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

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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

**External Environment**
- Commodity prices
- Global output
- External financial stress

**Domestic Financial Factors**
- Interest rate
- Exchange rate
- Credit
- Domestic financial stress

**Domestic Economy**
- Output & Prices

**Common external environment**

**Differences in country-specific factors**

**Unique cross-country responses to common shocks**
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 90th percentile bootstrapped confidence intervals.
Positive relationship between trade openness and responses of output

**Exports of Goods & Services**
(Avg. 2000-2010, % of GDP)

- **Singapore**: 211
- **Malaysia**: 109
- **Thailand**: 70
- **Philippines**: 44
- **Indonesia**: 32

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 90th percentile bootstrapped confidence intervals.
Malaysia temporarily benefits from higher commodity prices

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

- 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

Note: Energy includes crude oil and gas. Food includes all food items in crude & non-processed form, and oil derived from vegetables & animals
Output declines after an adverse external financial shock

Note: Solid lines are responses to one standard deviation shocks. The dotted lines are 90th 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

1. Global financial stress
   - Domestic financial stress
     - Financing & wealth effects from domestic markets
       - Domestic Output
   - Financing & wealth effects from external markets
     - External demand & sectoral linkages

2. Domestic Output
Large variation in pass-through of external financial shocks to output via domestic financial markets

Degree of Pass-through via domestic financial markets

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage (%)</th>
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<tbody>
<tr>
<td>Malaysia</td>
<td>47.8</td>
</tr>
<tr>
<td>Indonesia</td>
<td>45.7</td>
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<tr>
<td>Thailand</td>
<td>29.0</td>
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<tr>
<td>Philippines</td>
<td>12.9</td>
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<tr>
<td>Singapore</td>
<td>-2.4</td>
</tr>
</tbody>
</table>

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

\[ y = 1.4x - 82.6 \]
\[ R^2 = 0.7 \]

![Graph showing the relationship between pass-through and domestic funds as a percentage of total financing.](graph.png)
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

Size of Financial Sector (2010)

Value Added of Financial Sector

<table>
<thead>
<tr>
<th>Country</th>
<th>% of GDP</th>
<th>% yoy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
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<tr>
<td>Singapore</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>4.1</td>
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</tbody>
</table>

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)