TOWARDS A GLOBAL FINANCIAL STABILITY FRAMEWORK[1]

by Hervé Hannoun

Deputy General Manager, Bank for International Settlements

45th SEACEN Governors' Conference

Siem Reap province, Cambodia, 26–27 February 2010

It is a great pleasure and honour to join you on the occasion of the 2010 SEACEN Governors' Conference in Siem Reap. For this privilege, I thank Governor Chea Chanto, SEACEN and all those who have contributed to the excellent organisation of this Conference at the National Bank of Cambodia.

The theme of today's SEACEN Governors conference is the role of central banks in fostering financial stability. This theme would normally restrict my presentation to those policy instruments that are under the control of central banks, either in their monetary policy role (including policy interest rates, reserve requirements, foreign exchange intervention, balance sheet policy, emergency liquidity assistance) or in their supervisory role (capital requirements, macroprudential tools, oversight of payment systems). But today, given the strong link between sovereign risk and financial stability in current circumstances (and the surge of public debt in a number of advanced countries), I will broaden my intervention and include fiscal policy in the discussion.

I. Outline of the speech

First, what is meant by a global financial stability framework? In order to see where we are going, it is necessary to look at where we are. I will therefore sketch what I see as the traditional framework in order to highlight the needed changes.

Second, I want to briefly address why we need a global financial stability framework. This is an objective that the Bank for International Settlements (BIS) has been promoting at least since 2000. The immediate goal is clearly to reduce the probability and severity of a future financial crisis. But we must not lose sight of the bigger picture, which is to ensure that the financial system is stable and serves its role of promoting growth in the real economy.

And third, I wish to elaborate on how we build a global financial stability framework. I want to stress that such a framework cannot rely on regulation and market discipline alone. Instead we need to recognise and ensure that all policy areas – prudential, monetary and fiscal – must make a contribution to achieving a sound and stable financial system.

[1] This speech was prepared together with Michael King, and benefited from comments by Claudio Borio, Robert McCauley, Frank Packer, Bruno Tissot and Stefan Walter.

II. What is meant by a global financial stability framework?

We need to change the way that we think about global financial stability. The financial crisis of the past two years has exposed the weaknesses of the traditional framework. This framework included three components:

- Supervision of individual financial institutions.
- Oversight of payment and settlement systems and other key market infrastructures.
- Monitoring of the functioning of financial markets.

In this setting, systemic risk was discussed but seen as a remote possibility, but policymakers relied on the "resilience" of the financial system. There was no real awareness that "the unthinkable" could happen, namely a crisis affecting the global financial system as a whole. As it turned out, that reliance proved to be misplaced.

What I find surprising is that although the crisis has caused much ink to flow, there is still no consensus on its root causes. No one denies that there was a market failure and that the primary cause was reckless behaviour in the private (financial) sector, poor market discipline and a failure of banks' risk management. But when it comes to public policies, there is a fundamental divide between those who think that the crisis was all about weaknesses in regulation and those who are convinced that overly accommodative macroeconomic policies played a major role. On this fundamental question there is still no agreement.

Whatever the respective weights assigned to these policy areas, the financial crisis has revealed the need for a new global financial stability framework. This framework is the focus of my presentation today.

What are the elements of a new global financial stability framework?

First, the framework needs to be global. By "global" I mean comprehensive and worldwide. "Comprehensive" because such a framework requires contributions from prudential, monetary and fiscal policies, as well as market discipline. Each of these policy areas must incorporate financial stability concerns in the pursuit of its primary objective. Only the combination of these policies can achieve both price stability and financial stability. The framework must also be "worldwide" because the global financial system itself is worldwide. The recent crisis has cast this cross-border dimension into stark relief.

Second, a global financial stability framework must be based on five principles:

- The focus needs to be system-wide, taking into account the mutually reinforcing interactions between the financial system and the macroeconomy.[2] While supervision of individual financial institutions continues to be important, we must not lose sight of the forest for the trees.
- All macroeconomic policies need to be countercyclical, building up buffers in good times that can be run down in bad times. In particular, fiscal authorities need to reduce debt levels in good times in order to have the capacity to respond at times of stress.

[2] J Caruana, "Grappling with systemic risk", International Distinguished Lecture to the Melbourne Centre for Financial Studies, 10 February 2010.

- Macroeconomic policies must be symmetric, responding during the boom and bust phases of financial and business cycles. This need for symmetry is key. It is not sufficient to wait and clean up during the bust phase. Macroeconomic and prudential policies also need to lean against the build-up of financial imbalances during the boom.
- Policy should be based on a long time horizon that takes into account the lags between the build-up of risk and its materialisation.
- The approach should be holistic, reflecting the need to adjust prudential, monetary and fiscal frameworks in complementary ways. None of these policies is sufficient by itself.

III. Why a global financial stability framework is needed

The financial crisis has demonstrated that market discipline is not enough to achieve global financial stability. There has clearly been a market failure, and public policies are needed to address it. Self-regulation by itself does not work. Banks and other sophisticated financial institutions took responsibility for managing their own risks. Advanced risk management techniques failed to warn about the imbalances that had built up in the financial system. In particular, these models did not take into account the endogenous behaviour of the actors themselves. Nor could risk management address the distorted incentives guiding financial sector behaviour. Leading financial institutions focused on the pursuit of unsustainable returns on equity (ROE) achieved through excessive leverage and the growth of non-risk-adjusted profits. From the point of view of financial stability, compensation structures were flawed and promoted a short-term orientation. These distorted incentives were at the heart of the market failure.

The 2007–09 financial crisis has also shown that prudential regulation by itself is not enough to achieve financial stability. Macroeconomic policies also matter. The crisis demonstrated that a monetary policy aimed at achieving stability of consumer prices is not enough to ensure financial stability. The crisis has, in addition, shown that fiscal policy must be viewed as an integral part of a financial stability framework. Governments responded to the crisis with exceptional support for the financial system, in the form of capital injections, debt guarantees and asset purchases. This global response again highlights the need for a worldwide approach to achieve financial stability. I will have more to say on this dimension later.

The leverage-led growth model is still with us

Policymakers need to break with the leverage-led growth model in advanced economies, which was at the heart of the financial crisis.[3] In order to break with this model, we need to adopt a new paradigm for global financial stability so as to prevent excessively loose macroeconomic policies from being a source of financial instability in the future. To better understand the new paradigm, we need to be clear about the existing one that has governed the conduct of macroeconomic policies since the early 1990s. This dominant paradigm has been:

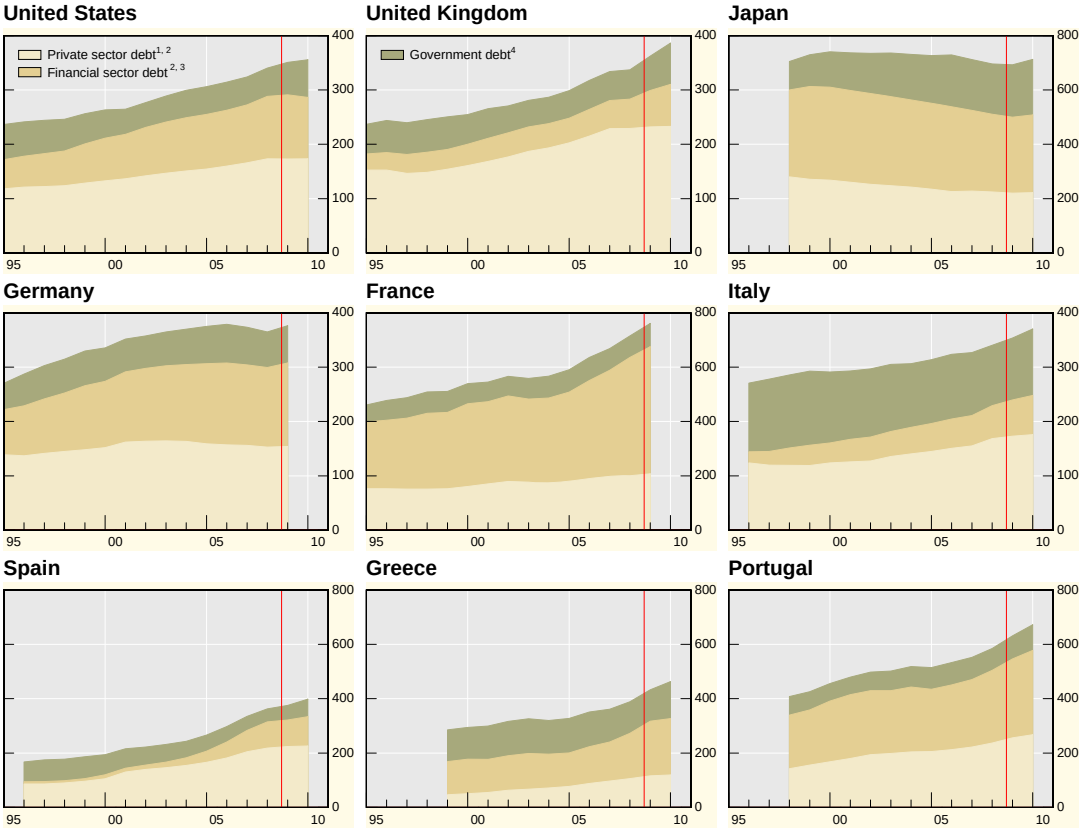
- to avoid any recession;

[3] H Hannoun, "Unwinding public interventions after the crisis", remarks delivered at the IMF High-Level Conference on *Unwinding public interventions – preconditions and practical considerations*, Washington DC, 3 December 2009.

