

Building a more stable financial system : regulatory reform in a post-crisis perspective

Peter Praet

Introduction

Much has been written about the causes of the recent financial crisis, which was triggered in 2007 by widespread losses on securitisation transactions involving U.S. subprime mortgages, and reached an acute phase with the failure of Lehman Brothers in September, 2008. Several factors have been identified as playing a major role in the massive build-up of risk in the years preceding the crisis and the consequent losses once the crisis erupted. Interest rates, which were held at a low level over a long period, combined with macroeconomic imbalances to give rise to a widespread “search for yield” by investors. Complex financial products, whose risk was not well understood by either rating agencies or investors, helped to satisfy this demand for yield. Banks took on high degrees of leverage – all the while reporting strong regulatory capital ratios based on risk-weighted assets – by increasing funding with significant maturity mismatches and by creating off-balance-sheet vehicles requiring only minimal or no regulatory capital charges. Finally, weak risk management and governance systems in financial institutions meant that managers did not always understand the risks their institutions were taking, nor that many of these risks were excessive.

All of these factors resulted in a crisis that was truly systemic and global. Markets for virtually all assets dropped sharply. Sudden dry-ups of market liquidity paralysed markets such as those for asset-backed commercial paper or short-term interbank loans that had previously been considered safe. Banks around the world were forced to take colossal losses on traded assets, and they faced funding difficulties that threatened their survival. Central banks poured liquidity into the markets, and many governments

finally had to intervene with public money on an enormous scale to rescue large financial institutions and, indeed, avoid a meltdown of the entire financial system.

These events have resulted in a sea change in the mindset, views, and focus of financial authorities, leading to what may be described as a new regulatory and supervisory culture. As a result, a number of regulatory reforms have been proposed or are being formulated and, if implemented, are likely to have far-reaching consequences for the financial sector. The reforms touch on all of the key areas relating to the maintenance of financial stability – supervision, regulation, and crisis management – reflecting a holistic response to the weaknesses exposed by the crisis. It is necessary to take a broad approach, which addresses not only the issue of inadequate capital and liquidity buffers of financial institutions going into the crisis but also the failure of authorities to detect excessive risk taking, difficulties encountered in dealing with distressed banks once the crisis erupted, and the need to reduce moral hazard created by the perception that systemically important institutions will be bailed out.

This article focuses on proposed reforms in the areas of banking regulation and crisis management. In particular, it discusses how the crisis has transformed some of the views and approaches of financial authorities, and the relation between the evolving, post-crisis consensus and proposed reforms of the Basel II framework that have been put forward by the Basel Committee on Banking Supervision. In addition, while these proposed changes to banking regulation aim to strengthen the resilience of financial institutions and to avoid a future crisis, efforts are also needed to improve authorities' ability to effectively deal with distressed financial institutions or resolve

a crisis when it occurs. A number of critical reforms to crisis management and resolution frameworks are thus discussed in this context. Section 1 describes the pre- to post-crisis evolution of regulatory views. Section 2 discusses banking reforms that have been proposed in light of this evolution. Section 3 then turns to reforms of crisis resolution frameworks. Section 4 concludes.

1. Evolving regulatory paradigms and practices

This section characterises the pre-crisis to post-crisis evolution of views along several important dimensions, including the focus of regulation, the regulatory framework, and underlying assumptions about markets.

1.1 Regulatory focus

Perhaps the most striking outgrowth of the crisis is a change in the focus of banking regulation, from a narrow concern with the resiliency of individual institutions (the “micro-prudential” approach) to a broader preoccupation with the entire financial system (the “macro-prudential” approach). The crisis has vividly illustrated that the distress or failure of certain “systemically important” financial institutions can generate risk in the entire, global financial system.⁽¹⁾

In addition, the potential impact that failed institutions can have on the financial system appears to have intensified over time, partly as a result of heightened interconnectedness between institutions which has taken increasingly diverse, complex, and opaque forms. In the run-up to the crisis, significant exposures between financial institutions occurred not just through traditional inter-bank markets but also through other types of exposures such as derivatives (e.g., credit default swaps), which were typically traded over the counter and could often be quite complex. Proposed regulatory reforms aiming to mitigate problems with interconnectedness and the potential impact of systemically important institutions include increased capital requirements for exposures by banks to large financial institutions, increased capital for counterparty credit risk, and consideration of special policies such as capital or liquidity surcharges for systemically important financial institutions.

Systemic risk, however, does not arise solely as a result of the failure of systemically important institutions. Other sources of systemic risk include common exposures by

many institutions to similar assets or risks, externalities linked to “herd” behaviour of market participants, or second-round, feedback effects due to shocks. For example, asset price declines that may result from de-leveraging by one or more large financial institutions following a shock may increase losses and further exacerbate the distress at the initial institutions or generate distress at other institutions, leading to a vicious spiral of asset price declines and de-leveraging activity. One of the challenges of macroprudential supervision will be the early identification of potential risks to the system along these lines.

