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Banks and Markets: Lessons from the Crisis

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Introduction

Banks and markets perform complementary functions in allocating resources, distributing risk and providing liquidity. The boundaries between them have been blurred by changes in regulation, technology, demand, and advancement in financial innovation. Over time their functions have converged. The subprime crisis disrupted this process, causing many to question the viability of an intermediation model that links inextricably banks and markets.

I am convinced that the changes in the financial landscape over the past decade reflect supply and demand forces that are here to stay. However, the crisis highlighted weaknesses in the model of intermediation that need to be addressed. The challenge for banks and markets is to find a model that promotes the efficient allocation of resources but is not subject to destabilizing impulses. I will briefly discuss the role of regulators, supervisors and central banks in improving the operation of this sophisticated machinery.

The Convergence Between Banks and Markets

Traditionally, in supplying credit, banks screen and monitor borrowers; they also provide payment services to depositors and by transforming short-term deposits into longer-term loans, they create liquidity. Markets, on the other hand, match directly demand and supply of funds; to function properly they need accurate and timely information. In most countries, historically, banks dominated when firms were mostly small and opaque and legal protection of lenders and shareholders was less efficient. Over time, greater availability of information, the development of larger firms with complex financing needs and better legal frameworks increased the role of markets.

Already in the mid-1990s it was broadly perceived that markets and non-bank intermediaries were eroding banks' business in many segments. Over the past 10 years the total capitalization of US stock exchanges has doubled to 20 trillion dollars and that of European exchanges has tripled to almost 17 trillion. Between 2000 and 2007 notional outstanding OTC derivatives have gone from under 100 trillion to 600 trillion dollars. New markets started almost from scratch have reached considerable size. In 2006 banks' share of total financial assets declined to around 10% in the US and between 25% and 35% in the major European economies.

The Drivers of Change

Supply-side factors such as deregulation, technological progress and financial innovation contributed to these developments by modifying incentives, making sophisticated new risk management tools available to investors and shifted out the risk-return frontier. Globalization and economies of scale fostered cross-border markets and the consolidation of previously fragmented national markets, which has increased liquidity and lowered transaction costs in market-based finance. Financial innovation, through techniques such as securitization, induced the commoditization of assets.

As for demand-side factors, let me mention only the main ones. Due to population aging and public pension reforms, individuals are more directly responsible for healthcare and for their livelihood after retirement. Savings increasingly go towards insurance products and pension funds. Both demand for home ownership and exceptionally low interest rates stimulated the growth of mortgage lending, also by non-bank intermediaries in some countries; in addition, consumer credit has become part of our way of life.

The growth of markets stimulated the development of such non-bank intermediaries as private equity funds and venture capital firms. Corporate restructuring, a cyclical pattern in our economies, requires substantial funding that is best diversified among many investors. Finally, new players are now entering the game, such as sovereign wealth funds (SWF).

Trends in Banking

Banks, large, international banks in particular, responded to the opportunities created by markets by extending their functions away from the traditional banking model. They decoupled the lending functions, originating loans for sale to other financial institutions. On the funding side they diversified their sources, relying more on the wholesale component and less on traditional deposits. Today a bank is an institution that provides both liquidity and complex funding, not an intermediary defined in terms of specific liabilities and assets. Balance-sheet assets - in particular bank credit - are no longer an accurate gauge of the importance of banks in the economy.

This evolution did not reduce the importance of banks within the financial industry; in fact, although the composition of their revenues has changed, on a consolidated basis their role is even greater today. In the US, non-interest income has increased from 20 percent of total income in the early 1980s to around 45 percent now. Similar patterns hold in Europe. In many European countries banks own a substantial share of the asset management industry.

