Final Report of the IIF Committee on Market Best Practices: Principles of Conduct and Best Practice Recommendations

Financial Services Industry Response to the Market Turmoil of 2007-2008

July 2008

On behalf of the Board of Directors of the Institute of International Finance (IIF) and the IIF's Committee on Market Best Practices, we are pleased to present this *Final Report* to the international financial community.

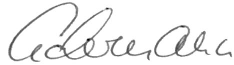
This *Report* represents the culmination of the work of the Committee and its Working Groups and reflects extensive deliberation by the IIF's Board of Directors. Since beginning its work after its mandate was announced at the Institute's 25th Anniversary Membership Meeting in October 2007, the Committee has focused on developing a consensus on tangible means for the industry to address weaknesses in business practices and market structures.

This *Report*, which builds upon the direction of thinking presented in the *Interim Report* released in April 2008, sets out Principles of Conduct, Best Practice Recommendations, and Considerations for the Official Sector in the areas of risk management; compensation policies; liquidity risk, conduit, and securitization issues; valuation issues; credit underwriting, ratings, and investor due diligence in securitization markets; and transparency and disclosure issues. The *Report* also announces the establishment of an industry-based Market Monitoring Group to provide ongoing assessment of global financial market developments for future vulnerabilities.

The Institute is grateful for the remarkable commitment of member firms' time and resources in the development of this *Report*. A list of Committee and Working Group members is included in the *Report*.

The adoption of the Principles of Conduct set out in this *Report,* and the implementation of its Best Practice Recommendations, must now be priority actions for the Institute's member firms. Rather than an exercise in self-regulation, the *Report* has evolved from the recognition that many industry practices need strengthening and that institutions have to take primary responsibility for correcting weaknesses. The Principles of Conduct provide a sound framework and the Recommendations a clear roadmap for firms as they strengthen or reinforce their risk management and other key business practices. At the same time, it is clear that regulators and the official community are adapting regulatory incentives as they deem necessary to strengthen the stability of the system.

We welcome the ongoing dialogue with members of the regulatory community as they move forward with their decision making and believe that the combination of official action and industry-based initiative holds real promise for enhancing the resilience and prudential characteristics of the system while preserving its dynamism and robustness.



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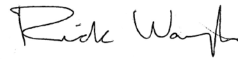

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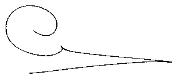

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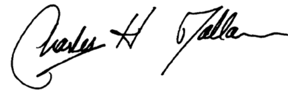

Charles H. Dallara

Managing Director
Institute of International Finance

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EXECUTIVE SUMMARY

The global financial market turbulence triggered by the U.S. subprime crisis is nearly a year old, and despite some positive signs, significant weaknesses persist with serious consequences for the financial system and the global economy. IIF members and a wider range of financial institutions have made strenuous efforts to address shortcomings in business practices that contributed to the turbulence. At the same time, the official community has responded aggressively with liquidity facilities, extraordinary actions where needed, and supportive macroeconomic policy adjustments to address the consequent economic weakness. Nonetheless, more is needed and should be expected from the industry to help restore confidence in markets, regain credibility of the industry and, importantly, reduce the likelihood of recurrence of a crisis.

Recognizing this early on, the IIF Board of Directors established a Committee on Market Best Practices (the "Committee") in October 2007, with a view to galvanizing the industry's efforts to develop practical ways to address market weaknesses and rebuild confidence via actionable Best Practice Recommendations based on core Principles. Senior professionals from more than 60 financial firms came together to determine what went wrong and what needed to be done to fix a system with serious deficiencies. The establishment of the Committee was also intended to facilitate the industry's cooperation with the official sector, the need for which was clearly recognized by both sides.

From their first meeting in New York in November 2007, the Committee and its Working Groups have worked in a cooperative spirit and with sustained intensity. In particular, the ability of members of the Committee and Working Groups to come to a workable resolution of many difficult issues reflects their conviction that it is first and foremost the responsibility of private financial firms to help reestablish the sound, efficient, and resilient global financial markets that are so vital to sustained growth of the world economy.

Although the results of the Committee's efforts reflect solely the views of the private sector, the Committee has consulted with the official sector, including, in particular, major central banks, key regulatory bodies, and finance officials. Global financial markets are among the most dynamic elements of the world economy, and ensuring their smooth functioning requires close and sustained cooperation of the private and official sectors.

This *Final Report of the IIF Committee on Market Best Practices: Principles of Conduct and Best Practice Recommendations—Financial Services Industry Response to the Market Turmoil of 2007–2008* concludes the work of the Committee. It follows the publication of the *Interim Report* in April of this year, and represents the broad agreement of the Committee, strongly supported and endorsed by the IIF Board of Directors and other IIF member firms, on the need to address the many shortcomings highlighted by the market turbulence.

IIF members, which account for a significant proportion of the global financial industry, are convinced that adherence to the Principles of Conduct set out in this *Report,* and implementation of the Recommendations as appropriate to their business, will go some distance toward restoring confidence in financial markets and helping to avert future systemic crises.

The Principles of Conduct, Best Practice Recommendations, and Considerations for the Official Sector are presented in several sections, following the division of labor of the Working Groups that developed them:

I. Risk Management
II. Compensation Policies
III. Liquidity Risk, Conduit, and Securitization Issues
IV. Valuation Issues
V. Credit Underwriting, Ratings, and Investor Due Diligence in Securitization Markets
VI. Transparency and Disclosure Issues

Additionally, the *Report* includes a section on the formation of a Market Monitoring Group (MMG).

The *Report* concludes with Appendices containing further background information and, for ease of reference, statements of the Principles of Conduct, Best Practice Recommendations, and Considerations for the Official Sector without the discussion included in the main text. An overview of each of the sections of the *Report* follows.

A. INTRODUCTION

As the Committee's work concludes, the end of the financial market turbulence is not yet in sight, with a global economic slowdown and inflationary pressures stemming from oil and food prices weighing heavily on market sentiment. How soon this turbulence will end depends in large part on the continued attentive policies of major central banks, regulators, and governments and, critically, on determined efforts by financial firms to strengthen their business practices in accordance with the Principles of Conduct and Best Practice Recommendations contained in this *Report*. There is a deep commitment by firms to do just that. That said, the development of industry standards does not represent an attempt at self-regulation; such efforts can identify and accelerate the spread of best practices, but cannot be—and are not meant to be—a substitute for supervisory oversight of regulated financial institutions. Such standards must therefore work in the context of an effective and efficient regulatory framework, adjusted as deemed necessary by the official sector, to rebuild market confidence.

B. PRINCIPLES OF CONDUCT AND BEST PRACTICE RECOMMENDATIONS

In seeking ways the industry could improve its overall performance and enhance the resilience of international markets, the Committee sought both to state general principles for the industry as a whole and to provide benchmarks as to many specifics that firms should use in refining their internal practices. Hence, this *Report* differentiates Principles of Conduct, which capture broad standards of conduct and approaches that reflect core values and goals, and underlying Best Practice Recommendations, which provide specific benchmarks for best practices. By taking a rigorous approach to applying the Principles of Conduct and using the Recommendations outlined in the *Report* to manage their risks and enhance standards, firms can individually and collectively provide a substantial industry contribution to an international financial system characterized by both innovation and greater stability.

C. IMPLEMENTATION OF PRINCIPLES OF CONDUCT AND BEST PRACTICE RECOMMENDATIONS

To establish the program of this *Report* as a clear industry priority, the IIF Board of Directors has endorsed the Principles of Conduct for adoption by IIF members, and strongly encourages each firm to apply the Best Practice Recommendations as appropriate in the context of its business model, goals, and regulatory requirements. These Recommendations will provide useful points of reference for firms to review their performance and adapt

practices and standards as needed. Looking ahead, firms are committed to undertaking regular, critical self-assessment and to adjusting plans and policies accordingly. The industry's implementation of the Principles of Conduct and Best Practice Recommendations will be monitored by the IIF. The Institute also plans to offer programs aimed at extending and deepening industry understanding of the Principles of Conduct and Best Practice Recommendations as needed.

D. PRINCIPLES OF CONDUCT, BEST PRACTICE RECOMMENDATIONS, AND CONSIDERATIONS FOR THE OFFICIAL SECTOR

For purposes of this Executive Summary, the following sections discuss jointly the Principles of Conduct, Best Practice Recommendations, and Considerations for the Official Sector, all of which are integral to the industry's approach to helping establish sound, resilient, and dynamic financial markets to serve the global economy.

I. RISK MANAGEMENT

In the run-up to the U.S. subprime crisis, a buoyant environment of ample liquidity and strong economic growth provided the groundwork for a very competitive market for financial firms. In this environment, which was also marked by significant disintermediation, some firms overestimated the market's capacity to absorb risk. Failures in risk management policies, procedures, and techniques were evident at a number of firms—in particular, the lack of a comprehensive approach to firm-wide risk management often meant that key risks were not identified or effectively managed. The recommendations summarized below are the result of a careful examination of what went wrong, as well as practices that proved to be effective.

Governance and risk culture: It is critical for governance to embed a firm-wide focus on risk. The recent market turbulence has provided clear evidence that effective cultivation of a consistent "risk culture" throughout firms is the main enabling tool in risk management. Each firm should:

- Make clear that senior management, in particular the CEO, is responsible for risk management;
- Establish the Board's essential oversight role in risk management; and
- Develop a robust risk culture that is embedded in the way the firm operates, covering all areas and activities, with accountability for risk management being a priority for the whole institution.

Risk appetite: Within a solid risk management framework, a key part of an effective risk culture is the articulation of the firm's risk appetite, and ensuring its adoption throughout the firm. Firms should:

- Set basic goals for risk appetite and strategy and monitor how performance against such strategy evolves over time;
- Consider all types of risk when defining risk appetite, including risks arising from the firm's relationship to off-balance-sheet vehicles; and
- Involve finance and treasury functions as well as risk management in monitoring the overall risk of the firm.

Role of the Chief Risk Officer: One clear lesson highlighted by the market turmoil is the need to strengthen risk management organizational structures. In this context, firms should:

- Assign responsibility for risk management to an officer at a senior level, in most cases a Chief Risk Officer (CRO) who should have sufficient seniority, voice, and independence from line business management to have a meaningful impact on decisions;

- Ensure that the CRO has the ability to influence key decision makers in the firm, with the mandate to:

  - Ascertain that the firm's risk level is consistent with its risk appetite, providing a thoughtful, integrated view of the overall risks the firm faces;
  - Support senior management by identifying developing risks, concentrations, and other situations that need to be examined via stress testing and other techniques; and
  - Assess and control the firm-wide risk level; the CRO role should comprise a number of advice, control, management, and technical oversight functions, including analysis of new-product development.

Risk models and integration of risk management areas: In a market environment that can produce unprecedented price moves and significant tail risks, seemingly robust risk management tools and frameworks can prove inadequate. Hence, firms should:

- Ensure that risk management does not rely on a single risk methodology, and analyze group-wide risks on an aggregate basis;
- Ensure that metrics are calibrated appropriately to risk-appetite horizons;
- Take into account the technical limitations of risk metrics, models, and techniques (such as Value at Risk, or "VaR");
- Eschew the "silo" approach toward risk management and take a comprehensive approach to risk, integrating strands such as credit, market, operational, liquidity, and reputational risk; and
- Ensure that the appropriate governance structure that has been adopted is actually implemented in managing day-to-day business.

Securitization and complex structured products: During the recent stressed market conditions, a number of firms experienced losses in their activities related to securitization and complex structured products far in excess of what their models would have predicted. This underscores that firms should:

- Take an integrated approach to risk management when dealing with complex structured products;
- Ensure that risk models "look through" the direct risk and capture the market sensitivities of underlying exposures (e.g., mortgages); and
- Identify and manage risk concentrations—all sources of risk (including off-balance-sheet risks) should be effectively captured.

Stress testing: During the market turbulence, the magnitude of losses at many firms made it clear that their stress-testing methodologies needed refinement—stress testing was not consistently applied, too rigidly defined, or inadequately developed. To help alleviate these problems, firms should:

- Ensure that methodologies identify and take into account firm-wide risk concentrations, and integrate these methodologies into the overall risk management infrastructure;
- Ensure that stress testing includes pipeline and warehousing risks (e.g., with respect to securitizations and leveraged loans) where the firm accumulates positions for subsequent distribution, incorporating events that might delay or prevent such distribution;
- Take account of the effect of stresses on exposures to leveraged counterparties—including potential cross-correlation of the creditworthiness of such counterparties with the risk of the assets being hedged; and
- Take an analytical and exploratory approach to stress testing. Its results should be taken into account in decision making,

but such output should be used with an appropriate degree of judgment and not made automatic.

II. COMPENSATION POLICIES

Market evolution related to the originate-to-distribute model and the growth of structured products led some firms to apply compensation incentives that exacerbated the weaknesses that contributed to the market turmoil. This section outlines approaches by which firms could realign these incentives. Firms should:

- Base compensation on risk-adjusted performance, and align incentives with shareholder interests and long-term, firm-wide profitability;
- Ensure that compensation incentives do not induce risk-taking in excess of the firm's risk appetite;
- Align payout with the timing of related risk-adjusted profit;
- Take into account realized performance for shareholders over time in determining severance pay; and
- Make the approach, principles, and objectives of each firm's compensation policies transparent to stakeholders.

Examples of compensation techniques: The Principles of Conduct on incentives are intended to provide a directional framework for the design of compensation policies. The *Report* provides a number of examples of compensation techniques, some of which firms have already adopted, which may develop into best practices over time. Firms could:

- Structure a significant portion of incentive pay in the form of deferred or equity-related components;
- Use risk-adjusted compensation metrics, including adjustment for the cost of capital;
- Distinguish an employee's "alpha" value added to profits from advantages provided by the firm (e.g., a low cost of funding);
- Link a more material portion of pay packages to the risk time horizon;
- Review policies and performance periodically to maintain alignment of compensation policies with the firm's risk appetite;
- Ensure effective management oversight to guard against manipulation and arbitrage of the compensation metrics chosen; and
- Make incentives for risk-takers as comparable as possible across firms' business groups.

III. LIQUIDITY RISK, CONDUIT, AND SECURITIZATION ISSUES

The Committee's review of liquidity management challenges posed by the unprecedented strains since last summer confirms the validity of the recommendations on liquidity risk from the IIF's March 2007 Report, *Principles of Liquidity Risk Management*. Accordingly, the first and foremost task in this area is for firms to ensure appropriate implementation of those recommendations as updated in the present *Report*. Key recommendations of that report underscore that firms should:

- Have an agreed-upon and well-communicated strategy for day-to-day liquidity risk management, approved by the Board of Directors and executed by an effective management structure; and
- Establish robust methodologies to monitor and manage their funding strategies—by currency, maturity, and jurisdiction, among other categorizations, given the importance of the analytical framework.

Challenges of liquidity risk management: There are no simple metrics or ex-ante quantitative measures that can provide adequate liquidity safeguards or adequate disclosure for internal or regulatory requirements. Instead, liquidity risk management practices should be tailored to each firm's business model and the extent to which it participates in liquidity-dependent securitized

markets. Among many other Recommendations, firms should:

- Diversify asset portfolios held for liquidity purposes, optimizing access to diversified funding sources; and
- Ensure that their liquidity risk management procedures maintain a comprehensive, group-wide view of liquidity requirements.

Internal transfer pricing: Recent events highlight the importance of effective internal transfer pricing, by which firms can create incentives for business lines to act in full cognizance of the liquidity risks their operations incur. Firms should:

- Create a well-understood and resilient liquidity risk culture, so that liquidity issues are taken into account in planning, product design, and decision making; and
- Ascertain that information on liquidity risk is appropriately disseminated to relevant departments.

Liquidity risk stress testing: To facilitate adjustment to changing market conditions, firms should emphasize the key role played by stress testing in liquidity risk management. Firms should:

- Tailor their funding liquidity risk management practices to their business models in light of recent experience;
- Ensure that stress testing includes contingent liquidity exposures; and
- Examine through stress testing and analysis the conditions under which their balance sheets might expand during times of stress, and consider contingency plans for such eventualities.

Market liquidity: During the recent market turbulence, problems arose most often from market liquidity issues. Thus, firms that rely on market funding—in particular secured funding, including from securitization of assets or use of conduits—need to evaluate asset liquidity and potential reputation risks under stressed market conditions. Firms should conduct rigorous contingency planning for market-risk developments, working with the official sector to the extent practicable.

Considerations for the official sector on liquidity: Central banks played an essential role in restoring resilience to financial markets by providing liquidity during the recent market turmoil. Looking ahead, the Committee makes a number of suggestions, including the following:

- Recently developed instruments (such as term auction, securities lending, and swap facilities) should be made parts of central banks' toolkits and harmonized further across national systems;
- Central banks should consider providing greater clarity of their roles with respect to market-related liquidity needs; and
- Central banks should consider continued expansion and harmonization of eligible central bank collateral, which is increasingly critical to liquidity in an integrated, international market system.

A key issue is that liquidity regulation should be based on qualitative risk management guidance, rather than specific quantitative requirements. Recent events have strengthened the Committee's conviction that the use of a simple, standardized measure of funding liquidity risk to derive additional capital requirements would be unlikely to yield a result that would be truly risk-based or mitigate liquidity risk in any meaningful way.

Structured finance vehicles: There has been considerable discussion, including in the official sector, of the risk inherent in off-balance-sheet vehicles. Key points underscored by Principles of Conduct and Best Practice Recommendations include:

- Exposure to structured finance vehicles such as conduits should be captured in liquidity

planning, disclosure, and management; and
- Sound liquidity risk management requires the inclusion of formal contingent obligations to off-balance-sheet vehicles and a clear appraisal of the potential impact of supporting such vehicles.

Additionally, the Recommendations emphasize that:

- Firms' risk management and governance procedures should carefully assess all material potential exposures to securitization products and formal commitments to off-balance-sheet vehicles, including exposures to guarantors of transactions (such as monoline insurers);
- There should be a periodic look-through analysis of securitized assets, providing the firm with early-warning signals of deterioration in underlying assets or other emerging securitization risks; and
- If managed in accordance with appropriate implementation of the Recommendations, securitization in its various forms should remain available as a highly useful capital management tool.

IV. VALUATION ISSUES

Fair-value accounting is an essential element of global capital markets, fostering transparency, discipline, and accountability. However, during the recent stressed market conditions, illiquidity made valuation of many instruments much more challenging. As assets became less liquid, market participants needed to shift to indirect or model-based valuation methods. In addition, thin markets made observable market prices scarce or less reliable, and more volatile.

Management and governance of the valuation process: A suite of Principles of Conduct and Best Practice Recommendations aims to help firms provide more stable, transparent, and better-understood valuations, promoting market confidence. Firms should:

- Maintain robust valuation processes in accordance with applicable accounting and regulatory guidance, incorporating critical expert judgment and discipline;
- Have an appropriate governance framework for valuations, including relevant functions such as risk management, finance, and accounting policy;
- Have an internal governance structure that ensures independence of control and validation of valuations, while providing for regular involvement of the CRO and CFO;
- Ensure that all relevant parties apply judgment in valuation, and not rely solely on mechanical processes; and
- Ensure consistent application of independent and rigorous valuation practices, making use of all available modeling techniques and conducting regular review of independent price-verification procedures and sources.

Infrastructure: Price discovery for valuation purposes should be available through multiple channels. Among the measures recommended for improvement are:

- Broader, more widely available and easily accessible price utilities;
- Appropriate controls over prices submitted to such utilities; and
- Inputs from as broad a range of sources as possible.