Finally, the level of risk in the financial system varies over time. Indeed, it has long been observed that the behaviour of financial institutions tends to fluctuate with the business cycle. For example, during favourable periods collateral values increase, risk appetites increase, and banks relax their lending standards. In downturns banks experience loan losses, face increased capital requirements, and they contract their lending. These cyclical patterns in lending can accentuate the business cycle (a phenomenon known as procyclicality), resulting in an excessive build-up of risk in booms and an associated realisation of large losses in recessions. Many observers have argued that developments in the financial system prior to the crisis heightened procyclicality, and consequently, the severity of the crisis. Current regulatory reforms aimed at mitigating procyclicality include a proposal to create a cyclical capital “buffer”, or amount of capital above the regulatory minimum. Financial institutions would be required to build up the buffer in good times, and they could then draw on the buffer to cover losses in unfavourable times.

1.2 Regulatory framework

The decade preceding the crisis saw the development of regulatory standards based on industry best practices. This best-practice approach to regulation involved continual contact between regulatory bodies and representatives of the financial industry, with the aim of improving regulation by adapting it to changes in banking and risk management practices, while maintaining an internationally level playing field. (See BCBS, 2006). A prime example of this approach is given by the use in the Basel II framework of risk assessments generated by banks’ internal systems, as inputs to the calculation of risk-weighted assets, which are then used to determine minimum regulatory capital requirements.

Another reflection of the best-practice approach to regulation is the use of a value-at-risk (VaR) framework for establishing minimum capital requirements. The minimum requirements were calibrated so that capital would

(1) See Castro and Ferrari (this FSR) for a discussion of issues relating to systemic risk and the systemic importance of institutions.

be sufficient to cover losses up to a particular percentile (99.9 p.c. for loan portfolios) of the loss distribution for a typical bank.⁽¹⁾ In theory, this would suggest that banks hold enough capital to cover losses in all events except those which could be expected to occur once in one thousand years.

Yet, in order for a regulatory approach based on best practices to succeed, market best practices must be both sound and robust. As the crisis has illustrated, however, VaR methodologies suffer from a number of shortcomings. In particular, VaR estimates are subject to significant model risk, embodied either in assumptions such as those relating to default probabilities or default correlations among the loans in a portfolio, or in the reliance on historical data – often quite recent – for estimating the loss distribution for traded assets. Changes in the underlying assumptions or data can in fact produce significant changes in the estimated distribution of losses and, hence, in the necessary amount of capital.

The post-crisis recognition of the importance of model risk has resulted in calls for greater amounts of capital than those implied by VaR analyses, in order to ensure that capital does indeed serve as an effective cushion in absorbing losses of the institution as a going concern. In addition, there is a perceived need to strengthen the loss-absorption capacity of the instruments that are included in the regulatory definition of capital. A number of proposed regulatory reforms thus appear to be aimed at addressing these issues: an increase in the quality of regulatory capital; expansion of the risks for which capital requirements are calculated and imposed; and imposition of a leverage ratio (the ratio of capital to total assets), a measure that depends upon total assets rather than risk-weighted assets and thereby does not suffer from model risk associated with estimating capital based on a VaR approach.

Another necessary condition for the best-practice regulatory approach to succeed is that there must be no risk of regulatory “capture”. Regulators must remain sufficiently sceptical to permit them to successfully challenge bank models, practices, and processes that could have a potential impact on risk. For instance, a number of bank practices prior to the crisis, such as the booking of assets with significant credit risk in the trading book rather than the banking book or the creation of off-balance-sheet vehicles like SIVs, were undertaken for the purpose of reducing regulatory capital requirements. One of the aims of the regulatory proposal of a minimum leverage ratio is in fact to limit the impact of this type of “regulatory arbitrage”.

(1) The time horizon over which losses are calculated depends on the type of asset.

1.3 Assumptions

One of the key assumptions underlying regulation in the pre-crisis period was that markets are “sufficiently” efficient, in that market prices provide accurate indicators of economic value and risk, that financial innovation unambiguously improves efficiency, especially when subject to competition, and that market discipline is a valuable complement to – and sometimes more effective than – supervision. This view was also reflected in the move to adopt fair value accounting principles, despite the reservations expressed by some central banks and supervisory authorities.

The crisis has prompted a critical re-examination of the efficient markets assumption. Authorities are now focusing more attention on the possibility of market failures, including development of irrational price “bubbles”, negative externalities created by “herd” behaviour of market participants, and the existence of moral hazard or asymmetric information problems which result in weakened or ineffective market discipline. Such deviations from efficient markets can result in an overabundance of market liquidity or an excessive amount of leverage in certain periods, followed by sudden liquidity dry-ups or destabilising de-leveraging in other periods. Proposed regulatory reforms that should help to reduce the occurrence or impact of such variations are the imposition of minimum liquidity requirements and a minimum leverage ratio. More generally, the re-examination of the efficient markets assumption appears to have persuaded a number of observers that more reliance on regulation is warranted in the future (e.g., see Greenspan, 2010).

The role of financial innovation has also come under greater scrutiny. Many types of financial innovations have the effect of permitting an increase in leverage. Innovations can also create common exposures among institutions. For example, the tranching of securities backed by a pool of assets and the sale of the tranches to different institutions automatically create a common exposure of those institutions to the underlying pool of assets. The capacity of financial innovation to heighten common exposures among institutions was aptly demonstrated in the crisis by the securities backed by U.S. subprime mortgages. At the same time, the robustness of innovations in the event of a shock is, by definition, initially untested, and the ultimate distribution of risk achieved by the innovation may be quite opaque and difficult to predict. As a result, financial innovation can have a significant, sometimes unexpected, impact on financial stability. One of the regulatory responses to financial innovation relating to securitisation products that preceded the crisis has been to sharply raise capital requirements

for resecuritisations, which are complex securities whose payments are themselves backed by tranches of other securitisations. In addition, a fundamental review of the calculation of regulatory capital requirements for securitisations is currently ongoing.