The close links between banks and markets pose new problems. In practice, the securitization model requires banks to hold a substantial amount of assets on their balance sheets, including loans that are "warehoused" in anticipation of later sale, and senior or junior tranches that are retained by banks (or placed in affiliated off-balance sheet vehicles) in order to facilitate the sale of other tranches. The exposure of bank profits to the past year's market volatility turned out to be greater than expected, offsetting the potential benefits from the diversification of revenues. On the liability side, the dependence on wholesale funding has amplified instability and contagion, especially across borders.

The bottom-line is that, although the system has become more complex, with more layers through which savings are intermediated, banks remain the heart of the financial sector. This past year has shown how the difficulties of markets and of banks feed into one other and can threaten the global financial system.

The Crisis: Where Do We Stand?

Until June 2007, markets appeared to be going through sharp but targeted repricing of credit risk, something that happens periodically over the course of the business cycle. As we know, however, in the following months broader turmoil in credit markets was joined by uncertainty about the overall size of losses and their distribution among banks. The result was a liquidity crisis: as banks became reluctant to lend to one another, interbank markets became dislocated, volumes dropped, rationing emerged and risk premia spiked.

Central banks intervened to ease the liquidity crunch. But it is now clear that the root of the problem is serious concerns over the quality of assets worth trillions of dollars.

The loss patterns display two chief characteristics. First, most loss comes from securitized assets – ABSes, CDOs and CMBSes account for two thirds of the total. The price declines on these securities reflect expected losses, plus a further discount due to uncertainty and liquidity concerns. A challenge in the current environment has been the ways in which, under new accounting rules, falling market prices on these instruments have created incentives to sell in order to avoid recording further losses.

Second, banks have been hit hardest, with global banks accounting for more than half of the total losses, either because of direct investment or indirect commitments. Fixed capital requirements make them vulnerable to volatile asset valuations and may again precipitate actions to stem further losses.

Has the crisis now "bottomed out"?

Market-based write-down projections probably overestimate the eventual losses at maturity, as they react to temporary liquidity shocks and exceptionally high risk premia; they may well reflect a worst-case scenario, something US housing markets may manage to avoid if recent stimuli and loan modification measures put a floor under house prices. Banks have raised equity to cover a substantial proportion of the losses acknowledged so far. Investors such as SWF have been a useful source of new capital. Taking the projected losses into account, aggregate bank capital is still above regulatory norms, although some individual banks might need further injections of equity.

However, we cannot let our guard down. Things could still get worse. A deterioration of the business cycle and further declines in the housing market could weaken the fundamentals. Prime brokers could increase their margin requirements if further losses make them reluctant to hold counterparty risk causing hedge funds to liquidate positions. This would precipitate another bout of asset sales and further pressure on prices.

We are still on the razor's edge. How have we come so far? And what can we do to ensure that financial stability is restored and buttressed for the future?

Lessons From the Crisis

A crucial and not entirely new lesson of the recent financial turmoil is that central banks should pay close attention to the factors that threaten to engender financial imbalances. Although the trigger of the present crisis - in the sub-prime mortgage market - is new and specific, other factors have played a crucial role, and some were present in past crises as well: rapid financial innovation, excessive leverage, search for yield, and housing market overvaluation. With this in mind, the central banking community should ask whether one of the culprits may not be a monetary policy stance that has favoured excessive money and credit growth globally and exceptionally low interest rates. Banks and markets being so closely intertwined, this suggests that central banks, need to consider persistently rapid growth of money and credit aggregates as early warnings of financial imbalances and thus to monitor a wider set of indicators, not just inflation. In this respect, the ECB's policy framework stands out for its comprehensive approach.

But the turmoil has also highlighted weaknesses inherent in the financial system. I will focus on those that relate most closely to this crisis and to the interplay between banks and markets. I see four main themes.

Underestimation of Risk

The turbulence has revealed a general underestimation of risk.

