

# External Risks and Macro-Financial Linkages in the ASEAN-5 Economies

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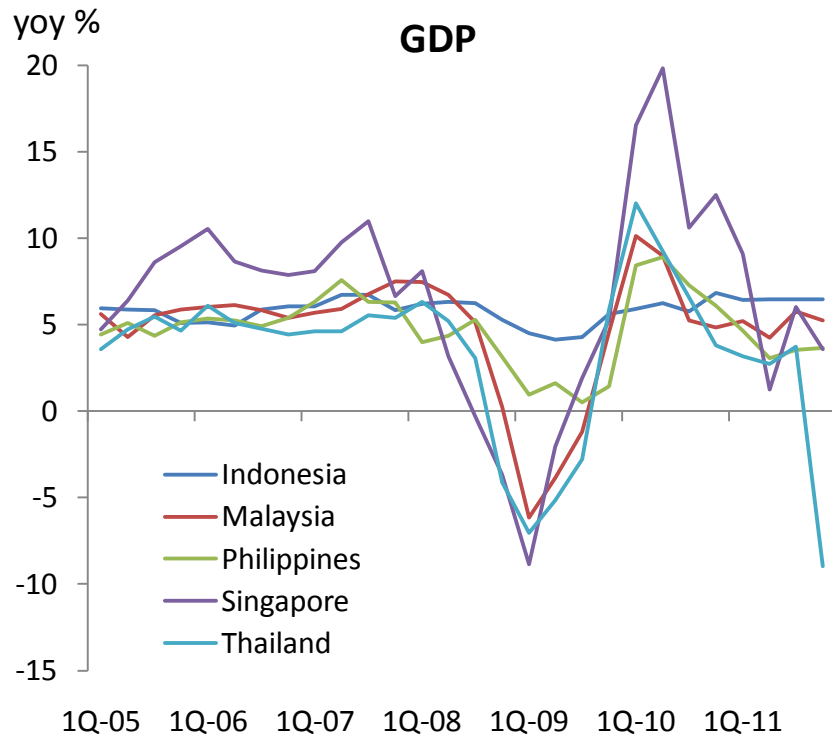
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# The global economic environment in recent years

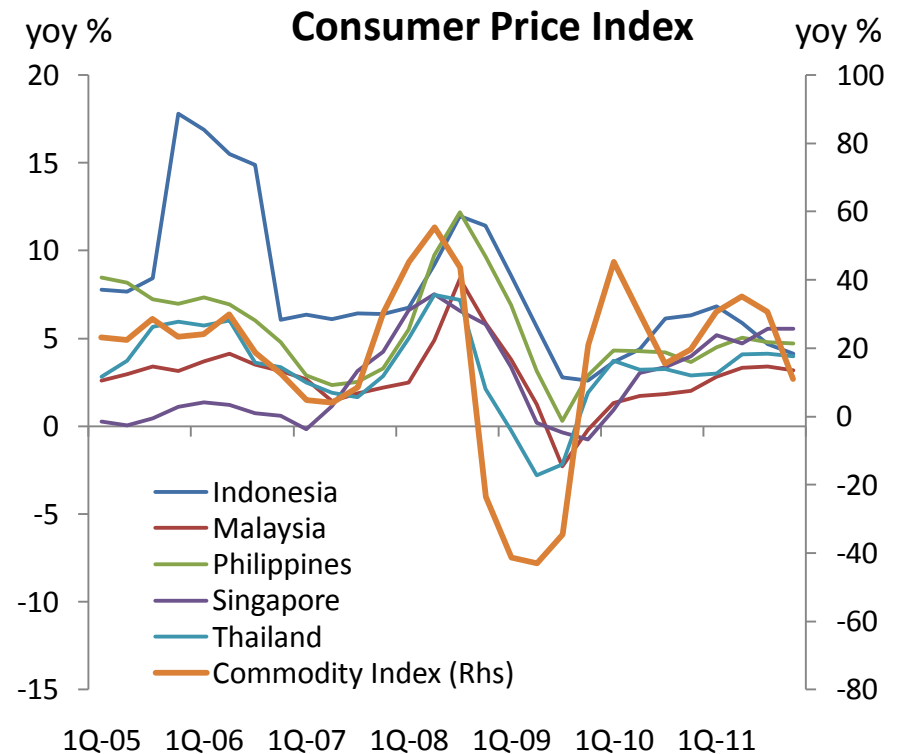
- 1. Persistent stresses in financial markets**
- 2. Volatile commodity prices**
- 3. Markedly slower economic growth**

# ASEAN-5 economies are exposed and have been affected

**Economic growth is highly dependent on external demand**



**Inflation has been volatile in tandem with global commodity prices**



Source: Haver and International Monetary Fund (IMF)

# Motivated by exposure of the ASEAN-5 to external risks

## ■ **Two questions**

- What is the impact and overall influence of external shocks in the ASEAN-5?
- How are external financial shocks transmitted to the real economies of the ASEAN-5 countries?

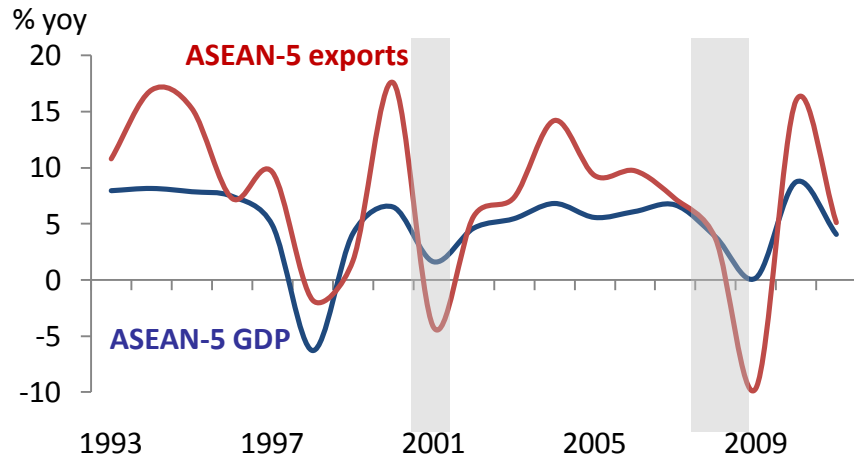
## ■ **Study focuses on 3 aspects of the external environment**

- Global demand
- Commodity prices
- Global financial conditions

## ■ **Methodology**

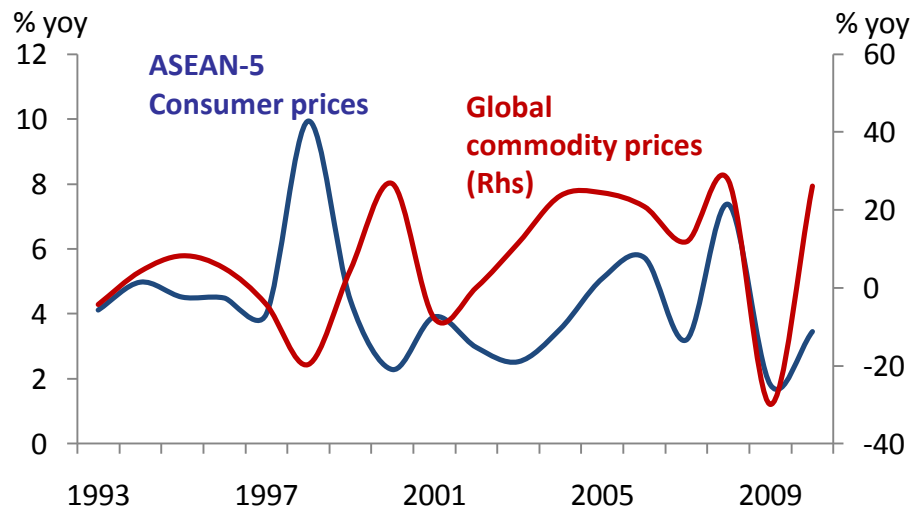
- Structural Vector Autoregression (SVAR)