Valuation under difficult circumstances: In illiquid or rapidly shifting markets, relying on price quotes for valuation can be problematic. For this and other reasons, firms should:

- Ensure that model validation and price verification are a regular part of the firm's conduct of business;

- Ensure that valuations are subject to sensitivity analysis, taking care to recognize that dealer quotes and market prices may become dated and unreliable during periods of low liquidity; and
- Have appropriate infrastructure in place to allow them to move from observable market prices to other valuation techniques when necessary given market conditions.

Technical and high-level dialogues are needed: A comprehensive technical dialogue among firms and with auditors, rating agencies, investors, analysts, accounting standard setters, and supervisors should address valuations in the mark-to-market environment. This dialogue should include such topics as:

- Use of indirect inputs;
- Sound practice for model-based valuations;
- Clarification of boundaries between levels in the valuation hierarchy; and
- Examination of the valuation of financial instruments in highly volatile or illiquid markets.

The Committee welcomes the establishment of the International Accounting Standards Board's (IASB) expert advisory panel, focusing on guidance on valuing financial instruments when markets are no longer active.

More broadly, financial and monetary authorities should lend their support to a high-level dialogue of all relevant parties with both leading accounting standard setters to consider the effects of fair-value accounting and mark-to-market techniques during times of illiquid markets. Such a high-level dialogue is important and could, among other things:

- Consider medium-term improvements that might be made on the basis of lessons learned during the market turmoil;
- Address concerns about the extent to which current interpretations of mark-to-market requirements may contribute to pro-cyclical effects or market uncertainty;
- Examine suggestions for enhanced valuation methodologies in dislocated market conditions, or suggestions that would allow assets to be reclassified from "trading" to other categories in accordance with defined conditions if management's judgment is that the trading classification is no longer appropriate, while noting that there is no consensus within the industry on either of these suggestions; and
- Include symmetrical examination of mark-to-market issues with consideration of the use of valuation adjustments to reflect liquidity and other risks in good times as well as in downswings.

It is recognized that any such discussion would take time and that significant changes of interpretation should not be introduced under disrupted market conditions, when they might be misunderstood.

The Committee stresses that the current work on convergence of standards (on valuation as well as on other issues) by U.S. and international accounting standard setters should remain a priority and should be intensified.

V. CREDIT UNDERWRITING, RATINGS, AND INVESTOR DUE DILIGENCE IN SECURITIZATION MARKETS

The Committee has analyzed the originate-to-distribute process from origination through ratings to institutional investors' investment decisions. There are a number of parties involved in this process, each with their own duties and responsibilities. In its review of the run-up to the credit market turmoil, the Committee found that, as the number of structured deals grew, standards weakened at various points in the chain. Pressures to keep costs down resulted in risk assessment becoming an excessively model-driven process.

The Committee also found that credit rating agencies have not conveyed the full array of risks embedded in structured products, nor have they provided sufficient information on the assumptions behind the modeling of particular structures or on the sensitivity of outcomes to small changes in assumptions. In addition, the Committee found that while more sophisticated institutional investors were able to make their own assessments to a degree, many less sophisticated investors relied excessively on ratings when making credit decisions.

In this section, the Principles of Conduct and Best Practice Recommendations have been developed for three distinct constituencies as detailed below.

Originators/Sponsors, Underwriters, and Distributors

Underwriting standards: The decline in lending and due diligence standards in the U.S. mortgage and mortgage-backed securities (MBS) markets weakened the broader "originate-to-distribute" model and undermined market confidence more generally. The Committee's Best Practice Recommendations thus focus on strengthening due diligence processes within firms and suggest that:

- Firms involved in the originate-to-distribute process should apply the same credit due diligence standards at all stages regardless of whether assets are to be held on the books or distributed;
- Appropriate monitoring and disclosure of the performance of the underlying collateral should be carried out on an ongoing basis; and
- For leveraged loans and other corporate obligations, careful attention to basic credit principles is needed, while the risk implications of negotiated terms of lending transactions also require close analysis.

Considerations for the official sector on credit underwriting: There are certain legal obstacles, including privacy concerns, that may impede the dissemination of critical data (such as loan-to-value distribution for mortgages). The lack of full and easy access to information may have contributed to the recent problems in the MBS market. To help alleviate this problem, the authorities should consider reviewing and amending regulation that makes it difficult to release loan-by-loan information to all market participants (e.g., certain provisions of Rule 144A in the United States). Non-bank mortgage originators should be held to the same standards as banks with regard to consumer protection and loan origination.

Rating Agencies[1]

With regard to rating agencies, the Committee has focused on the due diligence carried out on underlying borrower quality, possible conflicts of interest in the firms and the rating agencies, as well as the amount of information disclosed by rating agencies. Discussions have also been carried out with the investor community to assess their needs.

Following the onset of the turmoil, several rating agencies have moved to increase the independence of the credit rating process, transparency, and quality of credit ratings. The *Report* makes a number of Recommendations to the rating agencies, designed to complement the reforms already under way and to restore market confidence in the rating process. These Recommendations include:

- **Improving structured product rating reports.** There is little doubt that one of the roots of the subprime crisis has been a lack of understanding of the burgeoning array of

[1] See footnote 40 in the *Report*. Some of the rating agencies do not feel comfortable supporting all the Recommendations and discussion in the *Report*.

complex structured products, leading to an over-reliance on ratings as a proxy for asset quality. To improve the quality of rating reports, on which so many investors rely, the Committee recommends that:

- Such reports should clearly articulate key risk factors and provide greater clarity for structured product ratings (e.g., definition of default and probability of default [PD] should be set out clearly).

- **Establishing internal processes and monitoring of rating models.** Modeling for some structured products is very sensitive to assumptions. Small changes in, for example, correlation, could have a significant effect on the product's rating. Given the essential role of models used to rate structured products, the Committee recommends that:

  - Standards should be adopted by rating agencies regarding internal processes for independent internal validation and monitoring of the models used to rate structured products; and
  - Independent monitoring units within the agencies should review the reasonableness of the assumptions and stress tests for structured products against ongoing performance data on the loans in the pools as well as any changes in qualitative factors.

- **Establishing external review of the rating process.** Many market participants question whether internal review of rating models is sufficient. The Committee has taken the view that the agencies' internal processes for monitoring and validation of models and assumptions should be as robust as those required for firms. Accordingly, the Committee recommends that:

  - An external mechanism be created to develop standards and review rating agencies' internal processes to assess their adherence to such standards.

  The Committee considers that such external review is essential for the credibility and reliability of ratings, and therefore supports the Committee of European Securities Regulators' (CESR) recommendation of creating an international rating agencies' standard setting and monitoring body.

- **Introducing different rating symbols or a scale for structured products.** Rating agencies currently use the same rating scale for structured products and for less-complex securities such as corporate bonds. While comparability of rating scales across products is useful, differentiation of ratings by symbols or a separate scale could highlight the different characteristics of complex structured products—which in stressed market conditions can have much higher rating and price volatility than, for example, corporate bonds. Therefore, while recognizing that there are mixed views regarding the merits of a separate rating scale, the Committee joins the Financial Stability Forum (FSF), International Organization of Securities Commissions (IOSCO), and the U.S. Securities and Exchange Commission (SEC) in the view that:

  - Rating agencies should develop a different or additional scale (and/or system of symbols) for rating structured products.

Investors

The recent market turbulence made it clear that many market participants relied too heavily on ratings when investing in structured products; some, in fact, simply did not have adequate resources to conduct the necessary due diligence themselves. To help address this issue, the Committee has made a number of Recommendations

for institutional investors' use of ratings, particularly for structured products.

- **Enhancing investor due diligence:** The Committee recommends that investors should:
  - Conduct their own due diligence on structured products with respect to their investment mandates, horizons, and risk appetites and not rely solely on ratings in making investment decisions;
  - Develop robust in-house risk assessment processes that would enable them to conduct a thorough analysis of structured products before making investment decisions, and establish better governance and valuation processes with regard to investment in structured products;
  - Ensure that they have sufficient technical skills and resources to understand the products and conduct in-house risk assessment.

Considerations for the official sector on ratings: Given the evident problems with investor over-reliance on ratings, the official sector should consider reviewing and revising regulations that may create artificial requirements or inducements for investors to rely on credit ratings. In this regard, the Committee supports a similar recommendation of the FSF, which concludes that regulations and supervisory rules should not "induce uncritical reliance on credit ratings as a substitute for … independent evaluation."[2] Some regulators have already begun a review process of their investment rule requirements—for example, the SEC in late June 2008 made proposals to diminish official references to credit ratings and to encourage investors to pay close attention to what ratings actually mean.

[2] Financial Stability Forum, *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, April 7, 2008, 38.

VI. TRANSPARENCY AND DISCLOSURE ISSUES

In the wake of the credit market turmoil, the Committee recognizes that restoration of confidence requires more accessible and useful information about products and transparency on the part of firms. However, it is always important to distinguish the purposes of disclosure. While target users of different types of disclosures of course overlap, they also respond to different needs. Product and transaction disclosures, aimed primarily at investors in such products, are intended to provide a sound basis for investment decisions. Accounting disclosures are traditionally intended for a known set of users, in large part represented by investors in the equity or debt obligations of a firm. Other disclosures, such as under Pillar 3 of Basel II, while importantly aimed at the market and generally with the goal of reinforcing market discipline, are intended as much for transaction counterparties as investors. Finally, of course, disclosures to rating agencies and especially to supervisors should appropriately include much more information than should be made public or would be useful.

Keeping the purposes of disclosure in focus will help contain the serious problem of information overload. Too much information can be, and has been, as much a source of opacity as too little. Thus, all disclosure Recommendations should be understood as subject to the qualification that disclosures should be kept "relevant and useful" for their intended purposes and users. The Committee has considered specific concerns about the transparency of structured products and of the firms' positions and risk management practices and accordingly has developed Principles of Conduct and Best Practice Recommendations on a broad range of issues.

Structured product level: The Committee makes several Recommendations to increase transparency at the structured product level, which include:

- The development of a short-form summary of the offer document that would highlight key characteristics of an offering and make it simpler for investors to understand the risks of products they are purchasing. Additionally, such a summary of risk factors would help investors evaluate ratings of structured products independently and provide additional variables to use in investment mandates, as well as ratings;
- Global harmonization of market definitions and structures, which would greatly assist the future development of the structured product market;
- Development of harmonized principles for transparency and disclosure of structured products across major markets; and
- Adoption of common platforms and technology—such as data portals—to improve access to information on structured products.

Considerations for the official sector on structured products: Efforts by the private sector to improve transparency and dissemination of information will be greatly facilitated if supported by the regulatory and accounting bodies. Accounting standards for structured products should be clear and consistent, without significant divergence between accounting and financial reporting standards (particularly International Finance Reporting Standards [IFRS] and the U.S. Generally Accepted Accounting Principles [GAAP]). Given the global nature of the structured product industry, endorsement from standard setters and regulators of private-sector efforts to standardize market definitions and harmonize disclosure practices is critical.

Financial institution level: Given recent market experience, the Committee believes that many firms need to provide more useful disclosure to their shareholders, counterparties, and regulators regarding their overall exposures—direct and indirect—to securitized products. It recommends that:

- Firms should ensure that their disclosure provides a sufficient overview of their current risk profiles and risk management processes and highlights key changes (from previous periods) to their current risk profile—including their securitization activities. This overview should balance qualitative and quantitative information to provide a useful view of firms' risk positions and perspectives on risk strategy;
- Firms' disclosures should include substantive quantitative and qualitative information about the valuation process, to enhance further transparency;
- Firms should actively participate in efforts with the official sector and standard setters to develop meaningful and comparable disclosures on valuation uncertainties and sensitivities, with a materiality threshold to limit information overload; and
- Firms should ensure appropriate disclosure of qualitative and quantitative information about their liquidity risk management practices and provide meaningful disclosure for material funding requirements for off-balance-sheet vehicles.

Considerations for the official sector on disclosure at the financial institution level: Disclosure under Pillar 3 of the Basel II framework is intended to allow market participants to analyze and compare the risk profiles of individual firms more easily. There is, however, concern that the new types of disclosures mandated by Pillar 3 may not be well understood by the market or may need refinement. This could lead to confusion in the market owing to excessive expectations of comparability. To address these concerns, the official sector should consider working with industry and market participants to improve market understanding of Pillar 3 disclosure.
To be meaningful, requirements for risk disclosure should adopt a risk- and principles-based approach to qualitative and quantitative information.

E. SYSTEMIC RISKS AND THE CREATION OF A MARKET MONITORING GROUP

In a complex and interconnected global financial landscape, the impact of systemic shocks is potentially much greater than in the past—and anticipating such shocks is increasingly difficult. To help address this challenge, the IIF Board of Directors has approved the formation of a Market Monitoring Group (MMG), under the auspices of the IIF. The MMG will serve as a forum for member firms to monitor global financial markets for early detection of vulnerabilities having systemic implications, to examine market dynamics that could lead to financial market strains, and to discuss ways to address such risks.

While recognizing the difficulties inherent in any such endeavor, the MMG will nevertheless aim to assist firms in their risk management and contribute to greater systemic stability through early identification of excesses and stress points in global financial markets. The effort will focus, *inter alia*, on perceived mispricing of risk, crowded trades, and concentration risk, taking into account potential contagion among markets. The MMG is envisioned to include individuals reflecting a broad and balanced mix of functional responsibilities, institutions, and geographic regions with a combination of current market experts and seasoned veterans in global finance.

Findings of the MMG meetings are expected to be presented to the IIF Board and communicated to IIF members. They would be available for use by member institutions as input to their risk management processes and business decision making.

The MMG is expected to provide private-sector interface with various public-sector groups that are engaged in similar monitoring activities, in order to share perspectives and concerns through regular meetings.

F. CONCLUSION

The financial turmoil over the past year has posed serious and far-reaching challenges to the financial industry and the official sector. To both, the experience has been unsettling but instructive. Enormous efforts have been made by all concerned to address the weaknesses that have been revealed and to lay the groundwork for a more resilient financial system. This *Report* represents the Institute's effort on behalf of the financial industry to come to grips with the challenges that have arisen and to help chart a course for the recovery of market confidence and the restoration of the industry's credibility through determined implementation of the Principles of Conduct and Best Practice Recommendations.

The task will not be easy, especially as the global economy has entered a downturn, weighed down by surging commodity prices and rising inflationary pressures, as well as continuing market strains. Nevertheless, the Institute is confident that clear commitment to the Principles of Conduct and financial firms' implementation of the Best Practice Recommendations will help lay the foundation for a stronger industry and more resilient markets. Furthermore, the strength of the industry's commitment is reflected in the establishment and future work of the MMG and in the follow-up initiatives to be taken through the IIF.

Having recognized its share of responsibility for the year-long turmoil that still persists, the financial industry, through the application of the Principles of Conduct and the judicious implementation of the Best Practice Recommendations, will make a substantial contribution to resolving this financial crisis and, more critically, to developing the robust, integrated financial system that is so essential to global economic well-being. The recovery and rebuilding process will take some time, but the financial industry is ready to work with the official sector with a view to ensuring that the reformed financial system has the strength and dynamism to deal effectively with future shocks and, more generally, to underpin global financial stability and sustained growth.

Final Report of the IIF Committee on Market Best Practices:

Principles of Conduct and Best Practice Recommendations

Financial Services Industry Response to the Market Turmoil of 2007–2008

July 2008

A INTRODUCTION

It has been almost a year since the sharp deterioration in U.S. subprime mortgage market conditions began eroding confidence in financial markets, triggering shortly thereafter turmoil of a magnitude not seen in decades. In fact, the turmoil has yet to come to an end, even after months of damage to global credit markets.

Even while attempting to meet incessant challenges, IIF member firms (and the financial industry more generally) have made strenuous efforts to address the shortcomings in business practices that contributed to the market turbulence. However, efforts at the individual firm level, important as they are, are not sufficient on their own to restore confidence, drive recovery of financial markets and industry, and ward off further crises.

Recognizing this early on, the IIF established the Committee on Market Best Practices (the "Committee") last October, with a view to galvanizing the industry's efforts to develop practical ways to address market weaknesses and to rebuild confidence via specific recommendations. Equally important, the establishment of the Committee was also intended to facilitate the industry's cooperation with the official sector, the need for which was clearly recognized by both sides.

The Committee and its Working Groups have focused on the areas of weaknesses in market practices most clearly revealed by the turmoil. These include: inadequate risk management; deteriorating lending standards prior to summer 2007; a decline of underwriting standards with respect to the packaging of structured products and leveraged loans; excessive risk-taking resulting in part from incentive compensation tied to revenue or short-term profitability; undue reliance on poorly understood, poorly performing, and less-than-adequate ratings of structured products; valuation difficulties as assets shifted quickly from liquid to illiquid; purchase of structured products without full appreciation of the risks; liquidity risk and reputational risk exposure from conduits and structured investment vehicles, with major adverse implications for sponsoring banks; and difficulties in identifying exposures in a world of widely dispersed risks.

There were significant differences in the ways these weaknesses affected different firms. Indeed, many financial institutions, especially those in emerging markets, were able to avoid the major consequences of the market stress. But the overall effects have to date been broad and deep, both financially and economically. The industry as a whole recognizes its responsibility and is fully determined to address these weaknesses.

That determination is reflected in this *Report,* which represents the broad agreement of the industry on the significant changes in practices needed to correct past shortcomings in the areas of risk management; compensation policies; liquidity risk, conduits, and securitization; valuation; ratings process and credit underwriting issues, ratings, and investor due diligence; and transparency and disclosure. IIF member firms, which account for a substantial portion of the global financial industry, are convinced that adherence to agreed market best practices should go some distance toward enhancing the soundness, efficiency, and resilience of financial markets as well as toward preventing recurrence of similar turmoil.

This *Report* contains Principles of Conduct as well as specific Best Practice Recommendations.

These are not only the result of intensive work done by the Committee but also of productive engagement with such public-sector bodies as the Financial Stability Forum (FSF), the Senior Supervisors Group (SSG), and several national bodies, including the U.S. Federal Reserve, the Swiss Federal Banking Commission, and the Financial Services Authority of the United Kingdom. This *Final Report*, which builds on the conceptual work done in the Committee's *Interim Report* of April 9,[3] has much in common with the reports issued by the FSF and the SSG.[4] This should be interpreted as indicative of a broad agreement on what should be the areas of focus and, to a great extent, the actions needed to address revealed weaknesses. However, the *Final Report* solely reflects the views of the private sector.

The Principles of Conduct are intended to provide a broad explanation of the core values and goals that the Committee agrees should guide firms' conduct. These core values and goals underlie the specific Recommendations considered by the Committee to be within the range of industry "best practices" in each area addressed. Recognizing that not all Recommendations may be appropriate to all firms, all jurisdictions, or all products, industry participants should give careful consideration to the Recommendations in light of their particular businesses and circumstances. The Recommendations may therefore need to be adapted based on the considered judgment of each firm's management.

The Committee and the financial industry as a whole are aware of the skepticism in some quarters as to whether a voluntary industry statement of Principles of Conduct and Best Practice Recommendations can credibly ensure a high degree of implementation. The approach described in section C, based on rigorous self-assessment by individual firms and IIF monitoring, will underpin implementation. In addition, recent painful experience and the market discipline by counterparties and investors will reinforce the drive toward consistently higher standards of conduct.

In fact, financial firms' efforts to strengthen their practices are already well under way, in tandem with efforts to raise new capital. These efforts have been matched by sustained and increasingly coordinated liquidity infusion by leading central banks such as the Federal Reserve, the European Central Bank (ECB), the Bank of England, the Swiss National Bank, and the Bank of Canada aimed at alleviating systemic tensions. In particular, the exceptional action the Federal Reserve took in the mid-March episode involving Bear Stearns—a major non-bank institution—has had a particularly strong impact on market sentiment, as it was seen to reflect the Federal Reserve's determination to do all it could to prevent the turmoil from getting out of control.

