

## Transmission Channels of Economic Shocks in ASEAN

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### Key Issues :

- *Intrinsic differences among the characteristics of the individual ASEAN economies pose a challenge for regional macroeconomic coordination;*
- *There is a need for a strong coordinated macroeconomic monitoring in the ASEAN region;*
- *Common threats can be addressed through collective action, and spillovers and externalities can be internalised through macroeconomic policy coordination; and*
- *The current system is not sufficient, calling for the strengthening of institutionalised mechanisms to coordinate the monetary, exchange rate and fiscal policies among the member states.*

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This *Policy Brief* is based on ERIA Discussion Paper 2013-18 titled “Managing Economic Shocks and Macroeconomic Coordination in an Integrated Region: ASEAN Beyond 2015”. It examines the transmission of economic shocks both from the rest of the world into the ASEAN region and into a typical ASEAN member state (AMS). “Typical” here means representative AMSs, e.g., Singapore for a developed country, Philippines or Indonesia for ASEAN-5 economies and Viet Nam for the CLMV (Cambodia, Lao PDR, Myanmar, Viet Nam), where Viet Nam was chosen for data availability reasons. This paper looks into the trade and financial linkages of a typical AMS and employs a specialised type of vector autoregression (VAR) model to decompose the shocks into trade shocks, financial shocks, and commodity price shocks. The Brief concludes with an analysis of the implications for macroeconomic policy coordination in the region.

### Introduction

In recent decades, ASEAN has developed closer economic and financial linkages. ASEAN trade and foreign direct investment (FDI) flows have been increasing both internally (within ASEAN) and externally (between ASEAN/AMSs, and the rest of the world). Financial flows have also become an important key factor as shown by cross-border financial linkages. Overall, business cycles of ASEAN countries have also become increasingly synchronised.

This paper analyses the economic and financial interlinkages between the ASEAN region and the rest of the world as well as the linkages within ASEAN and between ASEAN member states. It concludes with an analysis of the implications on how to manage the economic shocks in an integrated region as well as the implications for macroeconomic policy coordination in the region.

## Business Cycle Synchronisation, Trade and Financial Linkages in ASEAN and between AMSs

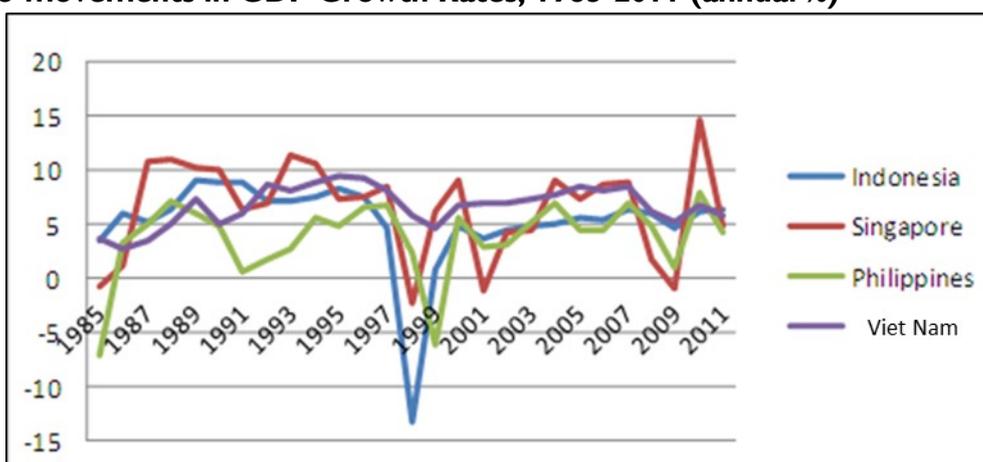
### • Business Cycle Synchronisation

Business cycles have become increasingly synchronised in ASEAN as shown in Figure 1 which presents the output growth co-movements representative ASEAN member states (AMSs). This depicts how ASEAN member states' business cycles have become more synchronised with the ASEAN business cycle as a whole. This means that the representative AMSs generally exhibit an

increased correlation of their gross domestic product (GDP) growth with the ASEAN region as an aggregate, and that the AMSs' business cycles have become more synchronised with each other.

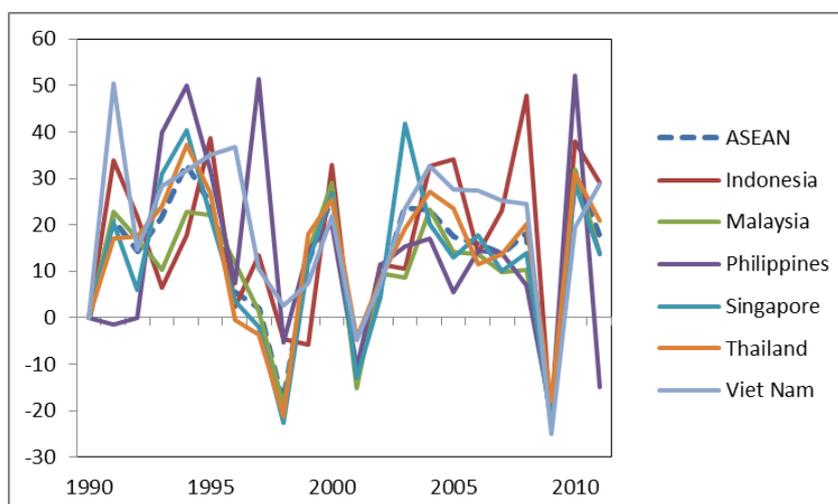
The reason for the increased business cycle synchronisation in ASEAN is that AMS economies have become more interlinked with each other through trade and financial channels. The patterns of trade, foreign direct investment, and banking inter-linkages of AMSs with each other and the rest of the world are chronicled in the succeeding subsections.