2. Reforms of the Basel II framework

As mentioned above, authorities have adopted a broad approach in identifying the causes of the crisis and proposing measures to redress the associated weaknesses and failures. Chart 1 provides an illustration of the array of reforms that are being contemplated or proposed. The proposals encompass efforts to strengthen financial institutions' capital and liquidity buffers, to improve the incentives of financial institution managers with respect to governance and risk taking, and to adapt legal and organizational structures of financial institutions and markets to increase transparency and reduce the level of risk and to permit effective resolution of distress.

This section focuses on proposals devoted to strengthening financial institutions' capital and liquidity buffers. Several proposals for reforms to the Basel II framework have been formulated in a series of consultative documents issued by the Basel Committee in 2009 (see Basel Committee 2009a, 2009b, and 2009c). Some of these proposals are at an advanced stage, while others are more preliminary. Chart 2 illustrates the proposed reforms.

Section 2.1 discusses the reforms intended primarily to mitigate systemic risk. Falling in this category are policies relating to systemically important banks, loan-loss provisions based on expected loss, and countercyclical capital buffers. Section 2.2 reviews reforms designed to increase or improve the quality of capital, including rules relating to counterparty credit risk, exposures to large financial institutions, leverage, and securitisation. These reforms could be argued to aim primarily at strengthening the resiliency of individual institutions, although in some cases they also help to mitigate systemic risk. Finally, Section 2.3 describes proposed liquidity requirements, which represent a new addition to the framework. Table 1 at the end of section 2 presents a summary of the different reform proposals.

2.1 Macroprudential concerns and systemic risk.

The discussion of systemic risk in Section 1 points to two important dimensions: the cross-sectional dimension, focusing on a given point in time and taking into account, for example, externalities that would be imposed by the failure of a systemically important institution; and the time dimension, which relates to the variation of systemic risk over time and the procyclicality of the financial system. Proposed policies for systemically important institutions address the cross-sectional dimension of systemic risk, while proposals for forward-looking provisions and countercyclical capital buffers address the time dimension.

Policies for systemically important banks. The failure of a systemically important bank (SIB) can cause failures of