This historic action changed the course of events, which could have gone into truly uncharted territory. Since that time, some risk indicators, such as credit default swaps (CDS) spreads for financial firms, have shown improvement reflecting, *inter alia*, reduced concerns about counterparty risk. However, financial firms increasingly face challenges stemming from slow global growth and accelerating inflation, in addition to the problems they have been confronting over the past year. The impact of these challenges on credit quality and revenue growth is being factored into earnings prospects, and this is clearly reflected in the weak stock market performance of the financial sector in recent months.

The strong cross currents being witnessed in financial market developments make it uncertain how much longer the turmoil will persist. The critical elements of the answer to that question are continued attentive policies of central banks and, even more important, maximum efforts by financial firms to strengthen their business prac-

[3] Institute of International Finance, *Interim Report of the IIF Committee on Market Best Practices*, April 2008.

[4] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*; Senior Supervisors Group, *Observations of Risk Management Practices During the Recent Market Turmoil*, March 6, 2008; and Senior Supervisors Group, *Leading-Practice Disclosures for Selected Exposures*, April 11, 2008.

tices. To be sure, these are not the only determinants of the way financial markets will perform in the weeks and months ahead, with the weakening of the global economic situation likely to be another key influence. However, in the absence of decisive action by the industry, a lengthy period of subpar performance of financial markets would be a near certainty.

IIF members are also looking beyond the immediate challenge of coping with the current turmoil. To keep the industry on guard against future turbulence, the IIF Board has decided to launch the Market Monitoring Group (MMG) as an industry forum to monitor global financial markets for the early detection of vulnerabilities having systemic implications, and for the examination of market dynamics that could lead to major financial market strains. The findings of the MMG are expected to benefit member firms in enhancing risk management. The MMG is also expected to serve as a more structured industry counterpart to official market monitoring efforts. This *Report* includes an outline of the terms of reference for the MMG.

Now that this *Report* with Principles of Conduct and Best Practice Recommendations has been completed, it is time for implementation. Albeit essential, implementation by leading financial firms of the Principles of Conduct and Best Practice Recommendations can never be a substitute for supervisory oversight. However, the Principles and Recommendations can work within an efficient and effective regulatory framework to help rebuild confidence in the dynamic international financial system that is so vital for global prosperity.

Just as the industry has been striving both individually and collectively to respond to the strains of recent months, so has the supervisory and regulatory community. The focus of the official sector has been on developing policies to promote both sound business practices by financial firms and broad stability of the global financial system. The industry welcomes the work of the regulatory community to form convergent views on such policies. Through ongoing dialogue with the official sector, such as that with the Basel Committee, the industry is fulfilling its role in international efforts to make appropriate changes to the regulatory system. Beyond this, the momentum created by recent events should be used to continue the robust dialogue with the shared objective of developing an appropriate regulatory architecture. Consistent and proportionate regulation, coordinated globally, will be both more effective and provide a more level playing field for regulated firms. The industry is ready to move the dialogue forward to make further progress toward the goals of efficient and effective regulation.

General Notes:

The term "firm" is used in this *Report* as a generic term and may refer to the parent firm and group on a global, cross-border basis or to a subsidiary on a solo basis, as appropriate. Whenever pertinent, references are made to specific entities, such as "branches."

References in this *Report* to the "Board of Directors" or "Board" of a firm should be read with reference to the context of each firm. In some countries, there is a "managing board" or a similar body made up of the most senior level of management, as well as a "supervisory board" or similar entity. In such cases, the term "Board" as used in this *Report* refers to the "supervisory board" or the most senior governing body of the firm.

With regard to the scope of this *Report*, it should be noted that issues of operational infrastructure for over-the-counter derivatives markets, which are discussed by the FSF in its report of April 7, 2008,[5] are not within the scope of this *Report*. This does not reflect any judgment on the importance of market infrastructure issues, but rather the perception that such issues are being well addressed by other private- and public-sector initiatives. Similarly, the discussion of liquidity in Section D.III does not address intra-day liquidity

[5] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 20–21.

risk, pursuant to the discussion of the Working Group on Conduits and Liquidity Risk Issues, as intra-day risk has not been a critical component of the market turmoil. Furthermore, intra-day liquidity risk has been and continues to be subject to intensive examination by the Committee on Payment and Settlement Systems, central banks, and a number of specialist groups.

B PRINCIPLES OF CONDUCT AND BEST PRACTICE RECOMMENDATIONS

The Principles of Conduct capture broad statements of conduct and approach, reflecting core values and goals underlying the Best Practice Recommendations embraced by all firms represented on the Committee. They are to be used to reinforce firms' overall standards of conduct and to provide a framework for the specific Recommendations and their implementation.

The Recommendations reflect practices that the Committee has found valuable and advisable and that often have scope for wider application given the weaknesses seen in some important segments of the industry. These Recommendations may, however, not be appropriate in detail for all firms, all jurisdictions, or all products. The intent of this *Report* is to raise expectations and standards of conduct overall, enabling firms to benefit from peer experience while not imposing a rigid template on a rapidly changing industry, or on firms with very different business models.

Firms need to adapt and develop tailored models and approaches to manage their own risks within an acceptable range of sound practice. In some cases, whether with respect to smaller or emerging-market firms or specific issues in larger firms, a prudent and appropriate approach for their specific businesses may be a well-considered phase-in plan for some Recommendations. In addition, implementation will require a careful weighing of the appropriate risk-based means to achieve the goals of specific Recommendations in light of the Principles of Conduct.

For all these reasons, the Recommendations should be considered sound benchmarks toward which firms should aspire based on their individual circumstances. It should be kept in mind that the Principles of Conduct and Recommendations reflect leading or best practices that are already in place at many firms.

Each firm should assure itself that it is adopting the best applicable practices, with reference to the Recommendations, through review and critical assessment. Senior managements and Boards are encouraged to use the Principles of Conduct and Recommendations to challenge how well their firms are doing and to identify gaps that need attention.

The overall program suggested by this *Report* is an ambitious one for the industry as a whole, and all firms have work to do. As the SSG Report states, even among the most sophisticated firms, some have done better than others at effectively living by "leading practices."[6] But this *Report* also reflects sound practices followed for a long time by many firms, even in the most challenging areas. If the industry as a whole meets the benchmarks set here, it should be able to contribute substantially to a financial system characterized by both innovation and greater stability.

[6] Senior Supervisors Group, *Leading-Practice Disclosures for Selected Exposures.*

C IMPLEMENTATION OF PRINCIPLES OF CONDUCT AND BEST PRACTICE RECOMMENDATIONS

Based upon the recommendation of the Committee, the Board of Directors of the Institute (1) recommends this *Report* to the international financial community; (2) endorses the Principles of Conduct for adoption by IIF members; and (3) strongly encourages that each firm apply the Best Practice Recommendations as appropriate in the context of its particular business model, goals, and regulatory requirements.

The industry's efforts need to be carried out under efficient and effective supervision by the public sector. This *Report* does not propose or in any sense reflect an attempt at "self-regulation"; rather, it aims to support the emerging consensus that a balanced mix of industry corrections, market discipline, reinforced regulatory incentives, and enhanced cross-border supervisory arrangements will provide a sound foundation for stronger firms and more resilient markets. Ultimately, of course, it is a matter for the public sector to determine the balance, but the Institute looks forward, through the *Report* and convincing dialogue, to contributing useful private-sector input to that determination.

To keep a strong focus on these priorities:

- Firms are expected to undertake regular, critical self-assessment and to adjust their planning accordingly;
- The Institute is prepared to offer programs, seminars, and training aimed at extending and deepening industry understanding of the Principles of Conduct and Best Practice Recommendations and assisting with their implementation;
- The industry's implementation of the Principles of Conduct and Best Practice Recommendations will be monitored by the Institute; and
- The Institute's monitoring will include evaluation of whether the Principles of Conduct or Best Practice Recommendations need updating or augmentation as a result of changing market conditions or emerging practices.

As each firm establishes its process of ongoing self-assessment as to how well it is meeting the Principles of Conduct and specific Recommendations, the highest levels of the firm should be involved in the process. This self-assessment should be renewed regularly, at a minimum annually.

While it is not possible to state a specific time horizon for implementation of the overall program of this *Report,* the monitoring process will recognize that some of the Recommendations will need to be phased in over time.

D PRINCIPLES OF CONDUCT, BEST PRACTICE RECOMMENDATIONS, AND CONSIDERATIONS FOR THE OFFICIAL SECTOR

I. Risk Management

From a comprehensive risk management perspective, several factors contributed to market difficulties that have become widely known since July 2007. First, disintermediation and abundant market liquidity led some firms to overestimate the market's capacity to absorb risk. This same buoyant environment resulted in market pressure for high returns in a low-rate context and in high levels of competition among financial firms. This environment in some cases adversely affected senior management's ability to attend fully to recommendations by the risk management departments and encouraged some banks to operate with a false sense of confidence regarding their ability to curtail any excessive risk encountered before it was too late.

Failures in risk management policies, procedures, and techniques were evident in several firms. In particular, the lack of a comprehensive approach to firm-wide risk management was a primary contributing factor to the failure of certain firms to identify their risks. It should be underscored, however, that many firms' risk-management practices responded well to the crisis and were able to mitigate problems, as highlighted by the FSF Report and the SSG's report on risk management practices.[7]

All firms should have a strong incentive to make sure they meet a high standard of risk management. Risk management has become a focus of investor as well as supervisory attention, added to senior management's interest in avoiding future risk management failures. The Best Practice Recommendations here should contribute to the effort of making sure risk management is up to standard, especially at complex, internationally active firms. This is a top priority.

The recommendations sketched out below are the result of a careful examination of "what went wrong" as well as a thorough discussion of banks' practices that were particularly effective during the market turmoil, with reference to the very useful reports of the SSG, FSF and other public-sector bodies. These recommendations cover the following areas: (1) risk management governance issues; (2) risk management methodologies and procedures; and (3) stress-testing issues.

A. ISSUES OF RISK MANAGEMENT GOVERNANCE

Principles of Conduct:

> ***Principle I.i:*** A robust and pervasive risk culture throughout the firm is essential. This risk culture should be embedded in the way the firm operates and cover all areas and activities, with particular care not to limit risk management to specific business areas or to restrict its mandate only to internal control.

[7] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience,* 10.

Principle I.ii: Senior management, in particular the CEO, is responsible for risk management, under the direct oversight of the Board. Both should ensure that the firm has the proper focus on risk, which includes a clear definition of the firm's risk appetite and the constant monitoring of the risk profile in relation to such appetite.

Principle I.iii: To ensure a strategic focus on risk management at a high level, each firm should assign senior management responsibility for risk management across the entire organization. The CRO (or equivalent) should have independence and sufficient seniority to affect decision making in the firm and have access to the Board when needed.

Recommendations:

1. Organizational Focus on Risk

Recommendation I.1: *Firms should establish clear policies that define risk management as the responsibility of each institution's senior management, in particular the CEO, subject to the oversight of the Board. Senior management should be involved in the risk-control process, and both the Board and senior management should regard risk management and control as essential aspects of the business.*

Discussion of Recommendation I.1:

Risk management is vitally important to all financial institutions and should therefore play a prominent role in internal governance policies, structures, and activities. The SSG's Report on risk management practices underscored that firms that performed better in stress not only had good risk management structures but also a culture that gave risk management views appropriate weight in the decision-making process at the highest levels.[8] The Basel II framework highlights the importance of sound governance in regard to risk management and is changing the roles of senior managements and boards. Full implementation of Basel II requirements within firms will continue to improve risk management practices in the industry around the world, especially in emerging markets where modern risk management is relatively new.[9]

Nevertheless, recent events have shown weaknesses in definition and implementation of governance policies in regard to risk management in several firms. Therefore, several aspects of governance call for special emphasis or specific discussion.

Firms' governance policies should be clear as to the role of senior management and the Board. Of particular importance is the oversight role of the Board, which includes ascertaining that senior management has taken effective action to:

- Ensure that the organization has the proper focus on risk;
- Adopt and periodically affirm or revise the firm's "risk appetite" (a useful but not exclusive definition might be the risk of loss that the firm is willing to accept over a specified time horizon at a given level of confidence; risk appetite needs to take into account the firm's business mix and strategy, earnings goals, culture, and competitive position);
- Fully understand at all times and endorse the firm's current risk position and trends vis-à-vis the risk appetite; and

[8] Senior Supervisors Group, *Observations on Risk Management Practices during the Recent Market Turbulence*, 4.

[9] This discussion addresses risk management issues in terms applicable to banks and investment banks; however, generally the same principles are under discussion and development in the insurance sector, with major developments under consideration under the auspices of the International Association of Insurance Supervisors; in the EU (the Solvency II proposals); and under regulations applicable in Switzerland, Japan, the United States, and elsewhere.

- Ensure that the organization has sufficient resources to accomplish its responsibilities for managing risk.

Recommendation I.2: *Boards have an essential oversight role in risk management. In attending to this duty, each Board should:*

- *Include members who have an adequate understanding of risk management. Each Board should be given the means to understand the risk profile of the firm and the firm's performance against it;*
- *Consider, depending on the characteristics of the firm, whether there should be separate audit and risk committees and whether at least some members of the risk committee (or equivalent) should be individuals with technical financial sophistication in risk disciplines;*
- *Set basic goals for the firm's risk appetite and strategy, such as ratings or earnings-volatility targets, with senior management and as guideposts for senior management in implementing risk management policies throughout the firm; and*
- *Review with senior management how the firm's strategy is evolving over time and when and to what extent the firm is deviating from that strategy (e.g., when a strategy resulted in heavy dependence on conduits or on structured products).*

Discussion of Recommendation I.2:

Boards have an essential oversight role in risk management. While all Board members cannot be experts in risk management issues, a fundamental knowledge of basic education on risk management would be advisable. This, of course, presents a challenge, especially given the need to attract incisive individuals with diverse viewpoints to Boards.

It should be stressed, however, that the Recommendations above to strengthen Boards' oversight role are not intended to diminish the basic responsibility of management for the risk management process or to change the roles of managements and Boards as understood in different jurisdictions. Rather, they should be understood as ways in which firms can enhance Boards' attention to risk. The Board's role in the risk-appetite process is discussed further below.

While this Recommendation addresses Board functions and structure, it cannot be over-emphasized that each Board should retain the autonomy to determine its own structure.

Recommendation I.3: *Risk management should be a priority for the whole firm and not be focused only on particular business areas or made a purely quantitative oversight process or an audit/control function. Mutually reinforcing roles within each organization are essential to creating a strong, pervasive risk culture.*

Recommendation I.4: *Risk management should be a key responsibility of the entire business-line management, not just of those businesses that invest the capital of the firm on a proprietary basis.*

Recommendation I.5: *All employees in each organization should have a clear understanding of their responsibilities in regard to the management of risks assumed by the firm and should be held accountable for their performance with respect to these responsibilities.*

Discussion of Recommendations I.3–I.5:

Effective development of a "risk culture" throughout the firm is perhaps the most fundamental tool for effective risk management. Such pervasive risk culture includes mutually reinforcing roles within each organization. Specifically, three kinds of roles under the "three lines of defense" model (business line, finance and the risk control and management departments, and the auditing and other control departments) should exist, each to look at risk from the perspective of its particular discipline. The work of each should complement and reinforce that of the others.

Business lines are, of course, responsible for the risk they generate. This responsibility should guide the way deals and transactions are undertaken and influence the way decisions are made. For example, for credit and market risk, this would include lending and trading units, those who accept counterparty credit risk, those who manage investment activities and accept issuer risk, etc. For operational risk, this would include all parts of the firm; for liquidity risk, it would include those that use the firm's liquidity resources (either directly or on a contingent basis), etc.

In a "risk-culture" environment, all employees should have a clear understanding of their responsibilities vis-à-vis management of risk and be held accountable for their performance in that respect. There is no one standard for how this should be undertaken; each organization should adapt the principle of accountability to its own circumstances.

Examples of business line responsibilities concerning risk management are:

- Support the risk management organization in recognizing and assessing risk;
    - Fully disclose known risks to those charged with assessing or quantifying risks;
    - Be aware of the market environment and its influence on risk; and
    - Recognize and disclose when conditions or assumptions change such that risk should be reassessed.
- Obtain proper approval of all exposures, new products, etc., including those for which the firm accepts contingent exposure;
- Keep risk exposures within limits, and follow policies where limits are breached or where the criteria under which conditional product approvals were granted no longer hold; and
- Accurately represent risk exposures in relevant management-information, risk management and other systems.

Recommendation I.6: *Firms should implement controls to ensure that the governance structure that has been adopted is actually implemented in managing day-to-day business. The regular and predictable functioning of risk management and governance structures is a fundamental element of effective risk management.*

Recommendation I.7: *Firms should establish clear policies so that control and audit functions are independent of organizations whose activities they review. Their responsibility is to provide assurance that line businesses and the risk management organization are complying with internal and regulatory policies, controls, and procedures concerning risk management.*

Recommendation I.8: *The finance and treasury functions should operate in a coordinated and cohesive manner with the risk management function to ensure important checks and balances.*

Discussion of Recommendations I.6–I.8:

Under a comprehensive, "firm-wide" approach to risk, the finance and treasury functions play key roles, primarily from the perspective of a risk-adjusted management of the balance sheet of the firm. In this regard, the finance and treasury functions should:

- Ensure that capital levels are adequately aligned to the risk of the firm;
- Ensure that risk considerations are taken into account during the planning process;
- Monitor the funding of the balance sheet together with the contingent liquidity commitments of the firm; and
- Cooperate in the profit-and-loss evaluation of risk models.

With regard to this last point, the finance function can contribute to risk management by performing a "risk-based P&L explanation," analyzing the sources of profit and loss from a risk perspective and alerting risk management

about unusual results and favorable or unfavorable trends.

2. Organizational Risk Appetite

Recommendation I.9: *The Board should review and periodically affirm the firm's risk appetite as proposed by senior management. In so doing, the Board should assure itself that management has comprehensively considered the firm's risks and has applied appropriate processes and resources to manage those risks.*

Recommendation I.10: *When defining its risk appetite, the firm should be able to demonstrate consideration of all relevant risks, including non-contractual, contingent, and off-balance-sheet risks; reputational risks; counterparty risks; and other risks arising from the firm's relationship to off-balance-sheet vehicles (see conduits and liquidity section).*

Recommendation I.11: *A firm's risk appetite will contain both qualitative and quantitative elements. Its quantitative elements should be precisely identified. Clearly defined qualitative elements should help the Board and senior management assess the firm's current risk level relative to risk appetite as adopted. Further, by expressing various elements of the risk appetite quantitatively, the Board can assess whether the firm has performed in line with its stated risk appetite.*

Recommendation I.12: *Risk appetite should be the basis on which risk limits are established. Limits need to cascade down from the firm-wide level to business lines and divisions, to regions, and to trading desks. Risk-appetite usage should be measured on a global, consolidated basis and constantly monitored against the limits.*

Recommendation I.13: *The firm's risk appetite should be connected to its overall business strategy (including assessment of business opportunities) and capital plan. It should dynamically consider the firm's current capital position, earnings plan, and ability to handle the range of results that may occur in an uncertain economic environment. It is fundamental, therefore, that the risk appetite be grounded in the firm's financials. The appropriateness of the risk appetite should be monitored and evaluated by the firm on an ongoing basis.*

Recommendation I.14: *Firms should involve the risk management function from the beginning of the business planning process to test how growth or revenue targets fit with the firm's risk appetite and to assess potential downsides. There should be clear communication throughout the firm of the firm's risk appetite and risk position.*

Discussion of Recommendations I.9–I.14:

Determining the risk appetite of the firm is an important component of any firm's risk-management framework. Risk management needs to cover the entire business environment and thus requires firms to develop a solid risk framework for thinking about, managing, and mitigating all forms of risk. Used effectively, risk appetite drives risk management philosophy and influences culture, operating style, and resource allocation.