- to smooth the business cycle. The reduced volatility of real growth and inflation over the past 20 years has created the illusion that the business cycle can be eliminated;
- to rely on over-optimistic assumptions about potential output growth; and
- to reject the need to act against the build-up of financial excesses.

As with all paradigm shifts, some event or anomaly occurs that cannot be explained by our current world view and that signals the need to adopt a new paradigm. The 2007–09 financial crisis was this type of event. After this crisis, a new paradigm is needed. Policymakers need to accept that periodic, mild recessions or a marked slowdown in growth may be a necessary price for avoiding major recessions. We also have to acknowledge that financial crises are not rare events, as witnessed by their regular occurrence every few years somewhere in the global financial system.[4] We need to accept that there is still a business cycle. No country has

Figure 1: Leverage in financial, household and public sector
(As a percentage of GDP)



The vertical line dates the Lehman Brothers bankruptcy. Data for 2009 are based on the latest quarterly information available.

[1] Non-financial business, households and non-profit organisations. [2] Total debt excluding deposits and trade credit. For France, Greece, Portugal and Spain, total debt includes currency and deposits due to data limitations. [3] Financial institutions or monetary institutions. [4] General government debt.

Sources: IMF; Datastream; OECD; national data.

[4] S Cecchetti, M Kohler and C Upper, "Financial crises and economic activity", *NBER Working Papers*, no 15379, September 2009.

managed to eliminate the business cycle, and we therefore need policy frameworks that respond countercyclically to fluctuations in the real economy. Our models need to recognise that potential output growth may be lower down the road than was previously believed. And finally, we need to acknowledge that macroeconomic and prudential policies should lean against the build-up of financial imbalances and respond to the busts in a symmetric fashion.

Figure 1 highlights how the leverage-led growth model is still with us. It shows the level of leverage and debt in the financial, household and public sectors across nine advanced economies. Most of us are familiar with the statistics on *net* public sector debt levels. These figures show a broader measure of *gross* debt levels across whole economies. Total non-financial debt has continued to rise since the bankruptcy of Lehman Brothers 18 months ago, which appears as a vertical red line in each of the panels above. Based on this broader measure, total gross debt levels are approaching or above 400% of GDP in the United States, the United Kingdom, Germany, Italy, Spain and Greece. The levels are even higher in Japan, France and Portugal. Note that the financial sector debt levels for France, Greece, Portugal and Spain include currency and deposits due to data limitations.

The "paradox of financial instability"

At the BIS, we use the expression the "paradox of financial instability" to describe the situation where the system looks strongest precisely when it is most fragile.[5] This was the case in the build-up to the current financial crisis. The Great Moderation in the volatility of output and inflation produced a false sense of comfort and an illusion of financial stability. The low volatility on the real side of the economy was mirrored by a decline in the volatility of financial variables. Declining volatility, however, coincided with the build-up of leverage in the financial and household sectors of a number of advanced economies.

For bank risk managers at financial institutions, procyclical value-at-risk (VaR) models calibrated to the recent period of low volatility and low correlations across asset classes downplayed the build-up of risks in the financial system, contributing to a feeling of complacency. These backward-looking risk metrics provide fuel for the boom and bust cycles in financial markets. They contribute to the growth of financial imbalances during the boom phase. And during the bust phase, the rise in volatility leads risk managers to cut back on exposures by selling risky positions in an environment of falling liquidity and asset prices. In other words, such risk models present the market risk as low just when it reaches dangerous levels and then show market risk as high when everyone has already become risk-averse. The assumption of low correlations across asset classes proved to be particularly damaging in times of extreme stress. Investors who relied on diversified portfolios to manage their risk saw this strategy fail during the crisis, as the correlations across asset classes rose as asset prices fell.

IV. How to build a global financial stability framework

I have made the case that a new global financial stability framework is needed. This discussion has been necessarily conceptual, as it asks policymakers to adopt a new

[5] C Borio and M Drehmann, "Towards an operational framework for financial stability: 'fuzzy' measurement and its consequences", *BIS Working Papers*, no 284, June 2009.

paradigm for financial stability. I would now like to discuss in more operational terms how we build a global financial stability framework.

Policy objectives and available tools

I have argued that global financial stability cannot be achieved through prudential policies and market discipline alone. It requires contributions from monetary and fiscal policies as well. While such contributions sound reasonable in theory, in practice they may be quite difficult to achieve. A first challenge is that different policymakers control different instruments. Even among central banks, there is a great deal of variation in the scope of their responsibilities. While most of the SEACEN central banks have responsibility for both monetary policy and prudential policy, not all central banks are responsible for banking supervision, as seen in the cases of the Bank of England, the Reserve Bank of Australia and the Bank of Canada.

A second challenge is that all policies – prudential, monetary and fiscal – have primary objectives. Monetary policy should be focused on controlling inflation, while fiscal policy is responsible for countercyclical demand management. Critics may therefore argue that it is not possible to achieve two objectives with a single instrument. It is tempting to make this neat Tinbergen assignment where each policy instrument is assigned to a single policy objective. But this principle does not mean that one instrument should be *exclusively* assigned to one objective, only that the number of independent instruments should *at least be equal to* the number of objectives. From this perspective, monetary and fiscal policies can still incorporate financial stability as a secondary objective that contributes to the achievement of their primary objectives. The question for policymakers is how to integrate these policies effectively.

Table 1: Policy areas and contributions to global financial stability

Policy area	Primary objective	Financial stability objective
Prudential	Limit distress of individual financial institutions	Address systemic risk (cross section, over time)
Monetary	Stabilise prices	Lean against boom-bust cycles in credit and asset prices
Exchange rate	Stabilise exchange rate	Reduce capital flow volatility
Fiscal	Manage demand countercyclically	Maintain fiscal buffers that allow a response to financial system stress

Table 1 shows the various policy areas, their primary objectives, and the contribution they can make to financial stability as a secondary objective. For example, the objective of monetary policy is to stabilise prices and that of prudential policies is to limit the distress of individual financial institutions. But as we have seen, prudential policies are not enough to achieve financial stability and need to be supported by monetary policy. When we accept this view, it follows that the reaction function of the monetary authorities should not be narrowly understood as aiming at controlling inflation over the short run. Rather, it must also take account of credit growth and asset information, with the aim of promoting financial and macroeconomic stability over the medium term. In some circumstances, central banks may need to respond directly to this additional information, even if inflation deviates from its objective in the short run. This is because the trade-off between financial stability and monetary

stability may be more apparent than real when the appropriate time horizon is considered. In the long run, the two goals are indeed likely to be complementary.

Similarly, fiscal policy may be used to manage demand countercyclically, but it should also take into account the need to maintain fiscal buffers that allow a response to financial system stress. This implies that government debt should be maintained at reasonably low levels in good times so that additional debt can be taken on in times of stress without unsettling financial markets.

Table 2 (overleaf) shows that the number of instruments available in each policy area is much larger than generally understood. Over the past two years, central banks have been very creative in designing and using different tools to achieve their objectives. While many of the instruments in a given policy area may be related, some tools may be more effective than others depending on the structure of the economy.