**Figure 1. Co-movements in GDP Growth Rates, 1985-2011 (annual %)**



Source: International Monetary Fund, International Financial Statistics (IFS).

**Figure 2. Intra-ASEAN Total Trade (Exports +Imports) Growth Rate, By Country: 1990-2012 (annual % change)**



Source: Asia Regional Integration Center, ADB (2013).

### • Trade Patterns and Linkages

Figure 2 shows the growth pattern of the intra-ASEAN total trade. It shows that although the growth rates of intra-ASEAN total trade may fluctuate from year to year as in decreasing during the crisis years of the 1997 Asian crisis and 2008 global crisis, intra-ASEAN trade, on the whole, is nonetheless growing fast, registering an average growth rate of more than 20 percent.

As a result, relative to total exports, the share of ASEAN exports by ASEAN member state has been increasing over the years as shown in Figure 3.

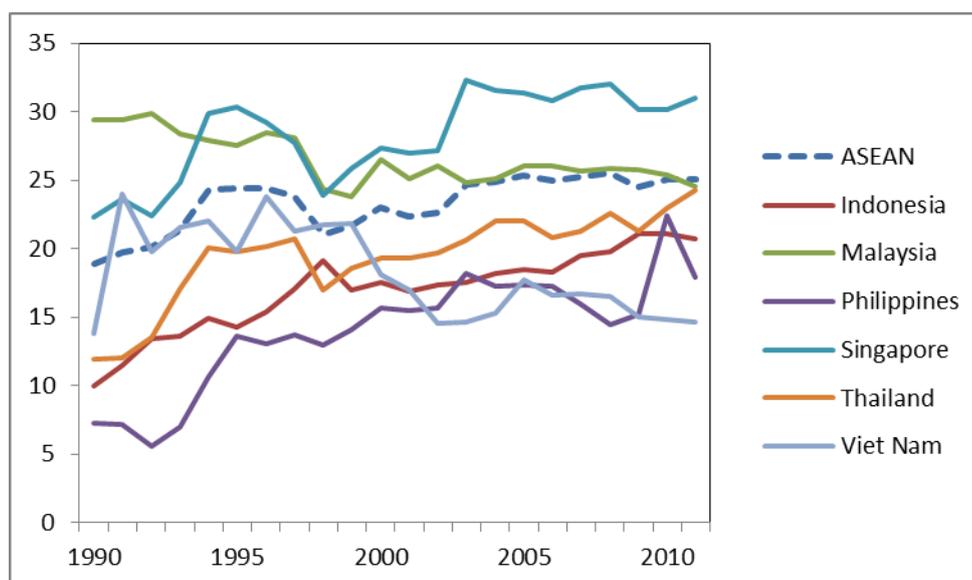
Figure 4 shows the bilateral trade shares of selected AMSs with the world, ASEAN, and each other. From the figure, one may conclude that the individual AMS' trade linkages with the ASEAN are increasing in importance although in the cases of Singapore and Viet Nam, their trade outside of ASEAN have also increased in importance.<sup>2</sup>

### • FDI Patterns and Linkages.

Figure 5 presents the ASEAN FDI total inflows as a percent of GDP. Overall, the data show a pattern of increasing importance of the FDI channel for ASEAN, either viewed from the absolute numbers or relative numbers as a percent of GDP.