The risk framework begins with overall governance and a strong risk-awareness philosophy that incorporates a sound approach to setting risk appetite and risk limits. There needs to be a set of clear and transparent rules of engagement by which each individual in the firm knows that he or she is expected to abide. Setting risk appetite and having a risk-limit framework that evolves from that risk appetite is one way to define these rules of engagement.

This risk appetite represents the firm's view of how strategic risk-taking can help achieve business objectives while respecting constraints to which the organization is subject. Senior management plays a fundamental role in determining the risk appetite of the firm based on a strategic assessment of the firm's environment and objectives. Boards, in line with their oversight role, should approve the firm's risk appetite. By assigning this

responsibility to the Board, the firm is effectively signaling that the risk appetite should govern the risk-taking activities of all employees and define the boundaries within which the firm's business objectives should be pursued. The Board's responsibility involves understanding the firm's current risk profile and trends vis-à-vis that risk appetite and also monitoring the firm's ongoing performance against its established risk appetite.

An adequate risk-appetite framework also plays an important role in helping the firm to establish risk limits. The choice of how limits and tolerances are calibrated is specific to each firm but may include the expected return profile, stakeholder expectations regarding the amount and type of risk accepted, strategic objectives, the consequences of violating a specific constraint, the size of safety margin desired, and existing or anticipated business activities.

Importantly, setting the risk appetite should be done comprehensively. This requires contemplation of all sources of risk when defining the firm's appetite, including risks of a contingent, non-contractual, or off-balance-sheet nature, as well as reputational risks (see Recommendations III. 8-11). Such an approach is fundamental to ensure that risks are adequately captured and that the firm operates in an environment of full risk awareness. Equally important, this approach provides the means for the firm to manage adequately risk concentrations (see Section 4 of this chapter on Concentration Risk).

Finally, it needs to be understood that risk appetite includes elements that cannot be measured quantitatively. For some risks, there may be no tolerance whatsoever; in some cases, the goal would be to have awareness of risks that cannot be measured on a continuum of rarely occurring events.

3. Role of Chief Risk Officer and Risk Organizations

Recommendation I.15: *Each firm should assign to the senior management–level the responsibility for risk management across the entire organization. In most cases, this would be to the CRO, although institutions may structure themselves differently to accomplish the same end.*

Recommendation I.16: *The CRO should have a sufficient degree of autonomy, be independent of line business management, and have sufficient seniority and internal voice in the firm to have a meaningful impact on decisions.*

Recommendation I.17: *While firms retain freedom to determine their internal structures, firms should strongly consider having the CRO report directly to the CEO and assign the CRO a seat on the management committee. The CRO should be engaged directly on a regular basis with a risk committee of the Board. Regular reporting to the full Board to review risk issues and exposures is generally advisable, as well as more frequently to the risk committee.*

Recommendation I.18: *CROs should have a mandate to bring to the attention of both line and senior management or the Board, as appropriate, any situation that is of concern from a risk management perspective or that could materially violate any risk-appetite guidelines.*

Recommendation I.19: *Firms should define the role of the CRO in such a way that, without compromising his or her independence, he or she is in frequent interaction with the business lines so that the CRO and all risk managers have sufficient access to business information.*

Discussion of Recommendations I.15–I.19:

In the broadest context, the risk management function should be engaged in determining a firm's overall optimal risk usage. Risk management can help steer the firm toward its efficient frontier and is in a unique position to help determine the right business mix to maximize risk-adjusted returns. Decisions on the governance

and structure of a firm need to be closely aligned with its culture, mission, business objectives, and environment. Therefore, it is not only difficult but inadvisable to prescribe specific management and organizational structures applicable to all firms. However, experience has demonstrated that the responsibility of risk management should be assigned to an officer at a senior level, who in most cases should report directly to the CEO.

This responsibility would generally fall on a CRO, who should be provided with an adequate level of seniority in order to affect effectively the decisions adopted in the firm. In this regard, the CRO's presence in the management committee of the firm as well as his/her reporting duties to the full Board (or its risk committee) is advisable. While firms may opt for different ways in which to define the role of the CRO in the organizational structure, it is fundamental that the end result be one in which the CRO has effective ways to influence the key decision makers in the firm. The CRO's advice is, therefore, an essential component of senior management's functions.

Recommendation I.20: *Firms should consider assigning the following key responsibilities to the CRO:*

- *Guiding senior management in their risk management responsibilities;*
- *Bringing a particularly risk-focused viewpoint to strategic planning and other activities of senior management;*
- *Overseeing the risk management organization;*
- *Assessing and communicating the institution's current risk level and outlook;*
- *Strengthening systems, policies, processes, and measurement tools as needed to provide robust underpinnings for risk management;*
- *Ensuring that the firm's risk levels and business processes are consistent with the firm's risk appetite, internal risk policies, and regulatory requirements for risk management; and*
- *Identifying developing risks, concentrations, and other situations that need to be studied through stress testing or other techniques.*

Recommendation I.21: *The CRO should report to senior management and, as appropriate, to the Board or its risk committee, on material concentrations as they develop, discuss material market imbalances, and assess their potential impact on the firm's risk appetite and strategy. The CRO should ensure a thoughtful, integrated view of the overall risks faced by the firm (including related off-balance-sheet vehicles).*

At a more technical level, the risk management function should oversee internal risk-rating systems, segmentation systems, and models, and to ensure that they are adequately controlled and validated. Assumptions behind models, grading systems, and other components of quantification should be recognized, and appropriate updates should be made when assumptions no longer hold.

Recommendation I.22: *The CRO and risk management function should be a key part of analyzing the development and introduction of new products, including the extension of products into new markets. New products with risk exposure, including those for which the bank accepts contingent liquidity or credit exposure, should be explicitly approved by the risk organization.*

Discussion of Recommendations I.20–I.22:

While most internationally active financial institutions have already established the CRO function, it is still important to consider which specific responsibilities should be assigned to such officer. One particularly successful practice has been to define the CRO as the principal advisor to the CEO on issues related to risks materially affecting the firm. Depending on applicable national practice, the CRO may similarly be an advisor to the Board. This responsibility extends to making sure that risk considerations are duly taken into account in key decisions in the firm.

Although each firm should define in detail the responsibilities of the CRO, best practice indicates that a broad responsibility for assessing and controlling the firm-wide risk level is an important element of the role of the CRO. That overall responsibility is in turn split into several functions related to advice, control, and management that together provide integrated and cohesive control over the risk profile of the firm.

Continuous and periodic oversight of the new-product process is particularly important. The time pressures created by recognition of business opportunities and the enthusiasm of line businesses to seize them can make understanding, reviewing, and approving new products challenging from a prudent risk management point of view. There also are valuation and other issues to be dealt with (see Recommendation IV.9). Experience has shown that deep risk management involvement in the new-product process is essential to managing the firm's overall risks (including reputational risks), avoiding unrecognized concentrations, and staying within global risk-appetite limits. This involves not only the need for risk management to understand and review new-product opportunities, but also for exercising close control over the process of developing a product or business as it evolves from its conceptual origins to full development and implementation.

4. Resources for Risk Management

Recommendation I.23: *Firms should ensure that the risk management function has a sufficient amount and quality of resources to fulfill its roles. Senior management should be directly responsible for this, under the oversight of the Board.*

Recommendation I.24: *During the planning and budgeting process, firms should ensure that adequate resources include personnel, data systems, and support and access to internal and external information necessary to assess risk. It is important that the allocation of resources be made under careful cost/benefit considerations as well as proportionality in relation to the firm's size and mix of business.*

Recommendation I.25: *Risk management personnel should posses sufficient experience, qualifications, and status to exercise control responsibilities. Credibility requires market and product knowledge as well as mastery of risk disciplines. In addition, firms should consider establishing some (bi-directional) career crossover between risk and line roles. Doing so will contribute directly to improving mutual understanding and strengthen the risk management function.*

Discussion of Recommendations I.23–I.25:

Recognizing that sound risk management is not only a necessity but also a competitive advantage and an attraction to investors, firms are continuing to invest substantially in the function. It is important, therefore, to underscore the need for firms to include in their budgeting process the expressed goal of building and maintaining a robust and effective risk management capability. Particular emphasis should be placed on attracting the right personnel and providing such personnel with adequate IT capabilities and support.

Providing for risk management capabilities should be understood to be part of the process of building out (and costing) any material new business line or operation.

Furthermore, while there is consensus that constant investment in risk management is needed, it is also important that risk management investment be subject to impact analysis in order to ensure adequate and efficient use of resources. Similarly, regulatory requirements for such investment should be subject to the principle of proportionality.

Finally, career crossover between risk and line roles is particularly important. The benefits of cross-fertilization and avoidance of any "support function" stigmatization of risk and other con-

trol functions should be emphasized in the firm's culture.

B. RISK MANAGEMENT METHODOLOGIES AND PROCEDURES

Principles of Conduct:

***Principle I.iv*:** A comprehensive, firm-wide approach to risk management should be implemented by all firms. Such an approach should allow the firm to identify and manage all risks across business lines and portfolios. Robust communication mechanisms should be established so that the Board, senior management, business lines, and control functions can effectively exchange information about risk.

Principle I.v: The risk management framework of firms should clearly avoid over-reliance on single risk methodologies and specific models. Modeling and other risk management techniques should always be a part of the comprehensive risk-management system and should be applied using expert judgment.

***Principle I.vi*:** Firms should have policies and procedures to identify and manage risk concentrations. In particular, firms should establish procedures and techniques that adequately aggregate risk exposures across the firm regardless of their contingent or non-contingent, on- and off-balance sheet, or contractual nature.

Recommendations:

1. Risk-Identification Issues

Recommendation I.26: *Risk managers should manage and measure risks on the basis of the firm's approved risk parameters, in addition to any regulatory requirements. External ratings of transactions should not be a substitute for a firm's own due diligence processes especially because such ratings may not address the firm's specific issues or not be calibrated to the firm's standards and risk management goals.*

Recommendation I.27: *Firms should explicitly integrate an assessment of relevant elements of the macro-economic environment (e.g., from available research and forecasting) into risk decisions, for example, to identify likely impacts on positions, portfolios, or risk management strategy.*

Recommendation I.28: *Firms should improve, where needed, their approaches to portfolio-level risk management. The identification of the key risk factors and associated risk measures for a specific portfolio allows for the potential impact of changes in market fundamentals to be assessed, thereby facilitating effective risk management.*

Recommendation I.29: *Firms should implement procedures so that portfolio information is designed and organized in a way to facilitate aggregation of a soundly based, firm-wide view of all risks, including concentrations.*

Discussion of Recommendations I.26–I.29:

Several organizations affected by the market turmoil had seemingly robust risk management frameworks but apparently failed to fully appreciate the extent of the risks they were facing. The unprecedented market moves highlighted significant tail risks that were not fully transparent within existing risk methodologies and had, therefore, not been fully factored into risk appetites.

Risk management procedures and methodologies should take into account the specific firm's size, mix of business, and other key characteristics. While regulatory requirements determine minimum components of the risk management infrastructure, firms need to develop their own risk policies that are commensurate with the particular risks that the firm faces and to identify

the key risk factors to monitor given its mix of business, geographic reach, risk appetite, and risk profile. Equally, firms should avoid over-reliance on external ratings (see Recommendation V.14), and in all cases, implement procedures so that back-testing and control are applied to ensure adequate risk measurement and analysis.

In this context, the most important challenge is to ensure sufficient granularity in the calibration of risk factors to capture the various drivers of P&L (in other words, the trading strategy for the portfolio). Portfolio-level risk management allows for the generalization and broad aggregation of risk information.

The use of the risk-factor technique in measuring risk for any given product requires that change in the market price can be explained by corresponding changes in the selected risk factors. The robustness of the risk-factor approach can be verified on an ongoing basis by attribution of the total P&L to the underlying risk factors. Any material discrepancies between the total P&L and the P&L explained by the selected risk factors will demonstrate possible deficiencies in the approach. The ongoing analysis of any such differences therefore provides a control mechanism to ensure that all material P&L risks continue to be identified. As further discussed in Recommendations IV 4–8 in the valuation chapter of this *Report,* it is important for firms to be able to analyze the economic fundamentals of positions, particularly in structured products, as well as to have a full range of direct- and indirect-pricing inputs.

Similar concepts should be applied to positions that are not marked-to-market. Firms should understand the effects of important risk factors on the losses embedded in portfolios managed under accrual accounting and their implications for future provisions and loan losses.

While risk measurement clearly needs to be aligned with portfolio or business-line strategy in order to provide relevant and actionable inputs, the importance of the portfolio view does not imply an overall siloed approach. Rather, good analysis and control at the portfolio level are essential to the construction of a firm-wide view that will, for example, take an aggregate view to avoid unrecognized concentration build-ups.

Recommendation I.30: *Metrics should be calibrated closely to risk-appetite horizons. It may not be sufficient to rely on short-term VaR and long-term economic capital but metrics at other intervals may be necessary depending on the firm's businesses.*

Recommendation I.31: *Widely recognized weaknesses in VaR such as dependence on historical data and inadequate volatility estimates should be explicitly addressed by firms when revising and adapting their VaR methodologies. Back testing and stress testing provide powerful tools to identify VaR shortcomings and offset deficiencies.*

Discussion of Recommendations I.30–I.31:

The industry believes that VaR continues to be an important tool to help firms detect risks arising from changes in market conditions. In general, VaR methodologies remained relevant during the market turmoil. This does not mean, however, that weaknesses should not be addressed, in particular VaR dependency on historical data, which may explain why some models failed to capture recent severe shocks.

Careful and constant review and revision of volatility and other assumptions are also needed. The lack of readily available historical data on implied correlations between MBS spreads on subprime mortgages and implied correlations between subprime mortgage defaults means that firms have been forced to use proxy volatilities that need to be constantly evaluated and reconsidered.

Firms, therefore, should strengthen their back-testing and validation procedures for VaR. Validation of the risk model should include qualitative processes such as model reviews and

quantitative techniques such as statistical analysis. Model validation should be conducted periodically by suitably qualified persons and should form an integral part of use test and risk governance.

The model validation framework provides a mechanism to understand the context in which a model is developed, ensures that the scope is maintained, provides a mechanism to test the model, and sets a forum to explain the limitations of the model with various stakeholders. These findings can be utilized to enhance the model on an ongoing basis so that it remains resilient to changes in the underlying structure of the markets.

For the VaR measure used in many financial institutions, analysis of back-testing results provides a useful mechanism for ensuring robustness. For those institutions that were using a historical-simulation-based VaR approach, the recent market turbulence led to more breaches than were statistically expected. There are many reasons for this lack of correlation, some of which would have to do with assumptions in the historical-simulation approach (which relies on a stable market structure). Some also concern the opening up of "basis" between various curves that were considered homogenous and hence mapped to the same risk factors. In this context, robust model validation can provide a useful means to understand the breaches in terms of the limitations and provide a feedback mechanism to include the basis that is not normally captured into the VaR model. Equally important, periodic review of volatility estimates also may be necessary in order to make them more sensitive to volatility spikes.

Recommendation I.32: *The risk management function should explicitly incorporate in its procedures the limitations of risk metrics and models (e.g., VaR) that are used in the firm. Such limitations should be addressed by qualitative means, including expert judgment. Risk management procedures should explicitly prevent dependence upon single methodologies.*

Discussion of Recommendation I.32:

Risk management decisions should never be based solely on metrics or ratings. Models are powerful tools but necessarily involve simplifications and thus should be approached critically. Therefore, expert judgment and critical analysis are always needed, and the metrics, models, and ratings themselves should not be allowed to become ends in themselves or obstacles to risk identification. Similarly, hedges should not be taken at face value without disciplined examination of which risks can be hedged and consideration of how hedges might perform in stressed conditions.

2. Risk-Integration Issues

Recommendation I.33: *Firms should implement a comprehensive approach to risk, establishing procedures and techniques that adequately integrate different risk strands (in particular, credit, market, operational, liquidity, and reputational risk). Effective communication channels as well as common metrics and IT systems should be put in place in order to achieve a sufficient degree of integration of the different risk areas.*

Recommendation I.34: *Firms should develop, as needed, an integrated treatment of risk in the new-product process. Such an approach should include periodic review of new products. Firms should consider that migration of underlying assets or other relatively subtle changes in a product over time can affect the risk implications of a product or business.*

Recommendation I.35: *Close cooperation between the finance (product control and treasury) and risk management functions is essential for capital management, funding, liquidity, and profit-and-loss analysis.*

Discussion of Recommendations I.33–I.35:

For multiple reasons (e.g., individual firm culture, strategic factors, areas of business focus, mergers), risk management areas may grow independently, and communication channels may not be sufficiently robust. While the industry has achieved high levels of sophistication in its approach to credit, market, operational, and liquidity risk, firms need to make progress in integrating and coordinating their risk management functions.

In some cases, separation between risk areas is not only physical but also is reflected in procedures, techniques, and IT systems. The result is the formation of "silo" approaches to risk, in which credit, market, liquidity, and operational risk are independently managed without sufficient consideration of risk correlations and concentrations.

This "silo" approach to risk may prevent firms from adequately identifying sources of risk or systematically undermine appreciation of the true size of aggregate risk positions. Therefore, an integrated approach to risk is fundamental. Furthermore, with the increase of the complexity of financial products, an integrated approach to risk is particularly important in new-product development activities.

While close coordination and cooperation and possibly integration of the risk functions are important, it is also important to keep in mind that credit, market, liquidity, and operational risk remain separate if allied disciplines. Very few individuals have an integrated command of all; therefore, the goal is to develop an integrated firm view across all risks, keeping in mind that discrete inputs from each discipline are required.

Finally, the importance of close cooperation between the finance and risk management functions cannot be overstated. The two functions can cooperate to set risk-based capital levels, analyze balance-sheet growth, and identify risks affecting certain portfolios (based on P&L analysis and liquidity risks) that have not been priced adequately.

3. Issues Regarding Securitization and Complex Products

Recommendation I.36: *Regardless of whether the business focuses on any specific portion of a securitization or other product chain, risk management should assess risks on an integrated basis, recognizing interdependencies along the product chain, including those aspects in which the firm is not directly involved (e.g., the firm may not be involved in the origination of debt underlying the products it handles).*

Recommendation I.37: *Firms should pay particular attention to risk-integration issues especially in dealing with structured products and other product chains. The adequate measurement of correlations and interdependencies is key to appropriately managing risk in these types of products.*

Recommendation I.38: *Firms should continue developing risk models that specifically address the risks emanating from securitization and other forms of contingent risk. In particular, models should be able to "look through" the direct risk and capture the market sensitivities of the exposures. In this regard, it is fundamental that securitization models specifically address the risk arising from multi-name products.*

Recommendation I.39: *Both the risk management and finance functions should clearly understand the sources and risk/reward implications of P&L effects.*

Consideration for the Public Sector I.A: *Review of the Basel II framework for securitizations is advisable, as recommended in the FSF Report. This review should be done carefully, and will provide opportunities to improve the Accord, in particular, by providing an option for firms to use internal ratings in lieu of or in conjunction with external ratings with respect to securitization exposures, reflecting developing risk management capabilities.*

Discussion of Recommendations I.36–I.39 and Consideration for the Public Sector I.A:

Several firms experienced losses that originated from securitized exposures in a magnitude that far exceeded that indicated by the firms' VaR models. This has reinforced the perception that VaR methodologies need to be further refined to capture "fat-tail" risks and be complemented by stress-testing methodologies. Perhaps more importantly, there is evidence that a specific approach to securitization is needed—continued development of models that adequately capture risk emanating from multi-name products (see Recommendations III.8–18).