CHART 1 PROPOSED REGULATORY REFORMS

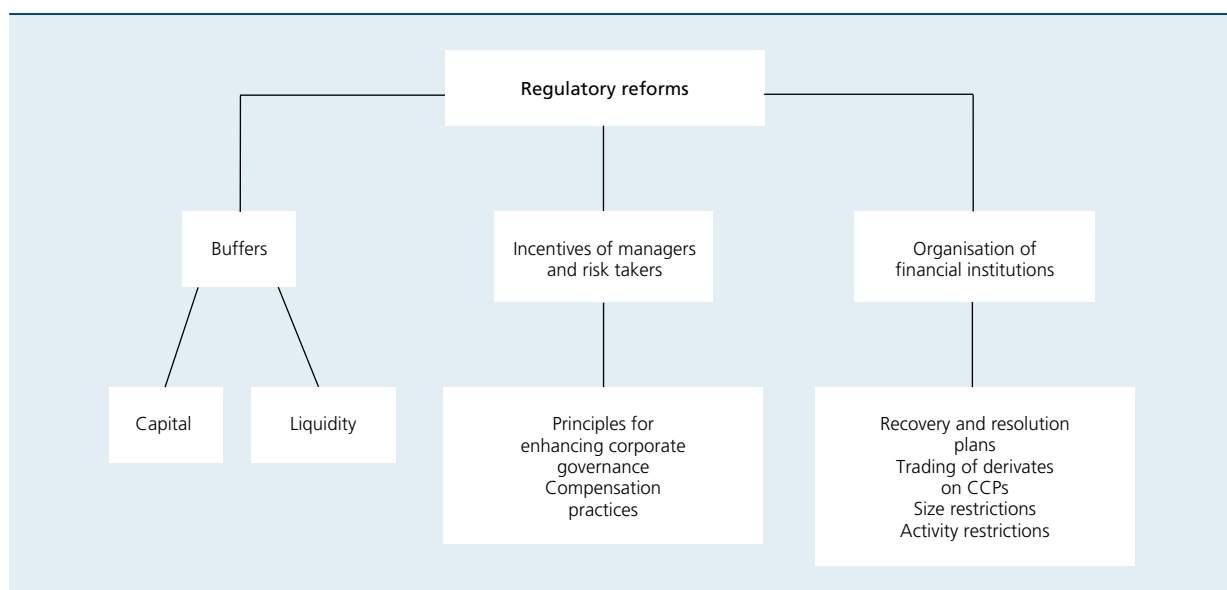
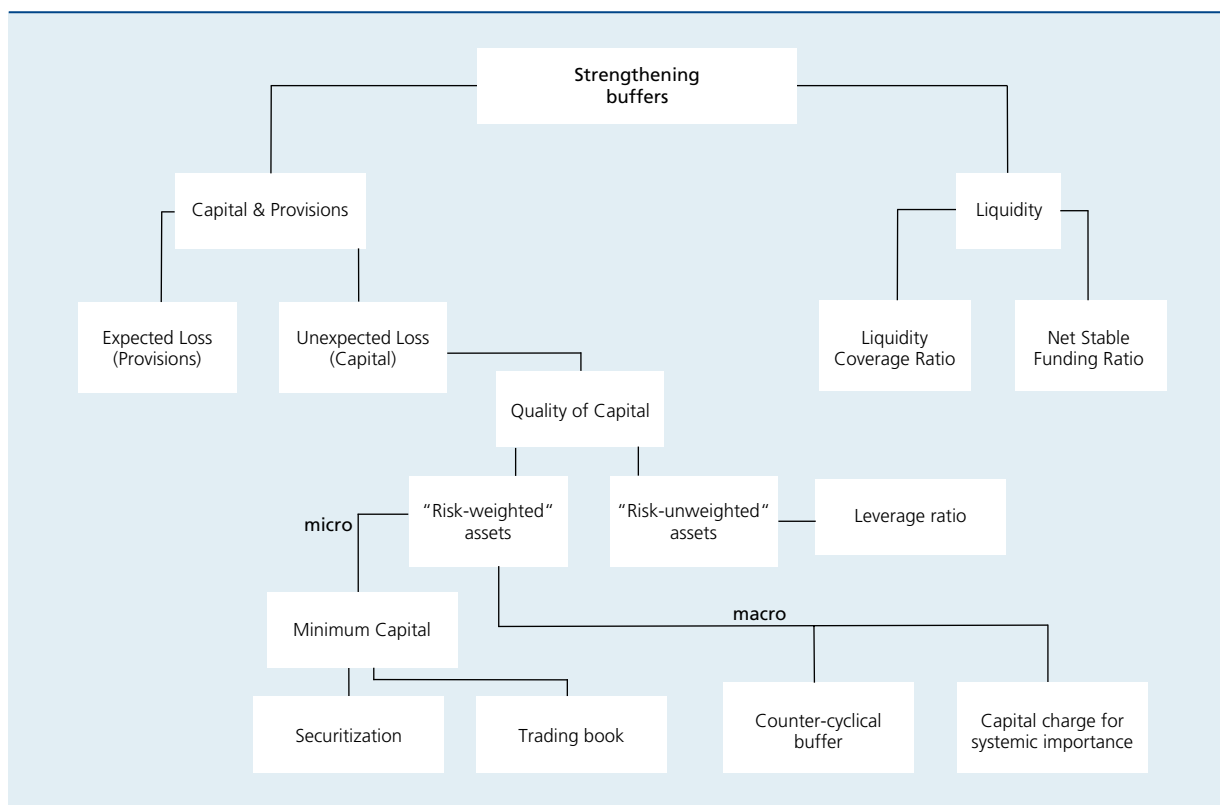


CHART 2 PROPOSED REFORMS FOR STRENGTHENING BANKS' CAPITAL AND LIQUIDITY BUFFERS



many other banks and widespread distress in the financial system. Hence, the failure of a systemically important bank generates costs that are not internalized by the bank. In light of this, the Basel Committee is currently considering the merits of applying special policies to systemically important banks. These policies could include a capital or liquidity surcharge or some other type of supervisory tool such as enhanced supervision. One of the objectives of imposing special policies would be to ensure that systemically important banks internalize at least a part of the costs their failure would impose on others. Policies applied to SIBs would also be intended to reduce the probability or impact of their failure.

One of the challenges arising with respect to the application of policies to systemically important banks is how to determine the degree of systemic importance. Although several methods for measuring systemic importance have recently been proposed, there is no consensus on the best method.⁽¹⁾ Data limitations also pose major difficulties.

Three important determinants of the systemic importance of an institution are its size, its interconnectedness with other institutions in the system, and the degree of substitutability of its activities.⁽²⁾ Of these three factors, interconnectedness is arguably the most difficult to measure.

For example, authorities currently do not have good knowledge of the network of exposures (especially cross-border) between financial institutions and, therefore, of the structure of the network or of the systemic importance of particular institutions.⁽³⁾ This lack of knowledge applies as much to traditional interbank credit exposures as to more nontraditional exposures such as derivatives. Furthermore, the inability to accurately measure the network of direct exposures between institutions means that indirect exposures, and therefore the potential “second-round” effects of a shock, remain completely unknown.⁽⁴⁾ Authorities will need to cooperate in the future to identify significant exposures of all types among large financial institutions.