# The transmission of external demand and commodity price shocks



## External Demand

- Output benefits through **trade channel**
- Two slowdowns in exports and GDP associated with US/global recessions



## Commodity Prices

- Commodity prices are passed-through to consumer prices via imports and intermediate inputs

Note: ASEAN-5 figures are average year-on-year growth of the individual countries. Shaded areas in the top figure indicates US recessions

# The transmission of external financial shocks

## ■ Access to financing

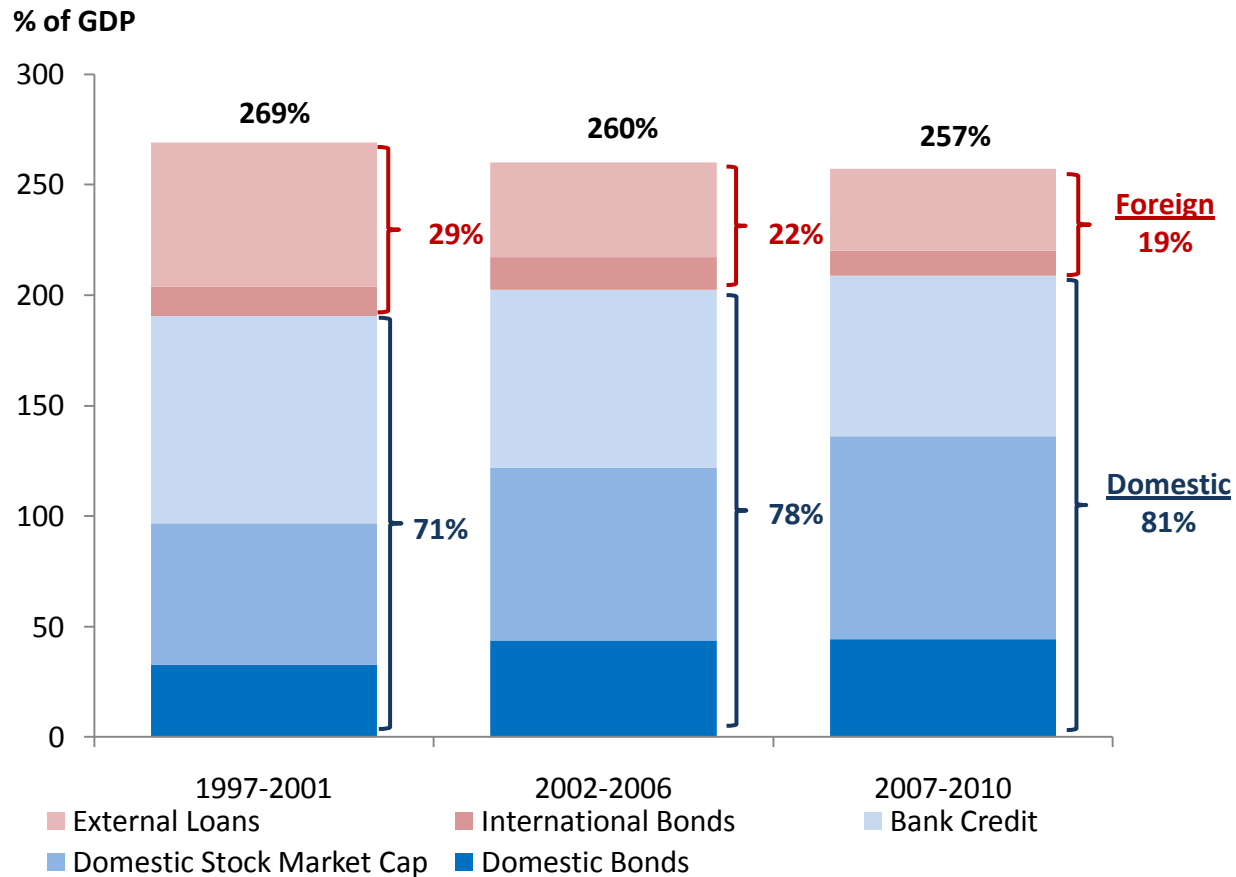
- **Borrowers** – Financial accelerator mechanism (Bernanke, Gertler & Gilchrist, 1999)
- **Lenders** – Bank capital and bank lending (Bernanke & Blinder, 1992; Kashyap & Stein, 1995; Van Den Heuvel, 2002)
- **Equity markets** – Tobin's  $q$

## ■ Uncertainty

- Episodes of financial stress associated with higher uncertainty in financial markets and economic outlook (Hakkio & Keaton, 2009)
- Induces firms to delay hiring and investing, and households to delay expenditures amid uncertain employment and wealth (Bloom, 2009)

# Direct financing exposure of the ASEAN-5 Economies

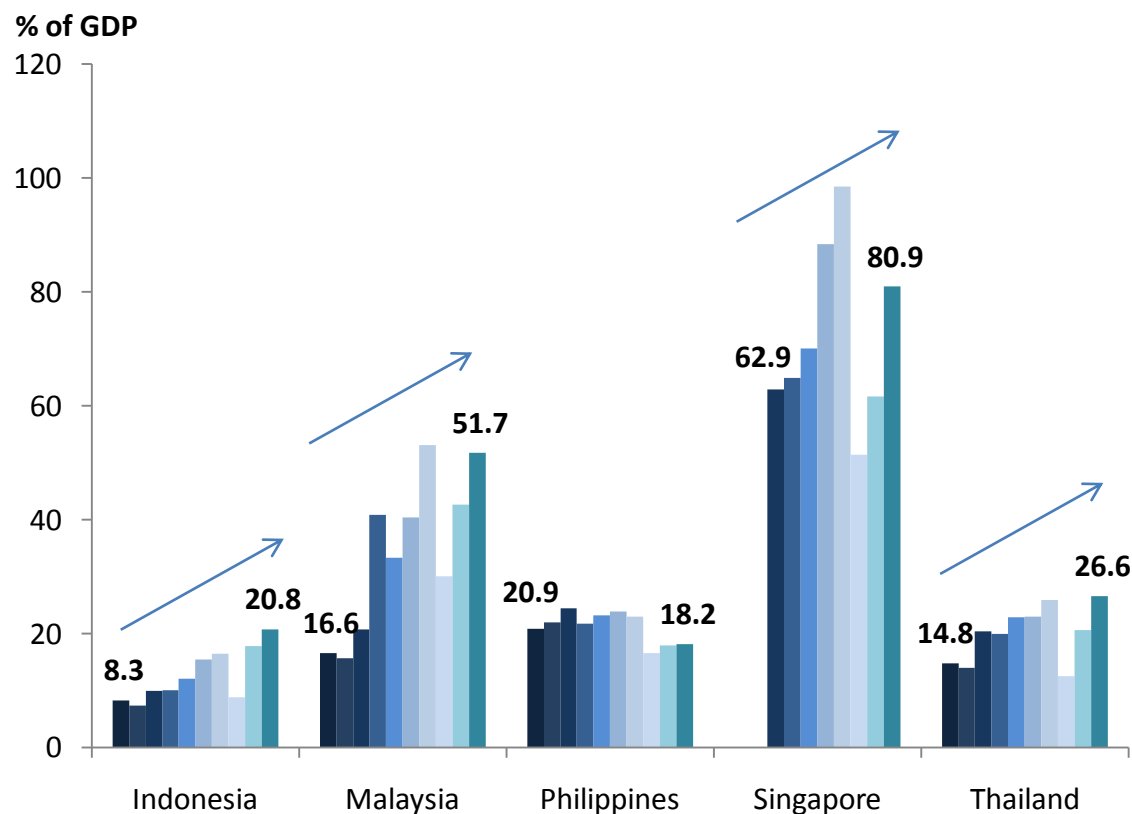
## Major Sources of Financing in the ASEAN-5 Economies