Credit risk has been particularly hard to assess, partly for technical reasons and partly because of information issues. In many instances the models used to value illiquid assets exposed to credit risk, such as ABS, proved to be inadequate, because they were based on backward looking assumptions - for example on the behavior of real estate prices - or because the available data did not cover a full business cycle yet, as required for sound statistical analyses. And for many instruments the payoffs turned out to be surprisingly non-linear. Although in principle investors could rely on rating agencies, in these conditions valuation becomes almost a matter of faith – especially when volatility is high.

Both market and funding liquidity risks were grossly underestimated. In the originate-to-distribute (OTD) model, originators increasingly fund themselves with securities issues, often short term, rather than with deposits. Hedge funds do create liquidity, but only as long as they can add leverage, an ability that was called into question just when credit became tight. Finally, many investment strategies were prone to herding in the face of the shock, again depleting liquidity exactly when it was most needed.

Having sold protection from liquidity shocks to other intermediaries, banks were severely affected when markets froze. Eventually, they became reluctant to lend even to one another and started to hoard liquidity, avoiding resort to central bank liquidity because of the stigma attached to it. In this case, what was rational for each individual bank led to an increase in the system's exposure to liquidity shocks.

Perverse incentives were a factor in the general underestimation of risk. To match competitive pressures and retain high origination volumes, originators eased their lending standards. Rating agencies relied on default models that proved to be inadequate for structured finance collateralized by subprime debt and were slow to address internal conflict of interests from the high fees they collected on rating these products. Leveraged investors piled up opaque instruments and sold the enhanced performance as reflecting their skill rather than higher risk (in their parlance "selling beta as alpha"). High-powered remuneration schemes linked to short-term performance induced traders, sellers of structured products, and asset managers to take excessive risks and pocket the gains, leaving others to clean up the mess.

Complexity

A second lesson is the unforeseen consequences of complexity. Complex structured products, coupled with highly complex financial conglomerates, made it extremely difficult to assess and locate risk, let alone manage it. Tail risk was magnified by leverage, which in turn had increased on the back of favorable macroeconomic and funding conditions.

In our globalized system, the risk of contagion has increased. Shocks originating in a specific segment (subprime lending in the US) have traveled swiftly across markets in unforeseen ways. Price drops for one instrument created uncertainty, even panic, for similar securities; forced selling to meet margin requirements increased the downward pressure on prices. Shocks were also propagated internationally, affecting money markets and currency swap markets. Banks discovered that they were much more closely linked to one another and to other institutions than they expected. Complexity of the financial system frequently concealed interrelations and created the illusion of diversification, while in fact assets and portfolios became if anything more highly correlated.

The business model that contributed both to the extraordinary growth of the financial services industry and to its complexity is now under stress. In particular, the very substantial losses incurred by some major international banks cast doubt upon the performance of their risk management systems. Often the growth in the sheer size of these institutions did not carry improvements in efficiency and economies of scale and scope.

Pro-Cyclicality

The subprime crisis erupted after a long period of low risk premia and high leverage; many of the loans granted close to the peak were often of poor quality. As financial market conditions worsened, investors abruptly cut back on lending and leveraged position-taking. Both the initial "financial euphoria" and the subsequent sharp pull-down created excesses, instability and distortions in the process of intermediation, imposing considerable deadweight costs on the financial system and the economy at large.

The pro-cyclical behavior of the financial system arises from several sources. Valuations performed under fair value accounting might not provide an accurate representation of fundamental values at times of acute crisis and frozen markets. The alternative is obviously not to go back to historical cost, but to give firms and auditors guidance as to the scope for judgment and for use and disclosure of fundamentals-based valuation techniques when markets are unavailable. However, any such guidance to be "fair" should be both symmetric, i.e. hold in both good and bad times, and fully transparent. Risk-based capital requirements for banks may also impart a pro-cyclical bias to the financial industry, exacerbating the contraction of lending that might result from a weakening economy. The increased reliance on wholesale funding markets, as opposed to customer deposits, may strengthen the feedback between the availability of financing and asset prices. Another potential source of pro-cyclicality is the common use of short-term incentives for trading and sales functions at banks and hedge funds, which may induce excessive risk-taking in good times and – more generally - herd behavior that exacerbates market fluctuations.

