EXECUTIVE SUMMARY

The events of the past six months have demonstrated the fragility of the global financial system and raised fundamental questions about the effectiveness of the response by private and public sector institutions. While events are still unfolding, the April 2008 *Global Financial Stability Report* (GFSR) assesses the vulnerabilities that the system is facing and offers tentative conclusions and policy lessons. Some key themes that emerge from this analysis include:

- There was a collective failure to appreciate the extent of leverage taken on by a wide range of institutions—banks, monoline insurers, government-sponsored entities, hedge funds—and the associated risks of a disorderly unwinding.
- Private sector risk management, disclosure, financial sector supervision, and regulation all lagged behind the rapid innovation and shifts in business models, leaving scope for excessive risk-taking, weak underwriting, maturity mismatches, and asset price inflation.
- The transfer of risks off bank balance sheets was overestimated. As risks have materialized, this has placed enormous pressures back on the balance sheets of banks.
- Notwithstanding unprecedented intervention by major central banks, financial markets remain under considerable strain, now compounded by a more worrisome macroeconomic environment, weakly capitalized institutions, and broad-based deleveraging.

In sum, the global financial system has undoubtedly come under increasing strains since the October 2007 GFSR, and risks to financial stability remain elevated. The systemic concerns are exacerbated by a deterioration of credit quality, a drop in valuations of structured credit products, and a lack of market liquidity accompanying a broad deleveraging in the financial system. The critical challenge now facing policymakers is to take immediate steps to mitigate the risks of an even more wrenching adjustment, including by preparing contingency and other remediation plans, while also addressing the seeds of the present turmoil.

Chapter 1—Assessing Risks to Global Financial Stability

Chapter 1 documents how the crisis is spreading beyond the U.S. subprime market—namely to the prime residential and commercial real estate markets, consumer credit, and the low- to high-grade corporate credit markets. The United States remains the epicenter, as the U.S. subprime market was the origin of weakened credit standards and was the first to experience the complications arising from the associated structured credit products. But financial institutions in other countries have also been affected, reflecting the same overly benign global financial conditions and—to varying degrees—weaknesses in risk management systems and prudential supervision. Industrialized countries with inflated house price levels relative to fundamentals or stretched corporate or household balance sheets are also at risk.

Emerging market countries have been broadly resilient, so far. However, some remain vulnerable to a credit pullback, especially in those cases where domestic credit growth has been fueled from external funding sources and large current account deficits need to be financed. Debt markets, particularly for external corporate debt, have felt the impact of the turbulence in advanced countries and costs of funding have risen and further shocks to investors' risk appetite for emerging market assets cannot be ruled out if financial conditions worsen.

Losses stemming from credit deterioration and forced sales, as well as reduced earnings growth, have significantly tested the balance sheets of both banks and nonbank financial institutions. Chapter 1 revisits and extends the analysis of subprime-related losses in the October 2007 GFSR and projects that falling U.S. housing prices and rising delinquencies on mortgage payments could lead to aggregate losses related to the residential mortgage market and related securities of about $565 billion, including the expected deterioration of prime loans. Adding other categories of loans originated and securities issued in the United States related to commercial real estate, the consumer credit market, and corporations increases aggregate potential losses to about $945 billion. These estimates, while based on imprecise information about exposures and valuation, suggest potential added stress on bank capital and further writedowns. Moreover, combined with losses to nonbank financial institutions, including monoline bond insurers, the danger is that there may be additional reverberations back to the banking system as the deleveraging continues. The risk of litigation over contract performance is also growing.

Macroeconomic feedback effects are also a growing concern. Reduced capital buffers and uncertainty about the size and distribution of bank losses, combined with normal credit cycle dynamics, are likely to weigh heavily on household borrowing, business investment, and asset prices, in turn feeding back onto employment, output growth, and balance sheets. This dynamic has the potential to be more severe than in previous credit cycles, given the degree of securitization and leverage in the financial system. Thus, it is now clear that the current turmoil is more than simply a liquidity event, reflecting deep-seated balance sheet fragilities and weak capital bases, which means its effects are likely to be broader, deeper, and more protracted.

Macroeconomic policies will have to be the first line of defense containing downside risks to the economy, but policymakers need to move on broader fronts. A key challenge is to ensure that large systemically important financial institutions continue to move quickly to repair their balance sheets, raising equity and medium-term funding, even if it is more costly to do so now, in order to boost confidence and avoid further undermining the credit channel. Equity inflows have already been forthcoming from various investors, including sovereign wealth funds, but more equity infusions will likely be needed to help recapitalize institutions.

