

Eighth KfW International Financial Sector Symposium

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Session 4: Crisis Resilience of Financial Markets

Summary prepared by Rainer Hartel

Session 4 was composed of the following experts:

Keynote Speaker:

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Panellists:

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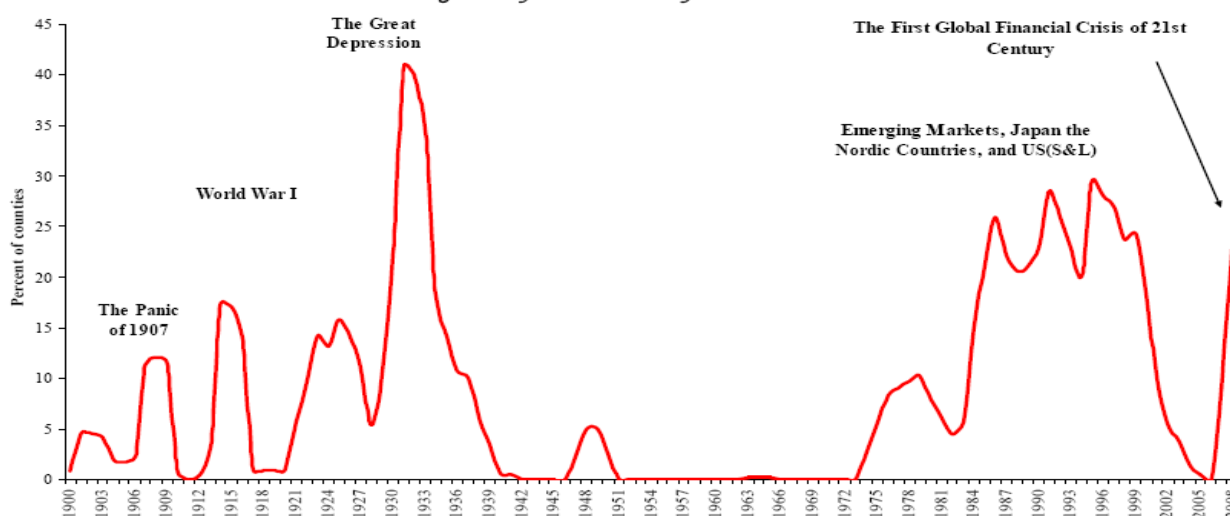
Keynote: Enhancing Crisis Resilience of Financial Markets – a historical perspective

From the 1940s until the 1980s the world has escaped significant systemic banking crises. As illustrated in the Chart below emerging markets, Japan and Nordic countries' and the US then witnessed significant exposures to financial crises since the mid 1980s after a period of opening and liberalisation of domestic financial systems.

The severity of the ongoing global financial crisis may be similar to the great depression in the US. In this overall trend large differences of resilience and exposure to financial crises prevail for

1. **advanced economies** that are financially open with limited foreign currency exposure,
2. **emerging market economies** that are increasingly financially open with substantial foreign currency risk exposure, and
3. **developing economies**, many low-income countries, that are financially closed, some of which characterized by massive financial repression through state intervention.

Chart 1: *Proportion of Countries with Banking Crises, 1900-2008*
Weighted by Their Share of World Income



Source: Rheinhard and Rogoff

During the 1990s emerging market economies have been far more severely affected by banking crises compared with high income OECD countries. In developing countries only every fifth country has been exposed to a banking crisis. As for currency crises experience there no significant differences exist between the between the country types. During the 2000s until 2008 no significant crisis was recorded in any country type.

Chart 2:

| | Total | Banking Crisis | Currency Crisis | Debt Crisis | financial openness (mean)* |
|--|-------|----------------|-----------------|-------------|----------------------------|
| All countries (161) | | | | | |
| 1990-1999 | 1.07 | 0.46 | 0.57 | 0.04 | 0.44 |
| 2000-2006 | 0.19 | 0.03 | 0.11 | 0.05 | 0.00 |
| 2007 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| High-income OECD countries (23) | | | | | |
| 1990-1999 | 0.91 | 0.17 | 0.70 | 0.04 | 2.37 |
| 2000-2006 | 0.09 | 0.00 | 0.09 | 0.00 | 0.00 |
| 2007 | 0.09 | 0.09 | 0.00 | 0.00 | 0.00 |
| EME's (25) | | | | | |
| 1990-1999 | 1.64 | 0.72 | 0.56 | 0.08 | 0.44 |
| 2000-2006 | 0.52 | 0.08 | 0.12 | 0.04 | 0.00 |
| 2007 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Others (113) | | | | | |
| 1990-1999 | 1.04 | 0.46 | 0.55 | 0.04 | 0.05 |
| 2000-2006 | 0.20 | 0.03 | 0.12 | 0.06 | 0.00 |
| 2007 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Source: Laeven and Valencia 2008, Chinn and Ito (2008)

*no financial openness index values for Brunei, Cayman Islands, Gibraltar, Luxemburg, Serbia

In the following the key drivers of financial crisis vulnerability (credit and liquidity risk), exchange rate risk, and Governments' policy stance are examined for emerging markets.

