financial flows and domestic credit.

Figure 18. Global and Country Financial Stability Maps

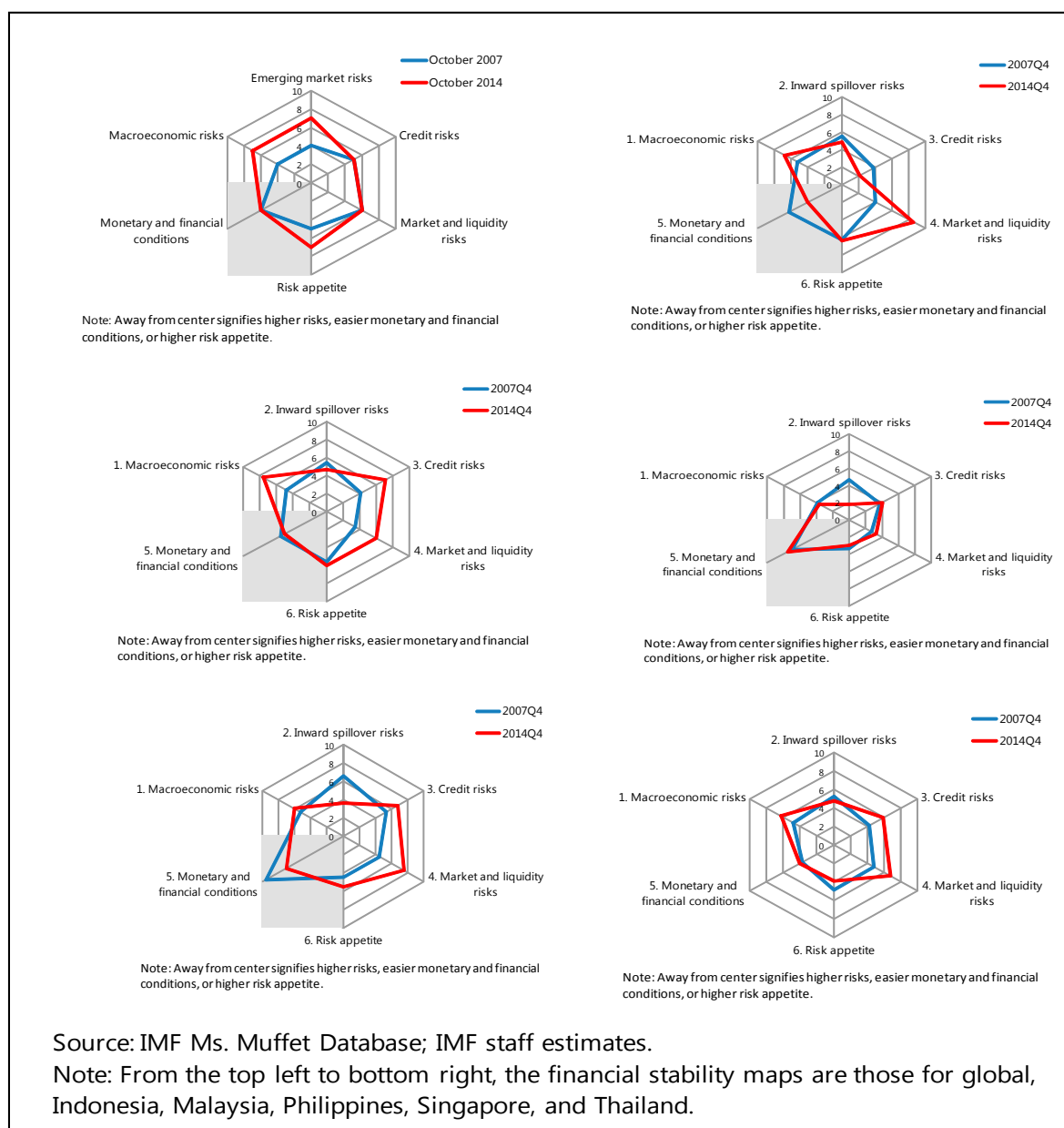
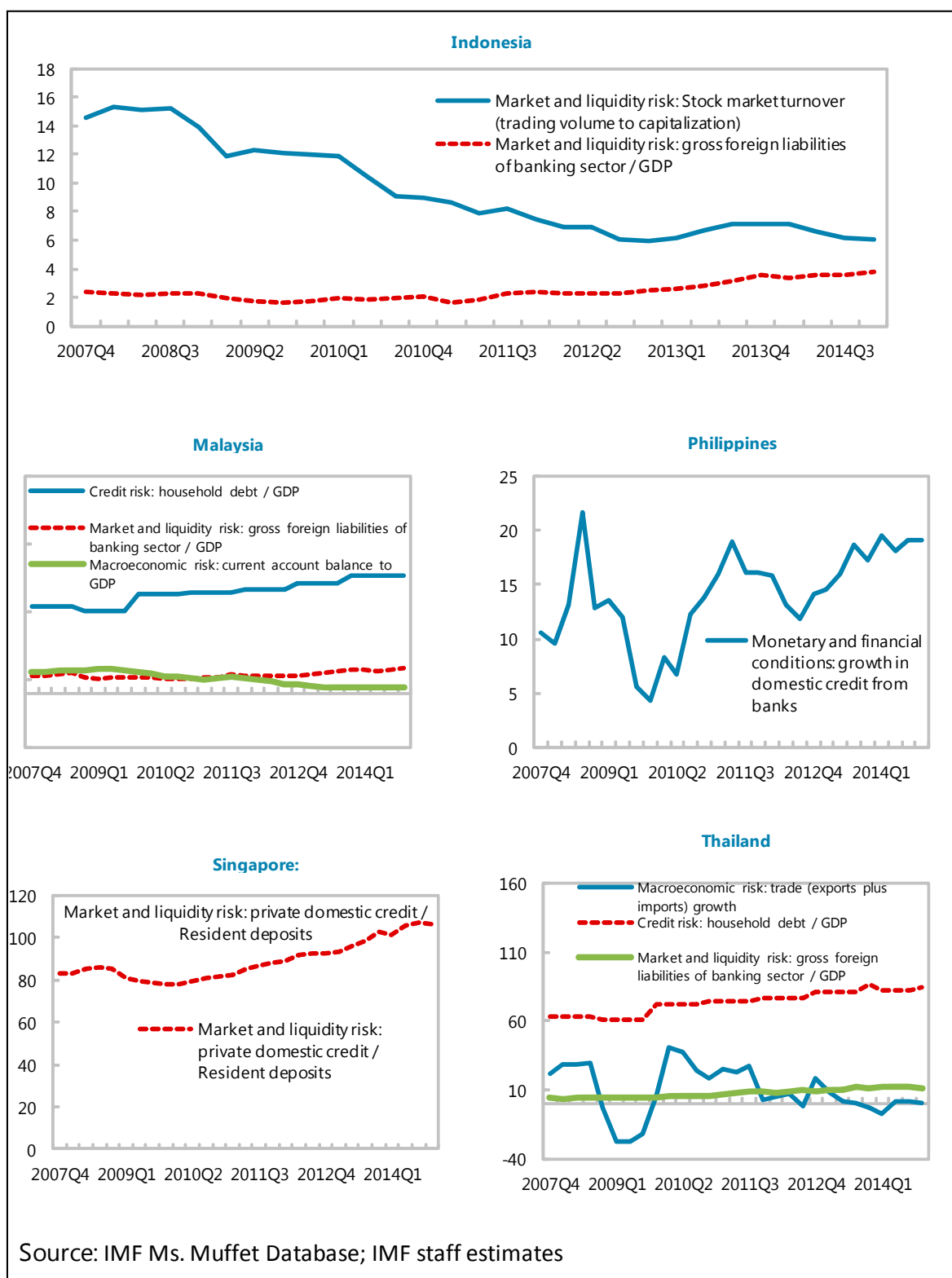