For each policy area, the left-hand column lists tools that are commonly used to achieve the primary objective and the right-hand column lists tools that may contribute to the secondary objective of financial stability. For example, central banks may target price stability through some combination of changes in the policy rate and the corridor between deposit and lending rates. But central banks have also shown that they can take actions to support the financial system by using their balance sheet to provide exceptional liquidity or to influence credit spreads. Similarly, both prudential policy and fiscal policy have tools available that can be used to achieve global financial stability. I will return to some specific examples later.

An important aspect that is often neglected in discussions of objectives and tools is the global dimension. We live in open and interlinked economies where the policy choices of one country affect the policy choices of its neighbours. The global financial system also provides a transmission mechanism from one economy to another. Some policy tools will therefore have an impact beyond a country's borders, potentially contributing to instability in other regions. Recognising this cross-border dimension highlights the need for more global cooperation among policymakers, as part of a global financial stability framework.

I now describe the respective contributions of prudential, monetary and fiscal policies to the framework.

Table 2: How we build a global financial stability framework: objectives (in bold) and tools

Prudential policy		Monetary policy		Fiscal policy	
Limit distress of individual banks (microprudential) Quality/quantity of capital Leverage ratio Liquidity standards Counterparty credit risk Limits to bank activities (eg prop trading) Strengthened risk management	**Limit system-wide distress (macroprudential)** Countercyclical capital charge Forward-looking provisioning Systemic capital charge Leverage ratio LTV caps Robust infrastructure (CCP)	**Maintain price stability** Policy rate Standard repos Collateral policies Interest on reserves Policy corridors	**Lean against booms** Increase policy rate Raise reserve requirements Mop up liquidity (central bank bills, exceptional repos) **Provide support on downside** Decrease policy rate Lower reserve requirements Inject liquidity Quantitative and credit easing Emergency liquidity assistance **Exit strategies** **FX reserve buffers**	**Manage aggregate demand** Taxes Automatic stabilisers Countercyclical (discretionary) approach	**Build fiscal buffers in good times** Reduce debt levels Introduce taxes/levies on financial sector **Provide financial sector support in times of stress** Capital injections Deposit and debt guarantees Bank rescue packages Discretionary stimulus

The prudential policy dimension

Following the crisis, prudential policy is increasingly seen as featuring two dimensions: a microprudential dimension designed to limit distress of individual banks, and a macroprudential dimension designed to limit system-wide financial distress (Table 3). The enhanced Basel II framework and the macroprudential overlay are together being referred to as Basel III.

Table 3: Enhanced Basel II + macroprudential overlay = Basel III

Prudential policy	Example of reform
Microprudential framework: enhanced Basel II	Increase the quantity and improve the quality of capital Adequate capital charges are urgently needed on the trading book Enhance risk management and disclosure Introduce a leverage ratio to supplement risk-weighted measures Address counterparty credit risk posed by OTC derivatives
Macroprudential overlay	Address stability over time (procyclicality) • Countercyclical capital charges and forward-looking provisioning • Capital conservation rules for stronger capital buffers Address stability at each point in time (system-wide approach) • Systemic capital surcharge for systemically important financial institutions • Identify interlinkages and common exposures among all financial institutions • Systemic oversight of OTC derivatives (CCP infrastructure)

The microprudential framework is provided by an enhanced Basel II framework. The consultative document published by the Basel Committee on Banking Supervision (Basel Committee) last December outlines an impressive array of reforms of bank-level regulation that will increase the resilience of individual financial institutions in periods of stress. First, it increases the quantity and improves the quality of Tier 1 capital. Second, it addresses the urgent need to ensure that adequate capital charges are applied to banks' trading book. Third, it strengthens the risk management and disclosure practices of banks. Fourth, it introduces a leverage ratio to complement risk-weighted measures. And fifth, it addresses counterparty credit risk posed by over-the-counter (OTC) derivatives. I will have more to say on each of these reforms in a moment.

To this microprudential base policymakers are adding a macroprudential overlay to address systemic risk. This overlay has two important dimensions.

First, it seeks to ensure the stability of the financial system over time (the time dimension). In particular, it addresses those mutually reinforcing processes between the financial system and the real economy that contribute to procyclicality. Examples of tools that may reduce procyclicality are countercyclical capital charges, forward-looking provisioning for loan losses, and capital conservation rules for banks that ensure prudent profit retention.

And second, the macroprudential overlay addresses the stability of the financial system at each point in time (the cross-sectional dimension). For example, a systemic capital surcharge for large and interconnected financial institutions is under consideration which explicitly recognises the greater contribution of these institutions

to systemic risk. The cross-sectional dimension will also focus on the interlinkages between the common exposures of all financial institutions, which falls under macroprudential policy. One area of interconnectedness that was highlighted by the recent crisis is the OTC derivatives market. Such complex and opaque markets pose both microprudential risks at the level of individual financial institutions and macroprudential risks at the level of the financial system. OTC derivatives markets will be subject to systemic oversight, and the interlinkages between financial institutions will be lessened by putting in place more resilient market infrastructures. Trading of financial derivatives on organised exchanges is one way. Another is to replace the web of bilateral exposures with robust central counterparties (CCP).

Taken together, the enhanced Basel II and the macroprudential overlay form the Basel III framework. These micro- and macroprudential approaches to supervision are clearly interrelated, as greater resilience at the individual bank level reduces the risk of system-wide shocks.

Microprudential policy

With hindsight, it is clear that the global banking system entered the crisis with an insufficient level of capital and not enough high-quality capital. Recall that regulated financial institutions are required to hold Tier 1 and Tier 2 capital equal to 8% of risk-weighted assets, with Tier 1 capital representing at least half this amount. Unfortunately the definition of what constituted capital included instruments or accounting items that could not absorb losses on a going-concern basis. Market participants knew this, and increasingly focused on the levels of tangible common equity in banks' capital structures (after deduction of intangible assets such as goodwill). The levels of core Tier 1 equity proved to be too low. Faced with large writedowns by banks on their assets in 2008, by the fourth quarter the interbank markets ceased to function, with banks refusing to transact with one another on an unsecured basis. As a result, banks had to raise capital and deleverage their trading books in the midst of the crisis. Given that bank creditors and shareholders could not distinguish between good and bad banks, private sources of new capital were severely restricted. The result was the need for massive government support to recapitalise banks, to guarantee deposits and bank liabilities, and to guarantee or buy the impaired assets of some of the largest financial institutions. As Table 4 shows, the total for global capital injections by end-2009 was roughly equivalent to the total of losses and writedowns over the same period.

Table 4: Bank losses, writedowns and capital injections

	Losses and writedowns, $bn	Capital injections					
		From markets		Government		Total	
		In $bn	As a % of losses	In $bn	As a % of losses	In $bn	As a % of losses
Global	1226.8	744.6	60.7	484.4	39.5	1229.0	100.2
North America	665.5	301.4	45.3	211.3	31.8	512.7	77.0
Europe	520.1	318.9	61.3	272.1	52.3	591.0	113.6
Asia	41.2	125.3	304.1	0.0	0.0	125.3	304.1

Source: Bloomberg. As of 31 December 2009.

a. Enhance the quality and quantity of capital

The Basel Committee has responded by raising the quality of capital as well as its level. The reform package tightens the definition of common equity, limits what qualifies as Tier 1 capital, introduces a harmonised set of prudential filters and deductions, and enhances transparency and market discipline through new disclosure requirements.

Table 5 provides an overview of the new definition of Tier 1 regulatory capital. On the left-hand side, you can see that there is a distinction between core Tier 1 capital (ie common equity) and other instruments that have a loss-absorbing capacity on a going-concern basis, which account for the remainder of Tier 1 capital.[6] Note that core Tier 1 is net of intangible assets (such as goodwill) and other deductions, ensuring that the predominant form of Tier 1 capital is tangible common equity, retained earnings, and reserves. No debt-like instruments are included in core Tier 1, and the deductions are harmonised internationally to create a level playing field.