Key vulnerabilities: credit and liquidity risk

Credit risk has been recognized as the most important risk in financial systems since several decades. Excessive credit risk is either the result of lax fiscal and monetary policies that cause credit booms and asset bubbles. On that basis banks often do bad credit

decisions threatening their solvency. As for enterprises improper risk taking in the private sector or politically motivated state intervention cause moral hazard and adverse selection.

Policy Remedies. Normally these issues are addressed by tightening macroeconomic policies, liberalisation of the financial sector associated with tightening prudential regulation and supervision. In the context of regulation the following three aspects are most important:

- Capital adequacy requirements (buffer / incentives)
- Single exposure limits (diversification)
- Ownership and governance regulation (incentives)

These regulatory policies are geared to make the banks and their owners responsible for their decisions and address moral hazard and adverse selection. Managing credit risk in this framework has so far worked quite well. With credit risk management at the focus of financial sector reforms in advanced economies since the 1970s few banking crises occurred. For example the current crisis is the first financial crisis in Germany since 1929. By contrast there were many crises in emerging markets and developing countries. Based on the experience in advanced economies, the policy remedy was *to follow western best practice of macroeconomic prudence and financial sector regulation and supervision.*

Contrary to credit risk liquidity risk has until recently not been recognized as a major issue to be addressed. Liquidity risk originates in maturity transformation of mismatched assets and liabilities in the financial markets. A sudden withdrawal of short-term funds illustrates the liquidity risks arising from financial intermediaries Asset Liability Mismatch since maturities of investments normally exceed those of liabilities to some extent.

Liquidity risk also arises from asymmetric information among depositors or investors, or doubts in the market about the solvency of financial institutions or instruments. In the sub prime crisis people declining housing prices prompted a confidence crisis among all investors, who subsequently massively reduced their short-term exposure to sub-prime investment instruments irrespective of the quality of the borrowers.

Liquidity risk and loss in market confidence has been the classical origin of systemic financial crises in advanced market economies prior to the great depression. It appears that during the long crisis free period policy makers lost track of the lessons of liquidity crises. The historical record of governments' policy stance may provide insights as to how to address liquidity risk. Key measures included

- **introduction of deposit insurance** schemes,
- **empowerment of central banks as lenders of last resort**, and
- **separation of banks and markets** through the Glass–Steagall Act of 1933 in the US.

The policy impact was good and financial crises in advanced economies became very rare. A side effect was that policy makers in advanced economies thought that liquidity risk was a risk of the past and thus loosened prudential regulation and supervision and self-regulation of market participants was widely advocated. In 1999 the US abolished the separation between banks and markets. This complacent policy stance has been the seed-bed for the current systemic financial crisis.

Foreign exchange mismatches are crisis amplifiers in emerging markets. As for financial crises in developing countries credit risk was the issue to be addressed in the 1980s and 1990s. However, the Asian crisis illustrated that credit risk was not essential and rather liquidity risk based on maturity and currency mismatches became the key crisis driver.¹ This risk does usually not prevail in advanced countries where agencies usually borrow their own well rated and convertible currency abroad.

Many financial systems in emerging markets however use the US Dollar or the Euro as the de facto currency so that much of lending or borrowing and deposit taking are made in

¹ Eichengreen and Hausmann in 1999 identified cross border foreign currency borrowing of emerging markets, not domestic currency borrowing, as the main trigger of the crisis.

foreign rather than domestic currency. This exposes a country to liquidity risk in both foreign and domestic currency. However the emerging market central banks are unable to act as lenders of last resort in foreign currency since they cannot issue unlimited liquidity in that currency. This constraint is particularly severe in a pegged exchange rate regime where a central bank promises to exchange domestic currency at a given rate to a foreign currency.

This problem is well understood in domestic emerging markets where depositors or investors doubt the solvency of a particular country, knowing that authorities are unable to respond. A sudden stop in financial flows in domestic financial systems prompting bank runs of depositors and capital flow reversal of investors, put pressure on the exchange rate. The exchange rate risk materialises and then transforms into credit risk.

Policy responses. The traditional policy response has been to fight the original sin of foreign currency mismatch, and develop domestic currency markets and instruments.