One lesson learned from the credit turmoil, in the specific case of securitization, is that the use of well-understood assets (such as corporate bonds) as proxies for the risk of securitizations led to mistakes and underappreciation of risk. Without adequate consideration of multi-name product risks, VaR and even stress testing are not fully reliable in identifying real levels of risk. Greater granularity often will be required in evaluating an asset class view or time series, especially for new or complex products, such as AAA-rated structured products or high-yielding ABS (asset-backed securities).

The importance of a holistic approach to risk management cannot be overemphasized. Firms should adopt a "look-through" approach in cases in which market sensitivity of the underlying exposure and second-order risks could be material. Managing risk from securitized positions and wrong-way (correlation) risks are some examples in which this approach would provide valuable insights (see discussion of Recommendations IV.1–IV.8).

Recommendation I.40: *Risk assessment for new products should consider performance under stress, including both firm-specific and market stress, and new product approvals should include the conditions under which authorization is granted. Examples of conditions include limits, performance requirements, and assumptions that must remain valid. Consideration of reputational risk is also a fundamental component of risk assessment of new products.*

Discussion of Recommendation I.40:

For complex, structured products, several product-design issues require risk management examination and a robust new product approval and monitoring process, including oversight from the most senior levels of the firm. As a general matter, the various disciplines involved in developing complex transactions (e.g., business, legal, compliance, risk, operations, accounting, valuation, and tax) should step back and look at transactions from an integrated, economic point of view over their development from inception to maturity rather than from a series of specialists' viewpoints.

For example, the "triggers" in structured products—ratings, asset-performance, or other tests that suddenly require credit enhancement or liquidation of a vehicle—may, in some cases, have been treated as essentially drafting issues, with insufficient analysis of their potential cumulative effect on the product, holders of interests, or the firm. It is also important to consider the implications of payment waterfalls through tranches, both for the firm's own account and for investors, and to analyze a firm's holdings of all tranches of a given deal on a consolidated basis.

Importantly, risk management should ensure that the organization addresses situations in which limits are breached or in which the criteria under which conditional product approvals were granted no longer hold. By the time new products grow to represent material exposures, the risks should be fully quantified, managed, and reported.

4. Concentration Risk

Recommendation I.41: *Risk concentrations should be adequately identified and managed by all firms. An integrated approach to risk across the firm is fundamental so that all sources of risk (including*

on- and off-balance-sheet risks, contractual and non-contractual risks, and contingent and non-contingent risks, and including underwriting and pipeline risks) will be effectively captured. Models and procedures should be implemented in such a way that they will be able to capture concentration risks to individual obligors, risk factors, industries, geographic regions, and counterparties (including financial guarantors). Firms should also consider risk concentrations in global markets and how those may affect individual firms (e.g., by increasing asset volatility or reducing available liquidity).

Recommendation I.42: *Firms should explicitly take into consideration, when defining their risk appetites and associated limits, the prevention of undue risk concentrations. Limits can play a fundamental role in preventing a firm from building risk concentrations.*

Recommendation I.43: *Risk metrics should include, when appropriate, a notional and asset-class view, recognizing that absolute size of position is important and a consolidated view of positions is essential if held by different trading desks or business units.*

Recommendation I.44: *Firms should develop and continue to refine stress-testing methodologies that adequately deal with risk concentrations.*

Discussion of Recommendations I.41–I.44:

The recent market turmoil demonstrated that several firms did not have in place adequate procedures to identify firm-wide risk concentrations. The losses experienced by some firms as a result of building up risk positions through multiple sources indicate that the ability to identify and aggregate risks on a firm-wide basis may have been unduly overestimated. Similarly, the understatement of risks such as those from leveraged loans and other pipeline risks highlighted failures in comprehensive risk management (see Recommendations V.15 and 16).

This situation may have been exacerbated by a lack of communication and coordination among key control functions (e.g., risk, treasury, finance functions), which led to an over-reliance on risk metrics that were not adequately supplemented with a balance-sheet view of notional risk concentration. In addition, the availability until June 2007 of cheap funding to traders and liberal allocation of balance sheet resources led to the build-up over time of perceived low-risk carry trades involving highly rated and balance-sheet-intensive positions. The drying up of liquidity in ABS (and particularly U.S. residential mortgage backed securities [RMBS]) markets compounded these problems, limiting opportunities to reduce or hedge positions as the crisis unfolded.

Several self-reinforcing techniques and procedures should be employed by firms to build a robust framework that can adequately identify and manage risk concentration. As discussed in Recommendation I.10 of this chapter, firms should start by clearly defining a comprehensive risk appetite. Furthermore, such risk appetite should be accompanied by clear risk limits that operate effectively whenever the risk-taking activities of the firm go beyond the specified appetite.

In addition, in certain circumstances, the use of notional measures can effectively contribute to a firm's ability to spot concentrations that otherwise would have been missed when exclusively analyzing net measures of risk. This—complemented by comprehensive stress-testing techniques—should allow firms to get an accurate firm-wide view of their levels of risk and to manage potential concentrations by either hedging such risks or reducing risk exposures. In particular, stress-testing methodologies should be comprehensive and avoid "silo" approaches that might impair the firm's ability to identify and integrate risks that are building up across portfolios and business lines.

C. STRESS-TESTING ISSUES

Principles of Conduct:

***Principle I.vii*:** Stress testing needs to be approached comprehensively, covering a wide range of risks and correlations among risks. It should be integrated with the overall risk management infrastructure. Policies and methodologies need to be consistently applied throughout the firm and designed in such a way that they effectively evaluate multiple risk factors.

***Principle I.viii*:** Stress testing needs to have a meaningful impact on business decisions. Senior management and Boards have an important role evaluating stress-testing results and their impact on the risk profile of the firm.

Recommendations:

Recommendation I.45: *Firms should develop internal management procedures that make stress testing part of the management culture, so that its results have a meaningful impact on management decisions. Such procedures should discourage mechanistic approaches and promote a dialogue among the business, senior management, and risk function as to the types of stress tests to be performed, the scenarios most relevant, and the impact assessment of such tests (including the consideration of stress-testing results at the moment of determining the risk appetite of the firm).*

Recommendation I.46: *Firms should ensure that their stress-testing methodologies are consistently and comprehensively applied throughout the organization, evaluating multiple risk factors as well as multiple business lines and taking group-wide views as well as business- and entity-specific views. Stress-testing methodologies should be integrated with other risk management tools as well as other internal processes. Equally importantly, methodologies should take into account proprietary models used by different front-office units.*

Recommendation I.47: *Stress-testing methodologies should be used actively to complement and explicitly address the limitations of other risk management tools, including VaR. In particular, given the dependence of VaR on historical data, stress testing should be used to test the risk implications of scenarios on which limited historical data are available.*

Recommendation I.48: *Stress testing should include challenging scenarios. Scenarios should be defined and developed as conditions evolve. Participation of senior management as well as business line staff is fundamental for the adequate definition of such scenarios. Methodologies should balance historical and forward-looking scenarios and avoid static scenarios or ones that no longer reflect market developments.*

Recommendation I.49: *Stress-testing policies should be designed so that the likelihood of severe events is not consistently underestimated and the firm's ability to manage crises in an effective and timely manner is not overestimated.*

Discussion of Recommendations I.45–I.49:

Market turmoil events have highlighted weaknesses at some firms with regard to their stress-testing practices and also weaknesses that might have been better anticipated. Surprise losses of large magnitude show that, at some institutions, stress testing was not consistently applied, too rigidly defined, or inadequately developed. In this regard, firms acknowledge that further refinement is needed with regard to tools that help them identify how their exposures might change as a result of unexpected changes to the firm's environment.

Necessary improvements to stress-testing practices include both technical aspects of how stress testing is carried out as well as specific testing issues related to particular products, in particular complex securitization products.

Further improvement remains necessary as to how firms integrate stress testing with their overall risk management systems and procedures. Equally important, firms should carefully evaluate how stress testing and its results are discussed between the risk management function and senior management. Successful practice demonstrates that firms can reap benefits from active and thorough discussion involving senior management on issues such as the scenarios to be tested. In this regard, policies should also consider the most appropriate way to design and present stress tests to senior management so as to facilitate constructive discussion of the implications of particular stresses.

In addition, a problem for many firms may be the lack of a comprehensive, integrated approach to stress testing (and scenario analysis). While good techniques are in place for stress testing of credit and market risk, methodologies that adequately integrate different risk factors across multiple business units are sometimes lacking. This methodological problem puts a premium on a dialogue on stress testing and its implications among line management, risk management, and senior management that may not always exist.

Furthermore, because current regulations (including Basel II) require the use of stress testing, this methodology may be seen in some cases as a compliance exercise and not fully integrated with firms' internal processes. In addition, deficiencies exist in how stress-testing results are dealt with and how they are used as an ingredient of the risk-appetite-setting process. Correction of this problem requires leadership by the risk management department, but even more importantly, setting a positive "tone at the top" by senior management.

Firms should consider policies so that stress-testing results appropriately influence decision making. While no automatic triggers are desirable (and in particular stop-loss limits tied to stress tests should be avoided, as this could result in a perception of stress testing as an unproductive compliance exercise), it is useful for firms to have clear policies as to how to employ test results. In general, the most salient results should be presented to the firm's senior management and made available to business management to draw attention to particular scenarios in which the firm or a line of business might suffer substantial losses and to suggest possible mitigating courses of action should the possible losses highlighted be in excess of the firm's appetite for such risk.

Recommendation I.50: *Stress testing should play an integral role in assessing the firms' risk profile in relation to its risk appetite and be done across all business activities, risk types, and exposures.*

Recommendation I.51: *Stress-testing methodologies should be designed to deal adequately with risk concentrations. For this purpose, methodologies should be firm-wide and comprehensive, covering on-balance-sheet and off-balance-sheet assets, contingent and non-contingent risks, and all risks independent of their contractual nature.*

Discussion of Recommendations I.50–I.51:

As previously discussed, setting the risk appetite of the firm is an important tool to gain and monitor a firm-wide view of risks. Stress testing is particularly effective in helping firms assess their risk profile against the established appetite. In particular, stress testing can effectively contribute to the aggregation of risks originating from different sources and to the evaluation of the impact of external shocks over the firm's risk profile. Such analysis—to be discussed with senior management and, as appropriate, with the Board—should:

- Assess how the firm's risk profile changes in response to hypothetical changes in risk exposure or concentration, market dynamics, or specific events;
- Be representative of material but plausible risks/events, based on historical experience and expert judgment about existing, emerging, or forward-looking risks. These should include business-cycle stresses as well as event-specific "tail risks"; and
- Assess the magnitude of shocks or events that would be required to cause the firm's risk profile to exceed the established risk appetite.

Summary results for scenario analysis and stress testing should be presented to the Board, including detailed analysis of circumstances that may breach the firm's established risk appetite.

Recommendation I.52: *Stress testing and related analysis should take into account the risk of model error and in general, the uncertainties associated with models, valuations, and concentration risks that may arise through the cycle. Stress testing should be used to explore the assumptions and identify the limitations of models used for pricing and risk modeling.*

Recommendation I.53: *Firms should establish adequate procedures so that stress testing captures risks originating from securitization exposures. In particular, firms should ensure that, when dealing with securitized products, a full set of data related to the underlying assets is obtained so that such data can be incorporated in stress-testing models.*

Recommendation I.54: *Stress testing should include pipeline and warehousing risks (for example with respect to securitizations and leveraged loans) to which the firm accumulates positions for subsequent distribution, and should include events that might delay, change the terms of, or prevent such distribution.*

Discussion of Recommendations I.52–I.54:

Stress testing can play an important role in helping the firm to deal adequately with risks originating from securitization exposures. In particular, stress-testing techniques are useful to complement the deficiencies and shortcomings of other risk tools such as VaR in identifying risk emanating from securitization products, including risks originated from assets in the firm's pipeline.

With regard to pipeline risks, stress testing should consider market-value losses from idiosyncratic and especially systemic factors as well as the possibility that the firm may not be able to sell exposures as planned so that unfunded commitments will result in increasing inventories of exposure subject to value losses. The analysis may recognize factors that mitigate the risks, including adverse change clauses, flex pricing, purchase commitments, hedges, etc. Firms also should consider the risk that mitigation may not be completely effective.

Recommendation I.55: *Firms should continue refining stress-testing techniques that take into account the effect of stresses on exposures to leveraged counterparties, including hedge funds, financial guarantors, derivatives counterparties (whether or not they provide hedges), including potential cross-correlation of the creditworthiness of such counterparties with the risks of assets being hedged.*

Recommendation I.56: *Firms should put particular emphasis on improving their stress-testing policies and techniques concerning liquidity risk factors, covering both firm-specific and market-related scenarios.*

Discussion of Recommendations I.55–I.56:

The application of stress-testing techniques in the area of liquidity risk management is of special importance as it allows firms to manage adequately

their access to liquidity and the demands on the firm's liquidity resources.

A number of specific applications of stress testing to liquidity risk management have been developed by the industry and continue to be improved. In particular, stress testing helps firms to test the impact of factors that could drain contingent liquidity or could lead to additional funding needs. For a thorough discussion of liquidity risk stress testing, please see Recommendations III.5 and III.6.

Recommendation I.57: *Firms should reinforce procedures promoting active discussion between senior management and risk management as to the tests to be performed, the scenarios to be tested, and their implications for the firm. Strong feedback loops are essential in any robust stress-testing methodology. Equally important, methodologies should take into account the relationships between stresses and valuation effects.*

Recommendation I.58: *Both private and public sectors should avoid excessive and misguided perceptions of stress testing as a "silver-bullet" solution. While the benefits and capabilities of stress testing need to be maximized, over-reliance on one single risk tool should be avoided.*

Consideration for the Public Sector I.B: *Public and private sectors should collaborate in the discussion of adequate stress testing. Banking regulators and central banks can contribute to the discussion of macroeconomic and market factors that should be considered when developing testing scenarios. However, the use of macro stress tests or "one-size-fits-all" scenarios and techniques should be avoided. Most stress testing done by a firm should be based on well-defined and specific scenarios relevant to the firm, and the interaction with supervisors should be structured through the Pillar 2 process.*

Discussion of Recommendations I.57–I.58 and Consideration for the Public Sector I.B:

While the benefits of stress testing and scenario-analyses are significant, it also is important not to over-interpret their capabilities as risk management tools. Over-reliance on a single tool generates risks in itself and is contrary to good risk management practices that dictate the need for a comprehensive approach to a mix of technical tools and expert judgment.

Similarly, it is important to avoid excessive use of supervisory-defined macro tests. External prescription is likely to ignore the effects of differing business mixes among firms and lead to consumption of disproportionate resources for little benefit, risking the crowding out of stress testing that is actually useful to the firm. Instead, a collaborative approach between public and private sectors in discussing appropriate testing scenarios, as well as robust Pillar 2 dialogue in regard to individual firms' approaches to stress testing, should be encouraged and reinforced. In particular, current Pillar 2 guidance determining that stress testing should be based on a firm's own assessment subject to supervisory review, and not on a prescription of specific tests or approaches, should be maintained.

II. Compensation Policies

Market changes that have both catalyzed and resulted from the development and growth of structured products and the "originate-to-distribute" business model have created incentives for both firms and individual employees that have, in some cases, conflicted with sound underwriting practices, realization of risk management goals, or the long-term interests of the firm and shareholders. These incentives at times reflected the emphasis on short-term profitability in the market's response to financial reporting. In some cases, bonus payouts have been tied to current production, without sufficient regard for the risk and revenue profiles of products that often span several years. While many firms have already adopted compensation practices that move in this direction, this section outlines Principles of Conduct for compensation policies and approaches by which firms can re-align compensation incentives with shareholder interests and the realization of risk-adjusted returns. It applies primarily to senior management, investment banking, and wholesale sales and trading.

Principles of Conduct:

Principle II.i: Compensation incentives should be based on performance and should be aligned with shareholder interests and long-term, firm-wide profitability, taking into account overall risk and the cost of capital.

Principle II.ii: Compensation incentives should not induce risk-taking in excess of the firm's risk appetite.

Principle II.iii: Payout of compensation incentives should be based on risk-adjusted and cost of capital-adjusted profit and phased, where possible, to coincide with the risk time horizon of such profit.

Principle II.iv: Incentive compensation should have a component reflecting the impact of business units' returns on the overall value of related business groups and the organization as a whole.

Principle II.v: Incentive compensation should have a component reflecting the firm's overall results and achievement of risk management and other general goals.

Principle II.vi: Severance pay should take into account realized performance for shareholders over time.

Principle II.vii: The approach, principles, and objectives of compensation incentives should be transparent to stakeholders.

Discussion of Principles of Conduct II.i–II.vii:

The Principles of Conduct outlined above should serve as guidelines for appropriate design of compensation programs to address many of the issues that have arisen from the recent market turmoil while leaving room for competitive differentiation. Alignment of compensation incentives with shareholder interests has been a premise of many financial institutions, and many firms currently structure a significant portion of incentive pay for highly compensated employees in the form

of deferred or equity-related components. However, it also has been evident that, in some firms, businesses, and product areas, compensation incentives were based on revenue production or short-term profits without sufficient regard for the level of risk assumed, risk horizon, or cost of capital, which may have resulted in excessive risk-taking or compensation payments that were not adequately aligned with shareholders' interests or the long-term profitability of the firm.

The Principles of Conduct above set broad guidelines, but it is neither possible nor desirable to state specific Recommendations as in other parts of this *Report.*

Compensation, especially the "incentive" component of compensation, is a differentiating factor for firms, and each firm must make its own decisions on how to apply the Principles of Conduct. Moreover, there are difficult choices in balancing, for example, the principle of alignment of compensation incentives with firm-wide profitability while taking into account the impact of particular business units' results.

Instead of precise Recommendations, the following is a discussion of examples of certain practices and techniques that firms are considering or have applied and that may evolve into best practices over time. There are, of course, many other ways to approach compensation issues consistent with the Principles of Conduct, and each firm will make its own choices:

- The concept of risk adjustment of compensation metrics could be implemented in several ways. For example, financial targets used to assess performance for bonus-pool funding can, insofar as possible, use metrics determined on a risk-adjusted basis. For this purpose, the measurement of risk should be as comprehensive as possible and include all major risk categories;
- Metrics such as risk-adjusted profits can under relevant circumstances be adjusted for the cost of capital. In some cases, measurement against a predetermined target hurdle rate may be useful, provided that risk adjustment balances any untoward incentives resulting from the hurdle;
- Risk adjustments can be incorporated into management P&Ls as used for incentive compensation purposes;
- A problem identified in recent experience at certain firms is that profits recognized for compensation included advantages provided by the firm, such as a low cost of funding, rather than "alpha" value actually added by the employees to the firm. It may not always be feasible to disentangle the two but efforts should be made to do so and, where it is feasible, especially with respect to highly compensated persons, it may be beneficial for firms to consider including this distinction in compensation programs;
- Many financial-sector returns occur over multi-year periods and are uncertain. More time for finalization of compensation entitlements allows for more accurate measures of risk. The passage of time also increases the potential for asymmetry between compensation and returns. Therefore, firms should consider linking a material portion of pay packages to the risk time horizon, possibly through clawback provisions, longer-term vesting provisions, or holding funds in escrow so that any tail-end write-offs can be used to determine ultimate payouts;
- Deferred bonuses could, subject to development of appropriate systems, be paid in several tranches that align with the profit-generating lifespan of a product or transaction or book of business. Notionally, a portion of bonuses (whether cash or stock) based on, say, the risk-adjusted profits of the purchase of a structured instrument with a 5-year pay-off could be paid out in five annual tranches as the firm realizes the profit from the changing value (net present value or accrued value) of the structured instrument;
- Firms may consider compensation structures that combine a significant portion of

compensation based on the risk-adjusted profits that employees have directly generated for the firm, with components rewarding behavior that leads to profit growth through cooperation between related business units and other parts of the firm;
- It will be advisable for the firm-focused component of compensation to take into account maintaining the firm's risk culture and keeping transactions within the bounds of the firm's risk appetite; and
- Severance pay for top executives has received considerable attention as a result of the absolute size of payouts by firms that have encountered difficulties. In a severance situation, it is important to distinguish between the payout of accrued benefits such as pension payments, profit sharing and vested options or restricted stock, and the payments related directly to severance. Insofar as permissible within existing contractual obligations, the severance portion should be reviewed and approved by the Board or the compensation committee to ensure it reasonably reflects the performance of the individual over time, taking into account the reason for severance. Future contractual negotiations should take into account realized performance for shareholders.

