

# Macro-Prudential Approaches to Banking Regulation: Perspectives of Selected Asian Central Banks

Reza Siregar

The SEACEN Centre

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# Outline

- Backgrounds and Stylized Facts
- Selected Recent Efforts
- Immediate Challenges:
  - Limitation and Challenges on Stress Testing
  - Central Bank Governance
  - Capacity Building



- **Backgrounds and Stylized Facts**



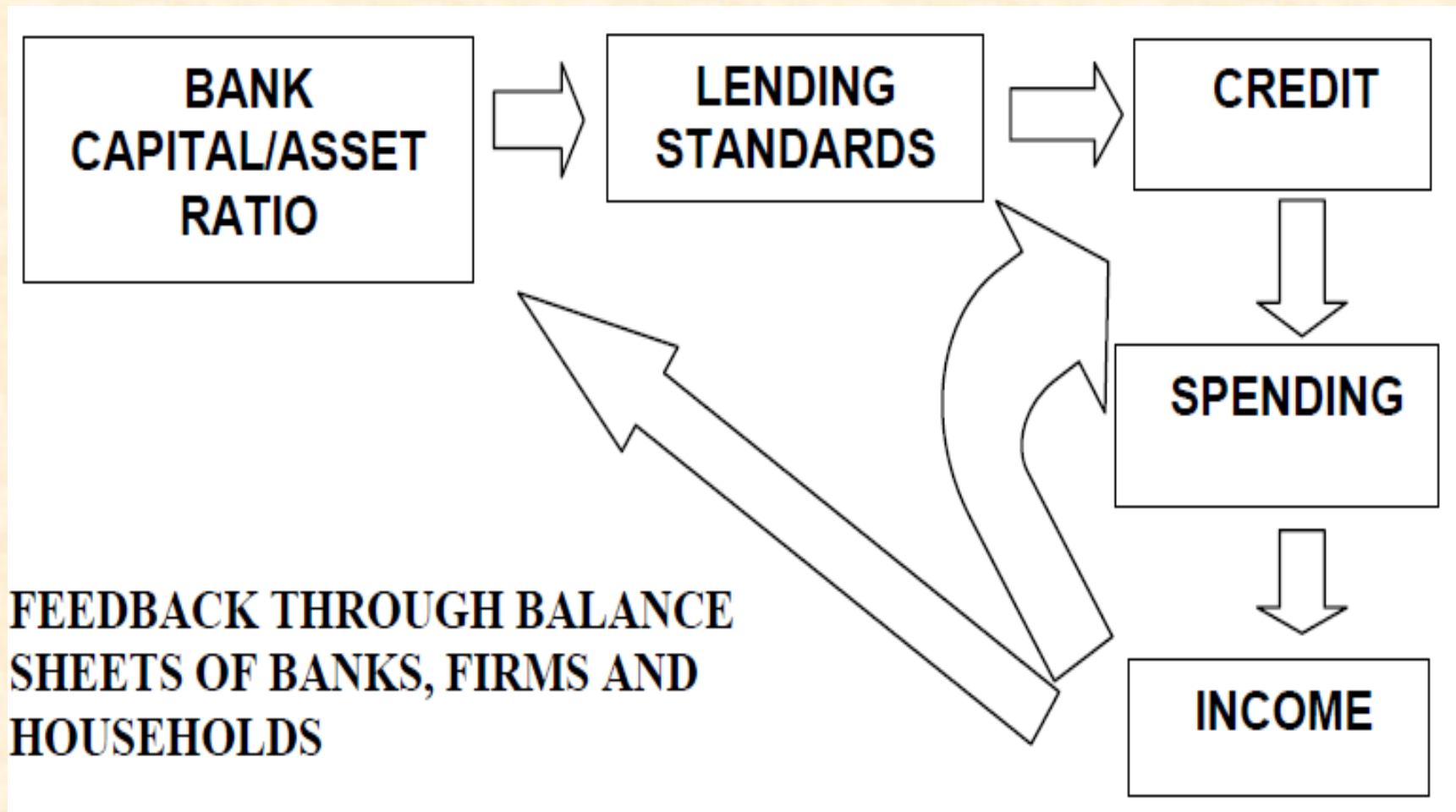
# Background & Stylized Facts

- Selected Lessons from the 1997 East Asian Financial Crisis:
  - Macro-financial Linkages;
  - Pro-cyclicality nature of the financial sector;
  - Rising cross-border lending and the role of globalized banking system