Forward-looking provisions. Loan loss provisions are designed to help banks cover expected losses due to defaulting loans, whereas capital is intended to cover “unexpected” losses.⁽⁵⁾ As a means of reducing the

(1) See Castro and Ferrari (this FSR) for a discussion of proposed measures of systemic importance that make use of market data.
 (2) See IMF/BIS/FSB (2009).
 (3) The overall structure of the system can strongly influence its resistance to failure of an individual institution. See, e.g., Allen and Gale (2000) and Degryse and Nguyen (2007).
 (4) The transfer of certain types of trades to central counterparties could be potentially helpful in this regard.
 (5) Unexpected loss is defined as the difference between the VaR; i.e. the value of losses at some percentile (e.g., 99.9) of the loss distribution, and expected loss, which is the mean value of the loss distribution.

procyclicality inherent in the financial system, the Basel Committee is making a number of efforts to induce banks to undertake forward-looking provisioning. First, the Basel Committee is encouraging the International Accounting Standards Board to move to an approach of allowing banks to provision on the basis of expected losses, rather than the current practice of incurred loss provisioning. In addition, the Basel Committee is revising its supervisory guidance on sound provisioning practices to ensure consistency with the desired expected loss approach. The Committee is also reviewing the treatment of provisions in the Basel II framework, with the aim of removing any disincentives for banks to engage in sound provisioning. For example, shortfalls in stocks of provisions should now be deducted entirely from the common equity component of Tier-1 capital. Since provisions have traditionally been deducted from retained earnings, hence common equity, requiring that shortfalls also be deducted from common equity should eliminate an incentive for banks to under-provision.

Countercyclical capital buffers. Concern has been expressed over the years about the cyclical nature of behaviour of banks and other financial market participants, the potential for risk-based regulatory capital requirements to heighten procyclicality and the possible negative consequences for the real economy. As was noted in the previous section, these factors cause the level of risk in the financial system to vary over time. Although several measures were previously introduced in the Basel II Framework to mitigate cyclicity in capital requirements, the Basel Committee is now considering the possibility of requiring countercyclical capital buffers, as one way of better protecting banks from cyclical swings in risk, with the additional aim of weakening the transmission of shocks from the financial sector to the real economy.

Although the proposals are still at a very early stage, one potential way of determining countercyclical capital buffers would be as follows. A macroeconomic variable or group of variables would be used in each country to identify boom periods or periods of high credit growth. As a function of the realisations of the macro-economic variables, authorities in each country would decide upon the necessary level of the buffer above the minimum capital requirement in that country. The level of the required buffer would rise as the boom progresses, reaching some maximum requirement if the boom lasts for a long enough period.

The buffer required for a given financial institution would depend on the geographical distribution of its credit exposures. For financial institutions with credit exposures in multiple countries, the buffer would be calculated as

the weighted average of the announced buffers in each of the countries in which the bank has exposures, where the weight for each country would be the percentage of the bank's total credit exposures accounted for by counterparts in that country.

One of the main challenges of implementing the proposal for countercyclical capital buffers would be to identify variables in each country that constitute reliable indicators of periods of excessive credit growth and of downturns, so that the build-up and release of the capital buffer in a given country truly coincides with movements of the cycle in that country. Because of this difficulty, the determination of the buffer in any given country would likely not be strictly rule-based but, rather, would be subject to the exercise of authorities' judgement.

2.2 Increasing and improving minimum capital

Counterparty credit risk. Increases in capital for counterparty credit risk and for exposures to large financial institutions represent reforms aimed at mitigating contagion due to interconnectedness. The strengthened requirements for counterparty credit risk help to reduce contagion arising from derivatives exposures, repos, and securities financing activities. These requirements are also intended to encourage greater use of central counterparties and exchanges for derivatives transactions. The reforms require banks to use stressed inputs (i.e., values of inputs during periods of stress) in the calculation of their capital charges for counterparty credit risk. The Basel Committee notes that this practice is similar to practices recently introduced in the framework for calculation of capital requirements for market risk of traded assets. The similarity should help to promote integrated management of market and counterparty risks. Standards for risk management for counterparty relationships, including collateral management and the treatment of wrong-way risk, are also being strengthened.⁽¹⁾

Exposures to large financial institutions. Recent work by the Basel Committee suggests that large financial institutions are actually more interconnected than the Basel II capital charges would have implied. As a consequence, a proposal has been made to increase the assumed values of asset value correlations for large financial institutions in the formula for calculating capital charges for exposures to these institutions. This will result in an increase in minimum capital requirements for such exposures. The current proposal is to apply the higher correlation values to

(1) Wrong-way risk occurs when an exposure to a counterparty is adversely correlated with the credit risk of the counterparty.

regulated financial institutions (banks, broker dealers, and insurance companies) whose assets exceed 25 billion USD and to all unregulated financial institutions, regardless of size. Financial institutions are broadly defined to include highly leveraged firms such as hedge funds and financial guarantors.

Improving the quality of capital. The crisis revealed that a number of instruments that had been included in the regulatory definition of capital had insufficient capacity to absorb losses as long as the institution remains a going concern. Consequently, the key principle underlying the measures to improve the quality of capital is that common equity will become the predominant form of Tier 1 capital. Criteria for inclusion of instruments other than common equity in Tier 1 capital will be tightened. In addition, lack of consistency in the definition of capital across countries has motivated the Basel Committee to attempt to harmonize the allowed deductions and prudential filters. Varying levels of disclosure across countries regarding the level and nature of capital have also led the Basel Committee to propose measures to improve the transparency of Tier 1 capital.

Leverage ratio. A minimum leverage ratio (capital/total assets) is being proposed as a complement to risk-based capital requirements, in order to mitigate the impact of model risk in the calculation of the latter and to reduce the probability of a build-up of excessive leverage on banks' balance sheets, which could trigger negative asset price – deleveraging spirals following a shock. It is proposed that the capital included in the numerator of the leverage ratio be the high-quality definition of capital corresponding to the new Tier 1 definition. The measure of total exposures (assets) in the denominator will include off-balance sheet as well as on-balance sheet items. Exposure measures should preferably be accounting measures, adapted to ensure consistency across countries with different accounting standards.