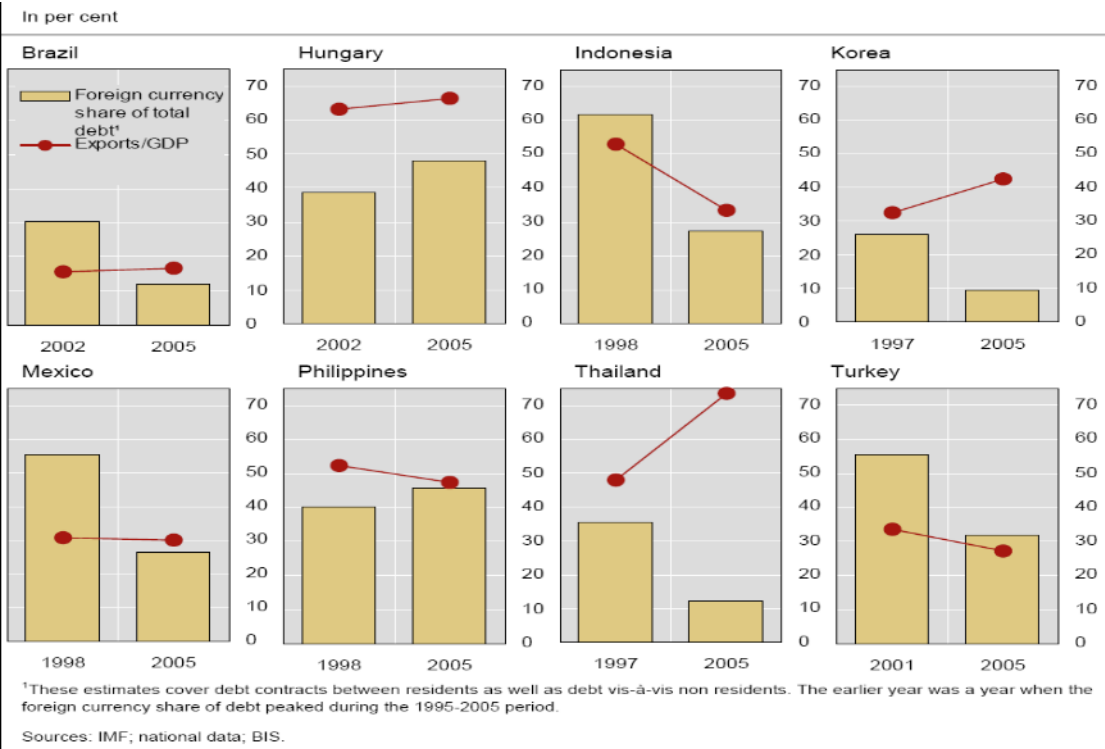
However in transition economies progress has been hampered until early 2000s by the lack of public trust in the local currency, and institutional weaknesses of the financial systems after a series of banking and currency crises in the 1990s. Foreign currency was seen as stable and no difference seen in the risk of between the local and foreign currency financial transactions.

After the transition economies' and the Asian crises, emerging economies adopted different approaches in addressing the lack of lender of last resort function in foreign currency for their monetary authorities.

The self-protection approach adopted by some emerging economies. The approach involved (i) macroeconomic stabilization through generating current account surpluses and/or reducing net debt and enhancing the creditor status, (ii) building-up foreign currency reserves and (iii) with a few exceptions, cautious opening and liberalization of the financial sector.

These measures boost confidence of investors viewing the economies as solvent net creditors, and having foreign currency funds to fight a liquidity crisis. In addition the countries developed local currency bond markets to reduce foreign currency exposure. Chart 3 illustrates the proportionate increase of local currency debt as of total debt in most of the emerging markets except Eastern Europe and the Philippines.

Chart 3: The foreign currency share of total debt and the exports/GDP ratio



The financial integration approach was adopted in Eastern Europe. The historic chance of accession to the European Union provided a strong boost of economic and financial reforms in Eastern Europe that included financial integration into the European market. Such dynamic is unique for Europe and appears unrealistic for other emerging economies. The opening to the European market involved a massive presence of foreign (European) banks in domestic financial systems associated with the widespread use of the Euro as the de facto currency for financial transactions. Through the widespread use of the Euro and the presence of EU-15 parent banks Eastern Europe got indirect access to the liquidity of the European Central Bank (ECB). The ECB became the de facto Lender of Last Resort for Euro in Eastern Europe. In addition Croatia and Serbia adopted additional stabilizers through the build up of foreign currency reserves and anti-cyclical regulatory and supervisory policies.

Although these policy responses did not help emerging markets from escaping the crisis, the approaches strengthened their relative position and facilitated crisis management. For example emerging Asian economies adopted for the first time massive anti cyclical fiscal stimulus and accommodating monetary policies, whereas emerging Europe benefited from indirect liquidity and solvency support through the European central bank and the EU-15 governments.

Conclusion. Crisis resilience of financial markets can be enhanced, but policies cannot be perfect because of the presence of liquidity and credit risk. Challenges for advanced, emerging market or developing economies are similar in nature. International efforts to strengthen and harmonise frameworks for prudential regulation and supervision including macro-prudential aspects, are necessary. However, emerging market economies face additional liquidity risks related to foreign currency exposures, which they cannot avoid without an international lender of last resort or a substitute or at the cost of foreign investment inflows. Asia and Europe opted for different lender of last resort substitutes which did not prevent the crisis but helped avoid a financial meltdown. The Asian approach uses domestic stimulus policies which provided additional policy options to fight the crisis.

