



Financial deepening without financial excesses

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It is my great pleasure to join you on the occasion of the 2008 SEACEN Governors' Conference. For this privilege, I thank Governor Abdullah, SEACEN and the organisers of this conference. The theme of this year's roundtable discussion, "Financial Deepening to Support Monetary Stability and Sustainable Economic Growth", is certainly a very timely one. Indeed, the global turmoil of the last few months has focused our minds on what could go wrong when the financial sector is not playing its proper role. Hence, I would like to talk in my presentation about financial deepening without financial excesses.

In the light of the recent turmoil at the heart of the financial system (ie the interbank and credit markets of the main financial centres), the key issue is how to promote financial deepening in emerging Asia without experiencing the financial excesses that are occurring in mature markets.

The first associated question is: why is financial deepening a good thing? Economists have long insisted on the need to develop strong and deep financial markets in order to promote economic growth. This is because of the key importance of having market-based and diversified channels of intermediation between ultimate borrowers and investors. The second question is: how do we ensure financial deepening? The situations across SEACEN countries suggest that several stages and an appropriate sequencing have to be considered. The third question is: what problems can financial deepening bring? Finally, we will ask: how may SEACEN countries promote financial deepening while avoiding the financial excesses that have manifested themselves in mature markets?

Here I would like to focus on the policy lessons from the recent turmoil and on how emerging Asia can avoid the mistakes that have led to that turmoil. I will thus structure my discussion in the following way:

First, I would like to talk about the stages of financial deepening (**a road to growth**). After explaining the stylised stages of financial development, I will describe where SEACEN economies stand in terms of these stages. I will also suggest that asymmetry in financial deepening across countries and uneven global supply of liquid assets lead to the export of financial intermediation, through reserve accumulation.

Second, I will turn to financial excesses and what could happen if financial deepening gets out of control (**going too fast**). I will start with a discussion on how a combination of accommodative monetary policy, global imbalances and financial innovation led to the recent credit excesses. I will then focus on excess leverage in the banking sector and excess complexity in structured finance.

Finally, I would like to discuss the possible policy responses to financial excesses (**traffic rules and speed limits**). Among the many possible policy options, I shall focus on the importance of simplicity and going back to basics, Basel II implementation and other complementary measures, and finally the macroprudential framework of policymaking.



I. A road to growth: financial deepening

Let me now turn to the stylised stages of financial deepening and its sequencing over time.

The first stage of financial deepening is usually the emergence of banks. In an economy where there is only very partial information about borrowers, banks are particularly good at dealing with asymmetric information. Relationship lending allows banks to work closely with borrowers to develop trust as well as to share information.

A second stage often involves the stock market. This usually comes later in the financial system development process since it requires companies to publicly disclose information about their business. But once this infrastructure is in place, the key advantage of a well functioning stock market is that it provides something banks are not good at: a long-term commitment of risk capital while still giving investors a liquid form of investment.

A third stage often emerges with the development of fixed income markets. These markets, including both the bond markets and the money markets, are the markets of choice for fund-raising by governments, financial institutions and mature companies. The bond markets provide good investment instruments for long-term investors such as pension funds and insurance companies. The money markets are the place to manage short-term liquidity needs in large quantities.

The final stage involves derivatives markets and securitisation. Derivatives are instruments for hedging risks. Securitisation allows risks to be redistributed across investors – a key step for the development of the so-called originate-to-distribute model of financing. This final stage is what has given us the problems of the recent global turmoil, and I will come back to it.

Financial deepening in Asia

Let us now turn to where things stand in Asia. In terms of assets, most financial systems in the region are still dominated by banks, as shown in Graph 1. Nonetheless, equity markets have also become important in the region. Indeed, people say, “In Asia, equity is king.” Recently, significant efforts have been made to establish well developed fixed income markets. Corporate bond markets and money markets are developing fast, although repo markets are sometimes still in their infancy.

This growing diversification in financing sources is key, allowing a declining dependency on bank financing. Let me just say that the BIS is contributing to this process, including by participating in the Asian Bond Fund I (ABF I) and, more recently, ABF II, and also by having contributed to a lot of analytical work on local currency bond markets.¹

- The various financial systems in emerging Asia can also be said to be testing the waters of the final stage of financial deepening. Significant efforts are under way to develop hedging and credit risk transfer instruments in the region. Most systems have the basic over-the-counter (OTC) derivatives – foreign exchange forwards, currency swaps and interest rate swaps.
- The region also has its own nascent markets in credit default swaps (CDSs). Including Japan, about 550 Asian names trade in these markets (excluding Japan, about 370 Asian names trade), and a third of these names are included in liquid CDS indices.

¹ See [CGFS Papers no 28](#), “Financial stability and local currency bond markets”.