# Background: Lesson from 1997 Crisis

## Macro-Financial Linkages



# Amplified by Procyclicality

Figure 3: Household debt-to-GDP ratio versus log GDP (PPP) per capita, 2008

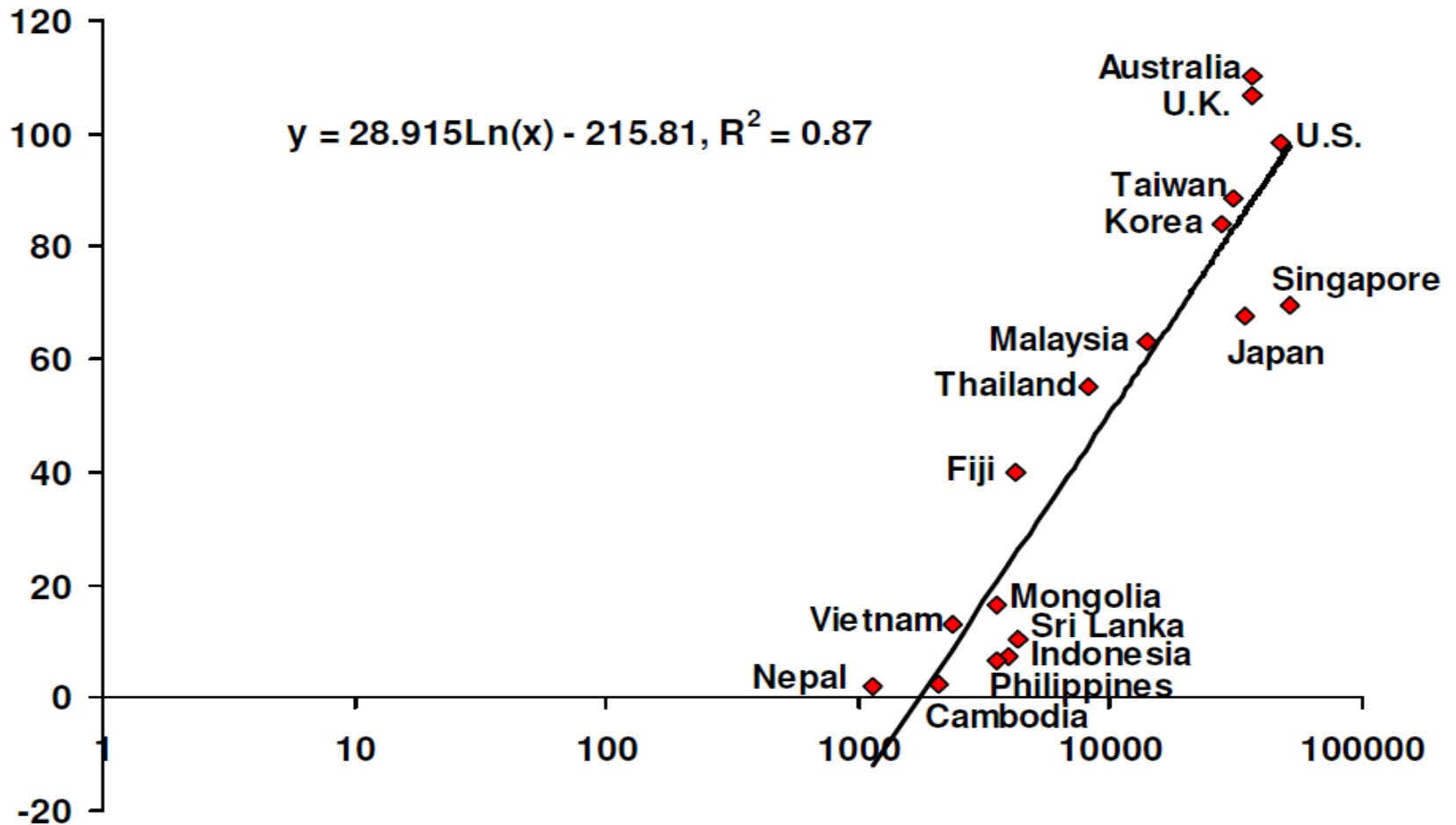