Figure 19. Major Contributing Factors to Financial Stability in ASEAN-5 (In percent)

VI. CONCLUSIONS AND POLICY IMPLICATIONS

This paper analyzed the transmission of global liquidity to ASEAN-5 and its impact on financial landscapes and the associated risks to financial stability. The main findings are as follows.

- The transmission of global liquidity to ASEAN-5 occurred through manifold channels, including both prices and quantities. Prices were reflected in the declining bond yields and quantities were reflected in growing international debt security issuance and external loans and deposits.
- Financial landscapes in ASEAN-5 have been changing, particularly in Thailand, Singapore, and Indonesia, as evidenced by the expansion of the financial sector, and in particular, the development of nonbanks.
- Risks to financial stability seem to be emerging in ASEAN-5 economies. For instance, Indonesia, Malaysia and Thailand witnessed increases in foreign liabilities of banking sector. In addition, Malaysia and Thailand experienced rapid increases in household debt.
- Global liquidity has a pronounced cyclical nature, subject to occasional adverse shocks. The eventual tightening of global financial conditions may not plunge ASEAN-5 into an outright crisis, but it does carry risks. The expected volatility in global financial conditions may present challenges for ASEAN-5.

Therefore, policymakers in ASEAN-5 should consider measures to strengthen resilience.

First, policymakers should prepare for the possible liquidity tightening arising from the expected U.S. monetary policy normalization by:

- Considering the full liquidity cycle – liquidity surges and their associated contributions to systemic risk as well as liquidity shortages or disruptions in the provision of private liquidity.
- Continuing with exchange rate flexibility to be consistent with domestic macroeconomic objectives, dampening global liquidity spillovers. In the past decade, the authorities have taken flexible exchange rate as a buffer to withstand external shocks, including global liquidity expansion. With expected global liquidity tightening arising from the normalization of U.S. monetary policy, ASEAN-5 would benefit from continuing with exchange rate flexibility.
- Taking and adjusting measures to provide liquidity when global liquidity shortages actually materialize. For instance, being a financial center, Singapore should remain

vigilant against risks arising from exit from unconventional monetary policies in the United States and stand ready to adjust macroprudential policies in light of changes in market conditions and continue to monitor risks arising from the global liquidity condition.

- Mitigating global private liquidity surges and cycles and their associated credit and asset price surges, such as through strengthened regulatory frameworks.

Second, policymakers should continue to strengthen regulation on nonbanks by:

- Enlarging financial regulatory perimeters, with closer supervision of nonbanks to avoid regulatory arbitrage. Some countries have strengthened regulation on non-commercial banks. For instance, Thailand plans to extend the Bank of Thailand (BOT)'s supervisory and regulatory mandate to specialized financial institutions and encourages them to adopt an operational plan swiftly. However, since nonbanks are sometimes subject to weak supervision and limited safety net supports, policymakers should continue to expand its advanced regulatory perimeter on commercial banks to nonbanks.
- Containing the rapid growth of household leverage, particularly those associated with nonbanks. For instance, Bank Negara Malaysia (BNM) and BOT along with the fiscal authorities have gradually introduced carefully calibrated macroprudential measures to reduce risks associated with household debt, including those provided by nonbanks.

Third, while being aware of the risks and having taken some measures, policymakers should further improve a formal and transparent financial stability framework on the back of current progress. ASEAN-5 authorities are aware of these risks and have made some progress in strengthening financial stability framework and macroprudential policies:

- Malaysia has set up Financial Stability Executive Committee, chaired by the Governor of the central bank and members include a Deputy Governor of the central bank, the Secretary General to the Treasury, Chairman of Securities Commission, Chief Executive Officer of the Malaysia Deposit Insurance Corporation and up to two independent professionals. This setup allows for other supervisory agencies and external experts to participate in the decision-making committee. In addition, the authorities introduced an enhanced framework for risk-based pricing and used stress testing, enhanced supervision, and targeted macroprudential policies to deal with rising household indebtedness. These efforts have reduced risks from credit growth and house price increases and also increased the resilience of the banking system, as evidenced by slowing down of personal credit growth and reduction in both loan applications and approvals.
- Indonesia has made progress in preserving financial stability through prudential policies and close monitoring of vulnerabilities. Banks began to implement Basel III capital standards in early 2014, with larger banks expected to adopt a liquidity coverage ratio

requirement in 2016. On the institutional front, the Law on the Financial Services Authority of 2011 created an integrated financial regulatory agency, Otoritas Jasa Keuangan (OJK), to regulate and supervise the activities of banking, capital markets, insurance, pension funds, and other financial institutions. The OJK law also retained Bank Indonesia's responsibilities in macroprudential policies, and created the inter-agency Forum of Financial System Stability Coordination as a key component of the financial stability framework. In addition, progress is being made to close gaps in the crisis management framework through a draft Financial System Safety Net law.