Table 5: Improving the quality of Tier 1 capital

Category of Tier 1	Calculation	Notes
Common equity ("core Tier 1")	Common equity – Goodwill (deduction) = Tangible common equity – Other deductions = Common equity net of deductions	● Predominant form must be common shares plus retained earnings and other comprehensive income ● No debt-like instruments included in core Tier1 ● No "financial innovation" permitted ● Net of deductions (goodwill, deferred tax assets, minority interest, investments in own shares, etc) ● Deductions are internationally harmonised
Additional going-concern capital[1]	+ Preference shares Preferred stock + Other non-dated, loss-absorbing instruments (only limited debt-like features permitted)	● Instruments must meet strict entry criteria (eg subordinated, no maturity date, fully discretionary non-cumulative dividends, no incentive to redeem) ● Only limited debt-like features permitted (preferred dividends) ● Grandfathering of capital instruments under consideration (including government rescue package instruments) ● Elimination of the use of innovative hybrid debt instruments
	= Tier 1 capital (going-concern capital)[1]	● Enhanced disclosure of all elements of Tier 1 capital, including all regulatory adjustments, main features, explanation of ratios
	Contingent convertible bonds (contingent capital)	● Under review: some debt in banks' capital structure converts to equity when a predefined threshold is reached

[1] Tier 1 capital is loss-absorbing on a going-concern basis (ie financial institution is solvent). Tier 2 capital absorbs losses on a gone-concern basis (ie following insolvency and upon liquidation).

[6] The Basel Committee's December 2009 Consultative Document distinguishes between going-concern capital (Tier 1) and gone-concern capital (Tier 2). Going-concern capital is available to absorb losses while a financial institution remains solvent. Gone-concern capital absorbs losses following insolvency and during liquidation of the assets.

The next layer of Tier 1 capital comprises other instruments with loss-absorbing capacity on a going-concern basis that have neither a maturity date nor an incentive to redeem. Preferred stock and preference shares are examples of such instruments. Any securities of this type bought by governments as part of bank recapitalisations are also included.

Finally, the Basel Committee is also considering the role of contingent capital securities such as contingent convertible bonds. These debt-like instruments convert to common equity when a bank's Tier 1 capital falls below a predefined threshold, providing a buffer during a period of stress. Taken together, these changes will increase the ability of banks to withstand losses by ensuring that adequate capital is available to absorb such losses.

b. Increase capital charges on the trading book

Another area where higher capital charges are urgently needed is coverage of the risks on the trading book. Basel II focused primarily on the banking book, where traditional assets such as loans are held. But the major losses during the 2007–09 financial crisis came from the trading book, especially the complex securitisation exposures such as collateralised debt obligations. The capital requirements on the trading book are extremely low, even relative to banks' economic capital estimates.

The Basel Committee has addressed this anomaly. As a result, the capital requirement on the trading book will increase "not just marginally but by several times". These additional capital charges will be implemented by the end of 2010. Given the risks posed by this vulnerability on banks' balance sheets, any postponement would not be defensible. This proposed reform would go some way towards addressing the excessive risk-taking by banks, both in their customer business and in their proprietary trading.

c. Enhance risk management and disclosure

The crisis highlighted the failure of banks' "advanced" risk management techniques based on internal risk models. These risk models reduced the perceived magnitude of market exposures and gave a false sense of comfort. Very large nominal amounts of risk translate into very small VaR values through the alchemy of risk management. Such statistical measures of risk must be treated with great care. VaR calculations transform complex and multifaceted risk positions (and hence potentially huge nominal amounts) into a single risk figure. In particular, the assumptions about correlation, volatility and market liquidity embedded in such risk models may not hold in times of extreme stress. It is therefore very important to understand the limitations of such statistical measures of risk and to use judgment. It is also important to use stress testing to explore extreme scenarios involving the "end of the tail" of the probability distribution.

The Basel Committee is introducing a stressed-VaR capital requirement for the trading book based on a 12-month period of significant stress. The Committee has also published a comprehensive set of principles for the sound governance, design and implementation of stress testing programmes at banks.[7] The principles address the weaknesses in such programmes that were highlighted by the financial crisis.

[7] Basel Committee on Banking Supervision, *Strengthening principles for sound stress testing practices and supervision*, May 2009.

Given the importance of risk management, more needs to be done to address weaknesses in this area.

d. Introduce a leverage ratio for financial institutions

This discussion leads naturally to the proposal to introduce a leverage ratio for financial institutions. Recall that the denominator in a bank's capital ratio is a measure of risk-weighted assets. Under Basel II, banks can choose to calculate the size of their risk-weighted assets using either the standardised approach, based on external ratings, or the internal ratings-based (IRB) approach, which relies on a bank's own risk models. In most cases, these calculations refer only to assets that are held on balance sheet, which excludes assets in the shadow banking world of special investment vehicles and conduits.

Given the difficulties for supervisors and regulators in monitoring a bank's assets and their complexity, a simple leverage ratio of capital-to-assets sensibly complements risk-weighted measures. Such an approach has been in place for some time for commercial banks in Canada and the United States, and was adopted last year in Switzerland. A leverage ratio potentially provides a binding constraint if banks seek to arbitrage the risk-based framework, as they did with their trading books before the crisis. It introduces additional safeguards against model risk and risk measurement error and therefore acts as a useful backstop.

A number of issues need to be kept in mind when implementing a simple leverage ratio. First, it should include certain off-balance sheet items in the measure of total assets using a flat 100% credit conversion factor. Second, we need to ensure that a leverage ratio is applied in a consistent fashion globally. To give one example, bank leverage is significantly lower under US GAAP than under IFRS due to the netting of OTC derivatives allowed under the former. Given that banks may hold offsetting contracts, US GAAP allows banks to report their net exposures while IFRS does not allow netting. As a result, the size of a bank's total assets can vary significantly based on the treatment of this one accounting item. This difference will be taken into account under any proposal from the Basel Committee.

e. Address counterparty credit risks from OTC derivatives

A source of counterparty credit risk that did not receive enough attention until the crisis relates to OTC derivatives. As I mentioned earlier, this market poses both risks to individual financial institutions (microprudential) and risks to the financial system (macroprudential). I will have more to say about the macroprudential dimension in a moment.

As you know, the BIS collects and publishes statistics on derivatives markets through a semiannual survey coordinated by the Committee on the Global Financial System. OTC derivatives are traded bilaterally between banks, other financial institutions and corporations. These trades do not go through an exchange, thus making it hard to know where the ultimate risk is being held. A bank's exposure to OTC derivatives is disclosed only in the footnotes to its financial statements, with the treatment varying depending on whether a bank is subject to local GAAP or IFRS accounting rules.

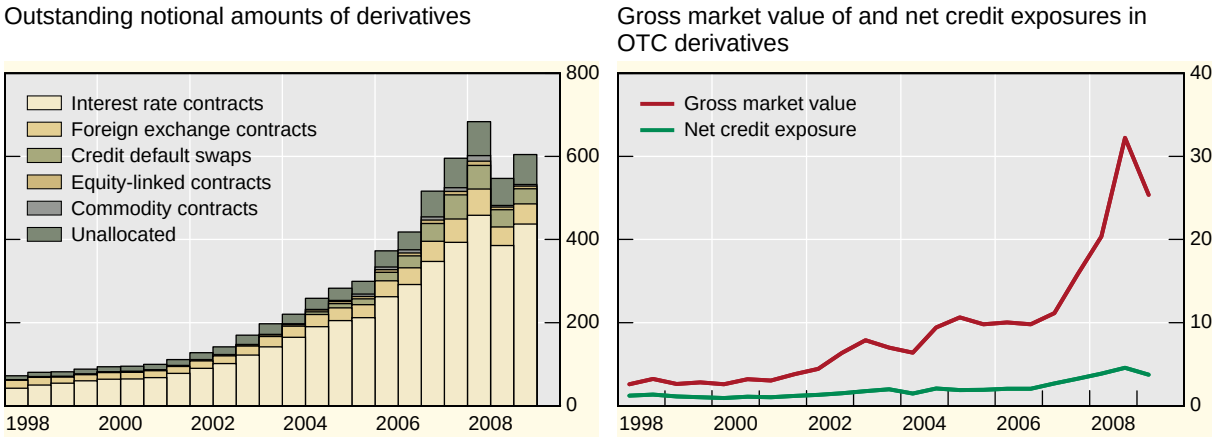
While netting of derivatives is in line with best practices in banking risk management, it may not meet the needs of supervisors and central banks concerned with global financial stability. We cannot lose sight of the gross amounts of these derivative exposures. In a crisis, it is the gross amounts, not the net amounts, which matter for financial stability. Netting only makes sense if your counterparty is still willing and

able to meet its obligations under a derivatives contract and the operational framework is in place to settle that contract. The frailty of these assumptions was exposed following the Lehman Brothers default.