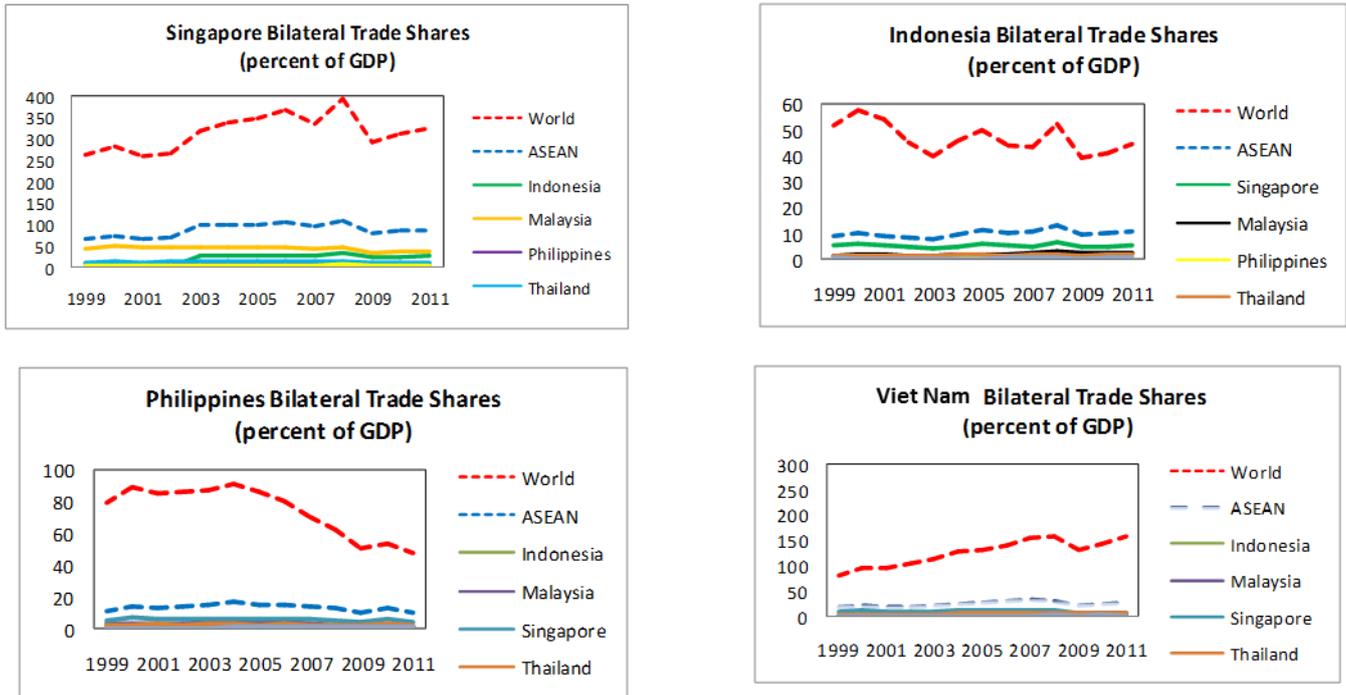
Figure 6 presents information on intra-ASEAN net FDI flows. It shows that the intra-ASEAN cumulative net FDI inflows have been increasing over the years. However, since total ASEAN FDI flows have also been increasing over the years as mentioned, the relative share of intra-ASEAN net FDI inflows to total ASEAN net FDI inflows therefore did not show a remarkable increase. This again highlights the importance of considering both internal integration (within ASEAN and Asia) as well as external integration (with the rest of the world) in the analysis of spillover effects.

**Figure 3. ASEAN Exports Share to ASEAN to Total Exports, by Country: 1990-2012 (% share to total exports)**



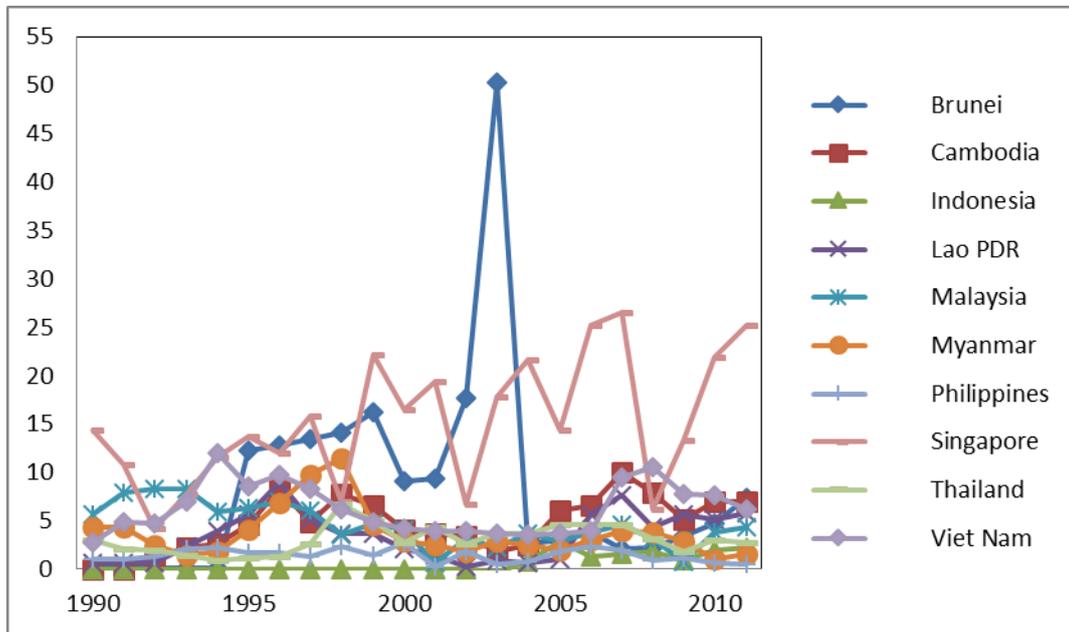
Source: Asia Regional Integration Center, ADB (2013).