Securitization. The issuance of complex financial products, such as ABS CDOs⁽¹⁾ and other securitizations, and the booking of these instruments in the trading book played a crucial role in the crisis and accounted for a significant percentage of banks' losses.⁽²⁾ Recognizing that the capital requirements for trading book exposures did not adequately cover the risks of these complex instruments,

the Basel Committee has issued revisions of the capital requirements for such assets (BCBS 2009d), sharply raising the required capital for securitizations held in the banking book or the trading book. Resecuritizations will also no longer be eligible for use as financial collateral. In addition, in order to reduce banks' reliance on external ratings, banks are required to conduct their own analyses of externally rated securitization exposures, as a supplement to the capital requirements based on the ratings. A number of additional measures to reduce reliance on external ratings and to eliminate negative incentives created by ratings "cliffs" in the Basel II framework have also been proposed.⁽³⁾ Finally, the Basel Committee is undertaking a fundamental review of the securitization framework, which will likely result in a re-calibration of capital requirements for securitizations and a less prominent role for external ratings.

Capital linked to exposures in the trading book. The amendments to capital requirements for exposures in the trading book represent a response to the observation that the existing capital framework did not cover some of the key risks in the trading book. An incremental risk capital charge has now been added, in order to cover default and migration risk of the securities held in the trading book. The Basel Committee is also now requiring the use of a stressed value at risk for determining capital charges for market risk. The Committee also makes clear that regulators have the ability to require institutions to adjust asset valuations in cases where there is uncertainty in realizable values of assets due to illiquidity. Finally, banks must justify their actions relative to factors that are taken into account in pricing models but then excluded in calculations of value at risk.

2.3 Liquidity requirements

The Basel Committee (2009a) has proposed two quantitative ratios for the determination of banks' liquidity requirements. The first, the liquidity coverage ratio, is intended to ensure that banks have sufficient high quality, unencumbered liquid assets to survive an acute, 30-day stress scenario specified by supervisors. The requirement is that the stock of high-quality liquid assets must exceed the estimated net cash outflows of the 30-day period. The scenario proposed by the Basel Committee for determining the liquidity coverage ratio contains several features resembling the liquidity shocks that occurred during the crisis. These include a combined system-wide and idiosyncratic shock, loss of wholesale funding capacity, loss of ability to obtain short-term secured funding for all but high-quality liquid assets, etc. Which assets qualify as high-quality liquid assets will be determined after analysis of the results from an ongoing quantitative impact study.

(1) ABS CDOs are collateralised debt obligations (tranching securities) backed by a pool of tranches from other asset-backed securities transactions, primarily mortgage-backed securities.

(2) According to the Basel II framework, the trading book should consist of positions in financial instruments and commodities held either with trading intent or in order to hedge other elements of the trading book. To be eligible for trading book capital treatment, financial instruments must either be free of any restrictive covenants on their tradability or able to be hedged completely.

(3) Ratings cliffs arise when a small change in rating results in a substantial increase in capital requirements.

TABLE 1 PROPOSED REFORMS TO BASEL II FRAMEWORK

Proposed reform	Description
Policies for systemically important banks	Development of approaches for measuring systemic importance of institutions. Consideration of policy options for reducing probability and impact of failure of systemically important banks.
Forward-looking provisions	Revision of supervisory guidance to ensure consistency with an expected loss approach to provisioning. Shortfalls in stocks of provisions should now be deducted entirely from the common equity component of Tier-1 capital, since additions to provisions are deducted from retained earnings, hence common equity.
Countercyclical capital buffers	Impose a build-up of capital buffers above the minimum in good times, and allow a draw-down of the buffer in bad times. Macroeconomic or system-wide variables would be used by supervisors as indicators of good times and bad times.
Counterparty credit risk (CCR)	Increase capital for counterparty credit risk linked to OTC derivatives, repos and other securities financing transactions. Use of stressed inputs in formula for calculation of minimum capital requirement CCR. Capital charge for mark-to-market losses due to falling creditworthiness of a counterparty.
Exposures to large financial institutions	Increase capital for exposures to large financial institutions by increasing correlation parameter in formula used for calculation of minimum capital requirement.
Improve quality of capital	Increase the loss-absorption capacity of Tier-1 capital. Common equity the predominant form. Harmonization of deductions and prudential filters.
Leverage ratio	Impose a minimum requirement of capital to total assets, including off-balance sheet items. Based on accounting measures, adjusted to account for cross-country differences in accounting rules.
Securitizations	Increase capital requirements for complex securitization exposures. Review of capital requirements for securitization and reliance on ratings.
Trading book	Use of stressed value-at-risk for determining capital requirement for market risk. Banks must justify any exclusion of factors from value-at-risk calculations that were included in pricing models. Regulators may require banks to adjust valuations for illiquidity.
Liquidity requirements	Impose two liquidity requirements: a 30-day coverage ratio, to address short-term disruptions; and a stable funding ratio.

