Understanding Financial Stability & Macro-prudential Policy

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Outline

• What is Financial Stability (FS)?

• Why Financial Stability

• What is Macro-prudential Policy – Definition & Objectives

• Systemic Risk: Sources & Dimensions

• Macro-prudential Toolkit

• Macro-prudential Policy Interaction with Other Economic Policies

• Example for Systemic Risk Assessment – Saudi Arabia

• Macro-prudential Issues and Challenges
The Economic Circular Flow – Role of financial Systems

- Government
  - Gov. purchases of goods & services
  - Gov. borrowing
  - Gov. transfers
- Household
  - Tax
  - Private saving
  - Wage, profit, interest, rent
- Market for Goods and Services
  - GDP
  - Investment spending
  - Exports
  - Imports
- Firms
  - Wage, profit, interest, rent
  - Borrowing & stock issues by firms
- Rest of world
  - Foreign borrowing & sale of stock
  - Foreign lending & purchases of stocks

Financial System
What is Financial Stability (FS)?

- Ability to **withstand shocks (resilience)** – e.g., macro and micro shocks
- Ability of the financial system to **process transactions without interruption** or intervention
- Market participants have **confidence** in the financial system
- Stable capital market in the sense that **prices are based on fundamentals**
## FS Definitions by Other Central Banks

<table>
<thead>
<tr>
<th>Central Bank</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td><strong>Australia</strong></td>
<td>A stable financial system is one in which financial intermediaries, markets and market infrastructure facilitate the smooth flow of funds between savers and investors and by doing so, helps promote growth in economic activity</td>
</tr>
<tr>
<td><strong>South Africa</strong></td>
<td>The absence of the macroeconomic costs of disturbances in the system of financial exchange between households, businesses and financial-service firms</td>
</tr>
<tr>
<td><strong>ECB</strong></td>
<td>A condition in which the financial system—comprising of financial intermediaries, markets and market infrastructures—is capable of withstanding shocks and the unraveling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities</td>
</tr>
<tr>
<td><strong>Japan</strong></td>
<td>“Financial system stability” refers to a state in which the financial system functions properly, and participants, such as firms and individuals, have confidence in the system”</td>
</tr>
</tbody>
</table>
Why Financial Stability?

• Significant developments in the financial world (deregulation, innovation, globalization)

• Frequent Financial Disruptions
  - Currency crisis in Mexico (1994)
  - Asian financial crisis (1997)
  - LTCM collapse (1998)
  - Argentina crisis (2000)
  - The GFC (2007 --)
Common symptoms of Crises

1. Exchange rate miss-valuation
2. Current account deficits (BoP crises)
3. Rising Debt (consumer, corporate, Government)
4. Low/Falling reserves
5. Mismatch on balance sheets (currency, maturity)
6. Erosion of policy credibility/Poor regulation (Confidence issues)
7. Sensitivity to external shocks
Why Financial Stability?

Crises revealed/re-emphasized that:

• Financial Crisis cause too much damage and output losses, contagious, and too costly to resolve
• Price stability is not enough
• Real and financial sectors inter-dependence
• Government-financial sector relationship
• Healthy financial system ensures smooth policy transmission mechanism
  • Financial markets host fiscal and monetary transmission channels

→ Should consider Financial Stability as an explicit economic policy objective and develop a policy to achieve it

→ Macro-prudential Policy
What is MP Policy

Policy aimed at maintaining financial stability

The use of primarily prudential (regulatory) tools to limit systemic risk (IMF, 2011)

Systemic risk is “the risk of disruptions to the provision of financial services that is caused by an impairment of all or parts of the financial system, and can cause serious negative consequences for the real economy” (IMF, 2009)
**Origins & Evolution**

- **June, 1979**
  - BIS meeting on International lending
  - “… microeconomic problems began to merge into macroeconomic problems at the point where micro-prudential problems became what could be called macro-prudential ones”

- **Oct, 1979**
  - BoE background note: “This macro-prudential approach considers problems that bear upon the market as a whole as distinct from an individual bank, and which may not be obvious at the micro-prudential level”

- **1986**
  - First public appearance when published in a BIS report on Recent innovations in international banking which defined it as a policy that promotes “the safety and soundness of the broad financial system and payments mechanism”

- **1992**
  - BIS report on Recent developments in international bank relations

- **1998-2000**
  - Triggered by the Asian crisis, IMF report Toward a framework for a sound financial system stated that “… macro-prudential analysis […] focuses on developments in important asset markets, other financial intermediaries, and macroeconomic developments and potential imbalances.
  - BIS GM (Andrew Crockett) speech in the international conference of banking supervisors comparing Micro Vs. Macro – prudential policies.
Macro-prudential Policy Objectives

• Three main objectives:
  1. Increase **resilience** of the financial system to aggregate systemic shocks
  2. Contain the build-up of systemic vulnerabilities over time – **time dimension**
  3. Control the build-up of vulnerabilities within the financial system that arises through inter-linkages - **structural (cross-sectional) dimension**
Sources of Systemic Risk

- Government-Bank Feedback Loop
- With-in system (sectoral) Inter-linkages
- Global-Domestic Inter-linkages
- Macro-Financial Inter-linkages