**Figure 4. Bilateral Trade (Exports + Imports), Ratio to GDP : Selected AMSs**

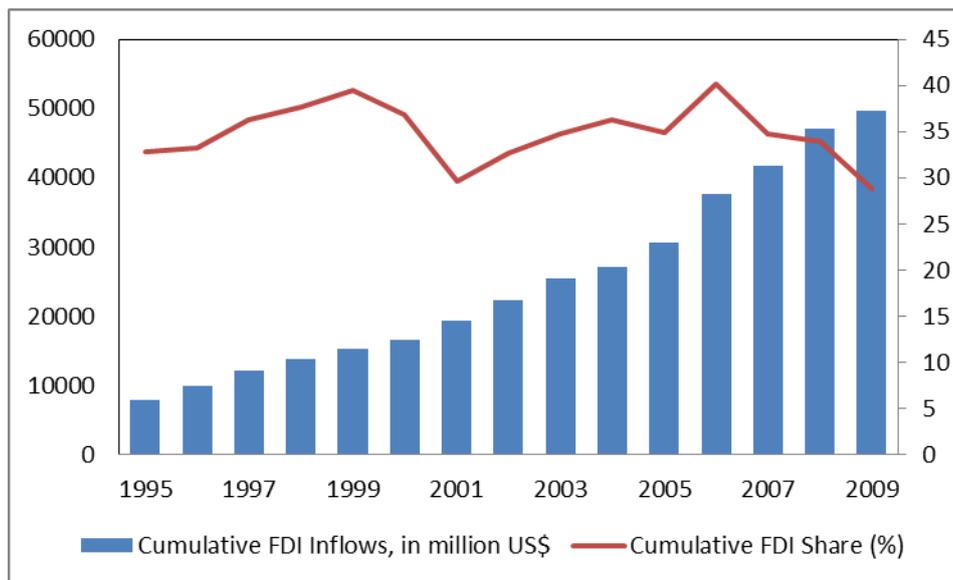


Source: International Financial Statistics (IFS) and World Development Indicators (WDI).

**Figure 5. FDI Inflows from ASEAN, 1990-2011 (percent of GDP)**



Source of basic data: UNCTAD.

**Figure 6. Intra-ASEAN Net FDI Inflows**

Source: Asia Regional Integration Center, ADB (2013).

### • Banking Systems Linkages

Cross-border financial linkages are non-trivial. In the case of the Philippines, the banking system in the United States (US), European Union (EU) and Japan are the most important to watch out since the banks from these countries account for more than 80 percent of the foreign claims (see Majuca 2013 for the data details). The Philippine sectors most exposed are the public sector and the private non-bank sector. In contrast, for Singapore, there is more cross-border banking risk diversification, with the exposure spread out to banks in many countries instead of being concentrated in a few economies. In the cases of Indonesia and Viet Nam, meanwhile, there is also a degree of concentration in EU and Japanese banks, but less as compared to the Philippines.

### Overall Summary of the Linkages

In sum, the ASEAN economies, whether a developed economy like Singapore, or part of ASEAN-5 like the Philippines, or a CLMV country, are increasingly integrated with ASEAN

and the world through both the trade and financial channels. It is, therefore, important to understand how the shocks from the rest of the world would affect ASEAN as an aggregate as well as individual AMSs. At the same time, it is important to understand the channels through which these shocks reverberate to the ASEAN economies.

The succeeding section explains this through a three-variable vector autoregression (VAR) model with the following: rest of the world GDP growth rate (as measured by the difference of the log quarterly real output), ASEAN-5 GDP growth rate, and the AMS GDP growth rate.

### Vector Autoregression (VAR) Analysis

A VAR analysis for representative AMSs was estimated for this paper, with Singapore representing a developed country, the Philippines or Indonesia representing ASEAN-5 economies and Viet Nam representing the CLMV (Cambodia, Lao, Myanmar and Viet Nam), where Viet Nam was chosen for data availability reasons.

The following may be gleaned from the results:

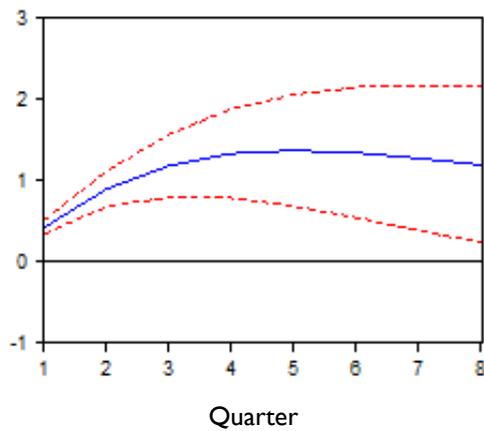
- **The ASEAN region is potentially vulnerable to external disturbances from the rest of the world (ROW).** A typical shock to the rest of the world is about 0.5 percentage point on impact, increasing to about 1.3 percentage points after a year (Figure 7a). In response, ASEAN GDP growth rises by about 0.4 percentage point on impact and rises by about 0.9 percentage point after two years (Figure 7b).

As to the impact of a shock from the rest of the world into a typical AMS, the results are :

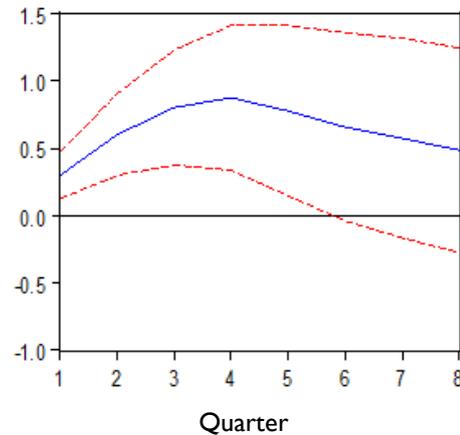
- **Singapore is affected more by output shocks from the rest of the world than**

**shocks from the ASEAN region.** In response to the resulting ASEAN GDP growth, Singapore's GDP rises by about 0.6 percentage point on impact and increases to about 1 percentage point after a year. However, the direct impact of the rest of the world to Singapore is about 1 percentage point on impact, increasing to about 2.2 percentage points after a year (Figure 8a). This is so because as the variance decomposition reveals, about 30 percent of Singapore's output is explained by the variations in the GDP of the rest of the world while less than 10 percent of Singapore's output is explained by variations in ASEAN GDP (Figure 8b).