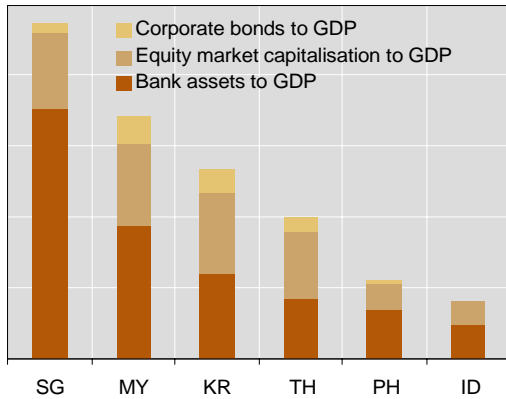


Graph 1

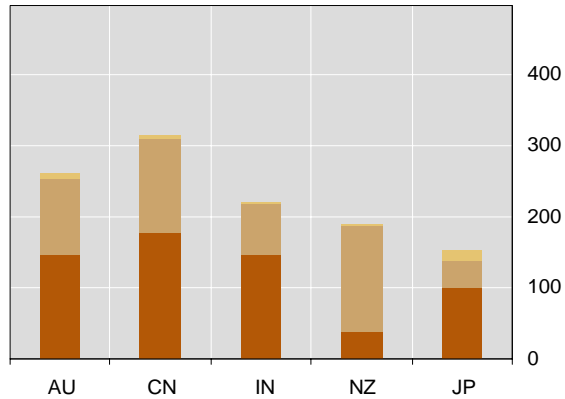
Bank-based financial systems still dominate in emerging Asia

In per cent

SEACEN countries



Other countries in Asia-Pacific



Sources: IMF; World Federation of Exchanges; national data.

- The region has experimented with securitisation. We have seen asset-backed securities (ABSs) that rely on credit card receivables as well as residential mortgages. More complex products are being developed, with even a few collateralised debt obligations (CDOs).

The supposed advantages of these financial innovations are being tested by the financial turmoil. In particular, the robustness of their liquidity and credit enhancement mechanisms is now being questioned.

Should emerging Asia continue to deepen?

Should Asian countries nonetheless continue to move towards more complete and innovative financial markets in the light of the recent market turbulence? Our answer is clearly yes, from the perspective of both the Asian economies and the global economy.

For Asian economies, the development of domestic financial markets is a valid objective to ensure both economic development – by increasing the efficiency of the allocation of savings – and financial stability – by allowing better risk management by investors (currency risk, credit risk, interest rate risk, duration risk, etc). To that end, efforts in Asia have focused on the development of: local currency bond markets, money markets, derivatives markets, securitisation mechanisms, etc. This should be continued.

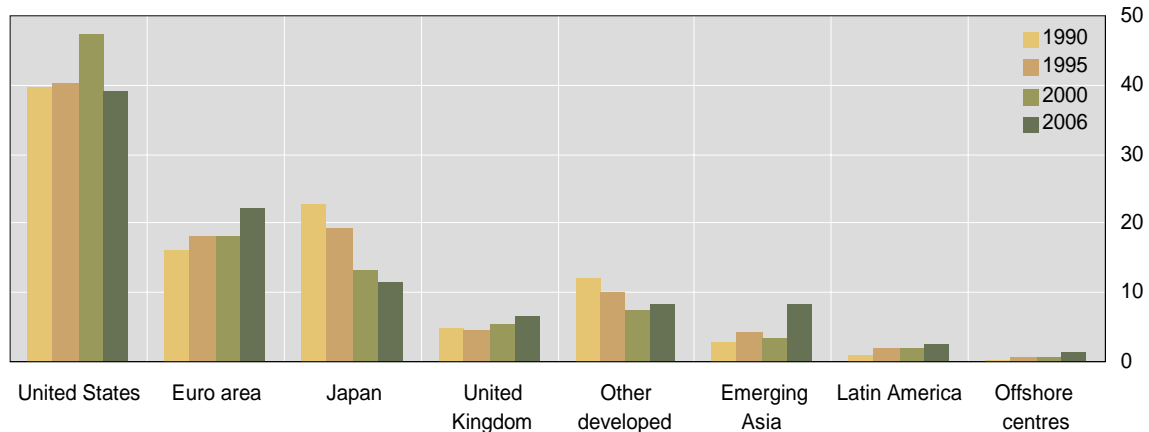
Financial deepening in Asia is also important for the global economy. Current large global imbalances and the associated reserve accumulation in Asia can be partly explained by the insufficient financial deepening in the region.

As shown in Graph 2, the supply of liquid financial assets in the world is very uneven. Such assets are issued mostly in the United States and, to a lesser extent, in the euro area and Japan. It appears that emerging economies are unable to produce enough of the liquid and high-quality financial assets desired by their domestic households, corporations or central banks.

Graph 2

Uneven global supply of liquid assets reflects export of financial intermediation

Stock market capitalisation plus total outstanding debt



Sources: Baclet and Vidon (2008, Bank of France); WFSE; BIS.

This “quality gap” between the assets Asian borrowers wish to issue and those Asian investors wish to hold implies that Asians are sending their savings abroad in vast quantities, investing them in more liquid, higher-quality foreign assets. These assets are largely held as foreign exchange reserves by central banks. These savings then come back in the form of foreign direct investment (FDI) and portfolio flows.

In other words, the financial intermediation is being done abroad. This would clearly not be necessary if the financial markets at home were deep enough – that is, able to produce the liquid and safe assets that domestic investors demand.

II. Going too fast: financial excesses

I turn now to financial excesses. Even though further financial deepening is a good thing – both domestically and globally – we need to be mindful of the associated risks.