In addition to forceful monetary easings by a number of major central banks, liquidity has also been provided to money markets at various maturities to ensure their smooth functioning. These actions, in some cases coordinated across central banks, have been supported by a strengthening of their operational procedures. Looking forward, recent developments suggest that central banks need to reflect further on the role that monetary policy may have played in fostering a lack of credit discipline and to improve their instruments for relieving liquidity stress in today's more global financial system. However, the immediate priority facing policymakers in some mature market countries is to address vulnerabilities to systemic instability in ways that minimize both moral hazard and potential fiscal costs. In addition to an examination of underlying causes, it will be important to address private sector incentives and compensation structures so that a similar buildup of vulnerabilities is less likely in the future.

Chapter 2—Structured Finance: Issues of Valuation and Disclosure

The proliferation of new complex structured finance products, markets, and business models exposed the financial system to a funding disruption and a breakdown in confidence. Chapter 2 investigates in some detail how and why this set of instruments has had such an adverse effect on financial stability. In particular, it examines the implications for financial stability that arise from the valuation and accounting practices for structured credit products, both at origination and subsequently. The implications for bank balance sheets of the market pricing of assets during times of stress or shallow markets are also discussed. Because credit rating agencies continue to play a large role in how these products are structured and valued, the chapter examines how the ratings are produced, finding that improvements in the models that rating agencies use should be considered.

Aside from uncertainty surrounding their valuation and accounting, the business funding model for structured credit products appears to have been flawed. These instruments were frequently housed and financed in bank-associated off-balance-sheet entities, such as structured investment vehicles (SIVs) and conduits. The second part of Chapter 2 investigates the business and regulatory incentives in setting up such legal entities and the failure to address their risks in the context of banks' risk management systems—that is, the piecemeal perimeter of risk consolidation was evidently too narrow for the risks to be properly assessed. Although asset-liability maturity mismatches are a common feature of the banking business, these highly leveraged SIVs and conduits took on extreme maturity mismatches. They relied too heavily on wholesale markets for funding, suggesting in turn that adverse incentives and a lack of transparency were complicit in the strains that arose. This also suggests that if risks are allocated where they are borne and adequate capital is held against such risks, these entities may be much less viable—at least in their current form—as a business model.

Chapter 3—Market and Funding Illiquidity: When Private Risk Becomes Public

As the crisis progressed from a funding problem for SIVs and conduits to a widespread reduction in interbank liquidity, liquidity risk management systems within banks were implicated. Chapter 3 looks at the nexus between market liquidity (the ability to buy and sell an asset with a small associated price change) and funding liquidity (the ability of a solvent institution to make agreed-upon payments in a timely fashion). It finds that some new instruments may have increased the potential for adverse "liquidity spirals" in which market illiquidity leads to funding illiquidity and vice versa. Empirical work supports the notion that relationships between funding and market liquidity, both within the United States and among mature economies, have intensified during the crisis period, whereas prior to the summer of 2007 such linkages were practically nonexistent. Correlations between several emerging market debt and sovereign prices and U.S. funding markets also show marked increases during the crisis, suggesting such financial markets continue to be highly interconnected during crises.

Chapter 3 notes that trends in the status of large banks in advanced countries show these banks have less protection against a liquidity event than in the past. The reliance on wholesale funding and the benign financial environment permitted financial firms to become more complacent about their liquidity risk management systems and "underinsure" against an adverse liquidity event, depending more heavily on central bank intervention for their liquidity problems. Similarly, bank supervisors had been focused on the implementation of Basel II, and the Basel Committee had only recently begun to re-examine liquidity risk issues.

Lower liquidity in funding markets has induced unprecedented intervention by central banks to ease strains in the interbank money market. Chapter 3 evaluates the success of such efforts, focusing on the actions of the Federal Reserve, the European Central Bank (ECB), and the Bank of England. The ability to provide liquidity to a broad array of counterparties using a relatively diverse collateral pool aided the effectiveness of the ECB's liquidity operations. The Federal Reserve had to alter its procedures to provide liquidity to the banks that needed it and to reduce the stigma attached to the use of the more widely available discount window. The Term Auction Facility has worked better, and additional facilities have been established recently to further contain liquidity pressures. Chapter 3 attempts to empirically gauge the effectiveness of emergency liquidity support and finds that Federal Reserve and ECB actions were helpful in reducing the volatility of money market interest rates, though the impact on spread levels appears to have been small.