**Figure 7a. Response of ROW GDP to ROW Output Shock**

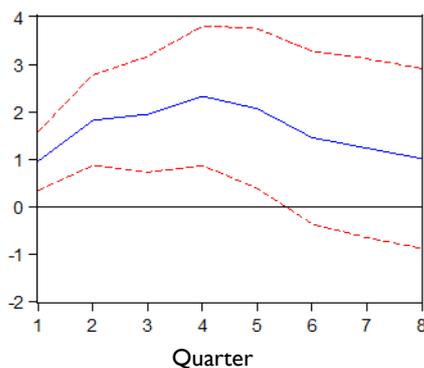


**Figure 7b. Response of ASEAN GDP to ROW Output Shock**

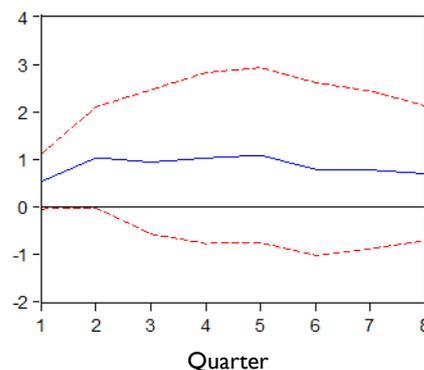


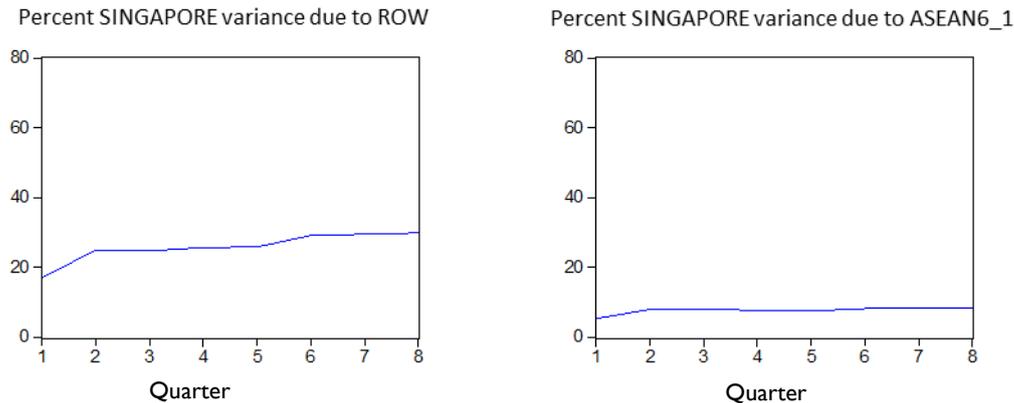
**Figure 8a. Response of Singapore GDP to ROW and ASEAN Output Shocks**

Accumulated Response of SINGAPORE to ROW



Accumulated Response of SINGAPORE to ASEAN6\_1



**Figure 8b. Variance Decompositions of Singapore GDP**

- **For Indonesia and the Philippines, domestic factors are more important than external factors of growth.** For Indonesia, much of the variation in GDP is explained by domestic shocks, so the rest of the world shocks do not have as much impact to Indonesia either directly or through ASEAN (Figures 9a and 9b). The same appears to be true for the Philippines (Figures 10a and 10b).
  - **With respect to Viet Nam, on the other hand, external factors are non-trivial.** The initial response of Viet Nam's GDP to a rest of the world shock, both directly and indirectly through ASEAN, is about 0.1 percentage point on impact, accumulating to about 0.4 percentage points after two years (Figures 11a and 11b).
- Overall, of the four AMSs in consideration (Singapore, Indonesia, the Philippines and Viet Nam), Singapore appears to be the most sensitive to impacts from the rest of the world, either directly or indirectly through its impact on the ASEAN. For the Indonesian and Philippine economies, on the other hand, domestic factors are more important than external shocks. The variation of Viet Nam's GDP as a result of a rest of the world shock, meanwhile, appears to be non-trivial.
- **The growth spillovers from the ASEAN region are transmitted to each of the representative AMSs via trade, financial and commodity price channels. The most important channel varies for each of the AMSs.** In decomposing the cross-region spillovers into three potential channels, namely, the trade channel, financial channel, and commodity prices channel, the results indicate that for Singapore, the exports and the financial channels are the most significant channels of the growth spillovers while the commodity price channel's contribution is from negligible to moderate. As Figure 12 shows, the sum of the contributions of the three channels is a good approximation of the overall spillovers. This verifies the accuracy of the main results from the VAR. Moreover, the Singaporean economy has been export-driven for many decades, with a significant chunk of its output accounted for by huge net exports. Its financial markets are also an important factor of growth.
  - **For Indonesia, the commodity price channel is the most important, followed by the financial channel, and then the exports channel.** The commodity price channel captures more than half of the growth spillovers to Indonesia. The result depicted by Figure 12 is consistent with the

fact that Indonesia is a net commodity exporting country. At the same time, the negative effects of an oil price hike to household income may have been alleviated by the government’s fuel oil subsidy.

the slowdown of the Philippine economy in 2008 was not caused primarily by the global economic crises. The steep spikes in food and fuel prices have played a significant role.