**Region's direct financing exposure to external sources have declined since the Asian Financial Crisis...**

# Indirect financing exposure of the ASEAN-5 Economies

## External Portfolio Liabilities in the ASEAN-5 Economies (2001-2010)



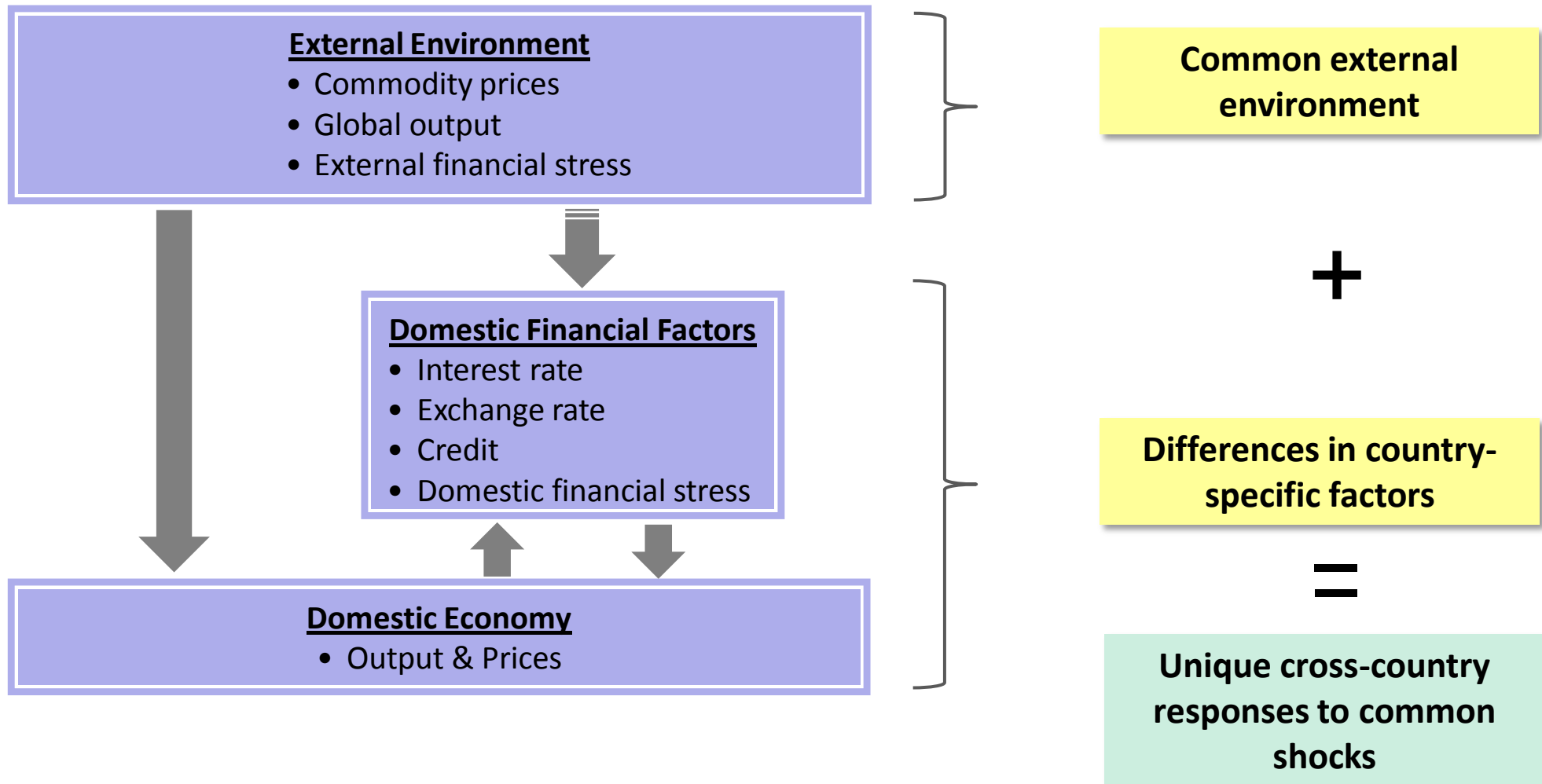
**...but indirect exposures have increased through higher foreign participation in domestic capital markets**