Consider for a moment the most recent statistics reported by the BIS, shown in Figure 2. As of June 2009, the notional amount outstanding of OTC derivatives was $605 trillion, but the net credit exposure was only $3.7 trillion. In other words, the credit exposures on OTC derivatives represent less than 1% of the notional amounts.

The risks that these colossal volumes represent are unlikely to be adequately covered by banks in their economic capital allocations. In order to mitigate this source of risks, the Basel Committee is currently improving the coverage of counterparty credit risk for bilateral OTC derivatives exposures and promoting the move towards CCPs and exchanges by applying preferential risk weights to exposures transacted through these venues subject to compliance with strict criteria.

Figure 2: Counterparty credit risks in OTC derivatives markets[1]



[1] Half-yearly data, in trillions of US dollars. Last data point is June 2009.

Source: BIS statistics.

f. Why microprudential regulation is still not enough

There can be no doubt that more proactive supervision of individual financial institutions is needed. But the discussion so far has highlighted why microprudential regulation is not enough to ensure global financial stability. One reason concerns the limits of regulation. First, many of the losses suffered by regulated financial institutions originated in entities that were outside the perimeter of regulation. Global banks engaged in regulatory arbitrage, taking on leverage via off-balance sheet vehicles (or via embedded leverage) that was not transparent to supervisors. This shadow banking system generated large writedowns that threatened the solvency of systemically important financial institutions, necessitating public intervention. This build-up of systemic risks was not detected by supervisors.

A second reason why microprudential regulation is not enough concerns the regulations themselves. With hindsight, it appears that existing regulations were not implemented across countries with the same rigour. So a key lesson is that regulation will not work without adequate supervision that looks through the structures of financial institutions and ensures the rules are implemented effectively.

Macroprudential policy

There is now a widespread consensus on the need to strengthen the macroprudential orientation of regulatory and supervisory frameworks. This term, coined at the BIS in the 1970s, was clarified in a speech by Andrew Crockett in 2000.[8] Following the financial crisis, the need to adopt a macroprudential approach has become part of the conventional wisdom. But what exactly does this term mean? Although the term is now appearing almost daily in speeches and policy debates, there is no common understanding.

a. Definition of macroprudential policy

At the BIS, we define macroprudential policy as:

> "[The] use of prudential tools with the explicit objective of promoting the stability of the financial system as a whole, not necessarily of the individual institutions within it."[9]

In other words, the macroprudential approach focuses on the financial system as a whole, as opposed (and in addition) to individual institutions. Moreover, it treats aggregate risk as dependent on the behaviour of financial institutions; actions that may be individually rational can result in undesirable aggregate outcomes.

From a conceptual point of view, macroprudential regulation is concerned with two dimensions of aggregate risk in the financial system: a time dimension and a cross-sectional dimension.[10] The time dimension concerns how aggregate risk evolves over the course of the macroeconomic cycle. The associated policy problem is how to address the procyclicality of the financial system. The cross-sectional dimension concerns how aggregate risk is distributed across the financial system at a point in time, where the structure of the financial system influences how it responds to, and possibly amplifies, shocks. Such spillovers can arise, for instance from common exposures across financial institutions or from network interlinkages. The policy problem is how to address such common exposures and interlinkages among financial institutions.

As you can see from the definition above, the term "macroprudential" is linked with the supervision of financial institutions using a focus that is system-wide. But many commentators are using "macroprudential" as a catch-all term that covers all the efforts under way to reform the global financial architecture. This tendency should be resisted for a number of reasons. First, broad definitions unnecessarily widen the objective to be pursued by supervisors and lessen accountability. If macroprudential refers to everything, then no one can be held responsible.

Second, it is important not to view macroprudential policies as a substitute for sound monetary and fiscal policies. While the impact of policies in one area will influence the achievement of objectives in the other, these policies are complements, not substitutes. For example, the proposal to have higher minimum capital requirements at financial institutions is a microprudential policy. Requiring banks to hold large capital buffers above these minima is a macroprudential policy. Raising policy rates

[8] A Crockett, "Marrying the micro- and macroprudential dimensions of financial stability", speech at the 11th International Conference of Banking Supervisors, Basel, 21 September 2000.

[9] P Clement, "The term 'macroprudential': origins and evolution", *BIS Quarterly Review*, March 2010.

[10] J Caruana, "Grappling with systemic risk", International Distinguished Lecture to the Melbourne Centre for Financial Studies, 10 February 2010.

to tighten monetary conditions in an economy is a monetary policy decision. Some people may think that higher capital buffers in the financial sector may be an alternative to raising policy rates. This is definitely not the case. While both instruments may constrain the availability of credit, higher capital ratios only target banks while higher policy rates affect the entire economy as well as the exchange rate. An increase in policy rates affects the intertemporal saving and consumption decisions of households, the investment decisions of firms, and the value of future earnings and claims on different assets. An increase in the policy rate is also an important signal about the outlook for the economy, and most importantly plays a key role in anchoring inflation expectations. Any associated response in exchanges rates to an increase in policy rates provides another channel for reducing output, working through the traded goods and services sector. By contrast, higher capital levels and buffers for banks have a much narrower effect on conditions in the financial sector. Households and firms can circumvent this bank lending channel by borrowing through capital markets or the non-bank financial sector, or by using household savings or retained earnings to finance investment.

b. Addressing procyclicality

Procyclicality describes the self-reinforcing mechanisms within the financial system and between the financial system and the real economy that can exacerbate boom and bust cycles, undermining financial and macroeconomic stability. These effects are most prominent in the downward phase. As strains develop, previously unseen risks materialise, deepening the retrenchment that is already under way. But the effects of procyclicality are critical (but hidden) in the expansion phase, when the underlying risks build up. The historical experience is that credit mistakes are made during the boom phase but are revealed only during the bust.

To address procyclicality the policy response should be to build up and run down capital buffers in a countercyclical fashion over the business cycle. These safety margins must be built up in good times, when it is easier and cheaper to do so.[11] Such a build-up will restrain risk-taking during the up phase of the business cycle. In bad times, these buffers can be run down, allowing the system to absorb emerging strains more easily and dampening the feedback mechanisms.

It is important to distinguish between the regulatory minimum capital requirement and the buffers above the minimum. A breach of the regulatory minimum brings with it severe consequences, which could result in a bank being shut down. The buffers are intended to be built up in good times so that they can absorb losses without the bank becoming insolvent.

The Basel Committee has proposed building up these buffers through a combination of countercyclical capital charges, forward-looking provisioning and capital conservation measures.[12] We should also explore other potential macroprudential instruments such as loan-to-value (LTV) ratios.

[11] Bank for International Settlements, "Addressing financial system procyclicality: a possible framework", *Note for the FSF Working Group on Market and Institutional Resilience*, April 2009.

[12] Basel Committee on Banking Supervision, *Strengthening the resilience of the banking sector – consultative document*, December 2009.

- A countercyclical capital charge would require financial institutions to hold more capital in good times while lowering the regulatory capital levels in bad times.[13]
- Forward-looking provisioning encourages banks to set aside provisions in a forward-looking fashion based on expected losses, as opposed to the more backward-looking provisions based on incurred losses. A forward-looking approach captures actual losses more transparently and is also less procyclical than the current "incurred loss" provisioning model.
- Capital conservation measures include actions to limit excessive dividend payments, share buybacks and compensation paid out by financial institutions. By retaining earnings during good times, a bank builds up excess capital that can absorb asset write-offs in bad times. When a bank is suffering writedowns and its capital ratio is falling towards the minimum, it is difficult to justify maintaining capital distributions associated with good times. The crisis has demonstrated the need for supervisors to have the power to prevent excessive distributions through dividends, share buybacks and compensation.
- Finally, LTV ratios impose limits on the amount of debt that can be used to finance an asset. Many countries in East Asia, for example, have imposed maximum LTV ratios on mortgages to lean against the rise in housing markets.

c. Addressing systemically important financial institutions

Turning now to the cross-sectional dimension, we need to capture systemic risk and to adjust prudential tools based on individual institutions' contribution to that risk. Put more plainly, the policy task is to identify systemically important financial institutions and adjust their capital requirements to reflect their greater potential threat to the stability of the global financial system. A number of criteria may be used to identify systemically important financial institutions (ie "too big to fail"):[14]

- Size: the contribution of a financial institution to systemic risk generally increases more than proportionately with its size. This finding suggests the need for a simple leverage ratio to complement the Basel II risk-based framework.
- Interconnectedness: this describes a situation where distress at one institution raises the likelihood of distress at others.
- Substitutability: some institutions provide services critical to the smooth operation of the financial system, such as clearing and settlement.
- Concentration: some financial systems or market segments feature a few, large players that dominate a market for financial services where there are few alternatives.
- Common exposures: financial institutions may hold similar positions to their competitors, suggesting that a common shock could cause distress at multiple institutions simultaneously. The exposure of global banks to US subprime loans is a recent example.