These suggested examples are, of course, subject to various practical caveats that may affect their applicability by any given firm. For example, while it may be relatively easy to link payout of compensation related to a specific, very large transaction to actual results, it will likely be difficult to do this on a broad basis, and firms will need to balance carefully many different factors before determining that such a granular approach would make sense for particular businesses. Similarly, tying compensation incentives to a book or line of business is appealing but may not be easy to execute. Firms will need to develop the art of effective risk adjustment that is supple enough to meet the needs of changing organizations over time.

There also are various ways of managing the controls needed to frame implementation of a sound compensation structure:

- Principle of Conduct II.ii, stating that compensation should not create incentives to excessive risk-taking, implies that the overall compensation process should be aligned with the firm's risk appetite (as discussed in Section I of this *Report*);
- Compensation policies and the compensation based on performance of individuals and business units will need to be reviewed periodically to maintain this alignment;
- Under any compensation incentives scheme, strong management processes are needed to guard against manipulation and arbitrage of the metrics chosen;
- Management should actively monitor changes in the risk-return profile, allowing some flexibility in compensation setting, given the static nature of nearly all risk measures, but also reviewing critically whether the organization is responding to incentives in a way that is inconsistent with its stated risk appetite or culture;
- Maintaining a focus on the firm-wide perspective often will be enhanced if compensation incentives for risk-takers are as comparable as possible across firms' business groups; and
- Commissions or other incentive compensation at the retail level should be managed to avoid incentives to "mis-sell" products such as subprime mortgages to consumers without due regard to suitability and ability to pay (see Recommendation V.4).

Because, to some substantial degree, compensation incentives—especially for the most productive employees—will be subject to negotiation and competitive pressures, the Principles of Conduct are intended to provide a directional framework within which negotiation can be flexible and effective.

III. Liquidity Risk, Conduit, and Securitization Issues

This section focuses on issues relating to structured products and liquidity risk, including immediate liquidity risk management issues; central bank measures; risk management and liquidity risk management issues associated with structured products and off-balance-sheet vehicles; and assessing the viability of various forms of securitization from a market and regulatory perspective.

Principles of Liquidity Risk Management

The Committee has reviewed the Recommendations made in the March 2007 *Principles of Liquidity Risk Management*, and has concluded that they appear to have been validated by recent experience.[10] The Committee has also updated some of its Recommendations, though the differences are more of emphasis than substance. The Recommendations of the 2007 report are set out in Appendix B, and have been revised and updated as to certain details; such Recommendations are referred to as Revised and Restated Recommendations. The 2007 Recommendations have been supplemented by Recommendations III.1 to III.19 in this Section of the *Report*. Particularly, given experience since the summer of 2007, funding and market liquidity, as well as structured finance vehicles, are discussed in additional detail in this *Report*.

Principles of Liquidity Risk Management discussed funding liquidity risk recommendations in considerable detail in three areas: (1) governance and organizational structure for managing liquidity; (2) analytical framework for measuring, monitoring, and controlling liquidity risk; and (3) stress testing and contingency planning. In addition, it provides full discussions of secured-finance issues and the impact of complex financial instruments (including conduits) on liquidity-management policies and procedures. The fundamental premise of *Principles of Liquidity Risk Management* is "that firms should deliver, and supervisory and regulatory approaches should recognize, risk management frameworks that are tailored to each firm's business model and market position."[11] This premise is all the more important given experience since publication of *Principles of Liquidity Risk Management*.

Principles of Liquidity Risk Management provided a number of Recommendations for internal governance and controls that are critical to reduce a firm's liquidity risk. Such Revised and Restated Recommendations (1 through 13 as updated in Appendix B) address a number of issues relating to defining liquidity risk; setting roles and responsibilities; integrating risk management for the firm's funding needs; and ensuring proper oversight of liquidity risk management throughout a firm, including subsidiaries.

Revised and Restated Recommendations 14 through 30 from *Principles of Liquidity Risk Management*, updated here, propose an analytical framework for measuring, monitoring, and controlling liquidity risk and cover developing appropriate measurement and monitoring tools. This implies that assumptions and risk management techniques must enable each firm to assess its needs and risks in both business-as-usual and stressed conditions, and thus to establish appropriate metrics and limits. Additionally, such assumptions should not be based on predetermined metrics or quantitative measures, but rigorously based on the needs and exposures of the firm.

[10] Institute of International Finance, *Principles of Liquidity Risk Management*, March 2007.
[11] IIF, *Principles of Liquidity Risk Management*, March 2007, 8.

Revised and Restated Recommendations 31 through 44 cover how each firm's liquidity management must include substantial attention to stress testing and contingency planning. Pursuant to these Recommendations, firms must determine how best to ensure that stress tests remain appropriate, operate under various sets of assumptions, and provide realistic and useful information for management. Additionally, part of the analysis must be focused on clearly understanding the role of central bank facilities—made more important because of the events of the current market turmoil—and the limits of these facilities.

While published in March 2007, the Recommendations contained in *Principles of Liquidity Risk Management* not only remain valid but also have been recognized as useful by the official sector. In the December 2007 UK Financial Services Authority (FSA) discussion paper entitled *Review of the Liquidity Requirements for Banks and Building Societies,* the FSA notes that international banks have worked together very effectively on liquidity risk management issues, with particular reference to the "wealth of valuable material" in the IIF report, which the FSA took into account in preparing its discussion paper.[12] The chairman of the Basel Committee Working Group on Liquidity Risk noted in April 2008 that the 2007 report effectively details the topic of the contingent risks.[13] In addition, the *Second Part of CEB's Technical Advice to the European Commission on Liquidity Risk Management,* published in June 2008, mentions the value of *Principles of Liquidity Risk Management*, citing the report for a number of points.[14]

[12] Financial Services Authority, *Review of the Liquidity Requirements for Banks and Building Societies* Discussion Paper, December 2007, 15.

[13] Speech by Nigel Jenkinson, Executive Director for Financial Stability, Bank of England, "Strengthening Regimes for Controlling Liquidity Risk: Some Lessons from the Recent Turmoil," Euromoney Conference on Liquidity and Funding Risk Management, Hyatt Regency London, April 24, 2008.

[14] Committee of European Banking Supervisors, *Second Part of CEB's Technical Advice to the European Commission on Liquidity Risk Management*, June 17, 2008, 62–63.

Central bank measures taken since December 12, 2007 have been key in meeting the challenges witnessed, and suggestions are made for the purpose of supporting continued public-policy discussion to strengthen the stability of financial markets, and developing considerations for the official sector first offered in *Principles of Liquidity Risk Management.*

The Committee believes the discussion portions of *Principles of Liquidity Risk Management* also remain valuable. It can be found at www.iif.com/press/press+25.php.

Note that disclosure issues related to liquidity risk may be found in Section VI (Transparency and Disclosure) of this *Report* (see Recommendation VI.10).

A. FUNDING LIQUIDITY ISSUES

The magnitude and scope of the liquidity contraction in the market after July 2007, particularly at the longer end of the money market, was unprecedented and generally not anticipated. A fundamental problem leading to adverse market conditions was that the market did not recognize how sensitive investors providing market liquidity would be to the issues of asset quality and credibility of ratings for structured vehicles such as conduits or to assurances of short-term access to funds invested in such vehicles, regardless of either the term of investments or the legal structure of transactions.

Contemporaneously with a surge in potential liquidity demands, many leading firms brought assets back onto their own balance sheets. Firms became reluctant to participate in money markets and, additionally, non-bank participants in the money markets became highly averse to investing in credit instruments of private issuers in the longer terms, especially in light of the investors' growing uncertainties about their own cash flows. As a result, subprime credit problems turned into a systemic liquidity crunch. Many leading financial firms facing substantial writedowns were induced to replenish capital. These concerns led to

substantially reduced availability of funding driven by the liquidity and credit fears of money market funds; corporate treasuries; and other short-term, risk-averse lenders. While liquidity infusion by central banks and other official-sector action has reduced the tension in term money markets, markets remain under stress, magnified by precarious global growth and inflation prospects.

Given the dramatic events since July 2007 and the unprecedented persistence of serious liquidity problems in major markets, firms have been strengthening their liquidity risk management policies, assumptions, and procedures. Previously reasonable assumptions about the availability of certain liquidity sources have needed to be revisited.

A firm's decisions on the allocation of liquidity resources need to balance risk with reward because resources are not unlimited. This speaks to the need for firms to ensure that they have a strong understanding of their risk, both on- and off-balance sheet, under a range of scenarios, and to have in place effective internal transfer-pricing policies to adequately measure reward, including mitigation costs. Recently created central bank facilities have made it easier for most firms to address their liquidity needs in the context of market-wide and systemic liquidity problems. Firms, however, must be managed to avoid firm-specific liquidity risks without reliance on central bank actions.

As we consider how the industry can most effectively manage liquidity issues in the future, it is important to keep in mind that liquidity has a cost. Indeed, the renewed focus on the cost of liquidity for internal transfer-pricing purposes is one of the important tools for managing liquidity risk. Proportionate and well-designed policies undertaken with an open-eyed assessment of costs and business impacts will be necessary going forward, as it has been in the firms that have managed their liquidity risk effectively through the recent events.

Resolution of the liquidity issues of the current market stress will depend on sound internal risk management decisions by firms; principles-based regulation focusing on outcomes rather than quantitative requirements; and ongoing attention by the central banking community to liquidity in an internationally integrated, market-based system. As stressed by the United Kingdom Financial Services Authority in its *Review of the Liquidity Requirements for Banks and Building Societies*, the onus is first on banks and not on the official sector to be responsible for effective management of liquidity risk and the maintenance of adequate liquidity. For instance, a key principle is that "a bank should take reasonable steps to withstand a firm-specific or market-wide liquidity stress of reasonable severity so as to remain able to meet liabilities as they fall due and to do so without needing to take actions—such as large-scale asset sales at fire-sale prices or access to emergency central bank lending—that might disrupt market confidence."[15] The Principles of Conduct and Best Practice Recommendations presented below follow from this assumption and are presented in the spirit of that mandate.

Principles of Conduct:

Principle III.i: Firms should have sound and effective liquidity risk management practices incorporating insofar as applicable to their business models the Recommendations of *Principles of Liquidity Risk Management* as updated and restated in this *Report*.

Principle III.ii: Firms should have internal liquidity risk pricing policies sufficient to create incentives for business lines to act in full cognizance of the liquidity risks their businesses incur, permitting firms to manage their liquidity resources prudently.

[15] Financial Services Authority, *Review of the Liquidity Requirements for Banks and Building Societies*, 5.

1. Implementation of IIF's *Principles of Liquidity Risk Management*

Recommendation III.1: *Firms should ensure implementation of sound industry practice for liquidity risk management through a continuous review and critical assessment process as appropriate for their businesses, using the Revised and Restated Recommendations set out in Appendix B and in the body of this Report as benchmarks.*

Discussion of Recommendation III.1:

The Committee believes that delayed implementation of the Recommendations published in *Principles of Liquidity Risk Management* may well have been at the root of certain firms' difficulties. The industry's experience is that firms that had well-implemented policies equivalent to the Recommendations of the 2007 report were able to manage their liquidity positions on a reasonably prudent basis, albeit the loss of liquidity in the market was more abrupt and more pervasive than even the most conservative anticipated.

Liquidity risk management practices, as outlined in the Recommendations, need to be tailored to each firm's business model and market participation. Each firm must determine its own risk tolerance and the best way to combine prudent risk management practices within its business strategy. There are no simple metrics or ex-ante quantitative measures with prescribed assumptions that can provide adequate liquidity safeguards or adequate disclosure, either for internal purposes or for regulatory requirements. Supervision and regulation should recognize firms' tailored approaches and focus on their overall effectiveness.

The following two Recommendations of general applicability are implied by the 2007 Recommendations but appear to require emphasis:

Recommendation III.2: *Firms should mandate that assets held to back their liquidity positions need to be dimensioned in relation to the anticipated liquidity and currency denomination of such assets and with respect to the reasonably anticipated depth and sustainability of the money markets and capital markets. Portfolios held for such purposes should be well diversified by type of instrument and counterparty. The assessment of assets held primarily for liquidity purposes should not be established solely on the basis of credit ratings. Reporting should keep senior management and relevant control functions apprised of risks associated with assets held for liquidity purposes.*

Recommendation III.3: *Firms should ensure that reporting to the appropriate committees (e.g., asset and liability committee, credit committee) disaggregates between direct and indirect risks relating to securitizations, so that information on gross as well as net positions is available, in order to ensure full transparency within the firm. At the same time, reporting should aggregate liquidity risks on a firm-wide basis, including both on- and off-balance-sheet transactions.*

Discussion of Recommendations III.2–III.3:

Firms hold liquid assets for many purposes, including for liquidity management, pledging, trading and sales, arbitrage, and investment. However, certain assets may be primarily earmarked for liquidity purposes, and there are reported instances in which such assets were not evaluated with a sufficiently critical eye on their liquidity in difficult markets. The foregoing Recommendations address such assets, which may loosely be described as a "liquidity cushion" or buffer; however, it should not be taken to apply to liquid assets held primarily for other purposes.

Similarly, the widely reported experience of certain firms indicates that risks reported on a net basis may have been misleading to the risk management function and to senior management, hence the need to examine gross as well as net exposures. The analysis also should have the goal of ensuring that positive carry is properly

analyzed in decision making. In addition, failure to aggregate risks across the firm may create a false sense of comfort.

2. Internal Transfer Pricing

Recommendation III.4: *Firms should ensure that they have in place effective internal transfer pricing policies to reflect implied or incurred actual or potential costs related to reasonably anticipated liquidity demands from both on- and off-balance-sheet business. Transfer pricing should take closely into account the liquidity of relevant underlying assets; the structure of underlying liabilities, and any legal or reasonably anticipated reputational contingent liquidity risk exposures. Transfer pricing should be designed to ensure that lines of business within the firm that create liquidity exposures are proportionately charged for the cost to the firm of maintaining corresponding prudent liquidity positions.*

Discussion of Recommendation III.4:

As the SSG noted in *Observations on Risk Management Practices during the Recent Market Turbulence*, "firms that experienced the most significant challenges in meeting their funding liquidity needs were those that, before the turmoil began, had not priced contingent liquidity internally or externally to reflect the *ex post* assessment of the nature and risk profile of these liabilities."[16] Effective firms, according to the report, were more likely to use prudent transfer pricing to account for contingent liquidity and balance-sheet usage. This issue was noted in *Principles of Liquidity Risk Management,* but it needs to be reemphasized in light of subsequent experience (see Revised and Restated Recommendation 11 in Appendix B).

There already may have been a paradigm shift at most firms on pricing for liquidity risk, given recent lessons learned and the growing importance of these costs given the rapidly expanding funding spreads; therefore, the issue is more to make sure this response is institutionalized and structured to survive the next period of abundant liquidity. Another way to put it is that businesses must be aware at all times of the liquidity costs and risks of the transactions they do and how they relate to the overall liquidity position of the firm.

As it is important to create a strong risk culture in each firm, it also is important to create a well-understood and resilient liquidity culture, so that liquidity issues are seamlessly taken into account in planning, product design, and decision making. Here again, it is essential that there be good sharing of information on liquidity risk, including the appropriate treasury or finance functions and liquidity risk management.

3. Liquidity Risk Stress Testing

Recommendation III.5: *Firms should ensure access to diversified funding sources (e.g., funding providers, products, regions, currencies) to avoid the risk of overdependence on any form of funding. This includes access to securities and secured financing markets, in their day-to-day liquidity risk management, and for stress-testing and contingency-planning purposes. Firms should periodically reevaluate the appropriateness of the metrics employed and use a variety of firm-specific and market-related events in carrying out this analysis. Market-sensitivity analyses encompassing such items as the effects of contingent drains on liquidity and the adequate pricing of such facilities are important.*

Recommendation III.6: *Firms should examine through stress testing and analysis the conditions under which the size of their balance sheets might expand during times of stress, and consider appropriate and proportionate contingency plans for such eventualities.*

Discussion of Recommendations III.5–III.6:

Stress testing is an effective risk management technique to deal with changing market and financial conditions. Stress testing needs to play a

[16] Senior Supervisors Group, *Observations on Risk Management Practices during the Recent Market Turbulence*, 10.

key role in liquidity risk management and supervision and is critical both as to access to liquidity and as to demands on the firm's liquidity resources (see Recommendations I.44 to I.49).

As discussed in Revised and Restated Recommendation 32 in Appendix B, unutilized commercial loan commitments and commercial paper back-up lines can lead to a significant drain of contingent liquidity demand for most firms. Other potential drains depend on the nature of the institution and the severity of the environment. Reputation-based contingent liquidity risk may take numerous forms, such as supporting the firm's mutual fund business by buying its units to avoid mark-to-market losses at a time of aggressive investor redemptions, taking conduit assets onto the balance sheet for relationship reasons, inventory build-up in products experiencing issues in which the firm is an active market maker, and granting new liquidity lines to entities for which the firm is an active market maker and where investor interest has waned or disappeared as a bridge measure or to facilitate refinancing. Testing also needs to take into account adverse market conditions leading to longer holding periods for underwriting deals, which in turn lead to additional funding needs as new deals are concluded before the old inventory is sold (e.g., leveraged financing; see Recommendation IV.4).

Potential triggers for draws include economic cycle, systemic crises, credit-rating downgrades (with different degrees of severity expressed in terms of numbers of notches lost), country crisis, specific market disruption (e.g., asset-backed commercial-paper market disruption, credit crunch), and provisions of International Swaps and Derivatives Association (ISDA) collateral agreements. Good practices for stress testing include both triggers estimated with different degrees of severity and the estimated impact of these and other triggering events in scenario analysis. These triggers may be explicit (contractual) or implicit (other events reducing market access that may be counterparty-specific or systemic; e.g., related to the state of markets). In addition to stress testing liquidity per se, stress tests should include scenarios that would rapidly increase the size of the firm's balance sheet and the funding and other consequences thereof.

For each stress test, in line with a risk-based approach, assumptions should be set considering the firm's own internal and external environments as well as capacities and capabilities, reviewed on a regular basis. The potential correlation between various sources of outflows (e.g., loss of secured funding access for liquid assets is reduced at the same time as net collateral requirements go up) and various potential adverse product triggers should be considered by analyzing related data and seeking the expert judgment of product specialists and risk managers.