Source: Haver

Note: Singapore data starts from 2003 due to data limitations

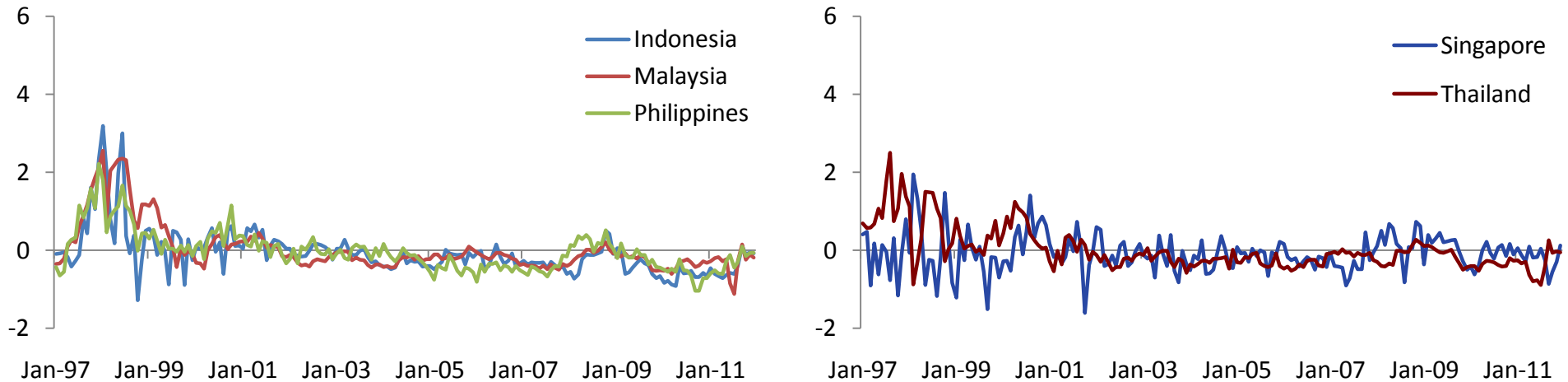


# Econometric methodology: Variables and causality assumptions in the SVAR

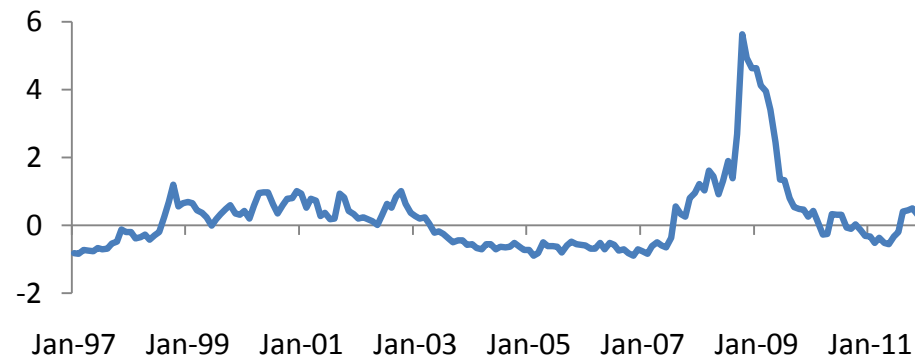


# Financial Stress Indices (FSIs) used as summary measures of stress in financial markets

## Country-specific FSIs for the ASEAN-5

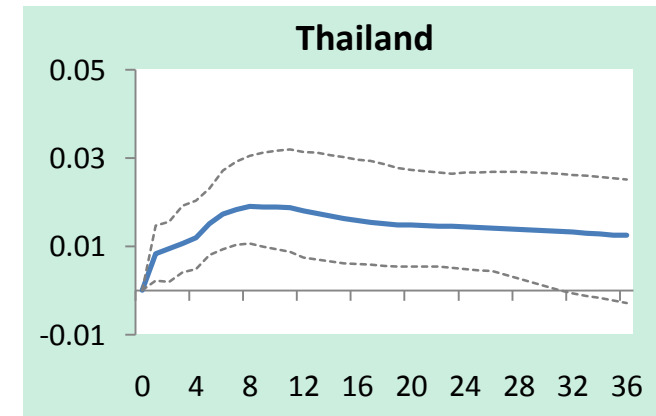
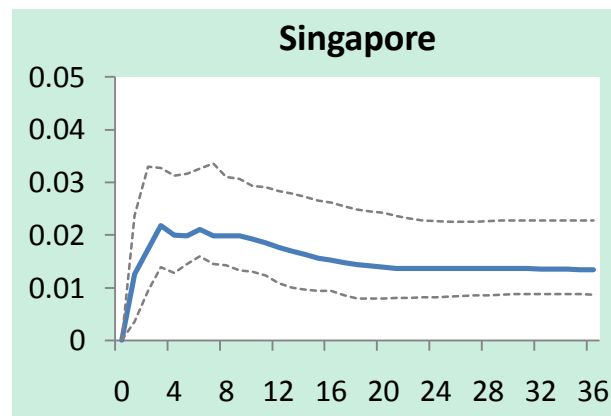
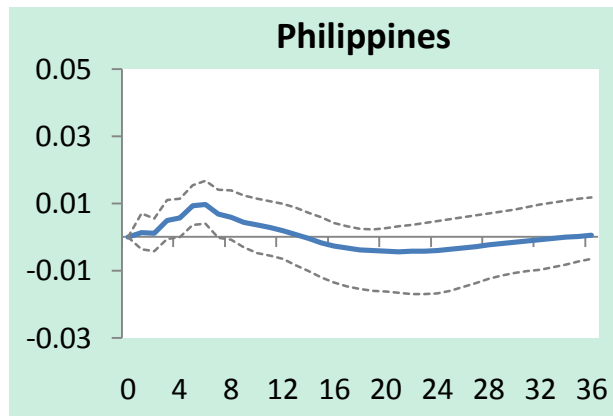
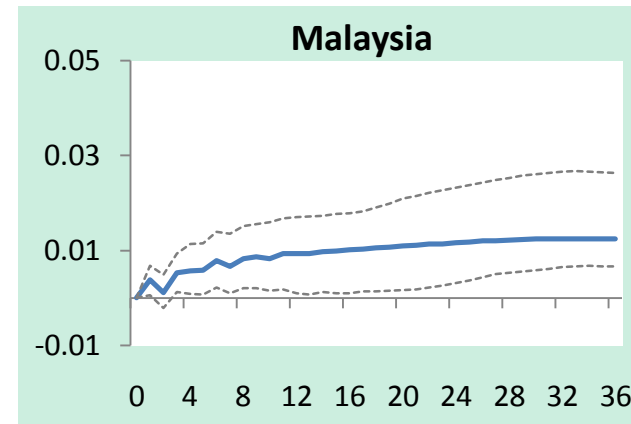
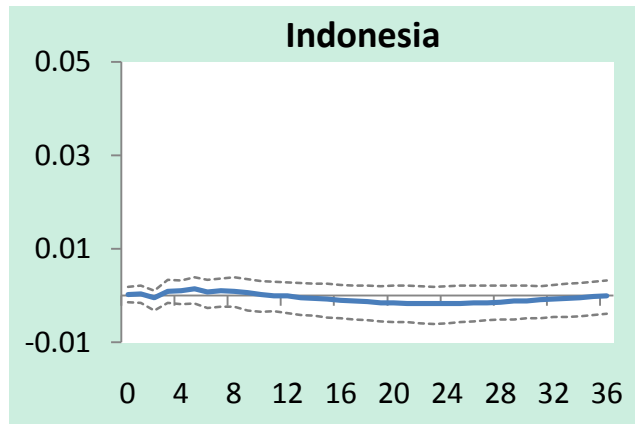


## FSI for US economy proxies for global financial conditions



Note: ASEAN-5 indices are from Tng, Kwek & Sheng (2011); US index is from Hakkio and Keaton (2009)

# A positive external demand shock causes an increase in ASEAN-5 output

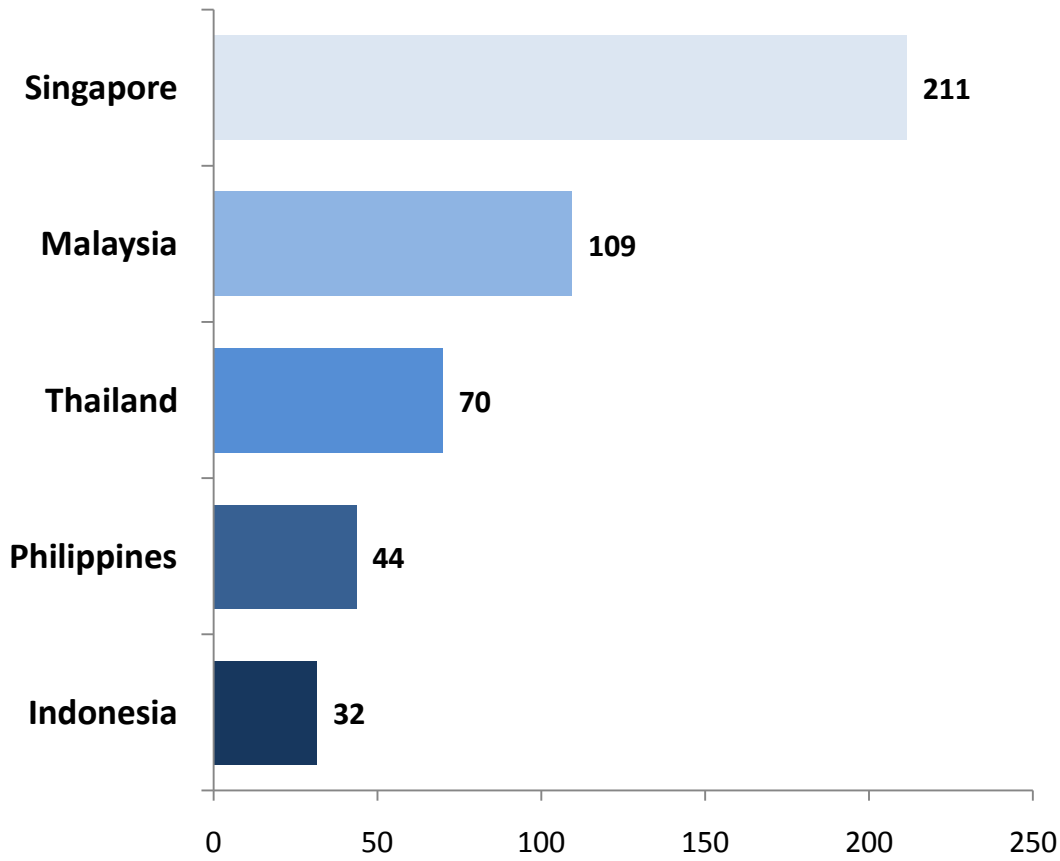


Note: Solid lines are responses to one standard deviation shocks. The dotted lines are 90<sup>th</sup> percentile bootstrapped confidence intervals.