Strengthening regulatory and supervisory framework and stress testing- World Bank experience in building crisis resilience capacity (David Scott)

The crisis is not over and there are risks of further systemic shocks in developing countries. In this context it is important to build the necessary capacity to identify liquidity, credit and solvency risks early on. As highlighted in the Financial Stability Forum the response of the international community has not been geared to address this capacity constraint in developing countries. The following sets out essential capabilities required to address financial system shocks in developing countries.

Prompt corrective Action. Financial sector authorities must have the legal powers and regulatory capacity to force the private sector to solve their own problems and force for the private sector to (i) build requisite capacity to identify funding or capital problems early-on and (ii) identify and carry out solutions before deterioration becomes acute?

Failure Resolution Regimes normally address banking failures for institutions that are not essential for the system by financial sector authorities' ability to intervene in a manner least disruptive to depositors, creditors and the economy through efficient failure resolution preferably in participation with private banks or through liquidation/payout, and transfer of insured deposits to other banks. For Systemically important institutions the existence of the failed bank is important for the financial system where the consequence exceeds the capacity of the deposit insurer or private shareholders. It requires resources from the central bank and/or public funds to facilitate an efficient resolution.

The challenging reality in developing client countries, however points to

- **inadequate legal powers** of the supervisors to (i) force shareholders and their boards to take prompt corrective action and/or (ii) intervene in a failed bank. Even if

such legal powers exist, supervisors may **lack the required policies**, independence, and experience to mitigate risks in a decisive and timely manner.

- **Inadequate prudential supervision especially with respect to credit risk.** Late identification of problems is common and the required diligence of supervisory process is often sub-standard in the absence of documented procedures and contingency planning.
- **Inability to simulate systemic shocks and prepare contingency plans.** For example many deposit insurance systems are unable to respond quickly subject to legal requirements that delay a pay out to the depositors by 6 months. The absence of experience how to intervene is very common

Periodical stress simulation has proven useful to test institutional and/or collective response capacity. Simulation helps to identify and prioritize weaknesses in the context of perceived vulnerabilities and support formal contingency planning and funding. Simulations are also useful in testing and improving the effectiveness of bank failure resolution approaches. Periodical stress simulation should be part of routine supervision. All efforts of the regulators should force private institutions to respond to minimize fiscal liabilities.

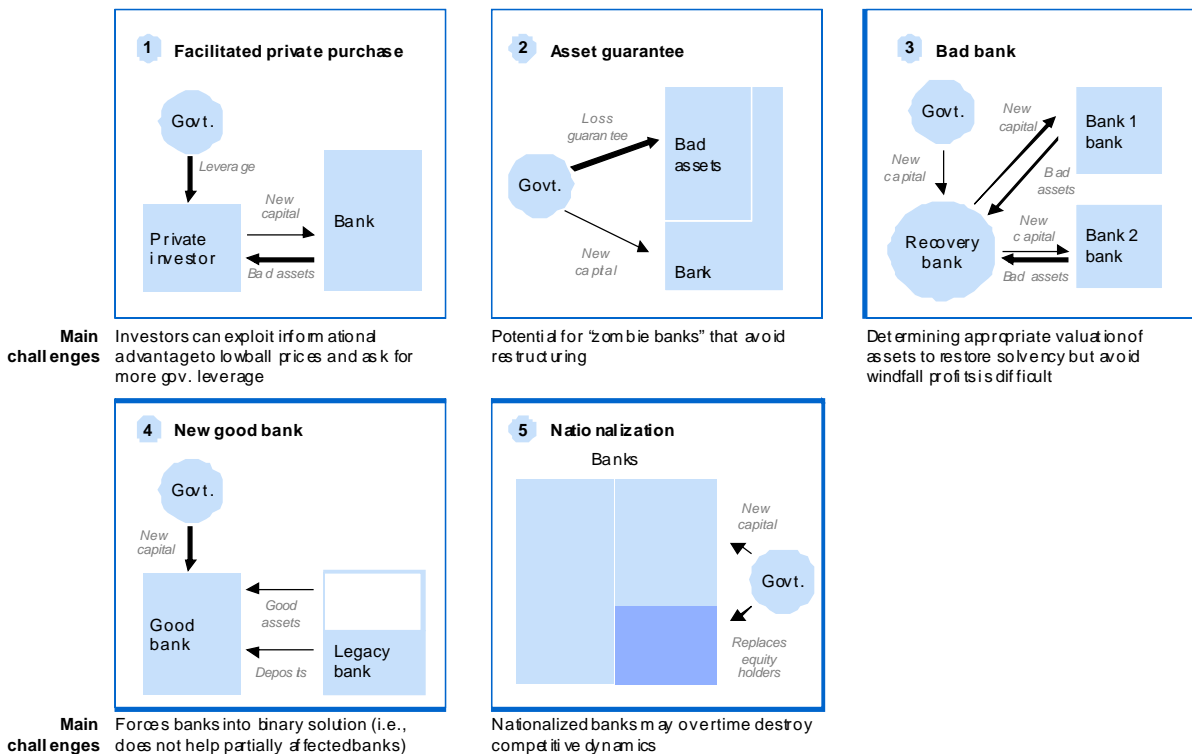
Solutions to Restore Bank Solvency (Jacob Dahl)