- Thailand has placed high priority on strengthening the work on financial stability as a strategic objective, including monitoring, mitigating, and managing systemic risks. To mitigate the risks associated with capital inflows and credit expansion, the authorities strengthened the work on financial stability including the publication of Financial Stability Reports and the establishment of a Financial Stability Committee. The latter is within the BOT that is tasked with systemic risk monitoring and mitigation. This committee is composed of high-level executives from relevant departments such as monetary policy, financial market operations, financial institutions policy, banking supervision, and others. Against this background, the BOT has adopted selected credit-related and capital-related macroprudential policies since 2003. In addition, to strengthen the effectiveness of financial surveillance, the BOT encourages the savings and credit cooperatives to include their clients in the national credit bureau database. By linking with this database, the cooperatives will benefit from information supplied by other financial intermediaries.
- Singapore has developed an institutional framework for financial stability to supervise the financial system. The framework covers systemic liquidity management, safety nets and contingency planning. Being a pioneer in the use of macroprudential policies to moderate financial stability risks. The Monetary Authority of Singapore (MAS) focused on potential financial system vulnerabilities arising from capital flows, credit growth, and asset prices. Macroprudential measures have been taken on housing market, car loans, credit cards, and other unsecured consumer credit facilities. And these measures appeared to be effective in slowing asset price increases and making lending more prudent. Moreover, MAS has sought to address potential spillovers from other major financial centers by converting large retail branches operating in the domestic market into domestically incorporated subsidiaries, and by pressing in international fora for greater sharing of supervisory information on global systemically important financial institutions.
- The Philippines has proposed a law for congress to discuss, in an effort to broaden the Bangko Sentral ng Pilipinas (BSP)'s regulatory perimeter to include nonbanks. And the authorities have established two external committees — the Financial Sector Forum (FSF) and Financial Stability Coordination Council (FSCC). The main goal of the FSF is to harmonize financial regulations and address any financial regulatory gaps, while the FSCC aims to identify, manage and mitigate the build-up of systemic risks. In addition,

monetary policy was implemented in 2014 to help safeguard the price and financial stability.¹¹ Moreover, the Philippine authorities have taken steps in 2014 to address the acceleration in credit growth and the risks associated with domestic asset price booms.¹²

Policymakers in ASEAN-5 may benefit from taking further measures to enhance financial stability by:

- Being prepared for taking and fine-tuning macroprudential policies to strengthen financial stability. While having made much progress, policymakers in ASEAN-5 must have an explicit mandate to act when needed—and, equally important, the courage to act, even when measures are highly unpopular. For instance, Malaysian authorities may continue to employ macroprudential policies and review their effectiveness to dampen financial risks, such as those from rapid credit growth to households and continue to enhance monitoring, and MAS should stand ready to recalibrate macroprudential tools in line with changes in market conditions using a targeted approach.
- Strengthening data collection to monitor the build-up of financial stability risks. Due to the growing interconnectedness between banks and nonbanks, financial sector and real economy, and domestic and global economy, the authorities need to strengthen their efforts to collect data on various components and the interlinkages. A sufficient set of data would help identify linkages among sectors and provide room for the policy makers to take prompt action to mitigate financial stability risks. For instance, in the Philippines, the authorities would benefit from closing data gap, including real estate price and nonbank activities. Malaysian authorities should continue monitoring risks through collection of granular data on household assets and liabilities.
- Enhancing coordination and information sharing among regulators within and across jurisdictions. In a world with growing interconnectedness, the coordination and information sharing among regulators within and across jurisdictions would be vital for maintaining financial stability in jurisdictions. The authorities in ASEAN-5 should continue to review the protocols for information sharing and policy coordination among various financial regulators.

¹¹ The BSP implemented a series of preemptive and calibrated monetary measures to tighten monetary conditions. The BSP raised the policy rate and also the Special Deposit Account rate in 2014 on the assessment that the 2015 inflation target could be at risk. In addition, the BSP raised the reserve requirements to help guard against potential risks to financial stability that could arise from continued liquidity growth and rapid credit expansion. The BSP also carefully communicated its policy intent to the market.

¹² The BSP conducted stress tests on banks' real estate loan exposures and required corrective actions, enhanced monitoring of banks' exposures to all types of real estate, and provided guidance on the higher risk weights to be imposed on mortgage loans where loan-to-value ratios exceed 60 percent. These measures have helped to restrain credit growth to the real estate sector.

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