# Positive relationship between trade openness and responses of output

## Exports of Goods & Services

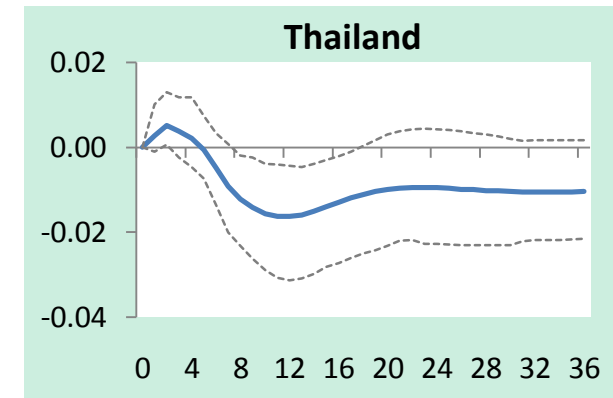
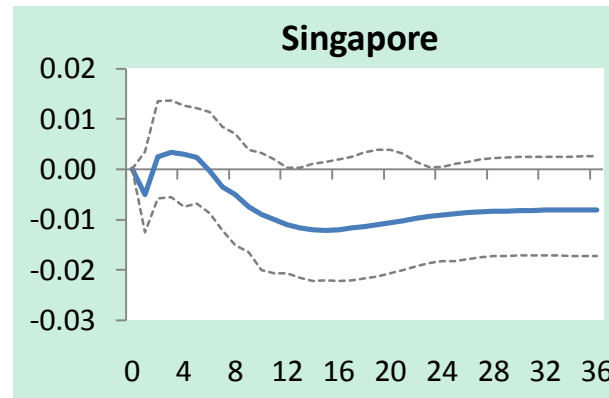
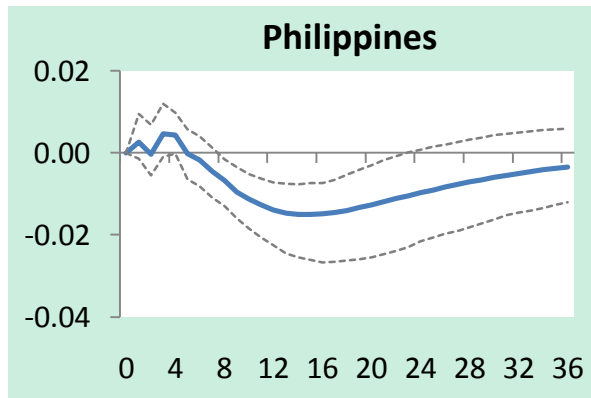
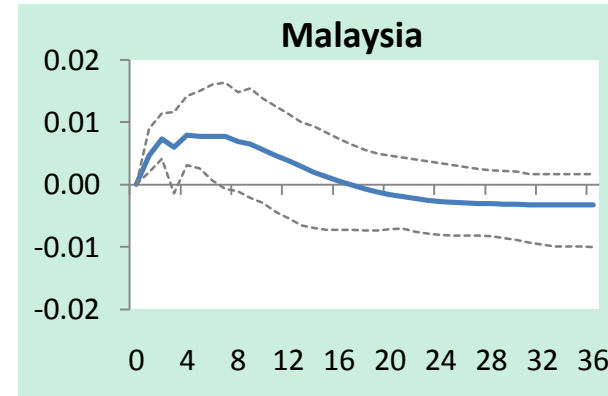
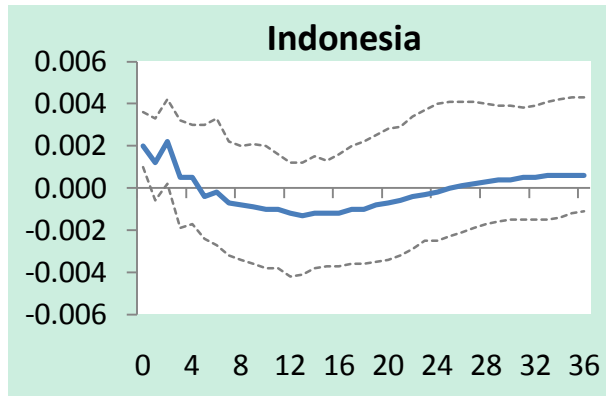
(Avg. 2000-2010, % of GDP)



**Magnitude of output response and duration of significance increases along with export-orientation**

Source: World Bank

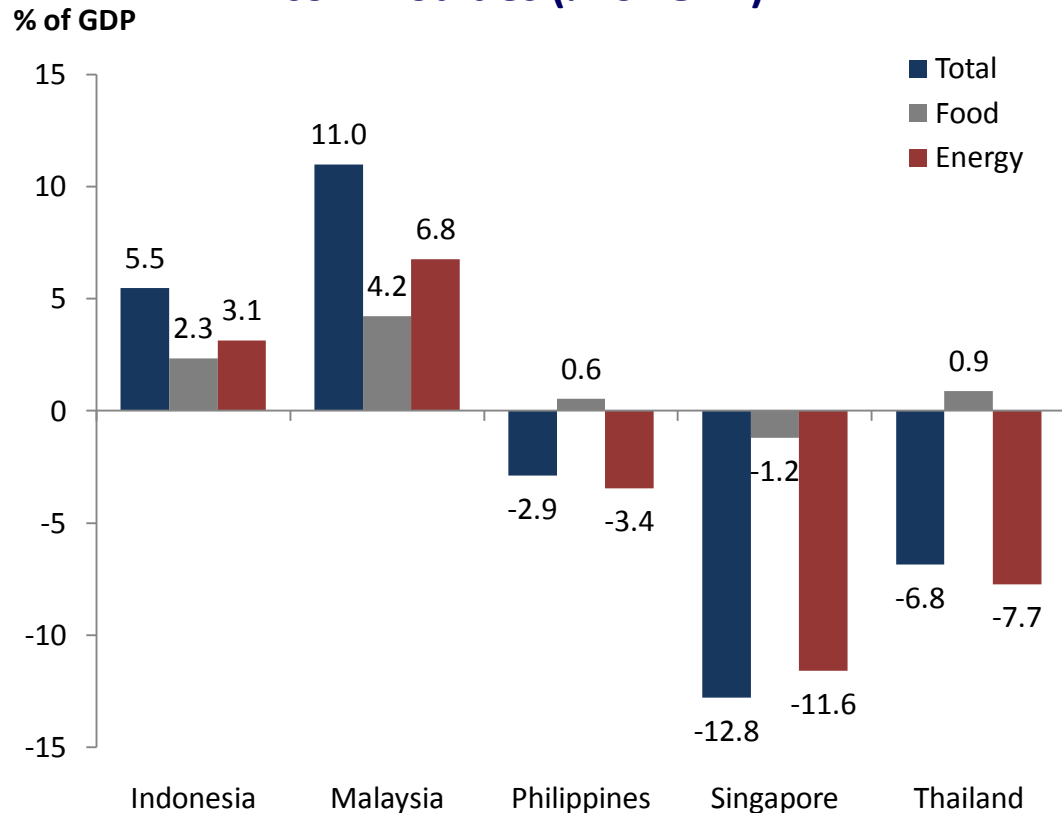
# Varied responses of ASEAN-5 output to adverse commodity price shocks



Note: Solid lines are responses to one standard deviation shocks. The dotted lines are 90<sup>th</sup> percentile bootstrapped confidence intervals.