Recommendation III.7: *Firms' stress-testing analyses should include "tied-position" situations in instruments that are material for them.*

Discussion of Recommendation III.7:

"Tied positions" include derivatives linked to cash assets. Recent experience shows that it is important to evaluate the demonstrated liquidity characteristics of the tied asset in cash markets, in related derivatives markets, in repo markets, or as collateral in lending markets in assessing the liquidity risks of tied positions. Less-liquid situations, such as total return swaps tied to loans, may require specific attention. Stress testing should include material "tied positions" to analyze the effects of market conditions in which it may become difficult to dispose of or pledge normally liquid instruments.

B. MARKET LIQUIDITY

■ Principles of Conduct:

Principle III.iii: Firms that rely on secured funding or asset sales to a significant extent to manage their liquidity should have robust processes in place to evaluate asset liquidity under a variety of business-as-usual and stressed conditions.

Principle III.iv: Firms should conduct rigorous contingency planning for market risk developments, working cooperatively with the official sector to the extent practicable.

Principles of Liquidity Risk Management contains extensive discussions of related issues, particularly in Analytical Discussion 1, "Reliance on Secured Financing Sources." Revised and Restated Recommendations A1–A10 from that discussion are presented in Appendix B (see also Revised and Restated Recommendations 25–27 in that Appendix).

As a broad generalization, it can be said that firm-specific liquidity risk management worked well at most sophisticated firms but, except in those specific instances in which serious firm-level liquidity issues were missed, the fundamental liquidity problems were market-wide and therefore very difficult to avoid at the firm level, regardless of liquidity management practices. Furthermore, excessively cautious liquidity risk management by individual firms no doubt contributed to problems with the broader money markets. Firms, especially those that ended up taking assets back onto their balance sheets or experiencing a substantial inflow of sight and short-term deposits, or both, had to plan for potential longer-term liquidity demands at a time when market conditions were unpredictable; thus, prudent management that dictated conservation of cash contributed to the drying up of all but the shortest-term transactions. It also must be said that no one anticipated the depth or persistence of the market liquidity problems that firms have had to face.

While it is not possible to preclude a future severe liquidity episode altogether, broad adherence to the Recommendations in this *Report* (including the Revised and Restated Recommendations in Appendix B) would help considerably at the firm level. But firm-level measures can never be enough to curb market-wide problems. For that purpose, the suggestions made to the central banking community in the following section of this *Report* would be helpful.

C. ROLES OF CENTRAL BANKS AND SUPERVISORS

Central banks' measures, particularly those taken since December 12, 2007, have been essential in meeting liquidity challenges, especially in global term money markets, and have contributed to rebuilding confidence in those markets. The new term facilities, and their subsequent augmentation and reinforcement by central banks, including the Special Liquidity Scheme of the Bank of England announced on April 21, 2008, and the measures announced by the Federal Reserve, the European Central Bank, and the Swiss National Bank on May 2, 2008, have made and can continue to make a substantial difference in alleviating blockage in the system and, with appropriate offsetting actions where necessary, should not have inflationary effects.

Expansion of measures to combat liquidity pressures in the funding markets on a term secured-lending basis, extending coverage to a new category of market participants and accepting a wider range of eligible collateral, are highly encouraging. As important are the contemporaneous and coordinated measures of international central banks to provide new reciprocal currency arrangements. The case for such facilities remains compelling.

While fully acknowledging the central banks' accomplishments to date in providing liquidity during the market turmoil, the Committee offers suggestions for actions, building upon the considerations for the public sector contained in *Principles of Liquidity Risk Management* that central banks could consider to continue that success. These considerations are consistent with recent official-sector discussions of central bank operations dealing with stress in the financial system. For example, the *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience* recommends that policy frameworks

remain flexible to inject substantial quantities of reserves and that those frameworks include the capability to conduct frequent operations against a wide range of collateral, over a wide range of maturities, and with a wide range of counter-parties; that central banks should consider establishing mechanisms designed for meeting frictional funding needs that are less subject to stigma; that central banks should have the capacity to use a variety of instruments in the event of illiquidity of firms or markets; and that central banks should consider establishing swap lines and allowing the use of collateral across borders and currencies.[17]

It is hoped that the suggestions made here will help inform a continued public-policy discussion that will both make the system stronger and reduce regulatory rigidities and uneconomic cross-border obstacles to sound liquidity management. New technologies, new instruments, and new risk management capabilities have created more integrated and responsive markets that cannot be contained in old regulatory forms that may actually increase, rather than decrease, the potential for international systemic problems.

1. Considerations for the Official Sector: Central Banks

Consideration for the Official Sector III.A: *Central banks should continue to institutionalize cooperation among themselves, including in such key areas as harmonization of operational requirements and procedures.*

Discussion of Consideration for the Official Sector III.A:

Ongoing cooperation and consultation among central banks and consultation between central banks and firms can ensure that coordinating action occurs earlier in the case of deterioration of market liquidity. Such actions would include making use of the tools recently developed, as needed, or additional or other measures that prove to be necessary under specific circumstances.

Consideration for the Official Sector III.B: *The term auction, securities lending, and swap facilities announced since December 12, 2007 by certain central banks should be continued for so long as market conditions warrant and then become parts of central banks' toolkits together with an established contingency plan to enable them to be made quickly available under appropriate circumstances.*

Consideration for the Official Sector III.C: *There should be maximum harmonization across systems of available market facilities insofar as possible. Where structural or legislative changes are necessary to complete harmonization, serious consideration should be given by the relevant authorities to making the changes necessary to allow each central bank to have a full set of tools to undertake concerted action with its peers.*

Discussion of Considerations for the Official Sector III.B–III.C:

The facilities developed since December 2007 have been and should continue to be aimed to address market-wide liquidity issues. They are not intended to address the liquidity issues of individual firms, and this should continue to be made clear. The success of these facilities arises in part from the fact that they reflect an appropriate recognition of the role of central banks in maintaining the stability of a market-based financial system and are not part of the lender-of-last-resort function, which is designed for cases in which individual firms face issues that are peculiar to their own circumstances and are not market-wide.

The availability of facilities for market-wide liquidity issues during a necessary recovery period will help liquidity managers reopen and maintain markets for extended maturities. Whether any of such new facilities (to be distinguished from the auction/repo facilities already on a permanent basis) should be kept open indefinitely thereafter

[17] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 46–48.

is of course highly debatable, but having them readily available in case of need on a well-understood and internationally consistent basis would enhance the ability of firms to maintain the liquidity of the system.

Having "permanent tools" intended to facilitate market liquidity would help ensure that liquidity-supporting measures are available when market conditions determine they are needed. Auction facilities, for example, have reduced the "stigma" problem that impeded mitigation of the 2007 turmoil early during its development. It would be very helpful for liquidity managers to be able to plan for the use of these and other facilities aimed at difficult market conditions, without fear of stigma's reappearing for firms that take advantage of those facilities.

International consistency will also facilitate efficient and effective planning by firms to manage their own liquidity in ways that will facilitate stability. However, it is recognized that it will be necessary to accommodate local variations and the needs of different markets when constructing this "toolkit."

It should be noted that these liquidity facilities are not monetized and therefore should be neutral from a monetary point of view.

Consideration for the Official Sector III.D:
Central banks should continue to expand and harmonize eligibility of central bank collateral, including providing for the interoperability of collateral across systems, to enable firms to maintain global collateral pools. Accepting broader and generally consistent types of collateral in relevant currencies across central bank systems on a readily useable basis and continuing already-begun developments are increasingly important to international market health.

Discussion of Consideration for the Official Sector III.D:

Central banks have very constructively expanded the range of instruments they accept as collateral, subject to appropriate quality and haircut criteria to minimize risk. There has been recognition that, in a market-based system, central bank policies, especially their decisions as to the collateral they accept, are increasingly critical to reliable liquidity in the system. The beneficial effects of this development could be enhanced if there were greater convergence of the collateral accepted, acknowledging that there has been movement in that direction. Without entering into the technicalities of collateral questions, the basic issue is to find ways to leverage available collateral and remove artificial roadblocks to make that collateral available where it is needed to avoid liquidity problems in any sector of the increasingly interconnected global market. Note that the harmonization of collateral would aim to support the market rather than addressing firm-specific situations. These suggestions are aimed at systematic risk. Firms must remain responsible for idiosyncratic risk.

The remaining technical and policy obstacles to interoperability of collateral should certainly be addressed. A related and perhaps more difficult question is "trapped pools of liquidity": the fact that surplus collateral may be available in national systems but not available to firms on a group-wide basis for legal, regulatory, or practical reasons. It may not be possible in present circumstances for legal or other reasons to eliminate this problem entirely, but it would be constructive to have a wider consensus that liquidity resources needed for local purposes should be analyzed on a "minimum-necessary" basis to free up to the greatest extent possible global pools of collateral to protect against liquidity crisis and contagion in a global system. While "trapped-pool" issues typically arise from host-country requirements, home-country regulations also may raise the issue. For example, large-exposure limits as applied to subsidiaries may substantially limit the group's ability to manage liquidity internally, increase costs, and expose a subsidiary to liquidity problems in case of illiquid markets for third-party lending. The Committee notes with appre-

ciation, however, the fact that certain authorities have waived intra-group lending restrictions as appropriate to relieve pressures at different times in the market turmoil since 2007.[18]

Consideration for the Official Sector III.E: *The availability of central bank currency swaps should be harmonized across systems. Provisions for such swaps should be made available on a stand-by basis in both directions (e.g., USD/EUR, EUR/USD).*

Discussion of Consideration for the Official Sector III.E:

Non-U.S. banks have encountered technical problems with USD funding, especially in the European morning, when U.S. markets are closed. While to some extent this funding can be obtained by swapping other currencies (EUR or CHF) for USD, the needs that have arisen have caused stresses. Swap lines between central banks have helped alleviate these problems and are a significant part of the "toolkit" for maintaining liquidity. Volumes and coverage of such facilities should be a subject of ongoing discussion and should be in place to support operations in "both directions" in case of future needs.

Consideration for the Official Sector III.F:
Central banks should provide greater clarity of their roles in both firm-specific (lender-of-last-resort) and market-related crises.

- *As to firm-specific crises, clarity should be provided insofar as possible as to the requirements that a firm should be prepared to meet to have access to lender-of-last resort facilities, but not necessarily the terms or conditions under which the lender of last resort would be available.*
- *As to market-related crises, clarity should be provided as broadly as possible as to the availability and terms of market-focused measures. In market-related situations, it is especially important that central banks avoid the "stigma" associated with use of certain traditional central bank facilities.*
- *Provision of clarity in both senses should be understood to be intended to facilitate quick action by firms and the public sector alike when needed but should not abridge central banks' flexibility to adopt appropriate responses to unanticipated or evolving situations.*

Consideration for the Official Sector III.G:
Central banks and other official-sector agencies should be willing to participate in firms' contingency planning, including periodic testing of central bank facilities.

Discussion of Considerations for the Official Sector III.F–III.G:

There has been a debate about when it is appropriate to apply "constructive ambiguity" and when to apply "constructive clarity" as to the measures a central bank would take in a future crisis. The traditional view has been that the circumstances under which a central bank would make its resources available to a bank in difficulty should be left shrouded in "constructive ambiguity," basically because of moral-hazard concerns.

The view taken here is that, in general, "constructive ambiguity" should be maintained only for possible *firm-specific* stress situations, although even with respect to such situations, it would be helpful insofar as possible to clarify procedural or documentation requirements that would be applied when a situation arises to facilitate a prompt and accurate response. "Constructive clarity," on the other hand, is needed as to the availability of, as well as requirements of access to, *market-focused* measures and becomes increasingly important in a market-based system.

As a related matter, firms should understand, plan for, and include in their stress tests

[18] A further discussion of these themes may be found in *Principles of Liquidity Risk Management*, 13 ("Emerging Liquidity Issues in a Changing International Environment").

the availability of market-focused tools such as those introduced since December 2007. Central bank and supervisory participation in firms' contingency-planning exercises have been quite helpful to specific banks in the past. In appropriate circumstances, this might best be done on a cross-border basis, including a firm's principal central bank and supervisory relationships. This was a recommendation of the *Proposal for a Strategic Dialogue on Effective Regulation*.[19] Such exercises would be consistent with measures intended to address market-instability issues rather than the liquidity issues of specific banks. In a similar vein, advance information on developing technical requirements is essential for banks to plan their own developments in an orderly way and in a manner consistent with central bank planning.

Central banks should monitor the emergence of liquidity difficulties in the market before such difficulties turn into widespread solvency issues. Coordinated planning exercises, such as those just mentioned, building on the appropriate degree of "constructive clarity" about procedural requirements and about the availability of market-focused measures will contribute to the system's resiliency.

2. Considerations for the Official Sector: Regulators and Supervisors

Consideration for the Official Sector III.H:
Home and host supervisors should work together to evaluate a firm's integrated liquidity positions as well as strategies, policies, procedures, and practices related to the management of global liquidity. Supervisors should check that the firm has an effective system in place to measure, monitor, and control liquidity risk and has an appropriate liquidity contingency plan on a consolidated basis and, where required by regulation or deemed appropriate by the Board of Directors, for each legal entity. As needed, supervisors should leverage the firm's internal risk reporting to obtain sufficient and timely information to evaluate the firm's level of liquidity risk.

[19] Institute of International Finance, *Proposal for a Strategic Dialogue on Effective Regulation*, December 2006.

Consideration for the Official Sector III.I:
Regulators should seek to harmonize, or at least promote greater consistency of, liquidity concerns, definitions, and standards among regulators so that firms are better prepared to address regulatory considerations when constructing liquidity risk management policies and practices for firm-wide implementation across multiple legal entities and jurisdictions.

Consideration for the Official Sector III.J:
Liquidity regulations should be based on qualitative risk management expectations and not specific quantitative requirements, with host regulators putting more uniform reliance on home regulators and regulation to ensure adequacy of enterprise-wide management of liquidity. More-effective global management of liquidity by large firms should reduce systemic liquidity risk, even if at times this may mean that the national interests of individual regulators are not maximized.

Consideration for the Official Sector III.K:
Regulatory and economic capital should not be tied directly to funding liquidity risk. The Basel II requirement to take liquidity into consideration for purposes of Pillar 2 (Supervisory Review Process) should be met through regulatory assessment of firms' liquidity positions and risk management practices that consider each firm's various liquidity risk metrics and levels of acceptable risk tolerance in light of its internal and external environment and circumstances.

Discussion of Considerations for the Official Sector III.H–III.K:

The Committee recognizes that there may be some immediate appeal to trying to attribute

capital to all risks, including funding liquidity risk. However, recent events have strengthened the conviction that the use of a simple, standardized measure of funding liquidity risk to derive capital requirements would be unlikely to yield a result that would be truly risk-based or mitigate risk in any meaningful way. Developing and implementing a capital requirement for liquidity risk would be not only costly and complex but also would result in little additional capital.

As discussed in *Principles of Liquidity Risk Management* and noted throughout this *Report*, in order to be effective, liquidity risk is best understood through an evaluation of firms' liquidity positions and risk management practices. Therefore, metrics should be tailored to market and firm-specific characteristics. Liquidity needs should be met through management of liquidity resources.

Liquidity regulations should be based under Pillar 2–type qualitative risk management assessment rather than Pillar 1–type quantitative requirements, as funding liquidity risk is mainly a second-order risk. That is, material liquidity risk issues typically arise because of problems with the management of other risks. Liquidity risk could accelerate the downfall of a firm, particularly if it initially had a high level of unmitigated liquidity risk. But assigning capital to cover funding liquidity risk would be adding to capital already allocated to other first-order risks, including credit, market, business, and operational risks. There inevitably would be a duplication of capital requirements if this were mandated. There are more efficient and effective ways to offset liquidity risk than using capital (e.g., increase core deposits, securitization, term funding, pools of liquid assets) if liquidity risk reduction is required. Given practical, conceptual, and policy challenges, the industry's resources would be better spent improving capital measures related to other material risks and on strengthening liquidity risk management.

D. STRUCTURED FINANCE VEHICLES

Principles of Conduct:

Principle III.v: Effective risk management should ensure that exposures to conduits and other vehicles, as well as auction-rate securities, are captured in liquidity planning and management and that there is sufficient transparency, capital support, and disclosure by sponsoring firms.

Principle III.vi: Sound liquidity risk management requires inclusion of formal contingent obligations to off-balance-sheet vehicles and appraisal of potential effects of support of vehicles or auction-rate securities for relationship or reputation reasons.

A prominent feature of official-sector discussion of market turmoil has been a focus on risk in off-balance-sheet vehicles and securitization transactions generally. It is certainly the case that significant problems have arisen around such vehicles. This has been discussed in considerable detail in the *Interim Report* and the various official-sector discussions of the issues. In some cases, the problems arose from certain firms' failure to apply sound liquidity risk management techniques to formal contingent obligations to such vehicles; in other cases, firms have voluntarily taken assets back onto their balance sheets, either for client-relationship reasons or to avoid assets being dumped in the market. Other vehicles have been wound up with substantial losses. Broadly similar issues have arisen with respect to auction-rate securities. This section will address what should be done to avoid such problems in the future and also to suggest ways to avoid damaging overreactions to such problems.[20]

[20] In addition, Analytical Discussion 2, "The Impact of Complex Financial Instruments upon Liquidity-Management Policies and Practices" (page 48) in *Principles of Liquidity Risk Management* remains relevant.

The language being used to describe recent problems with conduits and other vehicles is often generic, with the result that all securitization transactions (no matter how structured) have now been "tarred with the same brush," notwithstanding material differences between them and despite the fact that a substantial portion of the issues with troubled vehicles have been related to transparency, liquidity, and maturity transformation rather than to credit-risk fundamentals (although there have been the latter as well, especially for transactions substantially based on U.S. subprime assets).

The market will determine what deals can be done in the future. Of course, the quality of the risk management of off-balance-sheet vehicles should be part of each supervisor's program of oversight of financial institutions. The Recommendations presented below are intended to supplement market discipline and facilitate supervisory oversight.

1. Products

There are many types of securitization products, and it is important that measures to restabilize the markets or change incentives in the market be appropriately targeted. A review of the many types of securitized products illustrates their variety, the risk of over-generalization, and the numerous sectors to which they provide finance.[21] Without entering into all the product configurations, it is important to distinguish between vehicles seeking funding in the short-term, asset-backed commercial paper (ABCP) markets ("conduits") and structures issuing notes in the capital markets with maturities averaging 5–7 years ("ABS").[22] ABCP and ABS do not necessarily attract the same types of investors, and the due diligence processes by such investors are not entirely comparable.

2. Benefits for Investors and the System

If managed in accordance with the Recommendations, securitization in its various forms should remain available as an essential class of product, funding source, and capital management tool. Securitization has developed over a very long period and, while difficulties have arisen recently, it can and should remain a highly effective way to marshal credit for the benefit of society.

Securitization has been and should remain a highly useful capital management tool and, more broadly, has facilitated asset/liability management within groups. This beneficial function should not be confused with the degree of regulatory arbitrage that was one of the unintended consequences of Basel I. Properly done,

[21] ABS have different forms in part related to underlying assets. SIVs (structured investment vehicles) are established for many traditional securitizations; in synthetic securitizations risk transfer is achieved on a derivative basis without assets actually being sold into the SIV. Additionally, there are hybrid structures, often taking the form of re-securitizations, including:

- CDOs (collateralized debt obligations);
- Hybrid CDOs backed by a combination of cash and synthetic assets;
- CDOs of CDOs (CDO-squared);
- Reference Linked Notes;
- Variable Funding Super Senior Notes; and
- Mezzanine CDOs and other tranches of CDO structures.