[13] Bank for International Settlements, *79th Annual Report*, 2009, pp 131–35.

[14] BIS-IMF, *Guidance to assess the systemic importance of financial institutions, markets and instruments: initial considerations*, October 2009.

Given the complexity and cross-border activities of systemically important financial institutions, supervisory colleges and cross-border resolution schemes are needed to address this vulnerability to the financial system.

d. Addressing moral hazard: from bailing-out to bailing-in

Identifying systemically important financial institutions and requiring them to hold more capital and liquidity will create a financial system that is more resilient. But it will not prevent bank failures. Another important macroprudential policy issue is therefore how we should deal with banks that are "too big to fail". Given the well known moral hazard problems associated with these financial institutions, it is important for supervisors, central banks and finance ministries to communicate clearly what will happen in future. In particular, there is a widely recognised need to move from bailing out financial institutions to bailing in their shareholders and creditors.

Take the example of the recent financial crisis. Following the bankruptcy of Lehman Brothers, governments took actions to prevent the collapse of other banks and to restore confidence in the financial system. These actions included recapitalising banks, increasing deposit insurance, providing debt guarantees, guaranteeing or buying impaired assets and, in some cases, taking banks under government control. On 10 October 2008, G7 leaders committed to "take decisive action and use all available tools to support systemically important financial institutions and prevent their failure". This statement, backed by the actions of individual governments, stopped the downward spiral of the financial system but at the cost of raising the level of moral hazard. Compare that statement with the one made by President Obama on 21 January 2010: "Never again will the American taxpayer be held hostage by a bank that is too big to fail." This strong statement, made after financial institutions that had received government capital had announced large year-end bonuses, suggests that the conditions of any future bailout will be more punitive. Whether this statement has already been factored in by bank managers, creditors and shareholders is open for debate.

In the light of the risk of moral hazard, policymakers need to explore alternatives to bank bailouts financed using taxpayer money. A number of proposals are on the table, including:

- Cross-border resolution regimes, where colleges of supervisors agree on how to deal with the failure of a global bank.
- Orderly wind-down procedures, including the use of "living wills" that would allow supervisors to resolve a bank failure quickly.
- The use of "gone-concern" contingent capital arrangements such as debt-for-equity swaps, where creditors are required to exchange their claims for common equity in a procedure similar to a US-style Chapter 11 bankruptcy.
- Haircuts imposed on unsecured bondholders (ie wholesale creditors), ensuring that they make a contribution to the resolution.
- Safety nets that are limited to retail depositors.

Actions of this type put in place the correct incentives and make market discipline more effective. Without them, the threat to allow a bank to fail will not be credible.

e. Addressing vulnerabilities in the infrastructure of the financial system

While most discussions of the cross-sectional dimension of macroprudential policy focus on financial institutions, it is important not to neglect the market infrastructure that allows the financial system to operate smoothly. Payment, settlement and clearing systems create interlinkages across financial institutions and may act as a channel for contagion. For example, the failure of a financial intermediary might lead to default at its trading counterparties if the value of any collateral posted is insufficient to cover the size of the exposures. From a macroprudential perspective, systemic oversight is needed to address this source of financial system vulnerability.

A clear example is the need for systemic oversight of OTC derivatives markets. As mentioned earlier, financial institutions were not holding enough economic capital against derivative exposures. Following the crisis, regulators are examining ways to reduce this source of systemic risk, such as adjusting capital requirements on bilateral derivative exposures and requiring or encouraging counterparties in OTC derivatives to trade through a CCP. The Committee on Payment and Settlement Systems is also reviewing ways to make the financial infrastructure more robust.

f. Illustration: macroprudential policies in Asia

Asian central banks have taken the lead in implementing various macroprudential tools before and following the experience of the 1997 crisis, as can be seen in Table 6. Their knowledge of these tools is particularly rich compared with that of other regions, and their experience provides interesting lessons for other countries.

Table 6: Experience with macroprudential tools in Asia

Objective	Tools	Examples
Manage aggregate risk over time (ie procyclicality)	• Countercyclical capital buffers linked to credit growth • Countercyclical provisioning • Loan-to-value (LTV) ratios • Direct controls on lending to specific sectors	• China[1] • China, India • China, Hong Kong SAR, Korea, Singapore • Korea, Malaysia, Philippines, Singapore
Manage aggregate risk at every point in time (ie systemic oversight)	• Capital surcharges • Liquidity requirements / funding • Limits on currency mismatches • Loan-to-deposits requirements	• China, India, Philippines, Singapore • India, Korea, Philippines, Singapore • India, Malaysia, Philippines • China, Korea

[1] Being considered.

Note that reserve requirements are not included as they are considered an instrument of monetary policy.

For example, Asian countries are using countercyclical provisioning, loan-to-value ratios and direct controls on lending to specific sectors to manage procyclicality in their financial systems. They are also addressing aggregate risk in the financial system through capital surcharges and liquidity requirements.

The monetary policy dimension

As long advocated by the BIS, price stability is not enough to achieve financial stability.[15] The recent financial crisis has demonstrated that the stability of consumer

[15] W White, "Is price stability enough?", *BIS Working Papers*, no 205, April 2006.

prices is not sufficient to ensure macroeconomic stability. With hindsight, the Great Moderation concealed the build-up of imbalances in the financial system. Central banks achieved inflation expectations that were low and stable, but this achievement concealed a rapid expansion of credit, a fall in risk aversion, a rise in asset prices and an increase in financial system vulnerability. The implication of this view is that monetary policy should take better account of asset prices and credit booms. Central banks must also pay attention to the risk-taking channel of monetary policy in a low interest rate environment.[16]

a. Symmetric movements in policy rates over the cycle

The primary objective of monetary policy must remain the achievement of price stability. Policy interest rates are the main tool for achieving this objective. A consensus appears to be developing among central bankers and financial supervisors alike, however, that central banks must add to their monetary policy role a responsibility for financial stability. In some circumstances, policy rates can also support financial stability. However, occasional movements in policy rates in support of financial stability should be symmetric. By this I mean that such movements should be equally available to respond to busts and to "lean against the wind" in order to limit booms in credit and asset prices. Let me be clear on this point. The question is not whether monetary policy should target asset prices. Asset prices are an indicator variable and should not be a target of monetary policy. The question is rather what role monetary policy should play in leaning against the build-up of imbalances that contribute to systemic risk which can derail the economy, including the inflation outlook.

Such an approach argues for an enhanced role for credit aggregates in the conduct of monetary policy. While many people would immediately associate this approach with the ECB's two-pillar strategy, other examples include the flexible inflation targeting practiced in Australia and Thailand (among other countries).

In essence, central banks need to adopt a risk management approach to monetary policy where they pursue their primary objective but keep in mind the possibility and potential effects of tail events. They must recognise the potential for short-term trade-offs between inflation control and financial stability. Such a situation occurred in the final quarter of 2008, when many countries were facing a temporary price shock due to rising food and energy prices at the same time that the financial system was undergoing considerable stress. Such situations will no doubt be difficult to manage when they occur, so it will be important for central banks to communicate clearly their actions in order to ensure that inflation expectations remain well anchored.