# Malaysia temporarily benefits from higher commodity prices

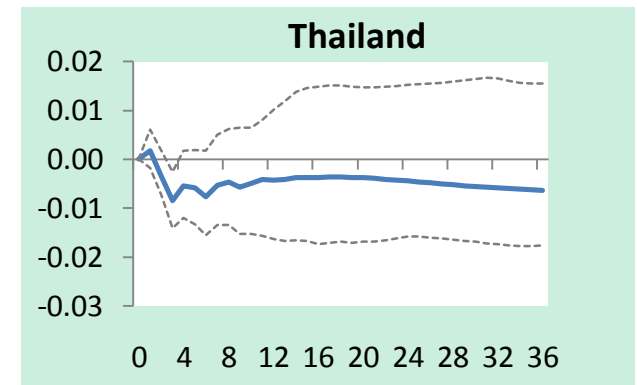
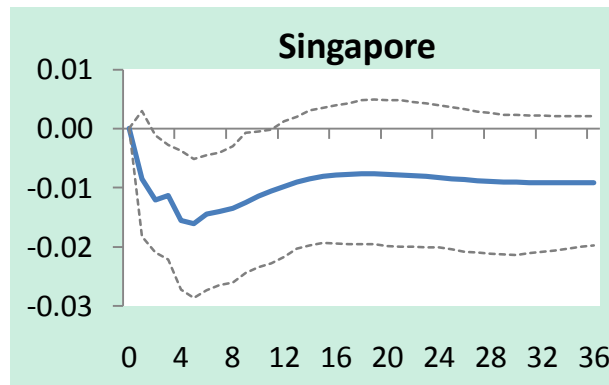
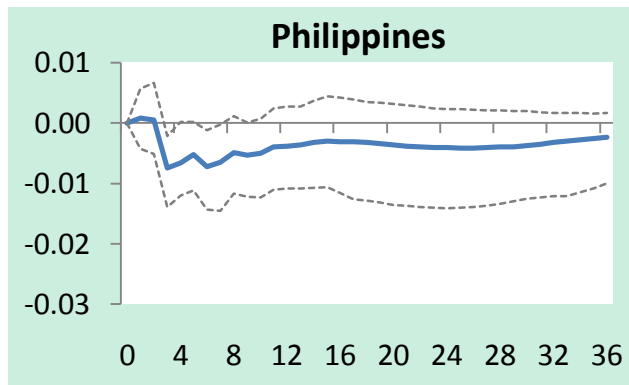
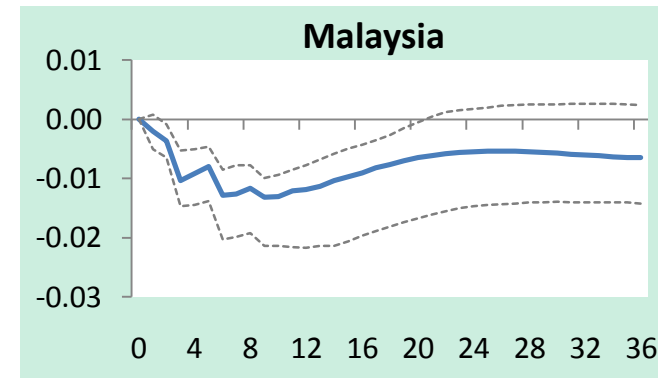
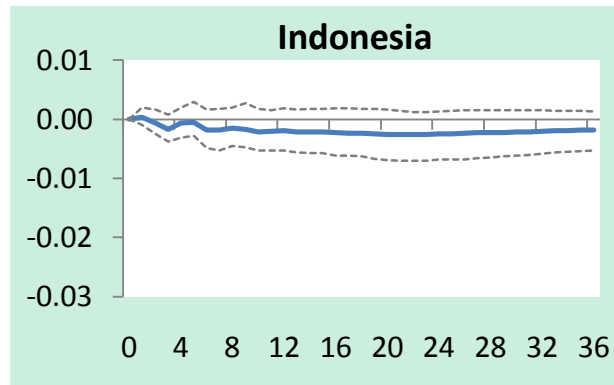
Net trade position in food and fuel commodities (% of GDP)



Note: Energy includes crude oil and gas. Food includes all food items in crude & non-processed form, and oil derived from vegetables & animals

- Malaysia and Indonesia are net exporters of commodities
- Largest negative output responses in Singapore and Thailand coincide with heavy reliance on foreign sources for commodities

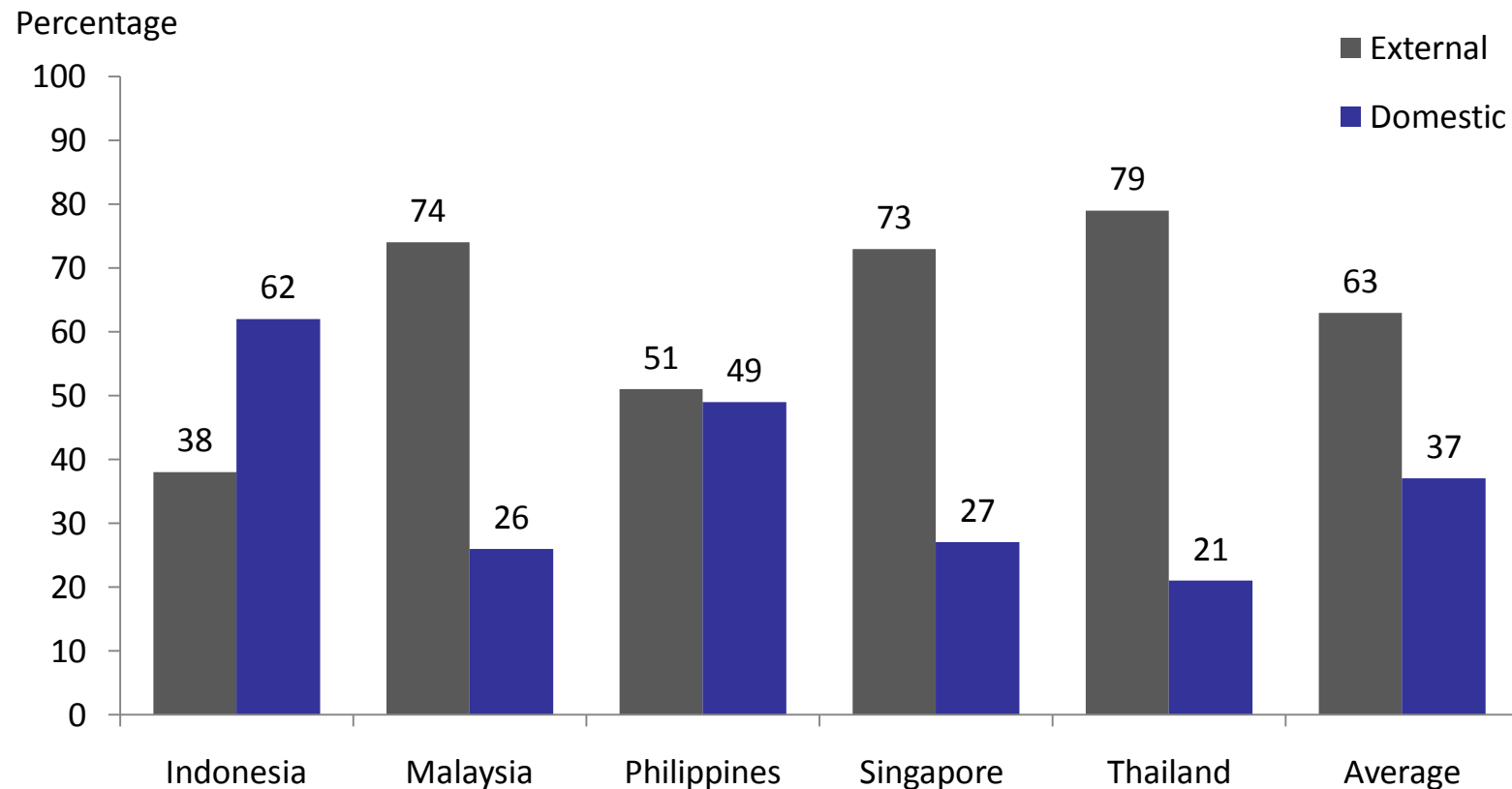
# Output declines after an adverse external financial shock



Note: Solid lines are responses to one standard deviation shocks. The dotted lines are 90<sup>th</sup> percentile bootstrapped confidence intervals.