Conclusions and Policy Initiatives

Although the growth and prosperity of recent years gave ample illustration of the benefits of financial innovation, the events of the past eight months have also shown that there are costs. Credit risk transfer products—innovations that were meant to disperse risk broadly—were not always used to move risk to those best able to bear it. In fact, a surprising amount of risk has returned to the banking system from where it was allegedly dispersed. Even though the GFSR and others warned of higher leverage embedded in the new structured credit instruments and higher risk-taking, banks (and other financial institutions) now appear to be far more leveraged than most had anticipated. As well, regulation and supervision of these new instruments and techniques did not keep pace.

What follows are a number of short- and medium-term recommendations relevant to the current episode. Several others groups and fora—such as the Financial Stability Forum, the Joint Forum, the Basel Committee on Banking Supervision—are concurrently developing their own detailed standards and guidance, much of which is likely to address practical issues at a deeper level than the recommendations proposed below.

In the short term...

The immediate challenge is to reduce the duration and severity of the crisis. Actions that focus on reducing uncertainty and strengthening confidence in mature market financial systems should be the first priority. Some steps can be accomplished by the private sector without the need for formal regulation. Others, where the public-good nature of the problem precludes a purely private solution, will require official sector involvement.

Areas in which the private sector could usefully contribute are:

- **Disclosure.** Providing timely and consistent reporting of exposures and valuation methods to the public, particularly for structured credit products and other illiquid assets, will help alleviate uncertainties about regulated financial institutions' positions.
- **Bank balance sheet repair.** Writedowns, undertaken as soon as reasonable estimates of their size can be established, will help cleanse banks' balance sheets. Weakly capitalized institutions should immediately seek to raise fresh equity and medium-term funding even if the cost of doing so appears high.
- **Overall risk management.** Institutions could usefully disclose broad strategies that aim to correct the risk management failings that may have contributed to losses and liquidity difficulties. Governance structures and the integration of the management of different types of risk across the institution need to be improved. Counterparty risk management has also resurfaced as an issue to address. A re-examination of the progress made over the last decade and gaps that are still present (perhaps inadequate information or risk management structures) will need to be closed.
- **Managerial compensation structures.** Incentives that may act to shorten the horizon of top management of deposit-taking financial institutions need corrective action. Ideally, compensation at such regulated financial institutions should provide incentives to correct risk management failings early, provide for adequate capital and liquidity buffers, and generally take decisions that enhance the long-run viability of the firm so as to lessen systemic risks.

Short-term official sector actions would be most helpful in the following areas:

- **Consistency of treatment.** Along with auditors, supervisors can encourage transparency and ensure the consistency of approach for difficult-to-value securities so that accounting and valuation discrepancies across global financial institutions are minimized. Supervisors should be able to evaluate the robustness of the models used by regulated entities to value securities. Some latitude in the strict application of fair value accounting during stressful events may need to be more formally recognized.

- **More intense supervision.** Supervisors will need to better assess capital adequacy related to risks that may not be covered in Pillar 1 of the Basel II framework. More attention could be paid to ensuring that banks have an appropriate risk management system (including for market and liquidity risks) and a strong internal governance structure. When supervisors are not satisfied that risk is being appropriately managed or that adequate contingency plans are in place, they should be able to insist on greater capital and liquidity buffers.
- **Special stability reports.** To help reduce uncertainty and correct negative public misperceptions, especially in the current context of illiquid, hard-to-value structured credit securities, special stability reports could be helpful. Such reports could usefully draw on relevant supervisory information, assess current risks objectively, and highlight plans to address vulnerabilities in the countries involved.
- **Early action to resolve troubled institutions.** The public sector should proactively stand ready to promptly address stress within troubled financial institutions. In such cases, early remedial action or intervention may be warranted.
- **Public plans for impaired assets.** National authorities may wish to prepare contingency plans for dealing with large stocks of impaired assets if writedowns lead to disruptive dynamics and significant negative effects on the real economy. The modalities of doing so will differ across countries and sectors, but successful instances in which fire sales of impaired assets have been prevented could usefully be emulated.