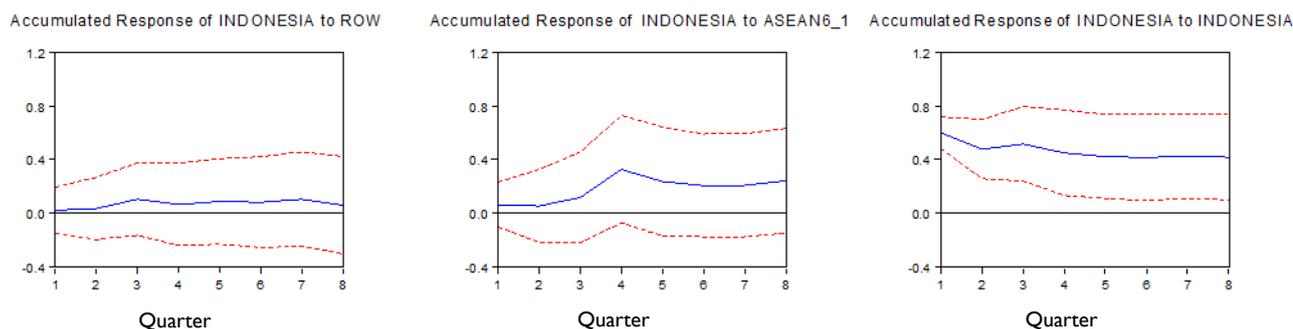
- **For the Philippines, Figure 12 shows that the commodity price channel plays a prominent role.** In contrast to Indonesia, the Philippines is a net commodity importing country. The result in Figure 12 showing the substantial negative effects of commodity prices on Philippine GDP is consistent with the findings of other long-time Philippine observers. Yap, Reyes, and Cuenca (2009), for example, concluded that

**Policy Implications**

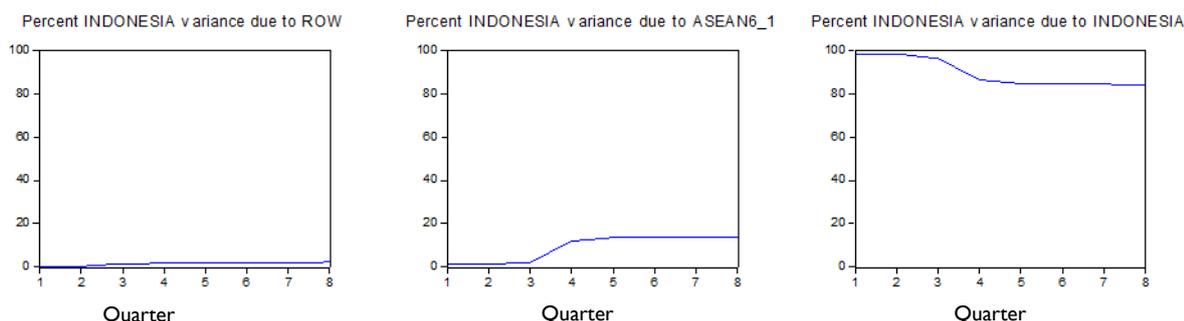
- **The intrinsic differences among the characteristics of the individual ASEAN economies pose a challenge for regional macroeconomic coordination.**

The results of the VAR analysis as well as the decomposition of the growth spillovers to the representative AMSs reveal one of the difficulties for regional macroeconomic coordination: there

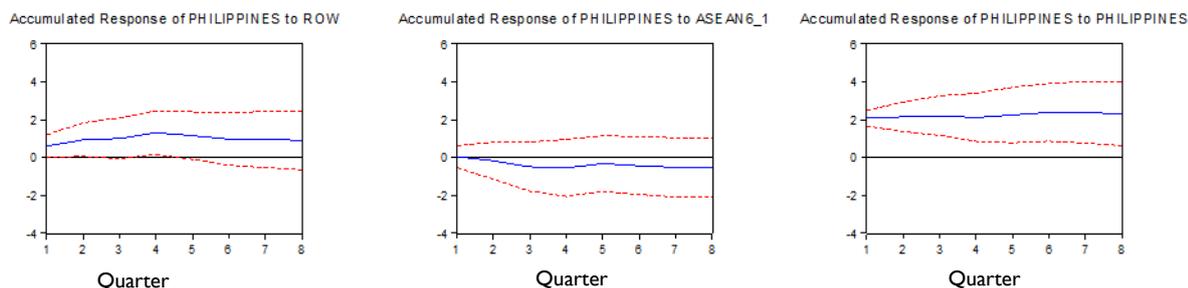
**Figure 9a. Response of Indonesia GDP to ROW, ASEAN and Indonesia Output Shocks**