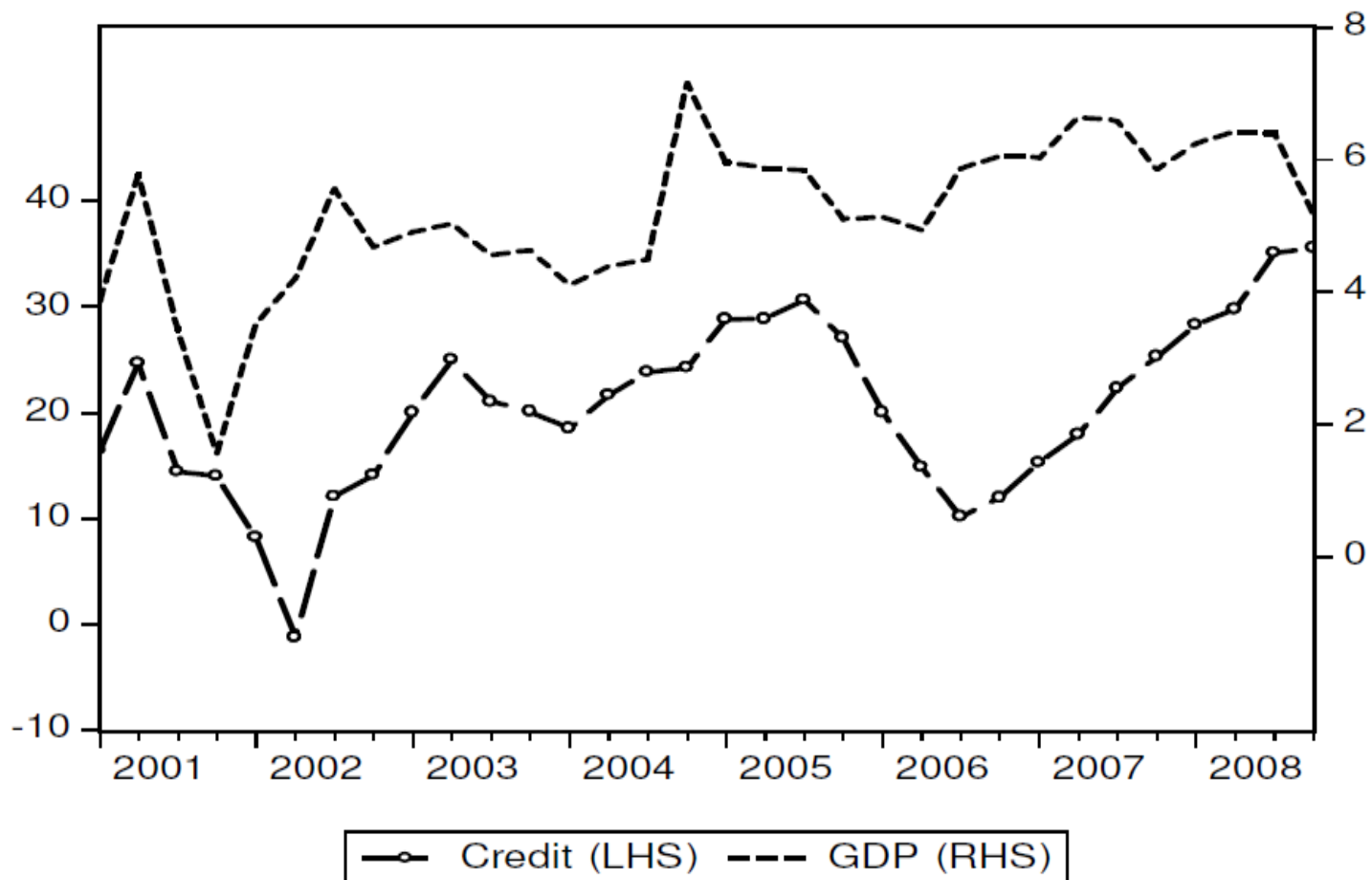
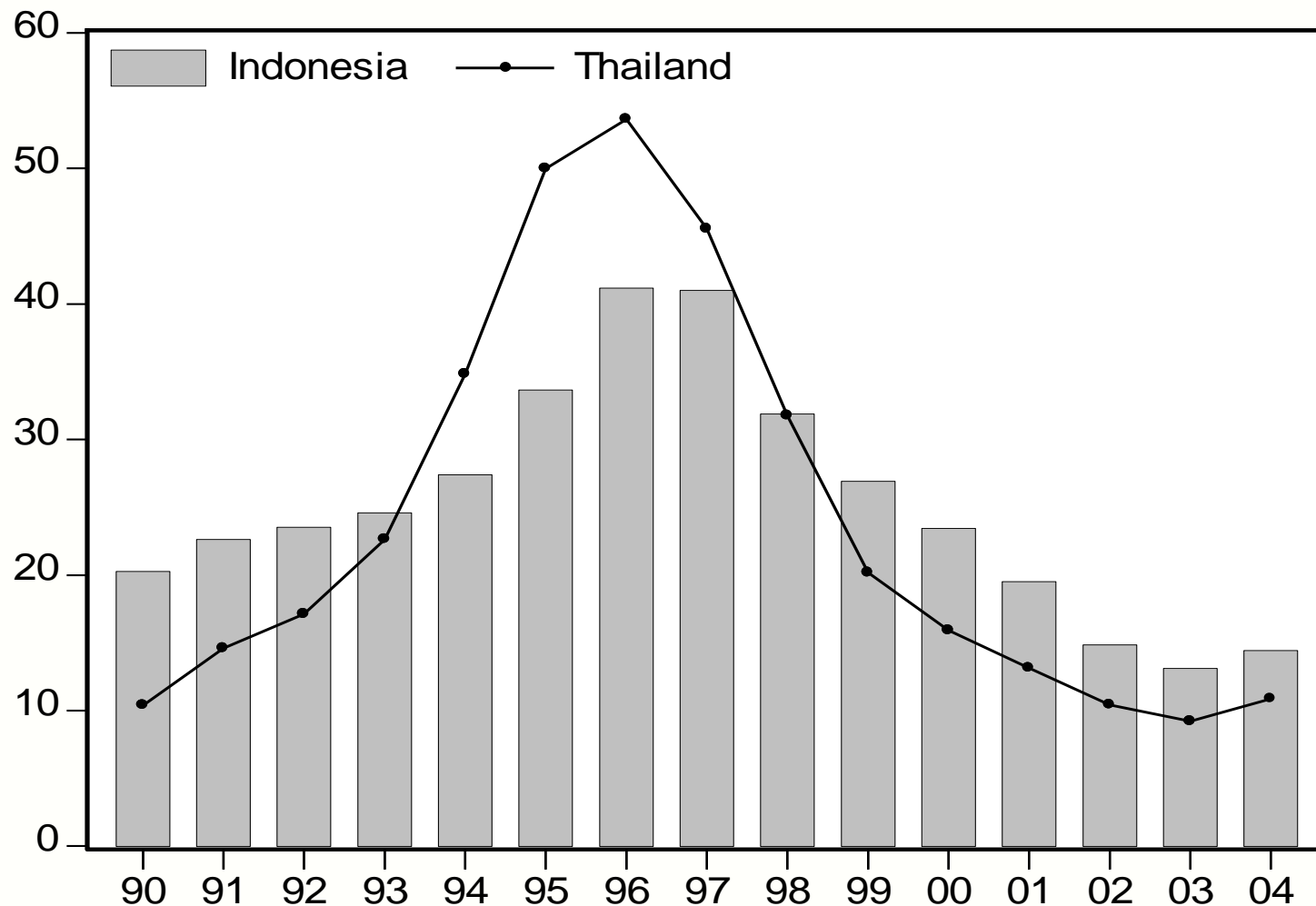