# Real performance of ASEAN-5 economies are driven mostly by external factors

## Variance decomposition of output in the ASEAN-5 economies

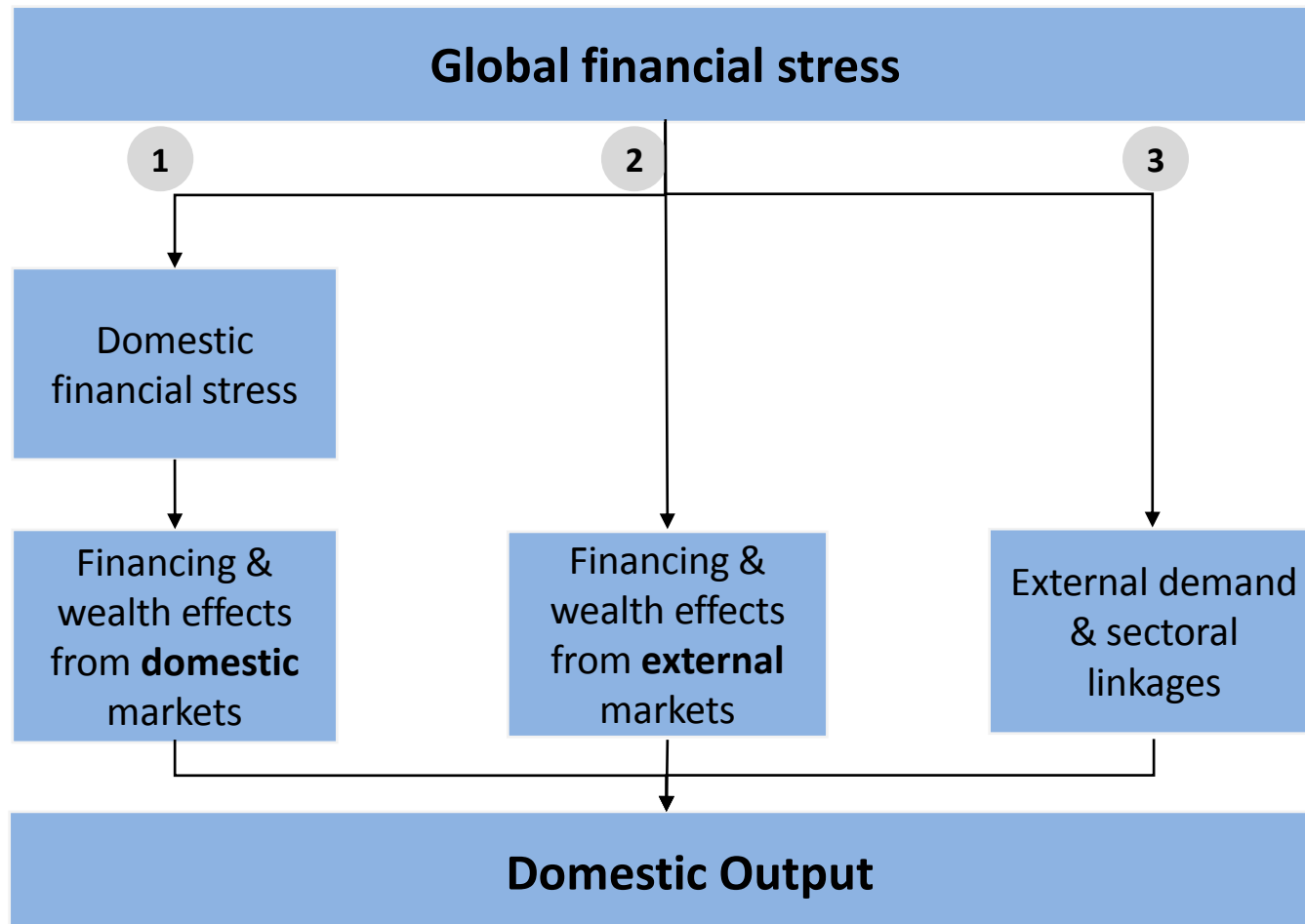


Note: Forecast error variance decomposition computed at 24-month horizon. Results are similar at the 36-month horizon.



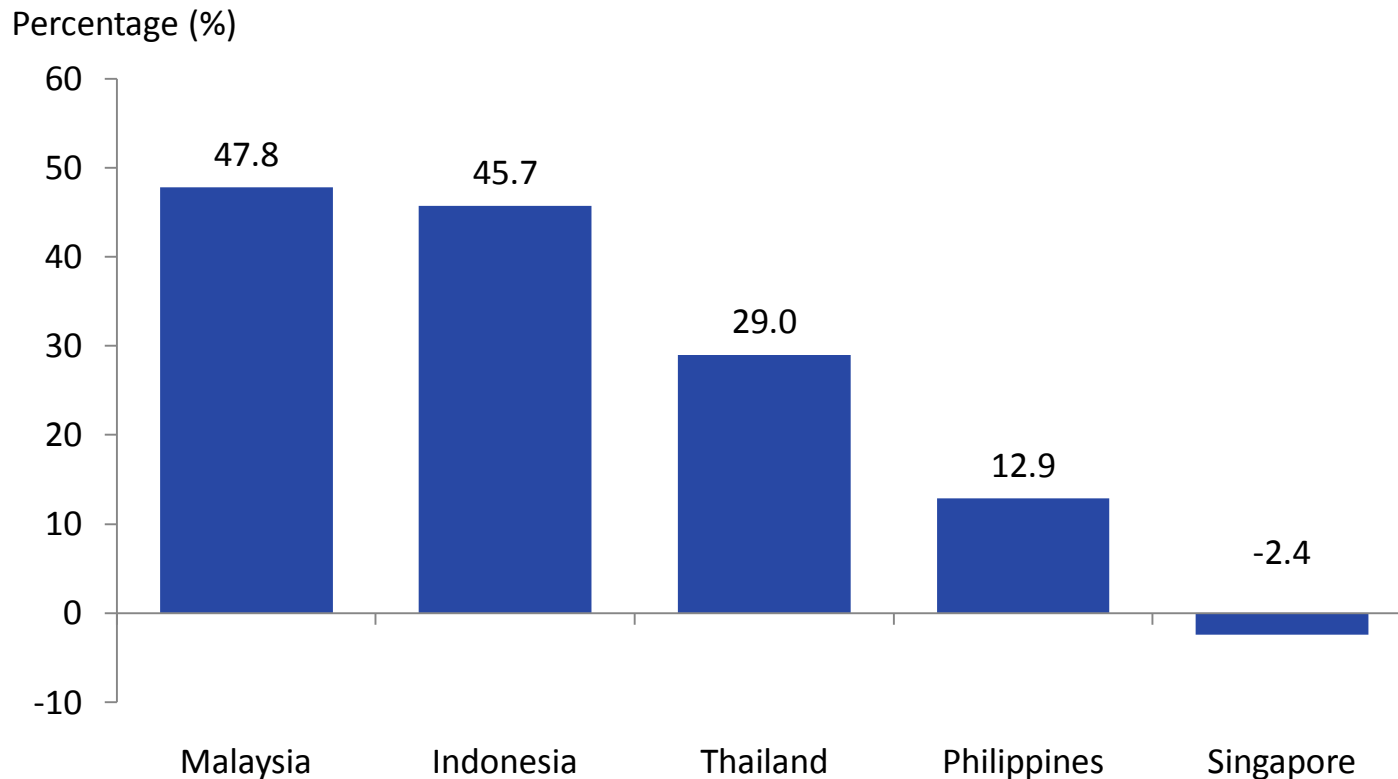
# **How are External Financial Shocks Transmitted to the Real Economy?**