Financial innovation

Recent events have shown that financial innovation also has drawbacks. While innovation has positive effects when it completes markets, improves risk allocation or reduces transaction costs, it can also wreak financial havoc. This applies, for example, when products are devised in order to exploit loopholes, regulatory arbitrage or informational asymmetries for the benefit of some parties to the detriment of others, as was probably the case with some of the most opaque instruments.

While it is extremely difficult to distinguish in advance between the products that improve resource allocation and efficiency and those that make markets riskier, opaque and unduly complex, this is an issue that regulators and market participants alike will need to address. The crisis has demonstrated that market discipline was overestimated and market failures underestimated.

Challenges for Banks

In the years preceding the crisis, the profitability of the leading financial institutions had increased sharply, thanks to a large volume of loans originated and sold, an increase in leverage and an expansion in revenues from complex financial services. Careful scrutiny of this business model is now essential. The restructuring processes announced so far, coupled with capital injections, are generally guided by two main principles: to increase efficiency and improve risk management.

Efficiency

Large banks have begun to refocus their strategies, adapting to the economic outlook and business prospects and reducing balance-sheet size, chiefly by disposing of non-core assets.

In the immediate, this has entailed a rescaling of activities and corresponding staff cuts. This is an unavoidable step for intermediaries, as deleveraging impacts on their profitability. However, downsizing and cost reductions enhance efficiency only if they are accompanied by policies to retain talented resources. The main risk is a brain drain and the depreciation of banks' human capital.

The business mix of these major players could also change in response to the turmoil. Some financial engineering may have lost appeal, while traditional, more stable sources of funding such as retail deposits may have become more valuable. Meanwhile, some of the large, complex international institutions have proven to be less diversified than their size suggested.

These developments - together with the sharp differences between banks in profitability and capital availability that have emerged since the crisis - could well induce further corporate restructuring. Consolidation in the industry but also restructuring within individual firms could be effective ways of managing the business mix of banking groups and achieving a more balanced exposure to risks, but so could de-mergers or disposals. Some large global players have already started shedding business units that had proven hard to integrate or had brought no obvious benefits of synergy. The institutions with superior investment and management skills and free capital will be in the position to take advantage of opportunities as they arise.

Risk Management

The convergence between banks and markets has highlighted new sources of risk to the forefront, which emerged fully during the crisis.

Reputational risk has increased. As banks deal with a broader range of products, they stretch their brand to engage new customers. However a problem in any one market damages their reputation globally. In the future, risk management will require looking at any transaction in light of their potential repercussions on the reputation of the whole firm. This is a type of risk that is not easily quantifiable ex ante, but as we have seen it can be very damaging ex post.

The move towards risk distribution and market-based products also involves fiduciary risk. Selling risky instruments to retail clients may have legal and political implications for instance in relation to consumer protection. Banks need to design contracts carefully and clearly, and invest in financial education of their staff and possibly the general public to make sure that customers receive the best advice and that they are fully aware of what they are buying.

Finally, with the diffusion of long-term products operational risk is being pushed far into the future on a large scale. As it is now clear, the implications were not fully understood by banks, and they need to be addressed now. This type of risk can probably be insured against but it cannot be transferred.

The turmoil has also revealed serious weaknesses in the management of traditional risks by core banks, as the Financial Stability Forum Report on Market and Institutional Resilience demonstrates. Best practices can be used as guidance for improvements. Risk management should begin by assessing the consistency of strategy and with the shareholders' risk propensity. In this vein, risk managers should beware not only of unexpected losses but also of unexpected extra profits: yields that are apparently inconsistent with the underlying risks may in fact reflect underestimated risks. Conversely, top management should take into account potential risks stemming from the evolution of markets and industries and institutions from financial innovation into account.