Figure 2: Annualized Credit Growth and GDP Growth in Indonesia

(in percentages)



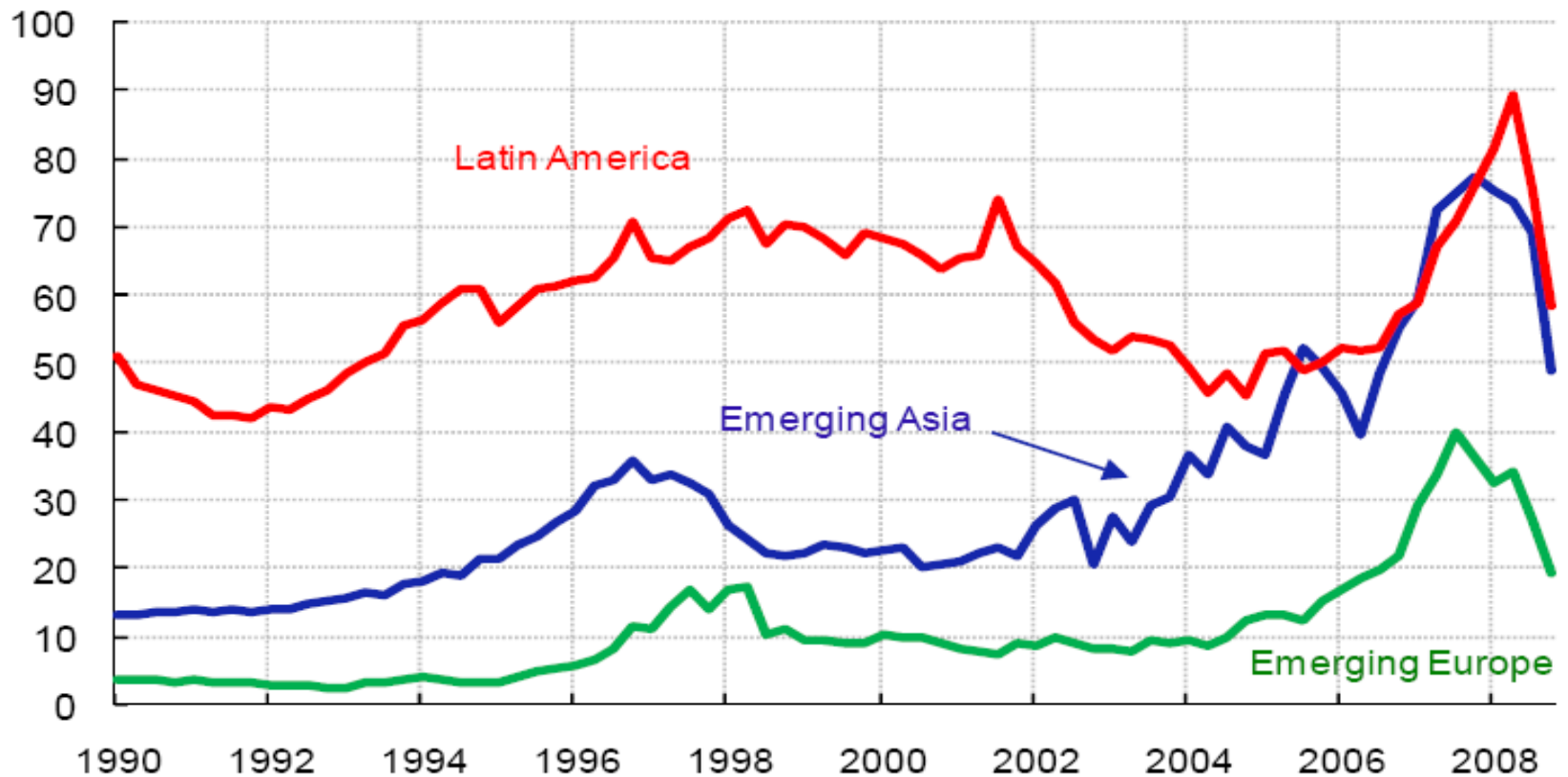
**Figure 3: The International Bank Claims to Indonesia and Thailand (in billion of US\$)**



Note: International claims are defined as BIS reporting banks' cross-border claims in all currencies plus the local claims of their foreign affiliates in foreign currency. Foreign claims include in addition, reporting banks' foreign affiliates local claims in local currency. Source: Siregar & Choy (2009).