Traditional risks highlighted by the Asian crisis of the late 1990s include bank runs and market bubbles and crashes. It is fair to say that central banks and supervisory authorities in Asia have made great efforts in the past decade to recognise and deal with these risks and vulnerabilities, as reflected in Graph 3 on liquidity buffers and capital buffers in the banking systems.

The left-hand panel shows that the loan-to-deposit ratios for banks in several SEACEN economies (except Korea) as well as in other emerging Asia economies are modest, ranging from 50 to 91%, compared to US and UK banks, where the ratio exceeds 110% and 150% respectively. This indicates that Asian banks have generally strong liquidity buffers.

The right-hand panel shows that emerging Asia banks have also built up capital buffers since the Asian crisis. Capital positions of banks in several SEACEN and other emerging Asia economies are well above the minimum Basel standard.

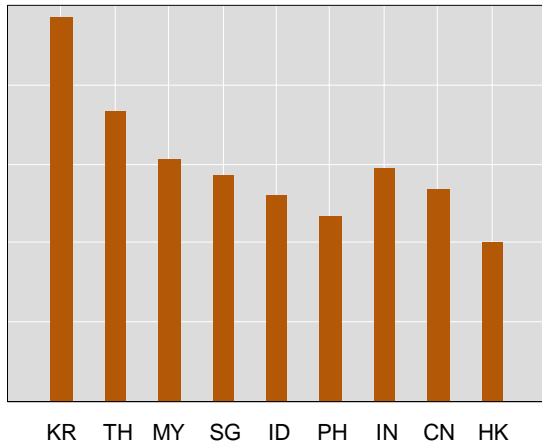


Graph 3

Traditional risks well addressed by Asian countries

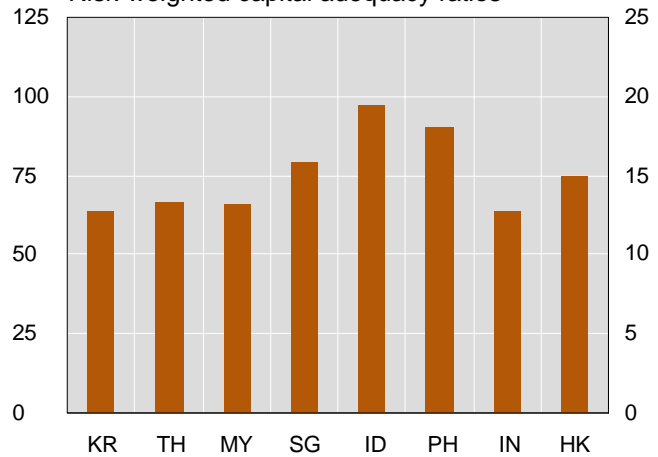
Liquidity buffers

Loan-to-deposit ratios¹



Capital buffers

Risk-weighted capital adequacy ratios^{1, 2}



¹ In per cent. ² 2005.

Sources: Bloomberg; CEIC; central bank websites; background paper on the 43rd SEACEN Governors' Conference.

But there are other, new financial excesses that have been revealed in the recent turmoil in more mature economies. I would characterise these risks as easy credit, excessive leverage and excessive complexity.

Easy credit

The first factor is easy credit. Graph 4 illustrates several ingredients that in the years 2000 to 2007 led to a global easing of credit conditions and consequently to the excesses that we have seen.

The first ingredient has been the accommodative monetary policy in the G3 countries, as manifested in low policy rates and low long-term rates. These low rates precipitated a search for yield and a high risk appetite, in a context of low volatility and low risk premia.

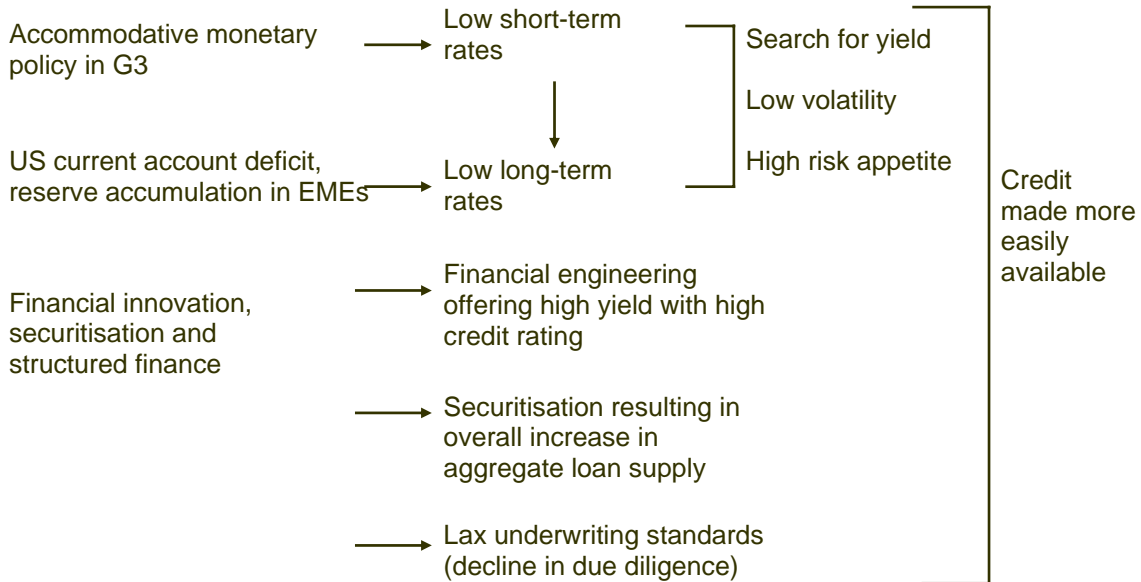
One important factor contributing to easy credit has been the decline in real interest rates, as shown in Graph 5. Among the OECD economies, average real policy rates were close to zero between 2002 and 2006. In emerging market economies, real short-term rates have also been rather low. Finally, long-term real rates as measured by inflation-indexed yields in mature economies have fallen well below the trend global real growth rate.