Drawing on Mc Kinsey’s recent work with crisis affected countries and governments five standard approaches to restore solvency in the financial system are illustrated below.

Chart 4:

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Solutions to restore solvency



Approaches 1 to 5 entail increasing complexity of arrangements and intensity of government involvement. No solution is right or wrong and each has imbedded issues.

Approach 1 shows the private sector (existing and/or new shareholders) infuse fresh capital against some government guarantee to the investors. The challenge is that existing investors

have significant information advantage over the guarantor. Excessive government guarantees and contingent liabilities may be the result.

Approach 2 involves a more significant step of Government involvement by guaranteeing an existing bad asset portfolio and/or direct infusion of additional capital. This approach bears the same challenge as solution 1 and in addition may provide disincentives for restructuring as a result of government shareholding that is less sensitive to low profitability.

Approach 1 and 2 maybe appropriate when a country is hit by a systemic crisis and a quick reaction is necessary. The risks are that banks remain in bad shape because the bad loans continue on their balance sheets. Zombie banks mean that the guarantees and capital infusion are not sufficient to stimulate the necessary flow of liquidity by these banks after the initial systemic shock is over.

Approach 5 represents a full Nationalization, i.e. the Government replacing the shareholders. Issues with this approach are in the short-term that these state owned banks gain an unfair advantage over their private peers in access to liquidity, and funding both in terms of volume and pricing. In the long-term there is a risk that political goals in nationalized banks may become more important than market based goals. Because of this risk Mc Kinsey advises their clients more to adopt ring fencing approaches through creating a bank around the bad bank system as illustrated in Approach 3 and 4. The big issue in those approaches is how assets are valued at the transfer from the existing bank to the new bad bank.

There is an increasing use of pricing models that use a market based forward looking cash flow model. Overall market based pricing models may result in better result in valuating assets versus the traditional accounting value approach.

A key success factor is how the bad bank is managed. The Swedish model was particularly successful:

- **First**, the authorities were tough in assessing which bank should survive and which should be liquidated. The assessment looked at not only at solvency and liquidity. In particular the quality of management, the scalability of the business model and the quality of the bank were considered. Some banks were solvent but did not have a compelling business case and were closed. This selection proved to be very useful.
- **Second** the bad bank was run like a private equity firm. Some bad banks are set up for extremely short time spans to dispose of the assets. In the Swedish model the bad banks had no pre-determined life span. In fact they run over seven years. There was a high degree of management discretion to maximize the return on assets. Even the acquisition of new assets was possible, if this enhanced the value of existing assets.

Chart 5:

Bad bank key issue: Impaired asset valuation options

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| | Accounting value | Mark-to-model | Contingency pricing | Market driven |
|--------------------|--|---|---|---|
| Description | ? Based on audited financial statements ? Can be paired with a pre-defined "haircut" in percentage terms | ? Output of mathematically derived model (e.g., discounted cash flow, derived investment value) ? Can be paired with a pre-defined "haircut" in percentage terms | ? Valuation is determined by future event (i.e., actual asset recoveries) ? Examples: "contingency warrants" with variable strike price and "capital certificates" with variable cash redemption | ? Price discovery through competitive bidding process (e.g., auction) among multiple buyers |
| Advantage | ? Easily verifiable ? Based on consistent application of accounting principles ? Breaks the log jam for action | ? Estimate "intrinsic" value of asset (i.e., independent of extreme market conditions) | ? Defers actual valuation to later date when uncertainty is removed | ? Properly structured competitive process can help ensure that tax payer receives "best deal available" |

Diversity of the current crisis experience in Peru, Serbia and India – the challenge to balance prudential regulation and access to finance

Peru (Narda Sotomayor)

At the onset of the crisis the Peruvian economy was characterized by stable economic growth and low inflation. The financial sector was solvent, liquid, well capitalized. Over the past years the regulatory framework was enhanced through (i) comprehensive regulation and supervision of risk management (ii) capital adequacy and loan loss reserve requirements for all materially significant risks, (ii) additional provisions and capital adequacy requirements were based in the risk profile of individual financial institutions, and (iv) mandatory countercyclical capital buffers and provisions. As a result FIs' capital adequacy exceeded the international standard and prudential requirements of the regulator. A significant strength of the banking sector was the high reliance on domestic deposits. As a result tightening international liquidity did not adversely impact of the Peruvian banking system. As such the financial sector was well prepared for the crisis.