The second liquidity ratio is the net stable funding ratio, which is intended to increase the longer-term resilience of banks to shocks by fostering more stable sources of funding. This requirement sets a minimum level of stable funding based upon the liquidity characteristics of the institution's assets over a one-year horizon. The rule is that the available amount of stable funding must be at least as great as the "required" amount of stable funding, which is determined on the basis of supervisory assumptions regarding the liquidity characteristics of on and off-balance sheet exposures, including securitisation pipelines and investment banking inventories. Available stable funding is defined as the sum of the institution's capital, preferred stock with maturity no less than one year, liabilities with maturities of no less than one year, and the portion of "stable" non-maturity deposits which

would be expected to remain with the institution during a prolonged stress event.

3. Crisis resolution frameworks

In addition to revealing cracks in the crisis prevention framework, the crisis has highlighted significant weaknesses in crisis management arrangements in many countries. These weaknesses were particularly apparent in the case of cross-border financial institutions, yet even for domestic banks the crisis resolution framework often proved inadequate. Given that national crisis management frameworks were not designed to accommodate the resolution of cross-border institutions, the crisis gave rise to a series of ad-hoc, uncoordinated measures, in many

cases resulting in the ring-fencing of activities, questions about distortion of competition, or higher costs of resolution than would have occurred with more cooperative solutions. Much effort is currently being undertaken to try to bolster the cross-border crisis management framework. As noted by the European Commission, Europe needs a strong regulatory framework that covers prevention, early intervention, bank resolution and winding up.⁽¹⁾

With respect to both national and cross-border crises, authorities need an adequate toolkit for intervening early in a distressed institution and for achieving an efficient resolution of the problem. One of the most effective measures would be the passage of special banking resolution or insolvency laws that would provide specific powers to authorities, including:

- the power to take control of distressed financial institutions, implying the ability to give instructions to the institution’s management and bypass its board of directors;
- the power to transfer some activities of a financial group to another entity, which could be a private sector purchaser, a “bad bank”, or a government-run bridge bank;
- the power to transfer all or part of the shares of an ailing financial institution to a private sector purchaser or temporarily to the government;
- the power to require certain stakeholders, such as subordinated debtors, to bear some of the costs of any rescue operation;
- the power to influence the future business strategy of the institution and its risk appetite.

Many countries do not have specific legal provisions for bank insolvency; insolvent banks are treated identically to nonfinancial firms under company insolvency law. This identical treatment ignores critical differences in the timing and impact of the insolvency of banks relative to nonfinancial firms, and it ties the hands of financial regulators in intervening in a distressed bank to prevent its insolvency or to soften its impact on the financial system and the economy.

At the same time, any special bank insolvency law must strike a balance between shareholders’ and stakeholders’ rights on the one hand and the common interest on the other. In particular, strict limits and safeguards must be set for authorities’ recourse to the exceptional powers. Determination of the trigger for authorities’ intervention is also critical. The overall objectives of such legislation

must be to maintain and enhance public and market confidence in the stability of the financial system, to foster private sector solutions and minimise the use of public funds, and to limit moral hazard arising with respect to systemically important financial institutions and the belief by market participants that these institutions will be rescued if they encounter distress.

In addition to the provision of special powers to authorities via special bank insolvency laws, efforts are under way to have large cross-border financial institutions devise recovery and resolution plans. These plans are sometimes referred to as “living wills”. The recovery plan focuses on how the bank could resolve distress, identifying for instance, strategies to reinforce the capital or liquidity position of the bank. It may also, however, go much further, specifying how certain business lines could be discontinued or units sold.

The objective of the resolution plan is to aid authorities in winding up the institution if the recovery plan fails. The plan should facilitate the intervention of authorities in closing the institution and/or in transferring activities or deposits to other institutions. This plan should define, among other things, potential resolution proposals, how the bank will provide necessary data to authorities so that they can evaluate the resolution options, and the potential obstacles that could arise in implementing the resolution strategy.⁽²⁾

As a consequence of the living will, authorities may require the institution to simplify the legal structure of the group, to introduce firewalls between different business lines, or to reduce the interconnectedness between the different entities of the group. The living will is drafted by the institution itself but is subject to a review by authorities. It should be regularly updated, to take account of changes in the group’s structure, activities, and risks.

Finally, another crucial issue that must be addressed with respect to the resolution of cross-border crises is that of burden sharing. The debate on burden-sharing has been passionate at times, and there are many reasons for the sensitivity of the topic. In the first instance, ex ante burden sharing agreements – i.e., agreements that specify a sharing rule ex ante, before a crisis has occurred – are currently infeasible⁽³⁾. Nevertheless, the crisis has demonstrated that ex-post burden sharing agreements are possible. In this context, Praet and Nguyen (2010) propose a stepwise approach to further advance the burden-sharing debate. These steps include: (i) defining and agreeing on the objective of burden-sharing; (ii) determining which aspects of the agreement can be set ex ante and which are necessarily left to an ex-post decision, and (iii)

(1) See European Commission (2009).

(2) For further detail see the box in Nguyen (this FSR).