The second ingredient of easy credit has been the massive rise in the US current account deficit, which has been financed by reserve accumulation by emerging market economies, especially those in this region. The strong increase in US net external liabilities in recent years had been reflected in a large decline in US households' savings, which in turn was associated with the US housing credit bubble. Hence, the US current account deficit and the US housing credit bubble have been two faces of the same reality.



Graph 4

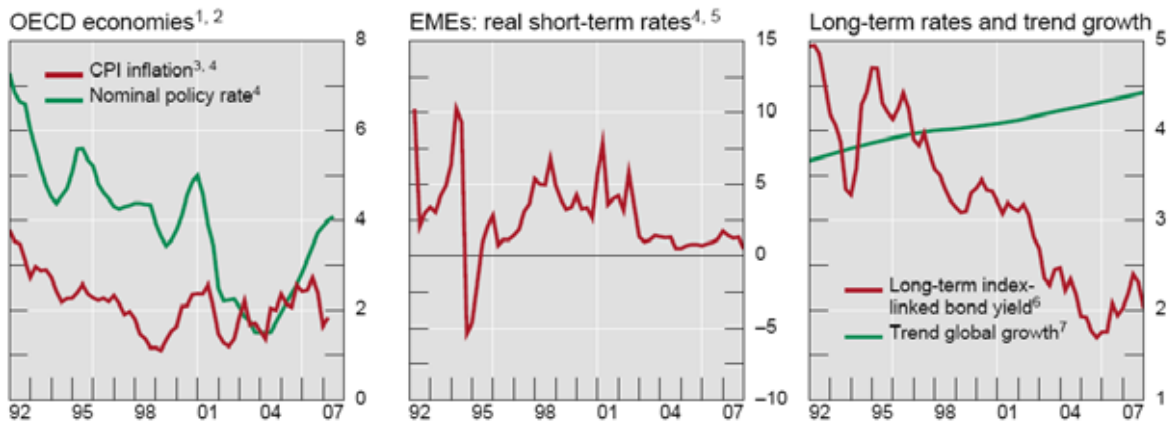
Ingredients of the 2000–07 credit excesses



Graph 5

Accommodative monetary conditions

Interest rates



¹ Sixteen OECD economies. ² Weighted averages based on 2000 GDP and PPP exchange rates. ³ Annual changes. ⁴ In per cent. ⁵ Simple average of 23 emerging market economies; deflated by consumer prices. ⁶ From 1998, simple average of Australia, France, the United Kingdom and the United States; otherwise, only Australia and the United Kingdom. ⁷ Trend world real GDP growth as estimated by the IMF.

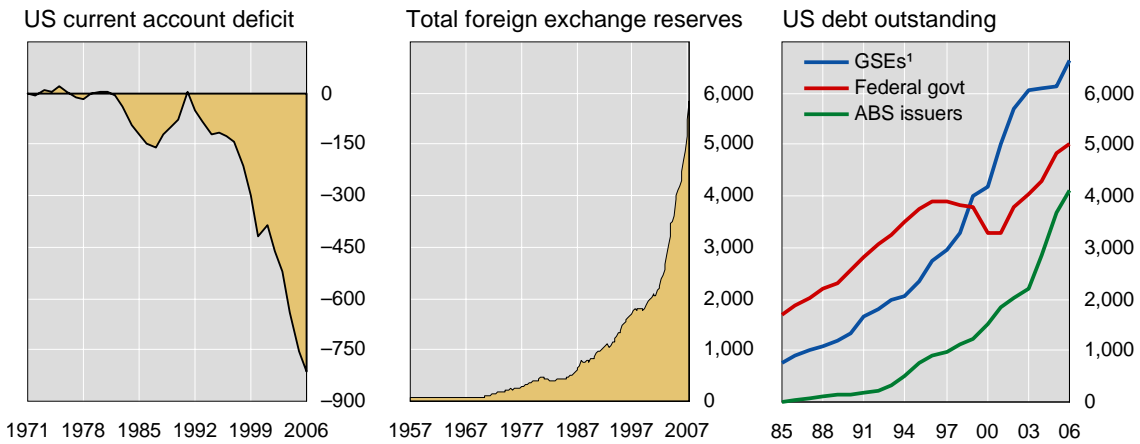
Sources: IMF; OECD; national data.



Graph 6

Global imbalances and the US housing bubble are two faces of the same reality

In billions of US dollars



¹ GSEs plus agency and GSE-backed mortgage pools.