Systemic Risk
Systemic Risk Dimensions

- **Time Dimension**
  - Pro-cyclicality: excessive risk taking during booms
  - Two Key elements:
    - Credit (leveraging)
    - Liquidity (maturity mismatch)

- **Cross-Sectional (Structural) Dimension**
  - Distribution of risk in the financial system at a given point of time
  - Key elements:
    - Size
    - Interconnectedness
    - Substitutability
    - Concentration
**MP Toolkit**

### Time Dimension Tools
- Capital Requirements (CAR, CCB, Counter-cyclical buffers)
- Time-varying risk weights
- Liquidity Requirements (LCR, NSFR)
- Leverage ratios

### Cross-Sectional Tools
- Systemic Capital Surcharges
- Systemic Liquidity Surcharges
- Limits on foreign exposure/lending

### Other Tools
- Dynamic Provisioning
- Reserve Requirement
- Loan-To-Deposit (LTD) ratio
- Ceilings on credit/credit growth
- Debt-To-Income (DTI) ratio
- Limits on margin lending
- Loan-To-Value (LTV) ratios
Macro Vs. Micro Prudential Policies

• Despite the differences, they should work together
  – Micro-prudential is a necessary, but not sufficient condition for financial stability
• But where to draw the line between “micro” and “macro” prudential policies
  – Some instruments are used for both policies
### Macro Vs. Micro Prudential Policies

#### The Macro- & Micro-prudential Perspectives Compared

<table>
<thead>
<tr>
<th></th>
<th>Macro-prudential</th>
<th>Micro-prudential</th>
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</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>Stability/limit distress of the financial system as a whole (system-wide)</td>
<td>Stability/limit distress of individual institutions (Idiosyncratic)</td>
</tr>
<tr>
<td><strong>Concern</strong></td>
<td>Financial instability (avoid crises)</td>
<td>Consumer Protection (investors/depositors)</td>
</tr>
<tr>
<td><strong>Characterization of Risk</strong></td>
<td>Endogenous (system-wide Correlations)</td>
<td>Exogenous (independent of individual agents’ behavior)</td>
</tr>
</tbody>
</table>

**Fallacy of composition:** the state of the whole is NOT the sum of the state of seemingly independent parts
Macro-prudential Vs. Monetary

• Is there a trade off between the two policies’ objective (Monetary Vs. Financial Stability)
  – Complements or Substitutes?

• Monetary policy as a *blunt* tool; Can MP policy help?

• Could MP policy prevent the GFC? A case on MP & Monetary policies coordination
A Conflict May Arise …

Monetary policy → Interest Rate → Credit & Lending Rates → Price stability

Macro-Prudential Policy → Bank balance sheet risk → Financial stability
Or May NOT !!!

Monetary policy → Interest Rate → Price stability

Credit & Lending Rates → Interest Rate
Credit & Lending Rates → Interest Rate
Credit & Lending Rates → Interest Rate

Stock Market Challenge

Macro-Prudential Policy → Bank balance sheet risk → Financial stability
Macro-prudential Vs. Fiscal Policy

• Prudent fiscal Policy $\rightarrow$ low systemic risk $\rightarrow$ less burden on MP policy

- Prudent Fiscal Policy
  - Debt sustainability
  - Budget Surpluses

- Lower systemic risk
  - No sovereign-bank feedback loop
  - Low volatility in bond markets

- Stable Financial systems
  - Less need for frequent MP interventions
  - Sustainable growth rates

• Tax structure
  – Current structure encourages leveraging
  – Can assist MP by targeting risky sectors
Macro-prudential Vs. Other Policies

• Competition Landscape:

• Cross-border MP policies
  – Regulatory Arbitrage
  – Need for International Cooperation

• Crisis Management Policies
  – Deposit Insurance Schemes (DIS)
  – Resolution frameworks
The complete interaction landscape

Source: The Basel III Accord
Macro-prudential policy and Systemic Risk Assessment – Saudi Arabia
# SAMA’s Macro-prudential Toolkit

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Regulatory Requirement</th>
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<tbody>
<tr>
<td>Capital Adequacy Ratio</td>
<td>Basel requirement of a Minimum of 10.5%</td>
</tr>
<tr>
<td>Provisioning</td>
<td>General: 1% of total loans</td>
</tr>
<tr>
<td></td>
<td>Specific: Minimum of 100% of NPLs</td>
</tr>
<tr>
<td>Leverage Ratio</td>
<td>Deposits/(capital + Reserves) ≤ 15 times</td>
</tr>
<tr>
<td>Reserve Requirement</td>
<td>7% for Demand Deposits</td>
</tr>
<tr>
<td></td>
<td>4% for Time Deposits</td>
</tr>
<tr>
<td>Loan-To-Value (LTV)</td>
<td>Mortgage loans ≤ 70% of home value</td>
</tr>
<tr>
<td>Debt Service – To – Income (DTI)</td>
<td>Monthly repayments ≤ 33% of Income</td>
</tr>
<tr>
<td>Loan-to-deposit (LTD) ratio</td>
<td>85%</td>
</tr>
<tr>
<td>Liquidity:</td>
<td></td>
</tr>
<tr>
<td>• SLR</td>
<td>Liquid Assets/deposits ≥ 20%</td>
</tr>
<tr>
<td>• LCR (Basel III)</td>
<td>100 % by 2019 (already fulfilled)</td>
</tr>
<tr>
<td>• NSFR (Basel III)</td>
<td>100 % by 2019 (already fulfilled)</td>
</tr>
<tr>
<td>Counterparty Exposure</td>
<td>Individual Exposure/total capital ≤ 25%</td>
</tr>
<tr>
<td>Foreign Exposure</td>
<td>Approval Needed</td>
</tr>
</tbody>
</table>
Systemic Risk Assessment: Global Interconnectedness