For emerging market countries, policy actions should focus on lowering vulnerabilities to the knock-on effects from mature markets. Specifically, banks in countries experiencing rapid credit growth funded by external sources will need to develop robust and realistic contingency plans to address reductions in such funding. Countries that have relied on external funding should expect to see domestic pressures develop if international liquidity becomes scarce. Financial market supervisors in locations where housing prices have experienced run-ups could usefully re-examine how foreclosures would be handled and whether the legal setting is conducive to a smooth unwinding of excesses. Nearly all emerging market countries should review the reliability and depth of detail in financial institutions' public disclosures and the robustness of their accounting frameworks as uncertainty about the health of major financial institutions breeds financial instability. Emerging market supervisors, regulators, and central banks should review their own contingency plans—particularly those related to managing liquidity disruptions. Steps should be taken with home supervisors of foreign banks to coordinate such plans and ongoing supervision.

In the medium term...

More fundamental changes are needed over the medium term. Policymakers should avoid a "rush to regulate," especially in ways that unduly stifle innovation or that could exacerbate the effects of the current credit squeeze. Moreover, the Basel II capital accord, if implemented rigorously, already provides scope for improvements in the banking area. Nonetheless, there are areas that need further scrutiny, especially as regards structured products and treatment of off-balance-sheet entities, and thus further adjustments to frameworks are needed.

Given their role in the crisis, structured finance and the originate-to-distribute business model of securitization require a careful examination of what needs to be fixed. It is important to note that securitization, per se, was not the problem—it was a combination of lax underwriting standards in the U.S. mortgage market, the concomitant extension of securitization into increasingly complex and difficult-to-understand structures, collateralized by increasingly lower quality assets, and a favorable financial environment in which risks were insufficiently appreciated. In retrospect, not enough capital was allocated to cover these risks. Although Chapter 2 does not attempt an exhaustive analysis of the adverse incentives that led to the extreme growth in structured finance underpinning the crisis, some tentative policies can be put forward.

The private sector could usefully move in the following directions:

- **Standardization of some components of structured finance products.** This could help increase market participants' understanding of risks, facilitate the development of a secondary market with more liquidity, and help the comparability of valuation. Standardization could also facilitate the development of a clearinghouse that would mutualize counterparty risks associated with these types of over-the-counter products.
- **Transparency at origination and subsequently.** Investors will be better able to assess the risk of securitized products if they receive more timely, comprehensible, and adequate information about the underlying assets and the sensitivity of valuation to various assumptions.
- **Reform of rating systems.** A differentiated rating scale for structured credit products was recommended in the April 2006 GFSR. Also, additional information on the vulnerability of structured credit products to downgrades would need to accompany the new scale for it to be meaningful. This step may require a reassessment of the regulatory and supervisory treatment of rated securities.
- **Transparency and disclosure.** Originators should disclose to their investors relevant aggregate information on key risks in off-balance-sheet entities on a timely and regular basis. These should include the reliance by institutions on credit risk mitigation instruments such as insurance, and the degree to which the risks reside with the sponsor, particularly in cases of distress. More generally, convergence of disclosure practices (e.g., timing and content) internationally should be considered by standard setters and regulators.

The official sector should examine the following areas where the application of various standards may have systemic consequences.

- **Greater attention to applying fair value accounting results.** The prospects of forced sales triggered by fair value below some threshold will need to be examined thoroughly. Ways of guiding firms to review the elements underlying the valuation without being forced to sell would be helpful. The extent to which such fair value "triggers" are either encouraged or mandated in regulation and supervisory guidance would need to be re-evaluated. It is the role of prudential supervision to judge the reliability of various methods used to establish fair values, especially when a marked-to-model approach is used. Accounting standard setters will increasingly need to take into account the financial stability implications in their accounting practices and guidance.
- **Incentives to set up SIVs and conduits.** In principle, Basel II provides less incentive than Basel I to transfer risks to such entities for the purpose of lowering regulatory capital charges. Nonetheless, a strict implementation of Basel II by national supervisors, possibly armed with stronger guidance regarding conditions for risk transfer and appropriate capital relief, will be needed. Accounting standards setters, in cooperation with supervisors, should revisit consolidation rules to address incentives that may encourage a lack of transparency regarding off-balance-sheet activities and risks.
- **Tighten oversight of mortgage originators.** In the United States, broadening 2006 and 2007 bank guidance notes on good lending practices to cover nonbank mortgage originators should be considered. The efficiency of coordination across banking regulators would also be enhanced if the fragmentation across the various regulatory bodies were addressed. Consideration could be given to devising mechanisms that would leave originators with a financial stake in the loans they originate.