Sources: IMF; Bloomberg; FinanceAsia.com.

On the financing side, Asian central banks had a rapidly growing pool of dollar reserves to invest each year. At the global level, Asian foreign exchange reserves were mainly invested in sovereign securities, reinforcing downward pressures on long-term interest rates. Moreover, as illustrated in the right-hand panel of Graph 6, the supply of risk-free US government debt and GSE (agency) debt did not keep up with the demand. Hence, some central banks turned to ABSs and MBSs. All this helped fuel the US property boom. At the domestic level, to the extent that reserve accumulation was not fully sterilised, it led to an expansion of money supply and therefore easy credit at home; and we know that sterilisation cannot be perfect.

The final ingredient of the credit excesses was financial innovation in the form of credit derivatives and structured finance. Structured finance technology, and in particular (but not only) CDO engineering, relied on the device of subordination to transform pools of high-yield collateral into rated instruments with a variety of risk/return profiles – to simplify, by pooling high-yield, low-rated assets and issuing tranches with different ratings against that pool, most of which would be rated higher than the collateral assets themselves. This led to an overall increase in the supply of credit. This credit creation was reinforced by a stretched securitisation chain involving a relatively large number of specialised players, leading to an erosion of underwriting standards and weak due diligence, especially in the US mortgage sector.

Excessive leverage

The combination of the ingredients I have just detailed led to easy credit. But a second factor was in play in recent financial excesses – that is, excessive leverage. Indeed, the leverage in the global financial system was much greater than one would think when looking only at the balance sheets of regulated financial institutions. Here it is important to understand the leverage of the various institutions.

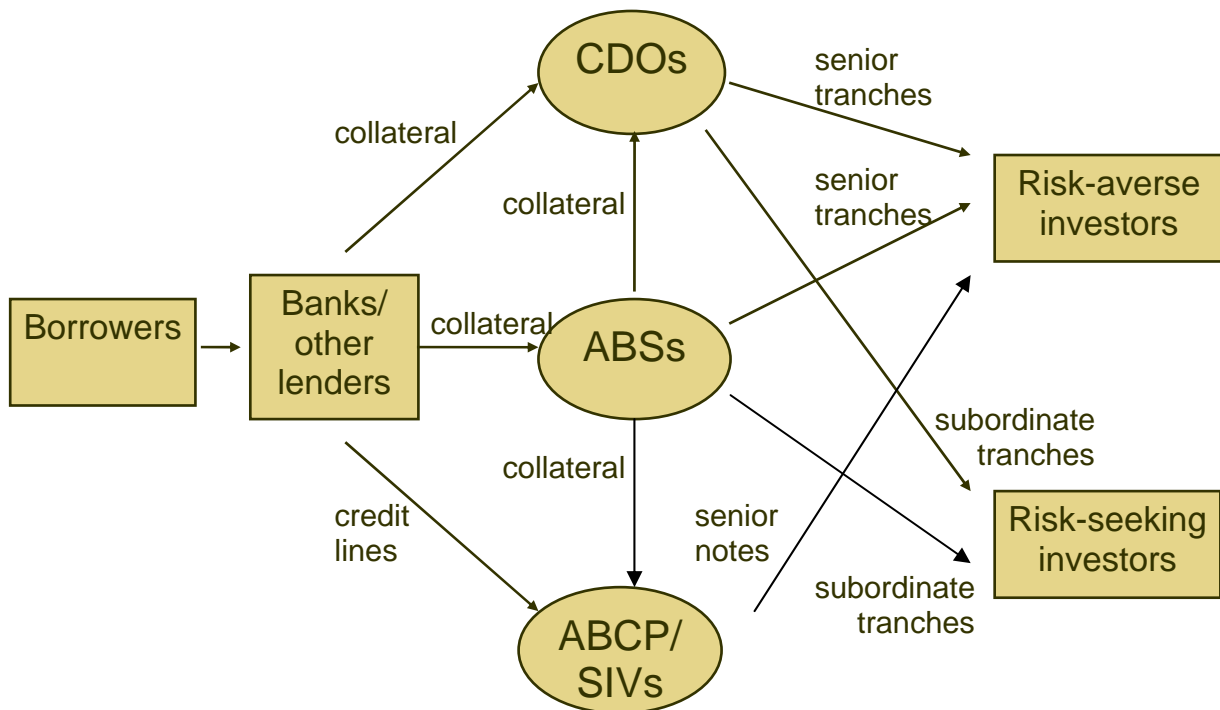


- **Hedge funds** often have an implied gearing of around four times and are referred to as “highly leveraged institutions”. Moreover, as this balance sheet leverage can be expanded through the use of derivatives, instrument leverage can at times significantly increase hedge funds’ effective gearing, which is why they are referred as “highly leveraged institutions”.
- **Large banks**, which have a leverage of around 20 times, could also be described as “highly leveraged institutions”. Banks’ leverage ratios have increased in recent years despite the growing importance of the originate-to-distribute business model. The ongoing reintegration of off-balance sheet vehicles in the banks’ balance sheets suggests that the underlying leverage of banks had been underestimated.
- There has, indeed, been a misperception of the underlying leverage in the financial system more generally because of the hidden leverage of the so-called “**shadow banking system**”.