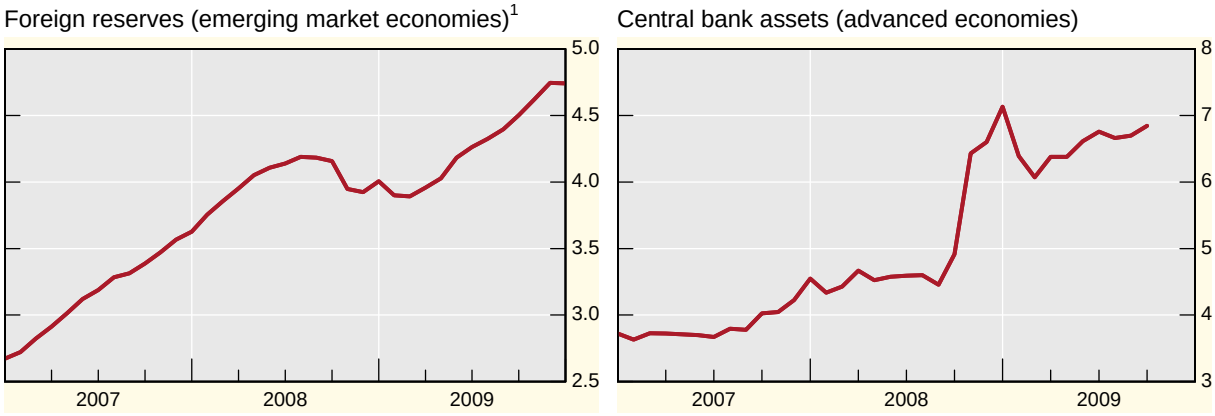
b. Foreign exchange reserves as a financial stability instrument

We have witnessed a dramatic increase in the level of foreign exchange reserves held by emerging market economies since the year 2000 (Figure 3, left-hand panel). This rise of reserves reflects two different approaches to FX reserve management. On the one hand, reserve accumulation is often seen as an element of a self-insurance policy against the possibility of "sudden stops" and capital flow volatility. Viewed from this perspective, FX reserves serve as a countercyclical tool, with buffers accumulated in good times that can be drawn down in times of financial

[16] L Gambacorta, "Monetary policy and the risk-taking channel", *BIS Quarterly Review*, December 2009.

system stress. In this case, many emerging market economies would argue that FX reserves are an integral part of a global financial stability framework.

Figure 3: Two forms of balance sheet policies
(In trillions of current US dollars)



[1] Total of major emerging market economies (China, Chinese Taipei, Hong Kong SAR, India, Korea, Malaysia, Singapore, Thailand, Brazil, Mexico, Russia and Turkey). [2] Total of the United States, the euro area, Japan, Canada, Sweden, Switzerland and the United Kingdom.

Source: National data.

On the other hand, FX reserve accumulation is in some cases a by-product of an exchange rate policy designed to resist appreciation in the currency. Typically, such a policy can be identified by the magnitude of the reserve accumulation. But the boundary between these two approaches may sometimes be blurred.

In addition, an open issue is to what extent countries should rely on self-insurance versus external support in times of stress from mechanisms such as bilateral central bank swap lines or multilateral facilities such as the Chiang Mai Initiative or the IMF's flexible credit line.

The fiscal policy dimension

Under the new paradigm I am outlining today, policymakers need to recognise that fiscal policy is an integral part of a global financial stability framework.

a. Fiscal policy as a shock absorber

Fiscal policies have a key role to play as a shock absorber in contributing to and maintaining global financial stability. Together with households and corporations, the government is one of the largest actors in the economy. It controls the largest budget. Its revenue and expenditure decisions have the biggest impact on aggregate demand. And it is the biggest individual borrower in a domestic economy, with its local currency obligations being the source of and benchmark for risk-free rates in its financial system. For these reasons, governments cannot ignore the impact of their decisions on the stability of the financial system. In particular, fiscal policy needs to respond countercyclically to smooth the business cycle.

One approach to achieving this is to adopt cyclically adjusted balanced budget rules. Accumulating budget surpluses in good times provide a government with the ability and the debt capacity to respond in times of financial crisis. To draw an analogy with the banking sector, the government needs to build up fiscal buffers during good times that can be drawn down to support the financial system and the real economy in bad

times. The recent financial crisis has shown how important it can be to have the capacity to support the financial sector through bank rescue packages and to support the real economy through discretionary fiscal stimulus.

b. Fiscal policy should not be a source of shocks

But unfortunately, fiscal policy is currently more of a potential source of shocks than a shock absorber. Indeed, excessively loose fiscal policies are at present a major threat to financial stability (Table 7). We are witnessing this situation now in the market's reaction to developments in Greece. Both fiscal rules (eg the euro area's Stability and Growth Pact) and market discipline (eg warnings by credit rating agencies) failed to restrict government borrowing over the past decade. As a result, we appear to be witnessing another "Minsky moment" as financial market participants – after having been complacent for an extended period of time in the face of those loose fiscal policies – brutally revise their perceptions of the fiscal sustainability of a number of advanced economies. Maybe now is the time to revisit an older debate about the need for independent fiscal agencies, or at a minimum a framework guaranteeing the independence of the statistical agencies in charge of national accounts. This issue is particularly important at a time when the interest rate risk associated with increased government borrowing and the exit by central banks from their unconventional monetary policies are a major concern.

Table 7: Fiscal deficits and government debt in advanced and emerging economies

As % of GDP	Fiscal balance[1]			General government debt[1, 5]		
	2007	2010	2011	2007	2010	2011
Advanced economies:						
United States	–2.8	–10.7	–9.4	62	92	100
Japan	–2.5	–8.2	–9.4	167	197	204
United Kingdom	–2.7	–13.3	–12.5	47	83	94
Germany	0.2	–5.3	–4.6	65	82	85
France	–2.7	–8.6	–8.0	70	92	99
Italy	–1.5	–5.4	–5.1	112	127	130
Spain	1.9	–8.5	–7.7	42	68	74
Greece	-4.0	-9.8	-10.0	104	123	130
Emerging economies:						
Asia[2]	0.1	–3.5	–3.6	37	40	41
Central Europe[3]	3.7	–4.4	–3.9	23	28	29
Latin America[4]	–1.5	–2.4	–2.0	41	37	35

[1] Regional averages calculated as weighted averages based on 2005 GDP and PPP exchange rates. [2] China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. [3] The Czech Republic, Hungary and Poland. [4] Argentina, Brazil, Chile and Mexico. [5] For Argentina, the Philippines and Thailand, central government debt.

Sources: IMF, *World Economic Outlook*; OECD, *Economic Outlook*.

Let me also mention that, given the importance of anchoring inflation expectations, the proposal recently floated in some quarters to consider doubling the size of inflation targets from 2% to 4% is inappropriate.

With the recent developments in Greece, it has become clear that the weakening of fiscal discipline has major financial stability implications.

The weakening in the past decade of the European Union's fiscal rules – known as the Stability and Growth Pact – appears now, with hindsight, to have undermined financial stability. Starting from an already high level of public debt-to-GDP in the

euro zone of 66% in 2007, public debt levels have risen due to the combination of (i) the considerable cost of financial sector rescue plans (with commitments representing 26% of GDP, of which 10% has been drawn down) and (ii) the large fiscal stimulus over the years 2008 to 2010. And looming ahead of us are (iii) the massive unfunded promises related to the ageing of the population. The combination of these three factors has created a serious situation. In the light of this situation, it is probably not prudent to wait until 2011 to start fiscal consolidation.

The surge in the US public debt is also a major source of concern for the global financial system. The United States, however, has more room to increase taxes than the euro zone, where the revenue-to-GDP ratio is already very high.

What is noteworthy from Table 7 is that emerging market economies have in general shown greater fiscal discipline than advanced economies. No doubt these economies have learnt from the difficult experiences in their regions over the past two decades and have taken steps to ensure that they maintain room for manoeuvre in their fiscal positions. Fiscal policy must be conducted with the aim of building up buffers during good times that can be used to support the economy in bad times.