The Board and senior managers must ensure that the risk management function is active firm-wide and that it is truly independent. In fact, Pillar II of the new Basel Accord calls for banks to devote increasing effort to understanding their global exposure to risk within their Internal Capital Adequacy Assessment Process.

Finally, the recent crisis has highlighted the importance of combining different views on risk. No risk model, however sophisticated it may be, is more than an inaccurate proxy of reality, and its underlying assumptions and limitations have to be clearly understood. Stress tests are a valuable, forward-looking tool for gauging the consequences of unexpected shocks; they should stimulate internal discussion within the bank, and spur corrective action where necessary.

The Policy Response by Supervisors and Regulators

The crisis also revealed flaws in the regulatory and supervisory framework. Action to restore confidence and preserve stability is needed. The system of incentives that regulators and supervisors provide through capital and liquidity requirements and oversight should be revised to reduce the scope for regulatory arbitrage and to strengthen market discipline. The potential drawbacks of Basel II, such as an increase in the pro-cyclicality of lending, need to be considered. Supervisors should coordinate to deal with systemically relevant global players – indeed, supervisory colleges for such firms will be in place by year-end.

Basel II: Towards an Integrated Approach to Risk

The crisis prompted a discussion on the adequacy of regulation and supervision. The Financial Stability Forum observed that the limitations and loopholes of Basel I created perverse incentives to transfer risks to unregulated entities, thus fuelling the "conduit/SIV problem". In some cases supervisors may not have been as rigorous and careful in assessing financial innovation as desired.

The Basle II framework provides stronger incentives to align capital requirements with banks' actual risks, by mandating modern risk management techniques and supervisory review of bank practices and by promoting market disclosure. Under Pillar 1, on- and off-balance-sheet exposures are now better incorporated in the calculation of capital requirements; the treatment of securitization is designed to eliminate the incentives for regulatory capital arbitrage. Furthermore, the new prudential rules have the flexibility required to address the challenges of financial innovation, as it is up to each financial institution to adjust its risk management system as its business evolves.

Pillar 2 will allow supervisors to install a pro-active regulatory framework through constant dialogue with banks. This should introduce the right incentives for banks to control tail risk and avoid excessive exposures and concentration. Supervisors need the resources and expertise to assess the risks and the risk control systems of banks and to understand and challenge the bank's internal models. Banks should be encouraged to improve their risk management systems and, under the proportionality principle, to adopt more advanced approaches as their activities become more sophisticated.

Market discipline will also be reinforced, under Pillar 3. During the turmoil, lack of information and delay in disclosure amplified the crisis, undermining market confidence and exacerbating uncertainty. Financial institutions must enhance transparency, adapting their disclosures to reflect evolving market conditions and thereby fostering better alignment of incentives among all stakeholders. These recommendations aim to improve communication between bankers and market participants.

The rapid adoption of the Basel II framework by a large number of countries is essential to strengthen the financial system, but it will be just the first step. Once the Accord is implemented, supervisors will have to monitor the progress and evolution of financial markets and continuously assess the adequacy of the regulatory framework. In fact, this process has already started: the FSF calls for supervisors to strengthen the Basel II capital requirement of complex structured credit products; to apply capital charges to default risk in the trading book; and to raise the capital costs of liquidity facilities granted to conduits/SIVs. Whenever banks bear the bulk of risks stemming from their sponsored vehicles, they need to consolidate those vehicles.

The Issue of Pro-Cyclicality

Much has been done to gauge the effects of Basel II on banks' capital in advance, but a full assessment will not be possible until after its full implementation. We need to examine the volatility of capital requirements and their valuation across the cycle closely. This is not an undesired consequence; indeed, the new regulatory framework actually seeks greater sensitivity of equity to risk. But we need to better understand its interplay with supervisory, market and business practices. For example, the adoption of fair value accounting - a necessary step towards transparency - could amplify pro-cyclical effects.