Graph 7 shows an overly simplified diagram of the structure of this shadow banking system. With the development of the originate-to-distribute model, banks and other lenders are able to extend loans to borrowers and then to package those loans into ABSs, CDOs, asset-backed commercial paper (ABCP) and structured investment vehicles (SIVs). These packaged securities are then sliced into various tranches, with the highly rated tranches going to the more risk-averse investors and the subordinate tranches going to the more adventurous investors.

Graph 7

The shadow banking system

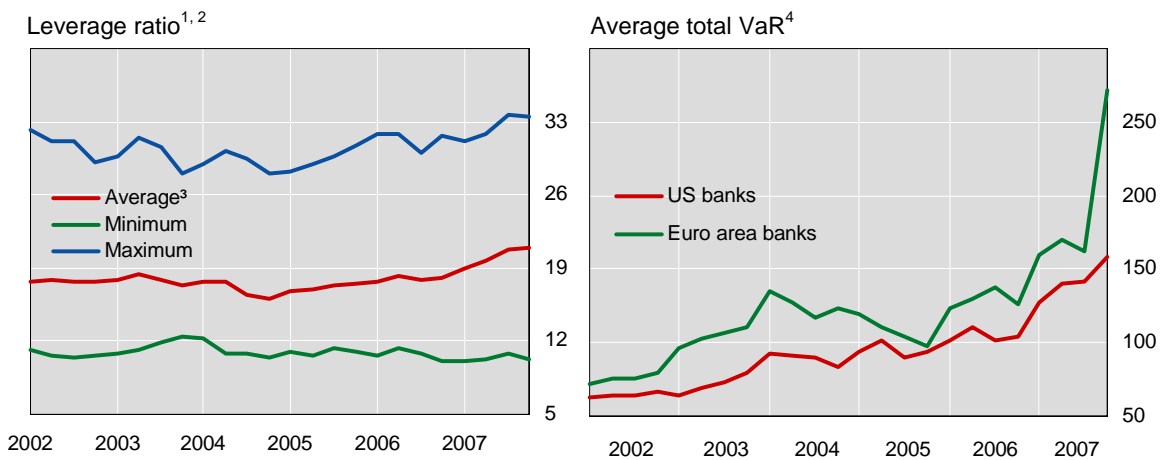




The shadow banking system contributed to the overall leverage of the financial system. The new financial participants that developed their activities in this context (SIVs, ABCP conduits, monoline insurers) were highly leveraged. For instance, a CDO with an equity tranche covering the first 3% of losses represents an investment in the underlying assets that is leveraged about 30 times. **Monoline insurers**, depending on the measure used, were leveraged 50 to 100 times. They fostered the expansion of the shadow banking system by providing financial institutions with protection in the super-senior tranches of ABS CDOs, which is far from their traditional business.

Graph 8

Leverage ratios and risk measures in large banks show that underlying position-taking increased



¹ Includes Bank of America, Bear Stearns, Citigroup, Goldman Sachs, JPMorgan Chase, Lehman Brothers, Merrill Lynch, Morgan Stanley and Wachovia. ² As measured by the ratio of total assets to total shareholders' equity. ³ Weighted by total assets. ⁴ Market capitalisation-weighted average of value-at-risk data of Citigroup, Credit Suisse Group, Deutsche Bank, Goldman Sachs, JPMorgan Chase, Morgan Stanley, Société Générale and UBS; index Q4 2002 = 100.

Sources: US Securities and Exchange Commission; financial reports of individual companies.

Some evidence of rapid asset growth and increased risk-taking in the past few years can be clearly found in the balance sheet indicators of large banks. The left-hand panel of Graph 8 shows that the average leverage ratio of nine major US banks reached 21 by the end of 2007. This is slightly above the levels observed around 1999, ie before the dotcom bubble collapsed.

Increased leverage both on balance sheets and in the shadow banking system clearly meant increased risk. One common way in which risk in financial institutions is measured is value-at-risk (VaR). As shown in the right-hand panel of Graph 8, this measure of risk has risen over the last five years. Moreover, these years were marked by a fall in volatility to very low levels. This meant that underlying position-taking increased much more than indicated by these VaR indicators. And indeed, when volatility bounced back in 2007, VaRs rose sharply as a result.



Excessive complexity

In addition to easy credit and excessive leverage, the recent financial turmoil was also caused by a third factor: the complexity of new structured finance products, which exceeded the comprehension of bankers, investors and regulators. Indeed, disclosure about the risk exposure of financial institutions turned out to be inadequate, especially regarding their off-balance sheet holdings and credit risk transfer activities. Information about the quality of the underlying assets backing certain structured finance instruments was also poor. Moreover, risk management approaches for structured finance products apparently did not fully consider the various scenarios under which demand and market liquidity dry up, in a context of excessive reliance on model-based valuations. This partly reflected the perception that sufficient liquidity would always be there to keep the securitisation machinery going.