(3) See Nguyen (2008) for a discussion of ex ante versus ex post burden sharing rules.

devising ways to facilitate decision-making, including enhancing information flows, increasing speed of procedures and fostering trust between authorities. Along these lines, cooperation in cross-country negotiations could be fostered by the presence of an authority not directly involved in the crisis, who could participate for the purpose of representing the common interest. This third party could have a passive role as observer, or if the interested parties agree and if need be, could be assigned a more active role as a facilitator or mediator. One might even contemplate specifically creating a European Resolution Authority.⁽¹⁾

Conclusion

This article has examined the impact of the recent crisis on the views and focus of financial regulators, and it has discussed some proposed financial sector reforms. The reforms being contemplated and discussed by authorities cover all of the areas of supervision, regulation and crisis management, reflecting the need for a holistic response to the crisis. This article has concentrated on reforms linked to banking regulation and to the crisis management framework.

One of the outcomes of the ongoing reflection is that authorities are now more focused on systemic risk and on potential market failures than in the past. This has led to a new emphasis on macro-prudential supervision, which will likely require a number of institutional changes (some of which are currently under discussion) designed to foster closer co-operation between micro-prudential and macro-prudential supervisors. For example, while the risks arising from the collective behaviour of institutions can only be measured at macro level, detailed information needed for making this assessment and relating to the behaviour of individual institutions must be communicated by micro-prudential authorities. Similarly, although systemic risks can be partially addressed at the micro-prudential level, e.g., through

requirements aimed at reducing interconnectedness or special policies applied to systemically important financial institutions, micro-prudential authorities can only make an imperfect assessment of systemic risk without measures designed specifically from a macro-prudential vantage point. Identification of the appropriate macro-prudential instruments and determination of the necessary degree and nature of interaction between macro-prudential and micro-prudential supervisors will be among the regulatory challenges going forward.

This article has discussed proposed reforms of the Basel II framework aimed at reducing systemic risk, as well as proposed changes to the framework designed to increase the breadth of risks for which banks must hold capital and to increase the quality of the capital and liquidity buffers that banks hold. In addition to these proposed changes to the Basel II framework, the Basel Committee has recently issued new, qualitative principles for enhancing corporate governance and an assessment methodology for supervisors in promoting sound compensation practices, in line with the principles for sound compensation practices issued by the Financial Stability Board in 2009. These documents not only define best practices in the critical areas of governance and compensation but also set out supervisory approaches for assessing banks' compliance with these practices.

Finally, while many reform proposals have been put forth to date, the details and the ultimate reform package have not yet been decided. Essential quantitative and qualitative analyses of the potential impacts of the proposed reforms, both individually and collectively, are ongoing. The goal will be to achieve a level of true reform in the financial sector that the crisis has revealed to be essential, while avoiding harmful effects and unintended consequences that could ultimately undermine the new measures.

(1) See Praet and Nguyen (2010) for a proposal regarding a European Resolution Authority.

References

- Allen F. and D. Gale (2000), "Financial Contagion", *Journal of Political Economy*, 108(1), 1–33.
- Basel Committee on Banking Supervision (2000), "Sound Practices for Managing Liquidity in Banking Organisations", February.
- Basel Committee on Banking Supervision (2006), "International convergence of capital measurement and capital standards: a revised framework," June.
- Basel Committee on Banking Supervision (2008), "Principles for Sound Liquidity Risk Management and Supervision", September.
- Basel Committee on Banking Supervision (2009a), "International framework for liquidity risk measurement, standards and monitoring: Consultative Document", December.
- Basel Committee on Banking Supervision (2009b), "Report and Recommendations of the Cross-border Bank Resolution Group: Consultative Paper", September.
- Basel Committee on Banking Supervision (2009c), "Revisions to the Basel II market risk framework", July.
- Basel Committee on Banking Supervision (2009d), "Strengthening the Resilience of the Banking Sector: Consultative Document", December.
- Degryse H. and G. Nguyen (2007), "Interbank exposures: an Empirical Examination of Contagion Risk in the Belgian Banking System," *International Journal of Central Banking*, Vol. 3, No. 2: 123-171.
- European Commission (2009), "An EU framework for cross-border crisis management in the banking sector".
- Financial Services Authority (2009a), "The Turner Review: A Regulatory Response to the Global Banking Crisis", March.
- Financial Services Authority (2009b), "Turner Review Conference Discussion Paper: A regulatory response to the global banking crisis: systemically important banks and assessing the cumulative impact", October.
- Greenspan A. (2010) "The Crisis", Brookings Institution, March.
- International Monetary Fund/Bank for International Settlements/Financial Stability Board (2009), "Guidance to assess the systemic importance of financial institutions, markets and instruments: initial considerations", Report to G20 Finance Ministers and Governors.
- Keller J. and P. Praet (2009), "Extreme events and financial system governance: some lessons from the crisis", National Bank of Belgium, *Financial Stability Review*, 127-138.
- Nguyen G. (2008), "Burden-Sharing Agreements: the Cart before the Horse?", National Bank of Belgium, *Financial Stability Review*, 119-132.
- Nguyen G. and P. Praet (2006), "Cross-border crisis management: a race against the clock or a hurdle race?", National Bank of Belgium, *Financial Stability Review*, 151-173.
- Praet P. and G. Nguyen (2010), "Improving cross-border bank resolution in Europe: a focus on burden-sharing", in "Crisis Management at Cross-Roads", SUERF Studies 2010/1.

Praet P. and G. Nguyen (2008), "Overview of recent policy initiatives in response to the crisis", *Journal of Financial Stability*, 4, 368-375.

Praet P. and G. Nguyen (2010), "Which banking resolution authority for Europe?", *VoxEu.org*, April 16.