The main transmission channel of the crisis proved to be declining real sector demand. The projected slow recovery will impact on reduced exports, reduced GDP growth, and loan delinquency in Peru.

Based on the experience of the late 1990 the Peruvian authorities undertook the following to address the crisis:

1. Coordination of policy makers through permanent committee
2. Comprehensive Framework Law specifies when the government will take pre-defined action to minimize the cost of the crisis.
3. Implementation of Fiscal Stimulus and expansive monetary policy
4. Additional guarantees and credit lines to reduce credit rationing to MSE.
5. Liquidity line of the Central Bank accepting retail loans as collateral.

Chart 6: Peru – impact of the crisis on real GDP and inflation

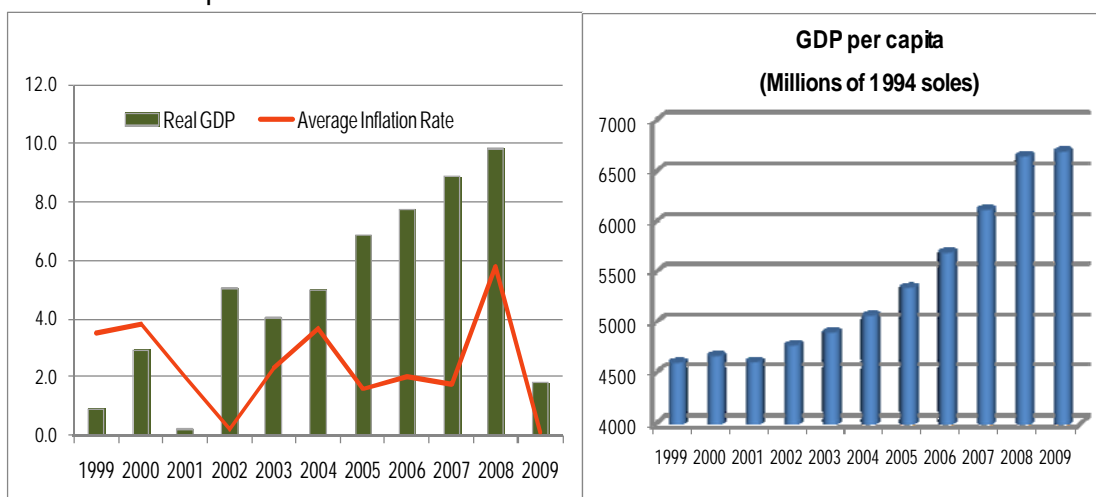
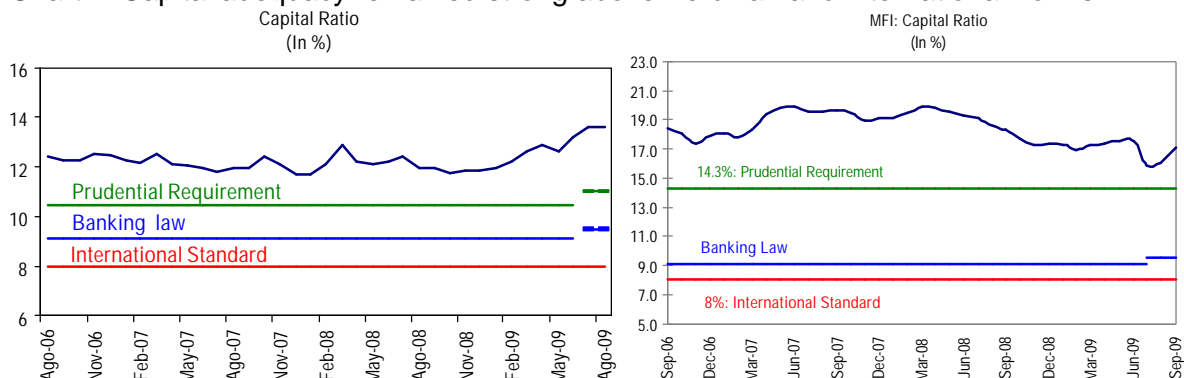


Chart 7: Capital adequacy remained strong above Peruvian and international norms.