Over the past few months academics and practitioners have suggested ways of attenuating or eliminating this effect, such as counter-cyclical capital charges that rise as the market price of risk falls, or the Spanish system of dynamic provisioning. These and other proposals should be judged not only by their impact on pro-cyclicality but also by how they fit within the general framework of prudential regulation. All potential systemic effects have to be monitored and action – including updating of risk parameters and the recalibration of the framework – should be taken to strike the right balance between risk sensitivity and pro-cyclicality.

The Supervision of Global Players

National supervisory standards and regulations need to be harmonized to ensure that supervisory practices and regulation do not bias multinational banks' strategic choices. This is crucial to avoid "competition in laxity". Cooperation should progressively reduce differences in national practices and encourage cross-country comparisons in those practices, with a view to developing "best" practices and increasing the effectiveness of supervisory actions with respect to large complex financial institutions.

Cross-border cooperation between supervisors must be enhanced, building on the experience of supervisory colleges. The establishment of an international college for each of the largest global financial institutions is a step in the right direction. In addition, supervisors should try to create occasions for coordinating supervisory assessments and actions and sharing views on exposures and management practices, in order to draw lessons from experience and to develop common benchmarks.

Recent events have highlighted the role of remuneration structures in encouraging excessive risk taking. Incentive schemes often put too much emphasis on short-term revenue and too little on longer-term risks, and struggle to strike the right balance between risk appetite and risk controls. For the sake of an institution's financial stability, its compensation models should be related to long-term, firm-wide profitability. This principle has been unevenly applied across the industry especially with respect to compensation for sales and trading functions. Many banks, heavily hit by the turmoil, are now reviewing their compensation schemes and a number of regulators and supervisors have announced they will intensify their assessment of how banks contain the risks associated with skewed incentives.

Enhanced transparency and proper disclosure to shareholders of compensation policies would help in aligning incentives with long-term goals. The Banca d'Italia has sparked debate within the Italian banking community by issuing a new set of specific rules.

The Role of Central Banks

Central banks have played a key role in managing the crisis. In their new dual role of lenders of last resort to both markets and banks, they prevented a general meltdown of the financial system. But there are also lessons for the conduct of monetary policy. An environment of low interest rates had contributed to excess liquidity, mispricing and misallocation of risk. Central banks should take these effects into account when they set policy rates. In this new financial landscape monetary policy has a financial stability dimension that central banks simply can no longer ignore.

The operational framework for monetary policy has held up well; central banks responded to the crisis swiftly and innovatively. From the start, they have provided very substantial liquidity to commercial banks; they have reviewed their operations in order to increase flexibility and intensify coordination. Some broad trends have emerged: central banks have expanded the number of counterparties that have access to their operations, increased the maturity and frequency of their operations, and enlarged the range of eligible collateral to increase the liquidity of banks' balance sheets. This last objective was also sought through the security swap schemes recently launched by the Federal Reserve and the Bank of England. Innovative measures to ease strains on the dollar market included an agreement between the Fed, the ECB and the Swiss National Bank, that gave Eurosystem and Swiss counterparties direct access to central bank funds denominated in dollars.

Central banks have been generally successful in keeping very short-term rates in line with their reference rate, despite some increase in volatility. They have been less successful in mitigating the strains that have emerged on term money markets, where spreads between unsecured and secured rates have remained wide and volatile. In this respect the lengthening of maturities in central bank operations have limited the wider systemic damage of liquidity strains. But they have not addressed, some of the causes of these tensions, and probably could not have been expected to.

One last issue that central banks need to address is moral hazard. Bailing out one systemically relevant institution comes at the cost of encouraging further risk taking by others. To contain the regulatory burden that comes with the extension of central banks' safety nets, we must ensure that shareholders and senior managers of troubled institutions bear as much as possible the cost of bailouts.

Our general lesson emerges from this crisis: greater discipline by all market participants is the fundamental ingredient in the strength of our financial system.