Another area in which weaknesses contributed to the crisis is financial institutions' liquidity management. It is now obvious that various factors may have encouraged financial institutions to insufficiently protect themselves against an adverse liquidity event—a situation that needs to be addressed.

For financial institutions, the crisis has provided many important lessons including those involving:

- **Liquidity risk management.** Firms will need to factor in more severe price jumps ("gapping") and correlation movements in their market risk models, employing adjustments to risk measures where possible. Better stress tests could be undertaken with longer periods of funding illiquidity and improved contingency plans. More transparency regarding how liquidity risk is managed within the firm could be available to investors.
- **More realistic assumptions about the liquidity of complex structured securities.** Firms' reliance on highly structured securities to generate collateral proved problematic during the crisis. Greater availability on balance sheets of highly liquid assets to use as collateral could allow institutions easier access to funding sources during periods of stress.

Financial regulators and supervisory authorities also need to take a more active role in reviewing liquidity management issues and supervisory guidance, and considering other regulatory improvements.

- **Strengthen existing international liquidity guidance.** The Basel Committee's Working Group on Liquidity is already considering how to strengthen its existing guidance in this area, and prompt review would be welcome. The use of multiple currencies for funding globally active banks suggests that a more unified approach to liquidity management across countries may be needed.
- **Monitoring best practices.** A better method of monitoring progress toward achieving "best practices" for liquidity management (e.g., those of the Basel Committee, the Joint Forum, and the Institute of International Finance) could help prevent gaps across institutions. If progress is insufficient, a Pillar 2-like system may be needed, whereby supervisors are tasked with ensuring that adequate bank liquidity management systems are in place and that banks hold sufficient liquidity buffers and have well-formulated contingency plans.

Monetary authorities as well need to review their operational practices in light of the crisis. This event has required unprecedented liquidity infusions to the interbank market and the use of operational instruments that had not been used before. Central banks should now converge to policies that have worked during the crisis to improve the functioning of interbank markets and better distribute liquidity. Such policies to be considered are the following**:**

- **Broader range of collateral.** To be expedient, central banks need to be able to operate with a wide range of collateral, perhaps agreeing on collateral that could be posted at multiple central banks. However, central banks will need to have a well-established collateral pricing policy to avoid taking undue credit and liquidity risks onto their own balance sheets.
- **Wide group of counterparties.** Central banks should have a wide group of counterparty banks established during normal times that are eligible to receive liquidity during stressful times. Altering this group during periods of stress can signal that certain banks, with perhaps newly acceptable collateral, are receiving preferential treatment.
- **Maturity structure of liquidity provision.** Operational procedures enabling the provision of liquidity at different maturities can be helpful. However, altering the maturity profile of the central bank's balance sheet needs to be accompanied by communication indicating how this is consistent with the monetary policy strategy.
- **Better coordination among financial overseers.** Central banks and others with oversight over financial institutions could usefully develop closer ties and improved information

sharing so as to better anticipate liquidity and solvency difficulties. Central banks should ensure that they have continuous access to individual bank information so as to be able to independently judge the health of potential counterparties.

- **Supervising responsibility and enforcement.** Supervisors must be provided with sufficient legal powers and resources. For example, if institutions answer to multiple regulators and supervisors, the scope for ambiguity and arbitrage is magnified. Therefore, it would be preferable if supervisory and enforcement responsibilities for a single institution were to be vested in a single agency. Cross-border information sharing and coordination among such bodies should also be strengthened.

In sum, there are a number of areas that require increased attention by private market participants and the public sector. For its part, there is room for the International Monetary Fund to more actively promote best practices for financial crisis and central bank liquidity management. These issues are covered in IMF Financial Sector Assessment Programs, and even greater efforts will be made to apply them in the IMF's bilateral and multilateral policy advice.

As the crisis is still unfolding, lessons are as yet incomplete. Nonetheless, some issues need to be addressed urgently—shoring up the confidence in financial institutions should be a priority. Other issues will require more reflection and study so as to minimize unintended consequences of regulations or supervisory practices.