**Chart 4: Cross-Border Claims of All Reporting U.S. Banks**  
*U.S. Billions*



Source: FFIEC

Cetorelli, N and Goldberg, L.S. (2009), "Globalized Banks: Lending to Emerging Markets in the Crisis", Federal Reserve Bank of New York Staff Reports, no. 337,



# Years of Reforms → Stronger Banking Sector

	Non-Performing Loans (% of Bank Loans)			Risk-Weighted Capital Adequacy Ratio			Bank Return on Assets	
	1999	2007	2009	1999	2007	2009	1999	2009
Indonesia	32.9	4.02	3.9 Oct/	-6.7	19.18	17.5 Oct/	-8.7	2.7 Apr/
Korea	8.3	0.64	1.2 Sep/	10.8	11.95	14.3 Jun/	-1.3	0.5 Dec 08/
Malaysia	16.6	6.4	4.6 Apr/	12.5	13.2	14.1 Nov/	0.7	1.5 Dec 08/
Philippines	14.6	4.45	3.25 Sep/	17.5	15.93	15.48 Mar/	0.4	0.8 Mar/
Singapore	5.3	1.5	2.3 Sep/	20.6	13.5	16.5 Sep/	1.2	1.1 Dec 08/
Taiwan	4.9 Dec/	1.83	1.38 Sep/	11.2 Dec/	10.8	11.6 Sep/	0.49	0.3 Jun/
Thailand	38.6	7.28	5.31 Sep/	12.4	15.38	16.4 Sep/	-5.7	1.0 Dec 08/



# Capital Buffer in SEACEN countries

- Many SEACEN central banks started to move from minimum prescriptive loan loss provisioning to a current asset impairment-based approach;
- Required Tier-1 and Total CAR have been kept at least 2 percent higher than Basel standard;
- Various incentives are given to encourage banks to keep a higher level of CAR (establish branch/expanding operation; buy back their own shares)



**Table 8: Strong Funding Liquidity**

(As of June 2009)

Country	Excess to required reserves (%)	Loan to deposit ratio (%)	Deposit growth rate (%)	Liquid asset to Short-run liabilities (%)
Cambodia	220	83	2.44	46
Korea	2,304	108.12	3.42	122.6
Malaysia	324	81	1.61	24.78
Nepal	23	71	12.6	NA
Philippines	23.4	69.1	10.2	51.8
Sri Lanka	-0.73	78.5	8.3	34.7
Taiwan	304.4	76.8	11.5	28.31
Thailand	399.1	102.8	-1.62	29.9



- **Selected Recent Efforts**



# Recent Development and Challenge

- *The adoption of financial stability* as one of the central banks' statutory objectives (Malaysia, Singapore, Sri Lanka and Taiwan). Korea and the Philippines are working on these: (macro-financial linkages).
- Accepting the reality of macro-financial channel is the least difficult part. Understanding and estimating the full impacts of the link are the more difficult part.



# Beyond Standard Monetary Policy Instruments: Micro-Macro Prudential

- The key part of macro-prudential instruments is to adapt existing micro-prudential tools;
- Microprudential tools or standards have been adjusted occasionally to apply ‘leaning against the wind’ or counter cyclical measures;
- **Next stage:** to recalibrate existing micro-prudential tools to limit vulnerability of the financial system to shocks;



# Selected Macro-prudential Instruments in Asia

TARGETS	INSTRUMENTS
Manage aggregate risk over time (procyclicality)	<ul style="list-style-type: none"><li>● Countercyclical capital buffers linked to credit growth</li><li>● Countercyclical provisioning</li><li>● Loan-to-value (LTV) ratios</li><li>● Direct controls on lending to specific sectors</li></ul>
Manage aggregate risk at every point in time (systemic oversight)	<ul style="list-style-type: none"><li>● Capital surcharges</li><li>● Liquidity requirements / funding</li><li>● Limits on currency mismatches</li><li>● Loan-to-deposits requirement</li></ul>



# Recent Push on Stress Testing

Table 3: Bank of Thailand's Milestones on Stress-Testing

## In 2007:

- Participated in the stress-testing component of the Financial Sector Assessment Program (FSAP), a joint undertaken by the IMF and the World Bank.
- Developed Macroeconomic credit risk model to be used in top-down assessment of macro-credit scenario

## In 2008:

- Issued supervisory scenarios, including sub-prime crises; various macro-credit scenario, market and liquidity scenario to commercial banks. These banks were expected to assess impacts via bottom-up approach.