Serbia (Radovan Jelasic)

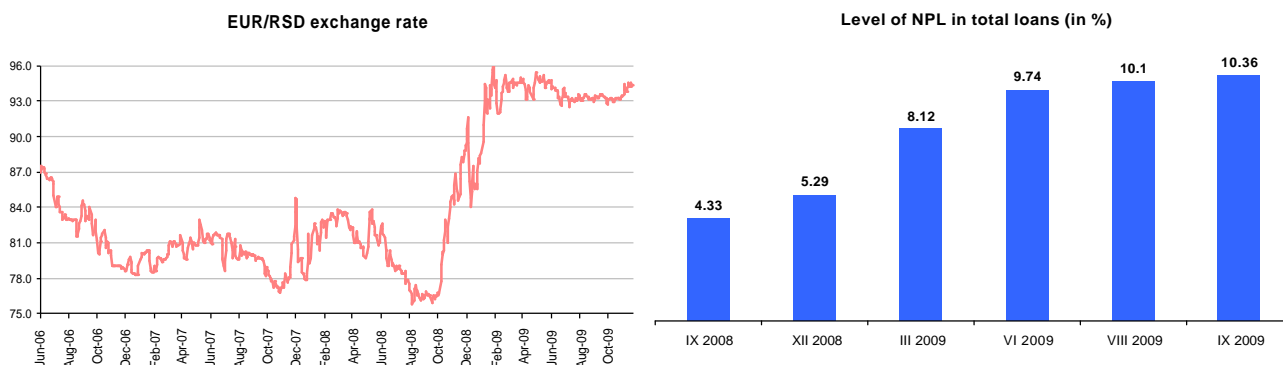
Policy stance. Adjustments were traditionally done through exchange rate and inflation, and only partly through fiscal policy. During good times the governments increased salaries, pensions and public consumption. During crisis adjustments are made through devaluation.

Devaluation of the Dinar affected the quality of banks' loan portfolio. After 13% appreciation the Dinar depreciated by nearly 26% within 6 months. Where is the limit for exchange rate fluctuation where the stability of financial sector gets affected? NPLs are bottoming out and the exchange rate has stabilized.

Why was crisis handled successfully? Banks were liquid and solvent. Cash was provided abundantly to the commercial banks in order to meet the massive withdrawal of 16% of deposits (EUR 1bn) within 6 weeks. High reserve requirements meant that 40% of withdrawn cash was deposited with the Central Bank.

To avoid bank runs, Central bank provided substantial FX liquidity. In addition parents of foreign banks operating in Serbia provided liquidity and capital support to stabilize the local market. The "Vienna Agreement" provided substantial support from different international financial institutions including the IMF and EBRD.

Chart 8 + 9



What did not work so well? Policy Coordination: Home - host supervisory relationships was based on Memoranda of Understanding, which proved not useful in the crisis. Information flow was slow, data outdated, day-to-day coordination was missing, and activities were ad hoc. The Central Bank's main sources of information were the Austrian and German newspapers and international news agencies.

Flow of information between headquarters and subsidiaries of banks was slow and outdated – headquarters represented a liability to the subsidiary and not an asset!

Local media handled information from the international financial markets unprofessionally;

Government(s) responded very slow with a substantial delay to the crisis, such as passing new laws (for deposit insurance, bank recapitalization).

Outlook to Central and Eastern Europe.

- § Some foreign banks are increasing while others are reducing their equity stakes;
- § Banks are finding it difficult to raise **additional resources** in the international market;
- § International Banks are scrutinized by local and EU authorities. Headquarter location is gaining importance for the supervision
- § Relationship between foreign bank headquarters and subsidiaries is changing. Traditionally headquarters were asked for more money; today subsidiaries are reluctant to give out more loans while some HQs would like subsidiaries to grow;
- § Bank mergers and acquisitions are imminent;

India (Rajender Mohan Malla)

Growth Story – Pre-crisis Period. At the onset of the crisis the Indian economy was characterized by high economic growth (8.8% over 2003-2008) the fiscal deficit reduced to 2.7% in 2008. Growth was driven by strong domestic demand, high spending for infrastructure and export boom growing at 25% p.a. from 2005-8. The financial sector grew fast. Lending increased 28 during 2005-8 and capital markets were robust. A significant strength of the banking sector was the high reliance on domestic deposits.

International financial markets had some adverse impact on the Indian Financial sector since (i) liquidity declined, especially in mutual funds, where investors sold their assets, (ii) credit demand from banks increased. The main transmission channel of the crisis proved to be declining real sector demand. As a result equity markets plunged and net foreign direct investment declined from USD 109 bn (2008) to USD9 bn (2009). In the foreign exchange markets volatility increased, and capital flows reversed out of India, while foreign exchange reserves dropped by about 15% over six months ending March 2009 and current account increased.