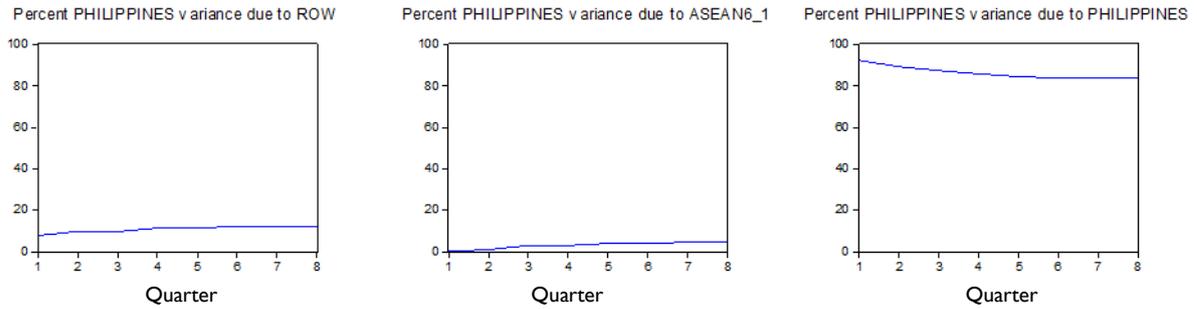
**Figure 9b. Variance Decompositions of Indonesia GDP**



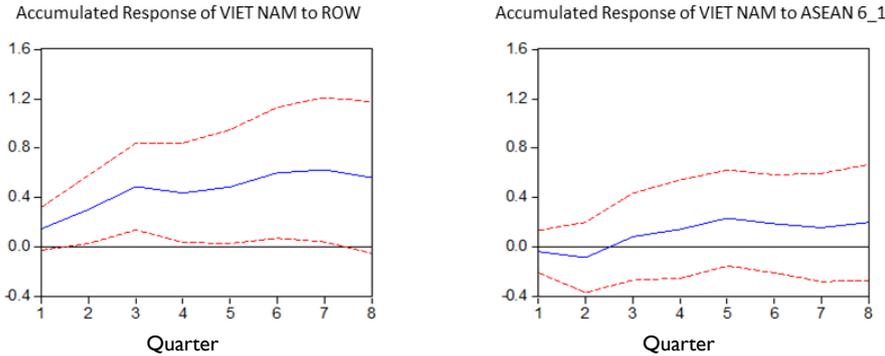
**Figure 10a. Response of Philippine GDP to ROW, ASEAN and Philippine Output Shocks**



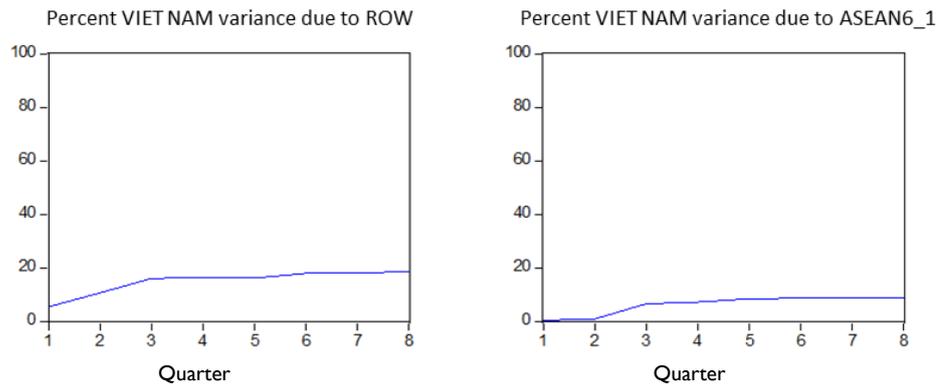
**Figure 10b. Variance Decompositions of Philippine GDP**



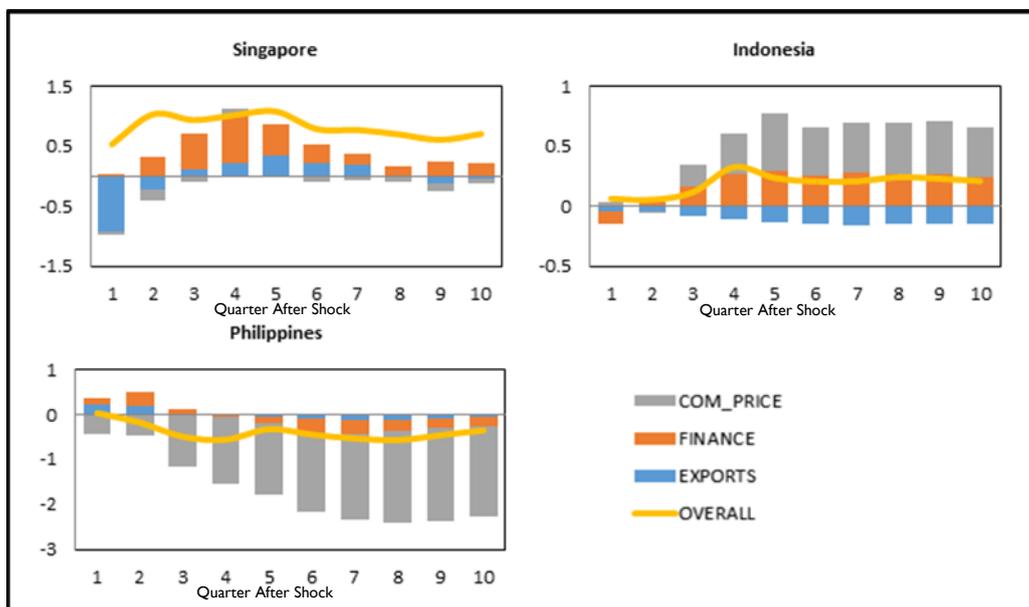
**Figure 11a. Response of Viet Nam GDP to ROW and ASEAN Output Shocks**



**Figure 11b. Variance Decompositions of Viet Nam GDP**



**Figure 12. Decomposition of Spillover Channels: into Trade, Financial and Commodity Price Channels (in Percent)**



exists a wide variation in the impacts of external shocks to the AMSs (e.g., Singapore is more affected by the rest of the world while Indonesia and the Philippines are more affected by domestic shocks) and in the sensitivity of the AMSs to the nature of shocks (e.g., growth spillovers to Singapore are driven mostly by exports while spillovers to Indonesia are transmitted mostly by commodity prices). This highlights the strong need for the individual AMSs to have robust macroeconomic conditions to make them more resilient to external shocks rather than becoming sources of intra-regional shocks.