# Three transmission channels of external financial shocks to ASEAN-5 output



# Large variation in pass-through of external financial shocks to output via domestic financial markets

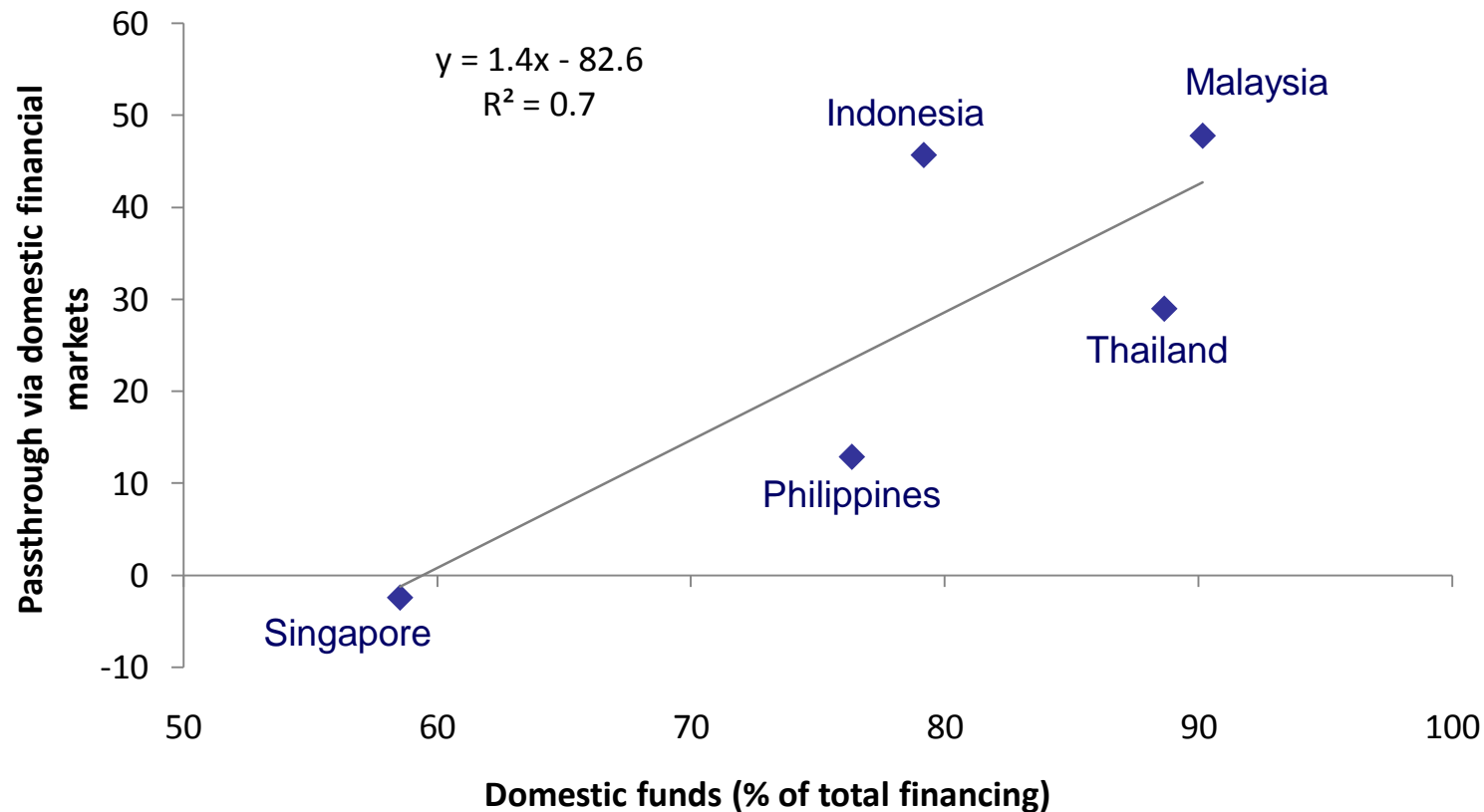
## Degree of Pass-through via domestic financial markets



Note: Pass-through coefficients are computed by exogenizing the domestic FSI variable in the SVARs and comparing the change in cumulative responses of external financial shocks on output

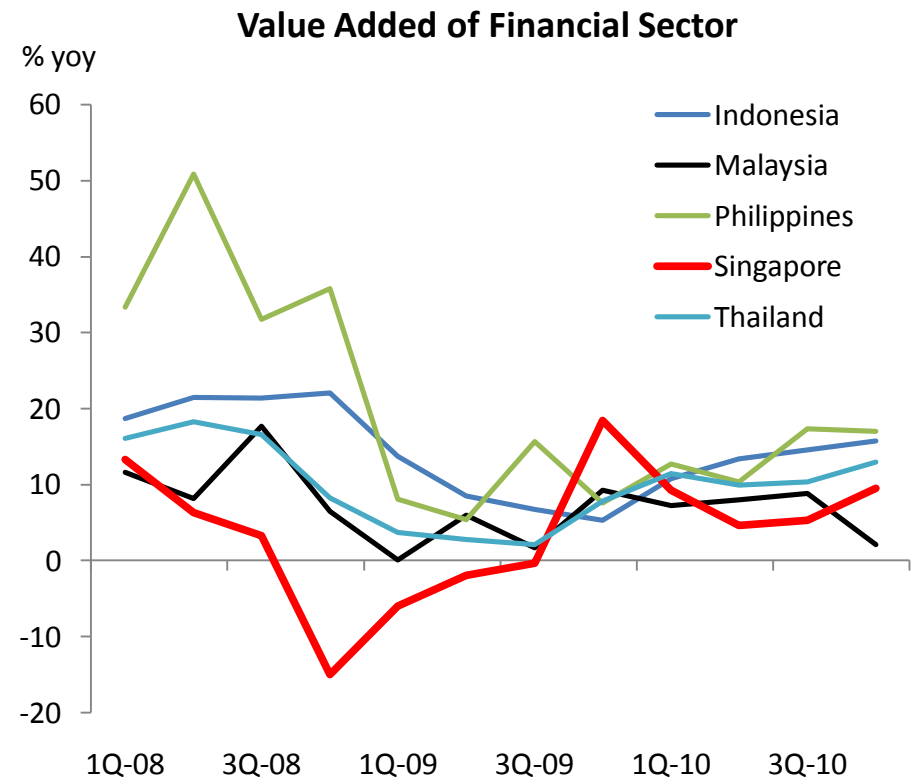
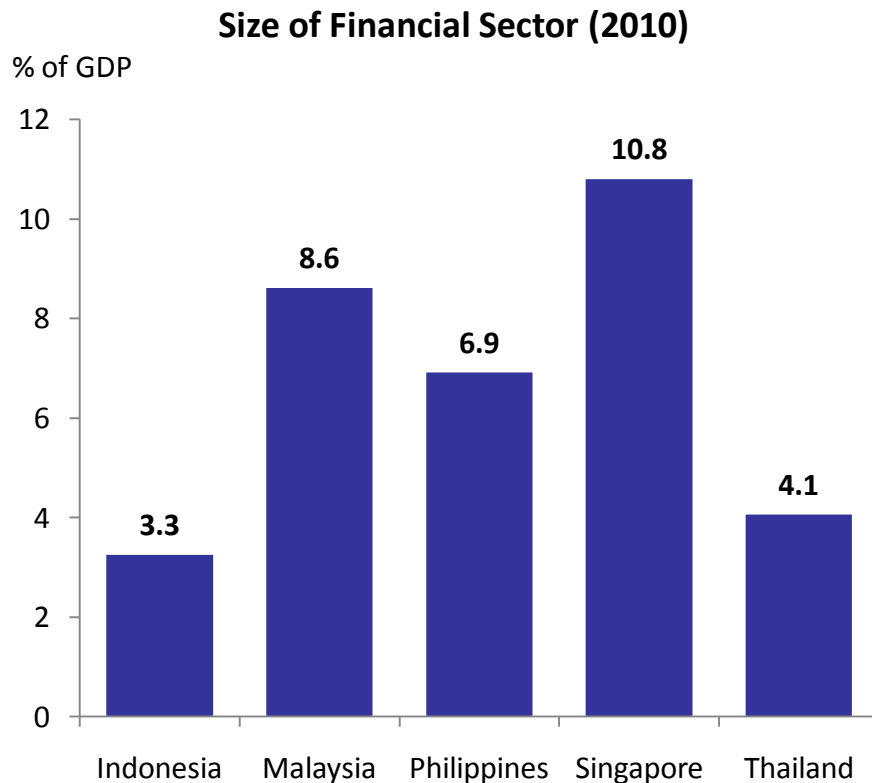
# Countries displaying high pass-through are largely reliant on domestic markets for financing

Positive relationship between pass-through via domestic financial markets and financing reliance on domestic markets



# Fee income declines during financial episodes, affecting value-added of the financial sector

Singapore's finance sector is the largest and was worst affected during the global financial crisis



# Key Findings

**ASEAN-5 growth is driven to a large extent by external conditions, although country-specific characteristics result in varied responses to common shocks**

- Higher export-orientation leads to higher exposure to external demand conditions
- Net exporters of commodities are temporarily insulated from adverse commodity price shocks
- External financial episodes affect output by:
  1. Affecting domestic financing conditions (Malaysia, Indonesia)
  2. Affecting access to financing from international financial markets (Singapore)
  3. Openness and size of financial sector (Singapore)