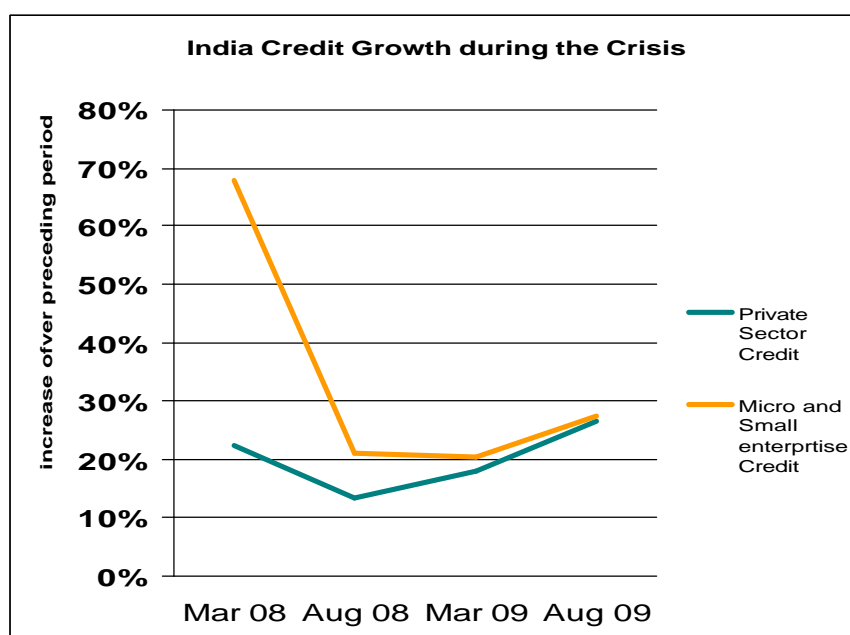
Impact on Microfinance. Crisis affected MFI growth significantly. The 5 largest MFIs recorded a 71% increase in their portfolio in FY 2009, while Medium Size MFIs' portfolio growth dropped from 72% to 29% and small MFIs recorded negative growth. There has so far been no adverse impact of credit portfolio quality PAR (30 days) improved to 0.5%.

Impact on Real Overall Economy Economic growth moderated to 7.7% during first half of FY 2009 and further to 5.8% during the second half of FY 2009. Industrial sector growth turned negative in Q4 FY 2009. Export growth turned negative. Services remained immune and grew by 9% during second half of FY 2009.

Indian Financial Markets proved resilient, returning quickly back to normal. There is no unregulated segment in the financial system and no direct US sub-prime exposure. Overall capital adequacy of banks reflects solvency at 13% capital to risk weighted assets. The Indian authorities undertook the following key measures to address the crisis:

1. Accommodating monetary policy
2. Fiscal Stimulus and reduction in taxes and duties; boosting infrastructure investments, 'Crowding in' private investment and increased social spending
3. Additional guarantees and credit lines to reduce credit rationing to MSE.
4. Central Bank acted as a lender of Last Resort

Chart 10:



Discussion

Is there long term demand for stress testing and advisory to the regulators? On the demand side IBRD collaborates with the Toronto centre in conducting crisis preparedness seminars, which focus on contingency planning, failure resolution regimes and run through simulation exercises in a model country.

Simulations are a powerful tool. But there are only few firms that have helped supervisor agencies in a country conducting simulations. So IBRD is doing simulations with own staff (10) and consultants (40). Experts include former regulators, supervisors, central bank governors, finance ministers, who are veterans of prior crises and have learned lessons of success and failure. It is part of IBRD strategy is to get the wealth of knowledge which is not written down into the offices of the authorities who currently have to deal with crises. Simulations are the starting point of initiatives based on which individual problems are addressed.

Does the Basel 2 regime adequately address risks that arose in the crisis? Many supervisory agencies did spend significant resources, focusing on designing and implementing Basel 2 that they lost view of other more fundamental things, such as credit risk. Supervisors need to emphasize basic standards of credit underwriting, testing credit decisions, and testing provisioning practices. In addition we will see higher quality on capital requirements. For example negative common equity will not be acceptable under Basel 2 and prudential leverage ratios will again be introduced to address prudential abuses of these sensitive ratios such as Basel 2.

In the context of the G20 discussion reform of prudential regulations is a big issue. Do we need a universal standard or a differentiation for low income countries?

The concept of Basel 2 is making capital requirements more sensitive to risk. These requirements apply for different institutional types. In that sense, we require capital adequacy at different levels for banks and microfinance institutions. For example the general law in Peru mandates a minimum of 9% the regulators require higher capital for firms that are more exposed to risk. In this sense the general concept is more sensitive to credit and market risk but not aware for microfinance institutions, while operational risk is considered more important.

Capital requirements so far do not address liquidity risk. It is not surprising that Basel 2 did not help in this crisis. It will not help, and as long as rated AAA assets are basically considered risk free according to the Basel standards.

We need a good risk management in place, be it for a microfinance institution level or at the central bank supervising the standards.

Domestic deposits, especially long term deposits are an important source of funds and reflect confidence in the financial system. This confidence wasn't lost during the economic downturn.

How can non-bank lenders be brought under the supervisory ambit? While some countries supervise cooperatives many countries rely on self-supervisory mechanisms that may not be reliable. There is conflict of interest because the supervision is delegated to the federation which also has a promotional role.