In fact, in recent months, loss of confidence in asset valuations suddenly brought primary as well as secondary trading of these instruments to a near halt. With the benefit of hindsight, it was a fundamental illusion to believe that financial engineering can create complex instruments that are both tailored to the needs of individual investors and, at the same time, tradable in liquid markets. It also proved an illusion to believe that complex financial engineering would be able to offer, in a sustainable way, high yields without the corresponding risks – in other words, to break the traditional relationship between risk and return. Indeed, investors appear to have relied too much on simple measures of risk, eg one-dimensional measures of expected losses such as ratings, overlooking other measures of unexpected losses.

A good illustration of excessive complexity is the super-senior (triple-A rated) tranches of subprime ABS CDOs. These CDOs are a form of re-securitisation where the underlying assets themselves consist of tranches of subprime MBSs. In many cases, the underlying exposures of recent CDOs were not senior tranches but mezzanine tranches of subprime mortgage securitisations, some of which would again be re-securitised in the form of CDOs of CDOs. It was common for these structures to issue so-called “super-senior” tranches. These super-senior tranches were located at the very top of the capital structure and would additionally be enhanced by external credit support in the form of a financial guarantee, such as the credit protection provided by the monolines. This was an important factor sustaining the development of structured finance: to the extent that fees paid to obtain financial guarantees were small, even the relatively lower yields of the senior tranches remained attractive. In a nutshell, these instruments were thought to be “safer” than traditional triple-A rated securities while still providing better yields to investors. This was like a magic transformation of lead into gold from the realm of alchemy. And these developments also produced strong incentives to increase leverage in the system, as investors were attracted by these new higher-yielding but apparently still low-risk instruments.

However, this backfired when the underlying exposures proved to be more risky than previously thought. Indeed, it turned out that the triple-A ratings of these super-senior tranches, as well as of other CDO tranches, had either been too generous or subject to tail risk to a degree that investors had not appreciated. Late last year, the rating agencies started downgrading large amounts of CDO tranches – at all levels of credit quality – by multiple notches. For instance, several AA tranches were quickly downgraded below investment grade. What went wrong? The inclusion of a large number of mezzanine tranches of subprime mortgage securitisations in CDOs rendered these (leveraged) instruments highly dependent on a potential turn in the credit cycle. They were thus particularly vulnerable when the cycle did start to turn and the credit quality of the underlying assets deteriorated. To simplify, a key weakness was that these complex instruments could effectively reduce idiosyncratic risks but remained exposed to greater systemic risk and correlation risk. Therefore, in times of severe systemic stress, they were subject to exceptionally large unexpected losses.



III. Traffic rules and speed limits: policy responses aimed at pre-empting financial excesses

Where do we stand now? On the one hand, financial deepening is a good thing for Asian economies. On the other hand, it can lead to financial excesses: the ongoing turmoil in mature financial markets resulted from the combination of easy credit, excessive leverage, and excessive complexity of new financial instruments.

But the recent turmoil suggests that there are several policy responses to avoid financial excesses. I will not deal today with the monetary policy and exchange rate policy aspects which I already discussed last year in Bangkok.² I shall focus on the following three areas: (1) instilling simplicity; (2) enhancing regulation and supervision; and (3) considering a macroprudential framework of financial stability.

Instil simplicity: back to basics as key message

In itself, financial innovation produces complexity, and regulation has to keep pace with this complexity. But it is also important for supervisors to systematically restore simplicity by going back to basics. In particular, nominal and notional amounts do matter when looking at risk exposures. Economic capital calculation based on VaR-type methodologies is a useful tool, but it should be complemented by stress testing and by basic judgments and rough indicators based on nominal amounts.

There are a few examples of this need for judgment. Economic capital calculation is done basically by transforming huge nominal amounts into very small amounts at risk. This reduces the perceived order of magnitude of risk exposures and gives a false sense of comfort. The same applies to the calculations of risk-weighted assets under the advanced internal ratings-based (IRB) approach of Basel II, which in my view can be usefully supplemented with the monitoring of simple indicators like the leverage ratio. Similarly, low correlation assumptions in economic capital calculation and valuation techniques may not hold in times of extreme stress, undermining the strategy of diversification.

This balance between complexity and simplicity will remain an important issue in the future. As stated by Alan Greenspan in a recent article: "The essential problem is that our risk models, as complex as they have become, are still too simple to capture the full array of variables that drive economic reality." (*Financial Times*, 17 March 2008.)

Enhance the regulatory and supervisory framework

The recent turmoil has highlighted the weaknesses of the Basel I framework and the need to implement Basel II. At the same time, all three pillars within the Basel II framework are currently being refined by the Basel Committee and further strengthened to reflect the lessons from the recent market turbulence.

In a world rightly described as flush with liquidity but with not enough capital, it is key to make sure that banks hold strong capital buffers over the cycle. And I am happy to observe that this is increasingly the case in Asia: banks' capital positions have improved since the financial crises in the late 1990s, so that currently the average risk-weighted capital ratios in most economies are well above the minimum Basel standard. And a lot of progress has been made in Asia recently, in the implementation of either the Standardised Approach or IRB approaches of the Basel II framework.

² See "[Policy responses to the challenges posed by capital inflows in Asia](#)", 42nd SEACEN Governors' Conference, Bangkok, 28 July 2007.