## In 2009:

- Required foreign banks' branches in Thailand to perform liquidity stress testing in second half of 2009.
- Issues Pillar 2 guidelines which include stress-testing in the second half of 2009.

## In 2010:

- Developed examination guidelines on credit risk, market risk and interest rate risk in banking book and liquidity stress testing.
- On-going development of sectoral credit risk models, namely corporate model, personal loan model, real estate loan model and housing loan model.



# Two Common Approaches to Stress Testing

	Top-Down Approach	Bottom-Up Approach
<b>Conducted by</b>	Central bank or supervisory agency developing the tools	Individual bank developing their own tools or using their internal model
<b>Data</b>	Using aggregate data of each bank or banking system available at the central bank	Using sub-portfolio/portfolio-level data or customer data of its individual bank
<b>Impact Analysis</b>	Assessing the impact of stress scenario on individual bank and banking system's portfolio quality and capital position	Assessing the impact of stress scenario on financial statements of each customer then aggregating the impacts to find overall impacts on each bank's portfolio and capital position
<b>Pro</b>	It is effective in examining credit risk. Stress test results can be compared across banks. It covers broader perspectives, including feedback effects from the financial system to the macro-economy, and contagion.	Due to its tailor-made and richer data sets, this can better reflect the market and liquidity risk profiles of each bank's portfolio.
<b>Cons</b>	Results may not reflect each bank's risk profile well.	With different methodologies used by each bank, it is difficult to compare the results across banks.



**Table 4: Selected Macroeconomic Scenarios considered for Credit Risk Stress Testing**

Countries	Scenarios
Indonesia	(1). A shift in credit collectability to lower level by 20 percent each; (2). A rise in the interest rate by 100 bps; (3). Rupiah depreciation by 20 percent from the foreign exchange maturity profile of less than three months; (4). Price of government bond drop by 20 percent; and (5) Drops in real domestic GDP growth rate.
Philippines	Ranges for baseline and stress scenario via: (1). Domestic GDP growth rate; (2). Interest rate; (3). Inflation rate; (4). Remittance growth rate; (5). Exchange rate (against the US dollar).
Thailand	Ranges for baseline and stress scenario via: (1). Domestic Growth rates of GDP and its various components; (2). Interest rate; (3). Inflation rate (core and headline); (4). Exchange rate (against the US dollar); (5). Crude oil price; (6). Trading partner GDP growth rates.
Hong Kong	Ranges for baseline and stress scenario via: (1). Domestic GDP growth rate; (2) GDP growth rate of main-land China; (3). Interest rate; and (4). Property price.



- **Immediate Challenges**



# Concerns & Debates on Stress Testing

- Still very much ‘excel exercises’, with limited feedback effects incorporated into the system;
- Data quality remain an issue, especially to capture exposures;
- How credible the scenarios and the outcomes are? “Implementation and credibility.”
- Should we report only the aggregate results or going into individual bank?
- Policy responds must be ready and transparent to prevent possible panics;
- Cross-border implication?



# Other Immediate Challenges for Central Banks

- **Central Bank Governance:**
  - Clear mandate of the central banks (especially on the financial stability aspect);
  - Balancing act in dealing with multiple mandates;
  - Clarity of tools and responsibilities;
  - Share of macro-prudential functions (with other supervisory agencies and government ministries);
  - Independent and Integrated Supervisory Capacity (1997 Crisis) to Cross-border Supervision (2008 crisis).



# Selected Challenges for Central Banks

- **Capacity Building:** Strengthening of analytical capacity to get a better understanding on an increasingly much more complex policy targets (with macro-financial linkages and feedback effects);
- More and more emphasis are needed to strengthen:
  - Human resource;
  - Data and information.



- **Thank you**