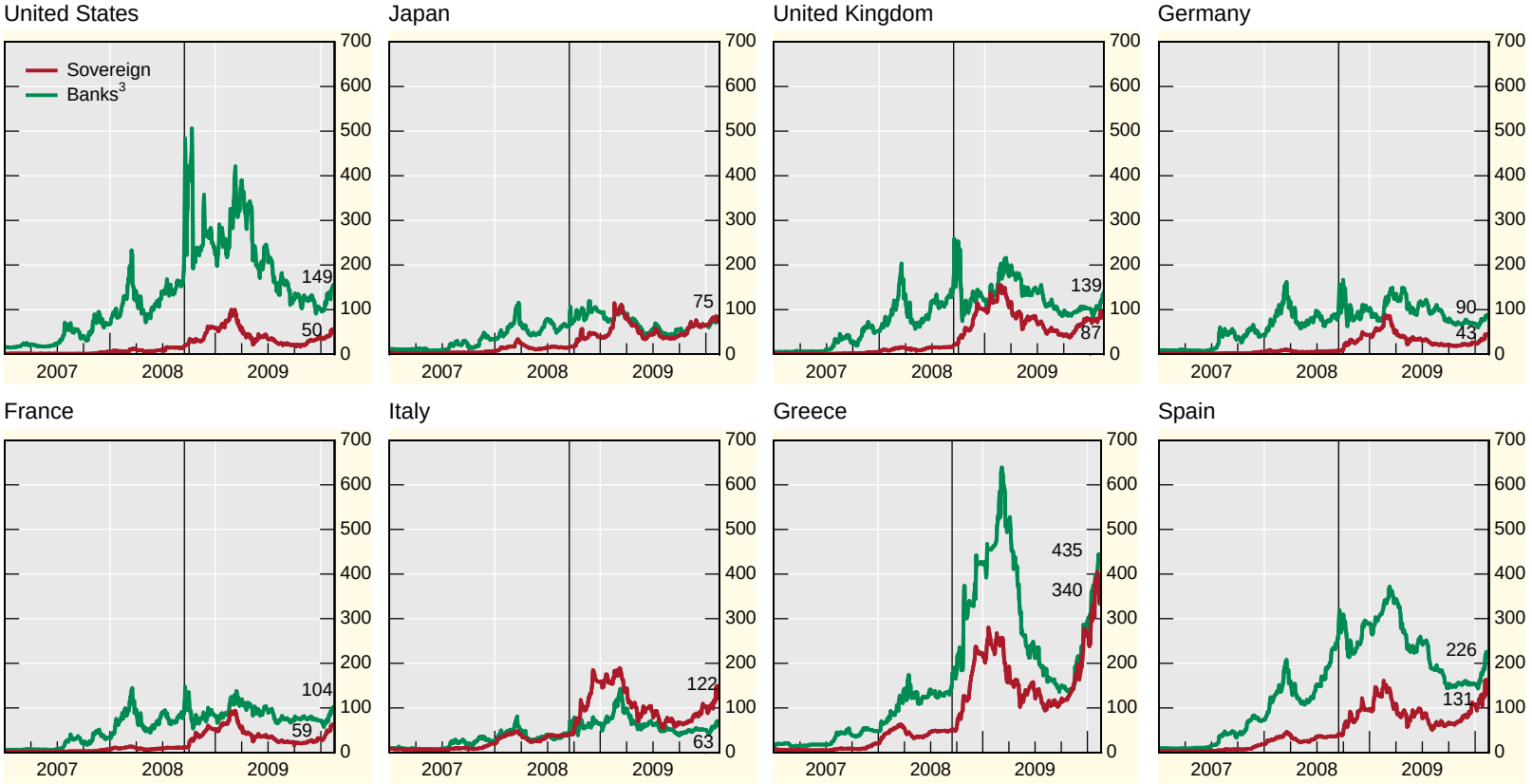
The financial markets are already signalling the next potential threat to global financial stability. Figure 4 (overleaf) shows the change in the level of credit default swap (CDS) spreads, which is a derivatives contract that prices the cost of insuring against a credit event such as a default on a bond. The green lines in each panel show the rapid increase in the cost of insuring against the potential bankruptcy and default for some of the largest global banks. While the increase in CDS spreads for US-headquartered banks was particularly dramatic around the failure of Lehman Brothers last September, the relative increases in the perceived riskiness of other banking systems were also large.

The red lines in Figure 4 also show the increase in the cost of insuring against a sovereign default. One must always ponder the chance that the counterparty will be in a position to pay in such an event. In any case, in all eight countries shown here, the probability and severity of a sovereign default were seen as insignificant prior to the onset of the financial crisis in 2007. But by the final quarter of 2008, following the intervention by governments to support their banking systems, the cost of insuring against a sovereign default had risen following the intervention by governments to support their banking systems. As can be seen, in some cases the CDS spread for the sovereign rose to the same level as for the average bank, suggesting that market participants viewed the credit risk of the sovereign and the country's banks as similar. As we have seen over the past month, the cost of insuring against a default by countries such as Greece has almost tripled. These traded instruments highlight the growing concern about fiscal sustainability across a range of countries.

c. One-off taxes and levies on the financial sector

A number of proposals have been floated on ways for the financial sector to self-insure against a future crisis. Work is under way at the IMF on global bank taxation. One-off taxes or levies on the financial sector could be used to repay the taxpayer money used in bank bailouts, or to finance a banking sector resolution fund. This second approach, which was proposed by several leading bankers but is not presently being considered in international forums, poses a high risk of moral hazard.

Figure 4: Sovereign and bank credit default swap spreads[1, 2]



[1] Five-year on-the-run CDS spreads. [2] Simple average over sample of major banks for: United States: Bank of America, Citigroup, JPMorgan, Goldman Sachs, Morgan Stanley; Japan: Mitsubishi UFJ, Mizuho FG, Sumitomo Mitsui FG; United Kingdom: Barclays, HBOS, HSBC, RBS; Germany: Deutsche Bank, Dresdner Bank, Commerzbank; France: BNP Paribas, Société Générale, Crédit Agricole; Italy: Unicredit, Intesa Sanpaolo; Greece: Alpha Bank, National Bank of Greece; and Spain: BBVA, Banco Popular Español, Banco Sabadell, Banco Santander, Caja de Ahorros y Monte de Piedad de Madrid, Caja de Ahorros y Pensiones de Barcelona, Caja de Ahorros de Valencia, Castellón y Alicante, BANCAJA. Sources: Markit; BIS calculations.

The financial industry should therefore be under no illusion that these taxes could substitute for higher capital requirements.

The global (worldwide) dimension

Global financial stability is a public good. A global financial system requires global solutions. We need to continue the significant progress that has been made in the international coordination of systemic regulation. The crisis provided further evidence that financial stability cannot be ensured only by each country keeping its domestic financial system in order. This is necessary but not sufficient. As we have seen, financial distress in one part of the global financial system can be transmitted rapidly to other parts due to the many financial and real interlinkages.

The G20 is playing an increasing role in enhancing the global coordination of macroeconomic policies and ensuring political support for financial regulatory reform. The mutual assessment process reinforces the commitment of national authorities to joint and coordinated action. Just as financial stability needs help from monetary and fiscal policy at the national level, international financial stability needs to be supported by consistent policies at the global level.

The Financial Stability Board (FSB) has taken on a key role in coordinating the work of national authorities and standard setters to ensure international consistency. The FSB, which comprises representatives from 24 countries, six international financial institutions and six standard setters, is the main forum for work on global financial stability.[17] A key input feeding into the coordinating work of the FSB comes from the Basel-based committees – notably the Basel Committee, the Committee on the Global Financial System and the Committee on Payment and Settlement Systems – which constitute an important forum for debating solutions and sharing national

Table 8: Existing and new paradigms for financial stability

Existing paradigm	New paradigm
Monetary policy focused narrowly on price inflation	Monetary policy focused on price inflation, but leaning against financial imbalances
Microprudential policy focused on individual banks	Microprudential policy married with macroprudential focus on systemic risk
Reliance on internal risk management, self-regulation and market discipline	Higher bank capital, better governance, and expanded perimeter of regulation
Fiscal policy does not incorporate financial stability concerns	Countercyclical fiscal policy (fiscal buffers)
Domestic focus	More global coordination

experiences. The FSB has also been working with the IMF on a joint early warning exercise to identify vulnerabilities in the global financial system, to increase cooperation across borders and to conduct peer reviews.

[17] For FSB membership, see: http://www.financialstabilityboard.org/members/links.htm .

V. Conclusion

To summarise, we need to ensure that all public policies – microprudential, macroprudential, monetary and fiscal – contribute to global financial stability by responding in a countercyclical and symmetric fashion to pre-empt boom and bust cycles (Table 8). This framework needs to be comprehensive in the sense that no policy acting alone can achieve this objective. And this cooperation needs to be worldwide to address a global financial system.

To make this framework effective, careful thought must be given to the institutional setup and to international coordination. It is crucial to align goals, know-how and control over the various policy instruments, precisely because the responsibilities for financial stability are so widely distributed. The institutional setup should therefore be based on precise mandates and clear accountability. It will need to rely on close cooperation between central banks and supervisory authorities, both within and across borders.

Thank you for your kind attention.