It is important in my view to be absolutely clear on the fact that, while the Basel Committee sets minimum standards, national regulators and supervisors can impose additional measures going beyond the minimum capital adequacy requirements. This is at the heart of the Pillar 2 concept. Here, let me give you five examples of additional measures taken by national supervisors complementing the Basel Committee minimum standards: (1) loan-to-value ratios for mortgage loans in several countries; (2) a capital charge on SIVs in Spain; (3) a leverage ratio in US regulation; (4) recent measures taken by the UK Financial Services Authority (FSA) on liquidity risk management; and (5) dynamic provisioning in Spain:

1. *Loan-to-value ratios for mortgage loans in several countries.* While Basel II may lead to a reduction in capital requirements for retail residential mortgage exposures compared to the less risk-sensitive Basel I framework, the imposition of prudential limits such as maximum loan-to-value ratios would certainly help build a buffer against ex post deterioration in credit qualities and collateral values.
2. *Capital charge on SIVs in Spain.* The Bank of Spain undertook interesting action to complement the Basel I framework in the domain of securitisation. Several years ago, when Spanish banks asked for permission to set up SIVs, the central bank imposed an 8% capital charge against SIV assets. This effectively made SIVs unattractive to Spanish banks.
3. *Leverage ratio in US regulation.* It is also important for supervisors to complement their use of the Basel II framework with a wide range of indicators. Under current US bank capital regulation, capital ratios based on risk-weighted assets under Basel rules are important, but the leverage ratio also plays a role. The leverage ratio is a simple and robust indicator designed to constrain the maximum degree to which a bank can leverage its equity capital base.
4. *Recent measures taken by the UK FSA on liquidity risk management.* Liquidity risk management is another area which has attracted more attention lately. In response to the liquidity concerns since last summer and the problem with Northern Rock, the FSA has recently strengthened its bank liquidity risk management framework.
5. *Dynamic provisioning in Spain.* As a final example, in 2000 the Bank of Spain introduced a system of prudential provisioning to complement existing specific provisioning arrangements. The main idea was to set a floor under the fall in provisions during the upswing in the credit cycle. This creates a prudential cushion that can be drawn upon as the cycle turns.

Consider a macroprudential approach to pre-empt financial excesses

This brings us to my final suggestion of developing a macroprudential framework, as advocated since the early 2000s by the BIS. This approach starts from the observation that systemic risk and the time dimension of risk are not properly addressed by traditional microprudential supervision. Under microprudential regulation, each individual institution is the unit of analysis and supervision. In contrast, macroprudential approaches focus on the system as a whole, the actions of other market participants, and the linkages with the macroeconomy – looking at the wood and not just at the trees, so to speak. Moreover, macroprudential approaches make it possible to capture the time dimension of risk and to address the risk of excessive procyclicality in the financial system. The basic principle is to encourage the build-up of cushions in good times, when imbalances typically emerge, so that they can be run down in bad times, as the imbalances unwind. In this regard, I believe the current SEACEN research project on “Understanding and Addressing the Pro-Cyclicality Impact of Basel II in SEACEN Countries” is important and timely.

When inflation is low, it may be difficult for a strict inflation targeting central bank to use monetary policy (policy rates) to deal with financial imbalances such as asset price booms



and credit booms. In this case, prudential measures can be used to support monetary policy to minimise the build-up of financial imbalances. Some Asian countries have taken prudential policy measures in a pre-emptive manner to slow down credit booms in recent years, as described in the Annex table. This clearly indicates that many Asian countries have learned lessons from the financial crises in the late 1990s and have tried to react to credit booms before they turn into financial excesses.

Conclusion

The recent financial market turmoil reminds us that financial deepening through financial innovation can generate financial excesses. The Financial Stability Forum has identified the underlying problems and is now in the process of proposing plans to strengthen the resilience of the global financial system.

There is a large degree of diversity within the SEACEN and other Asia-Pacific economies in terms of financial deepening, and in the policy responses of these economies. SEACEN central banks have made every effort to maintain the right balance between promoting financial deepening and avoiding excesses in bank credit provisions and financial market development. In the future, SEACEN central banks may also wish to consider adopting proactive measures against the build-up of financial imbalances and excesses, by introducing a macroprudential framework in their regulatory and monetary policymaking.

Thank you.



Annex:
Pre-emptive prudential/monetary policy measures
taken against credit booms in Asia

	Prudential instruments					Monetary instruments	
	LTV	Capital	Provision	Exposure limit	Lending criteria	Credit limit	Average reserve requirement
China	01, 05, 06				04		03, 04, 06, 07
Hong Kong SAR	91, 97			94–98		94	
India		05, 07	05, 06, 07				04, 06, 07
Korea	03, 06				06		06
Malaysia	95–98	05		97–98	95		94–98
Thailand	03				04, 05		

“LTV” = loan-to-value ratio; “Capital” = capital requirements; “Provision” = loan provisioning rules; “Exposure limit” = limits on credit exposure to a sector such as the real estate sector; “Lending criteria” = limits on debt repayment-to-income ratio or debt repayment-to-debt ratio or credit line-to-income ratio; “Credit limit” = limit on credit growth. The years indicated refer to the timing of the introduction of the measure. A year coming after a hyphen refers to the timing of the lifting of the measure.

Source: Borio and Shim (2007).