**Net Capital Flow**

- Mean

**Banks’ net foreign Assets**

- Source: SAMA

**Current Account Surplus**

- Source: SAMA

**Inflation**

- Source: SAMA
Systemic Risk Assessment: The System from Within

**Return on Assets**

- Saudi Arabia
- U.S.
- Swaziland
- China

**Banks Credit (Private Sector) to GDP, 2012**

- Australia: 11.9
- Canada: 14.4
- USA: 14.7
- Malaysia: 15.4
- Japan: 15.7
- Oman: 16.1
- Turkey: 16.6
- China: 16.9
- Singapore: 17.0
- UK: 17.9
- Switzerland: 18.0
- Brazil: 21.2

**Capital Adequacy Ratio (CAR), 2013**

- Australia: 11.9
- Canada: 14.4
- USA: 14.7
- Malaysia: 15.4
- Japan: 15.7
- Oman: 16.1
- Turkey: 16.6
- China: 16.9
- Singapore: 17.0
- UK: 17.9
- Switzerland: 18.0
- Brazil: 21.2
- Saudi Arabia: 21.2
- Kuwait: 50.1
- UAE: 41.2

Sources:
- IMF
- World Bank
### Distribution of Bank Assets (%), 2013

- **Claims on Private Sector**: 59.3%
- **Foreign Assets**: 11.1%
- **Cash**: 10.6%
- **Other Assets**: 4.5%
- **Claims on Government & semi Government**: 5.0%
- **SAMA Bills**: 9.5%

Source: SAMA

### Bank Credit to GDP Ratio

- **Credit-to-GDP Ratio**
  - 2008: 86.3%
  - 2009: 78.1%
  - 2010: 71.9%
  - 2011: 70.4%
  - 2012: 73.8%
  - 2013: 76.5%

- **Credit-to-Non-Oil GDP Ratio**
  - 2008: 38.5%
  - 2009: 46.2%
  - 2010: 39.5%
  - 2011: 34.4%
  - 2012: 36.6%
  - 2013: 40.1%

Source: SAMA
Global NPL ratios, 2013

Source: World Bank
So ... where is the risk?

1. Oil Market Volatility

**Oil price Vs. NPLs**

![Graph showing oil prices vs. NPLs over the years from 1999 to 2013.]

**Oil Pric Vs. Credit Growth**

![Graph showing oil prices vs. credit growth over the years from 2000 to 2013.]

Source: SAMA
2. The capital market

- Excessive risk taking due to record low interest rates
  - Too much leveraging in the equity market
  - A chance for Asset Price Bubble

- Sectoral Correlation

![Equity Vs. Real Estate](image)

Source: SAMA
Issues & Challenges
Designing a Practical MP policy (1)

• Selecting the appropriate tools
  – Many or few instruments?
  – Sector or Institution specific (or both)
  – Price or Quantity based tools (or both)

• Addressing country-specific factors
  – What sectors are most important:
    • Housing market is more important in advanced economies → LTV is more effective
    • Capital flow is more important in emerging economies
  – What macro variables are relevant for financial stability

• Addressing pro-cyclicality
  – The use of counter-cyclical tools
  – Use of dynamic, time-varying MP regulation
  – Understanding economic Vs. financial cycles
Designing a Practical MP Policy (2)

• Closing regulatory gaps
  – Limiting the size of shadow banking
  – Boundary issues (avoid conflicting with some institutions’ objectives such as SCIs)

• Closing data gaps:
  – Good collaboration between institutions and regulators
  – Clear definitions of terms and ratios

• Good MP institutional/governance framework
  – Clarity in regulatory scope, roles, and responsibilities
  – Understanding of policy interactions
Challenges

1. Stability or Efficiency:
   - MP measures may restrict growth and developments (or may not !!!)
   - Are we over-reacting to the GFC? Is it really the time for more regulation?

2. MP Governance
   - Who is in charge of MP
   - How can ensure coordination between different regulatory authorities

3. Calibration & Modeling difficulties
   - Hard to quantify the impact of MP policy as crises are rare events
   - Data gaps – a need for granular, high frequency, and market based data
References

• Bank for International Settlements (1986): *Recent innovations in international banking*, report prepared by a study group established by the central banks of the G10, Basel, April (Cross Report)

• --- (1992): *Recent developments in international interbank relations*, report prepared by a working group established by the central banks of the G10 countries, Basel, October (Promisel Report)