- **The above finding therefore highlights the need for a strong coordinated macroeconomic monitoring in the ASEAN region to ensure that the AMSs maintain robust macroeconomic conditions as well as the importance of coordinated efforts to strengthen prudential regulations in the region. At the same time, it is also important to have a buffer and support mechanism in case of negative shocks.**

To date, there are several initiatives along these lines. In April 2011, the ASEAN + 3 Macroeconomic Research Office (AMRO) was established as a surveillance body tasked to monitor the regional economies. In May 2012, the Chiang Mai Initiative Multilateralisation (CMIM) fund, a regional reserve pooling fund, was expanded from USD 120 billion to USD 240 billion. Bilateral swap arrangements were also established among major Asian economies, including India, Japan, China, and the Republic of Korea (see ADB, 2013).

- **There is a possible scope for closer macroeconomic policy coordination within the ASEAN region.**

Some of the threats to macroeconomic stability are common to the AMS and ASEAN +3 economies (see also the VAR results), and there is a scope to either minimise negative spillovers across countries or maximise the gains from a coordinated action. As the Asian crisis, for example, has demonstrated, financial shocks can ripple across national borders. As is well-known in the optimal currency area (OCA) literature, the coordination of monetary and exchange rate policies would help intensify the trade and production linkages. Moreover, the contagion effects of speculative attacks tend to be more prevalent in areas that are more closely interconnected (see Aminian, 2005).

- **Common threats can be addressed through collective action, and spillovers and externalities that come about because of the interconnectedness of the economies can be internalised through macroeconomic policy coordination (Kawai, 2005).**

In addition, monetary and exchange rate coordination may help minimise some exchange rate risks, and a coordinated realignment of exchange rates may help countries be more resistant to shocks. A regional dialogue on monetary and exchange rate policy may also help minimise some beggar-thy-neighbor policies and other non-cooperative type of strategies (see Aminian, 2005). To date, various policy fora exist to serve as venue for policy dialogues and monetary cooperation. These include the South East Asian Central Banks (SEACEN) Meetings, the Executives' Meeting of East Asia Pacific Central Banks (EMEAP), the Asia-Pacific Economic Cooperation (APEC) Finance Ministerial Meetings, the Asia-Europe Meetings (ASEM) and the United Nations Economic and

Social Commission for Asia and the Pacific (UNESCAP) meetings, among others (see ADB, 2013). These, along with the establishment of the AMRO and the expansion of the CMIM, are very good accomplishments.

- **However, the current system is not sufficient. To support deeper integration, the region should strengthen institutionalised mechanisms to coordinate the monetary, exchange rate, and fiscal policies among the member states. To achieve this, a stronger political will is required.**

Towards this end, a good start may be to implement the recommendations suggested by the Asian Development Bank Institute (2014) in the medium term. These include, among others, enhancing further the CMIM to boost the amount of emergency liquidity without requiring IMF supervision; advancing the CMIM and AMRO to become an "Asian Monetary Fund"; forming regional guidelines on capital controls in order to manage short-term capital flows; adopting an exchange rate coordination mechanism, for example, through harmonised inflation targeting where the economies' inflation targets gradually converge; formulating regional guidelines on fiscal sustainability; and institutionalising an ASEAN Financial Stability Dialogue among the region's central bank governors, financial ministers, and other key financial regulatory agencies (see Asian Development Bank Institute 2014). ■

<sup>1</sup> We thank Dr. Ponciano Intal for helpful comments and suggestions. The usual caveat applies.

<sup>2</sup> Overall, abstracting from the impact of the 2007-2008 global crisis, the figure depicts an increasing trend of trade intensity for Singapore and Viet Nam. Indonesia's trade intensity with the world appears to be constant during the past decade while the Philippines appears to have a decreasing share of trade as a percent of GDP. However, relative to their trade to the world, the AMSs tended to have an increasing share of bilateral trade

with ASEAN countries. This is true even for the Philippines. Although its trade with ASEAN as a percent of GDP decreased slightly from 11.4 percent in 1999 to 10.2 percent in 2011, the share of ASEAN trade relative to the world increased from 14.3 percent to 21.1 percent during the same period because its trade with the world dropped as a percent of GDP. The same increasing intensity for ASEAN trade characterises the Indonesian data while the Singaporean data show a marginally increasing importance for ASEAN trade. Viet Nam, on the other hand, saw its trade with ASEAN as a percentage of GDP increased substantially from 20.3 percent in 1999 to 27.9 percent in 2011. Yet because its trade with the world increased even faster, it registered a relatively lower importance for ASEAN trade vis-à-vis its trading with the world. Nonetheless, in absolute terms, it is clear that trade with ASEAN is also increasing in importance for Viet Nam.

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