In addition, the CDO-warehousing facilities held by banks during the planned ramping up period of accumulation of assets for packaging or repackaging have some of the characteristics of a hybrid product. Some of the same issues discussed below arise with respect to covered bonds as well.

[22] Note the variation in usage of these terms. To illustrate the differences among conduits, ABS, and SIVs, note that conduits can take different forms:

- Multi-seller conduits purchasing pools of assets from various originators (which may include non-financial corporations);
- Single-seller conduits purchasing assets (pools of assets or ABS notes/tranches or combinations thereof) from one single originator, where the originator often also acts as the sponsor; and
- Arbitrage vehicles that purchase underlying assets originated by different parties, with the purpose of benefiting from spread differentials.

it makes financing available for a wide variety of purposes without overburdening bank balance sheets.[23]

It has permitted firms to spread their funding requirements over more sources, lessening dependencies and optimizing funding costs. With the exception of the specific circumstances of the past year or so, the ABCP market, especially in the United States, has provided reliable, continuous, and generally cost-effective funding for a variety of bank and non-bank entities and using a variety of assets. ABCP, at least until recently, has filled an increased need from investors for high-quality, short-term assets, and that need remains despite the falloff of the ABCP market. Investors in bank liquidity-backed ABCP are able to diversify their exposure from direct bank risk to credit-portfolio risk that mirrors the sponsoring bank's corporate relationships, investment policies, and lending practices. Moreover, investors' underlying exposure is secured by senior interests in diverse pools of financial assets that are over-collateralized.

Extensive securitization has made credit risk more transparent, facilitating the development of risk management and risk-based capital under Basel II, as well as more sophisticated asset and liability management. Being largely issued in floating-rate form, securitization transactions tend to lessen interest-rate dependencies. Securitization has also packaged assets in appropriate form to be used for collateral and repo purposes with central banks in connection with market-focused liquidity facilities. This has greatly facilitated the enhancement of liquidity by giving firms usable assets, on the one hand, and by providing such collateral to the central banks in forms that facilitate their own risk management, on the other.

[23] Basel II addresses one source of the misuse of conduits and other vehicles seen prior to August 2007: the fact that capital was not required for contingent commitments under 365 days in some countries. This, in turn, contributed to the failure of risk management at some firms to manage those risks in the ways recommended by *Principles of Liquidity Risk Management.*

As a side effect, it has been instrumental in improving and consolidating the billing, collection management, servicing, and recovery processes for corporate issuers and firms alike. This, in turn, has facilitated cross-border transactions.

Although SIVs and certain other vehicles have been severely affected by recent market volatility, over time, securitizations have somewhat reduced capital volatility, thanks to the portfolio effects it makes possible. This aspect becomes all the more important under Basel II because of the reliance on internal-rating models and fair-value accounting. Properly executed securitizations also have the related benefit of reducing concentrations in financial institutions' exposures to specific borrowers or asset classes.

Finally, from a financial institution's viewpoint, securitization is a way of financing clients' requirements beyond what would be prudent for direct provision of credit while retaining client relationships, thus reducing potential concentration problems. Client relationships have, of course, contributed to firms' decisions to take assets back onto their balance sheets during the recent stress, but that should not cause this very substantial benefit, achievable if good controls are in place, to be overlooked.

3. Effects of Turmoil

While many investors have withdrawn some or all of their funds from the market, hybrid structures and structures involving subprime mortgages were originally the worst hit, with contagion spreading to other ABS structures. All conduits were affected at the onset, but liquidity shortage appears to have been relatively manageable for many multi-seller conduits (i.e., those in which the assets were acquired from multiple sellers for packaging), backed fully or partly by stand-by letters of credit, and fully by liquidity commitments of firms. Major multi-seller conduits continue attracting investors, albeit at substantially increased pricing.

The vehicles that have held up the best are those that are well-established, provide good

investor information (often through road shows or other types of direct contact), diversified asset portfolios, relatively vanilla underlying assets, and clearly understood backing. Their assets have generally not included material positions in subprime mortgages or structured products. Vehicles have been affected in different ways, but the hardest hit were those, especially SIVs, for which these characteristics were not present or in which the vehicle's support became questionable, as with "wraps" by monoline insurers.

4. Risks for Financial Institutions

Principles of Liquidity Risk Management contains an extensive discussion of liquidity issues around firms' associations with off-balance-sheet vehicles, which need not be repeated here. The Recommendations arising from that discussion are included as the Revised and Restated Recommendations contained in Appendix B. In summary, as stated in the *Interim Report*, effective risk management should be strengthened where necessary to ensure that exposure to conduits and other vehicles and instruments such as auction securities is captured in liquidity planning and management and that there are sufficient transparency, capital support, and disclosure by sponsoring firms.

As discussed in several parts of this *Report*, various aspects of liquidity, reputational, and other risks were underestimated by originating and sponsoring institutions and, on the investors' side, there was insufficient understanding of the underlying assets, contractual structures, and other aspects of vehicles, especially those that performed bank-like maturity transformation by financing longer-term assets with ABCP not fully supported by committed liquidity lines. Among other things, covenants and triggers often did not receive adequate attention for their liquidity and solvency implications as well as for their impact on investors. There may not have been adequate economic analysis of the bases for triggers in all cases, and effects on investors even in highly rated tranches that were junior to the top tranche in a waterfall may have been unduly discounted. In some instances, firms found that cash had to be invested into a vehicle to maintain seller's shares at a minimum amount, sell short-term financial obligations when due, prevent acceleration of liabilities, or avoid break costs on derivatives.

5. Availability of Information

While a good deal of information on securitization transactions is in fact already available to investors and the market, subject to issues discussed elsewhere, it is clear that lack of uniform definitions may have contributed to undermining investor confusion as to the risks presented by different types of transactions (even those that were in no way tainted by subprime assets or structured products). Lack of clear definitions also may, in some cases, have impeded effective risk management within firms. This would include product, vehicle, role, and credit- and liquidity-enhancement descriptions. Disclosures should be consistent insofar as possible across similar transactions (see Recommendation VI.2).

6. Recommendations and Considerations for the Official Sector on Securitization and Vehicles

The following are specific Recommendations for securitization and vehicles, which are amplifications—in light of the criticality of the role of vehicles in restarting the markets—of the general liquidity risk management and risk management Recommendations of this *Report*.

Recommendation III.8: *Firms' systems of internal control should include all securitization processes, all formal commitments to off-balance-sheet vehicles, and all securitization transactions with which the firm is associated. All relevant transactions should be included in the analysis when the firm has formal, ongoing obligations to vehicles or exposures as investor, or simply a role in the transaction that could, under perhaps*

unforeseen circumstances, result in actual exposure for reputation risk or other reasons.

Recommendation III.9: *For management oversight and risk management purposes and to ensure a global view of exposures, firms should have integrated approval procedures for securitization commitments and transactions. Fragmented approvals that are difficult to aggregate should be avoided, as they may lead to difficulties of aggregation or failure to recognize concentrations.*

Recommendation III.10: *A firm's risk management and governance procedures should entail frequent review, no less than annually, of all material potential exposures to securitization transactions and off-balance-sheet vehicles, broken down by product; underlying assets; the role played by the firm in transactions (e.g., as originator, sponsor, distributor, trustee); and its positions, if any, as investor in such transactions. Care should, however, be taken to reflect accurately the nature of the firm's exposures in analysis and reporting in each instance.*

Recommendation III.11: *Firms should consider whether risk of reputation damage could lead a firm to opt to take exposures back onto its balance sheet, with liquidity and capital consequences, even in the absence of legal obligation. The Board should assure themselves that senior management is appropriately attentive to regulatory and accounting requirements on significant risk transfer and consolidation. Supervisors and auditors, however, should not take a firm's assessment or stress testing of such risks as per se grounds to require consolidation for capital or accounting purposes.*

Recommendation III.12: *Firms should ensure that analysis of concentrations and counterparty risks include exposures to guarantors of transactions, such as monoline insurers. Such analysis also should include direct and indirect exposures arising from associated credit-derivative positions.*

Recommendation III.13: *Firms' risk management analysis of securitization transactions should include analysis of the performance of underlying assets and any actual or potential resulting exposures.*

Recommendation III.14: *Firms should ensure that warehousing and pipeline risks of assets held for future securitization or securitization tranches not yet sold are included in the global exposure analysis.*

Recommendation III.15: *For own-asset securitizations or securitizations structured by the firm, there should be functional separation of groups structuring transactions from those investing or trading in them. To avoid potential structuring/trading conflicts between the origination team and the trading desk that purchases any retained positions or to avoid distorting incentives regarding investment strategy, both groups should provide independent advice to a senior credit decision-making body in the firm with authority to make balanced decisions.*

Recommendation III.16: *Senior management should carefully assess the risks of vehicles associated with the firm, including assessment of the size and stability of the vehicles relative to their own financial, liquidity, and regulatory capital positions. Analysis should include structural, solvency, liquidity, and other risk issues, including the effects of covenants and triggers, and include such issues in their liquidity stress testing. Senior management should take care that the Board is apprised of the risks of vehicles and cognizant of their implications for the firm's overall risk appetite.*

Recommendation III.17: *Firms should have a periodic look-through analysis to provide senior management with a comprehensive overview of securitized assets and securitized asset classes. Both the relevant business units and the risk management function should have the duty to*

collect and transmit within the firm early-warning signals as to deterioration of underlying assets or other emerging risks that affect its securitization transactions. The firm's structure should ensure prompt risk management attention to such warnings. IT investment should be adequate to support this function.

Recommendation III.18: *Firms should be able to include all associated securitization vehicles and their underlying assets in their assessments of group-wide risk concentrations, consistent with Recommendation I.41. Such concentrations should be included in regular reporting to the relevant oversight committees, such as the asset and liability committee or credit committees.*

Recommendation III.19: *The industry should support development of uniform terminology on securitization transactions and risks. Over time, standardization of deal terms, such as covenants and default triggers, would assist the development of market and management of risk.*

Consideration for the Official Sector III.L: *Any revision of regulatory-capital rules regarding securitizations or off-balance-sheet vehicles should be promulgated only after consultation with the industry and other stakeholders and subject to a careful impact analysis intended to verify that the results will achieve the goals of lessening risk while maintaining the credit capacity of the system and avoiding unintended consequences.*

Consideration for the Official Sector III.M: *To a substantial degree, supervisory dialogue and review of off-balance-sheet issues under Pillar 2 will be preferable to rule changes.*

Consideration for the Official Sector III.N: *Any revision of current accounting standards regarding derecognition, consolidation, or reconsolidation of assets in off-balance-sheet vehicles associated with financial institutions should be promulgated only via established due process, including careful impact analysis to verify that the results will achieve the goals of accurately reflecting the liabilities and assets of firms while assuring appropriate disclosure thereof. Standard setters should take due cognizance of the need to maintain the credit capacity of the system and avoid unintended consequences. Any revisions of derecognition, consolidation, or reconsolidation of assets should be done in a manner consistent with the general goal of convergence of international, U.S., and global accounting standards.*

Consideration for the Official Sector III.O: *Insofar as possible, any regulatory capital changes with respect to "significant risk transfer" should be made, taking into account any accounting changes.*

Consideration for the Official Sector III.P: *Where legal doubts or other obstacles to the creation of covered bonds remain, these should be remedied in order to give the market an additional option for future financing transactions; it should be stressed, however, that covered bonds should be one of various secured-funding options available to the market.*

Discussion of Recommendations III.8–III.19 and Considerations for the Official Sector III.L–III.P:

It is entirely appropriate that the relevant authorities reconsider the regulatory and accounting infrastructure around the securitization process. A careful and fairly granular discussion will be required in which the industry should be involved. A thorough impact analysis should be conducted before any specifics are changed.

Recent official-sector statements are reassuring that there is awareness of the need to continue the beneficial effects of securitization and indeed of the whole "originate-to-distribute" model in ways that will ensure their credit-creation benefits to society and the real economy (and to the financial-services industry) while preventing future disruptions.

It may be that relative details such as risk weights or credit-conversion factors for securitization should be adjusted, and the IIF and other industry groups will stand ready to discuss any such adjustments with the Basel Committee in due course.

In addition, the industry may also have suggestions to make. For example, the IIF already has suggested providing an option for firms to use internal ratings in lieu of or in conjunction with external ratings with respect to capital determination for securitization exposures, reflecting developments in risk management capabilities since the final text of Basel II was issued.[24]

It will be important not to penalize, for example, the multi-seller conduits that have performed reasonably well or to put roadblocks in the way of restarting the market. Any revised Pillar 1 elements should be established on the basis of empirical evidence. As a general matter and subject to empirical demonstration to the contrary, capital requirements with respect to securitization positions should reflect actual credit-risk transfer and certainly not exceed requirements for corresponding general corporate exposures. Any type of capital charge for origination regardless of a firm's retained positions or commitments with respect to a given transaction would not be consistent with the risk-based philosophy of the Basel Accord and should be resisted. Such arbitrary provisions in effect penalize securitization, would serve no prudential purpose, and would have a clearly negative effect on the continued constructive use of securitizations under appropriate controls.

To avoid over-generalized reactions to recent events that may not be proportionate in all instances, it generally would be appropriate to rely on the Pillar 2 supervisory review process to correct, through dialogue with affected firms, issues regarding doubts about "informal" relationships of firms with vehicles.

Balanced and proportionate resolution of outstanding issues on two topics will, however, be especially critical in determining whether or not the benefits of securitization continue to be available.

While changes may well be needed, regulatory rules determining when there is "significant risk transfer" for capital purposes could easily be tightened too far, undermining the ability to conduct such transactions or making it difficult to obtain appropriately reduced capital requirements even when risk is well and truly transferred away from the firm. Some currently pending proposals for determination of significant risk transfer would appear to render some transactions no longer eligible for securitization treatment under Basel II that, in turn, could result in unnecessary and pro-cyclical capital issues if such transactions must be carried on banks' balance sheets.

Accounting rules on derecognition and consolidation, which are currently up for reconsideration by both the IASB and the FASB (Financial Accounting Standards Board), as advocated in the FSF Report, could, like the regulatory "significant risk-transfer" rules, be made so draconian as to make it difficult to structure any off-balance-sheet transactions in the future, even with adequate safeguards and disclosures. As divergences of rules create potential confusion and compliance difficulties and are at odds with clear transparency, any revisions of these rules should be fully convergent across all the major systems.

In both the regulatory and accounting debates, there is the danger of over-reacting to the well-known problems that have arisen from conduits (especially in cases in which liquidity risk management was inadequate) and from the fact that many firms have, as extensively discussed elsewhere, chosen to take troubled assets back onto their balance sheets for reputation risk reasons, despite the absence of legal obligation to do so. These facts raise serious issues that the industry certainly does not minimize; however, it also would be possible to over-correct, with serious negative consequences for the economy.

With respect to regulatory issues, the Recommendations made in this *Report* and the relevant

[24] Institute of International Finance, *Interim Report of the IIF Committee on Market Best Practices*, 10.

official-sector reports, together with heightened internal, supervisory, and market attention to the issues in light of lessons learned, suggest that the industry will be able to manage the relevant risks effectively and consistently in the future (not forgetting that such risks have in fact been managed well at many firms despite severe strains).

With respect to the accounting and risk-transfer issues, it needs to be kept in mind that there have been many instances in which firms have *not* intervened to take assets back from off-balance-sheet vehicles that have encountered difficulties and many vehicles have been wound down. Even where repatriation of assets has occurred, it has been in circumstances of what might be called "catastrophic risk," and it has been clear that the ordinary risks and rewards were effectively transferred to investors. Thus, the headlines about firms' extra-contractual interventions in some very large transactions should not lead to draconian new consolidation rules based on presumptions about "informal obligations" to vehicles.

In some countries, actual legal obstacles or lack of a clear legal basis have impeded development of a covered-bond market. The market for covered bonds has held up better than for other forms of secured finance transactions, although they have been affected by market liquidity problems and thus have seen pricing levels that do not reflect their intrinsic repayment capability. Nonetheless, covered bonds have a long history of providing well-understood and cost-effective financing in many countries and should be a part of the suite of products available in all markets. To be clear, this does not mean that covered bonds are a full substitute for other forms of securitization. Their on-balance-sheet characteristics make them appropriate in some instances but limit the flexibility and productivity of off-balance-sheet securitization, which also has a long history in many countries. They would supplement but not substitute for such securitizations.

IV. Valuation Issues

Valuation-related issues assumed significant prominence during the market turmoil from the second half of 2007 into 2008. These issues related predominantly but not exclusively to instruments linked to the subprime market; other asset classes such as leveraged loans were also affected as market sentiment shifted.

Background

During the turmoil, market liquidity for many financial products dried up owing to uncertainty about the extent of the crisis, lack of clarity of the performance of the U.S. housing market, and lack of market demand. In the absence of sufficient trading activity, price discovery based on observable market prices became more difficult, and other valuation techniques became necessary.

In the case of some asset classes that had traditionally been sufficiently liquid, the primary valuation paradigm in certain firms did not entail the use of a valuation model but relied instead on market quotes (both at the underlying asset and at the structured-products level). This meant that, following a reduction in the ability to obtain reliable quotes, some market participants needed to quickly develop alternative valuation approaches and faced additional challenges to calibrate such approaches in the absence of market liquidity. In some cases, new valuation models had to be developed over a short period.

Moreover, the challenges of devising models to value complex asset classes and instruments, combined with the lack of readily available or easily usable data, limited the ability of investors, analysts, and other parties to assess the valuations applied by individual institutions. This, in turn, reduced demand for those asset classes, exacerbating the illiquidity of their secondary markets and contributing to an increase in the risk and liquidity premia associated with those asset classes.

Writedowns owing to increases in risk or liquidity premia required under the current implementation of fair-value accounting have themselves arguably affected market sentiment and in turn led to further writedowns, margin calls, and capital impacts. The resulting writedowns required may in the view of some exceed actual or probable economic loss on many instruments.[25]

Given a wide range of issues that need clarification and resolution in the area of valuation, there is considerable scope for constructive discussion and the Committee welcomes recent initiatives by accounting standard setters in this regard. The discussion can be framed around two areas: (1) technical issues of how fair-value measurements can best be made in the context of illiquid markets and (2) more general issues related to the effects of fair-value accounting and mark-to-market techniques, including concerns regarding possible pro-cyclical tendencies.

In this first category, the Recommendations set out below address uncertainty in valuations, including dependence on model-related assumptions; migration of securities from liquid to illiquid; consistency of valuations across time and across firms; nature of market and other information used as inputs to valuation techniques; and transparency of valuation methodologies and assumptions. The IIF and its membership look forward to working with accounting standard setters and others on these specific topics.

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[25] Bank of England, *Financial Stability Report*, April 2008, 44; Bank for International Settlements, *BIS Quarterly Review*, June 2008, 1, "Overview: A cautious return of risk tolerance."

With regard to the second category, the market turmoil has generated divergent views among a range of experienced market participants and observers. Nevertheless, many believe that the financial-stability concerns raised regarding apparent pro-cyclical tendencies that may be inherent in mark-to-market and mark-to-model techniques deserve to be considered seriously. It is recognized that this discussion will take some time and that significant changes of interpretation should not be introduced under current market conditions, when they might be misunderstood.

Fair-value accounting has been and remains an essential element of global capital markets as it fosters transparency, discipline, and accountability. This is why it is so important to foster a broad and open dialogue about the lessons of the current crisis. The initiation of such a dialogue, including standard setters, central banks, supervisors and market participants, is therefore one of the central points made here.

A broad and thoughtful review should include a symmetrical view of the issues including whether there are approaches that could limit pro-cyclical effects in a financial crisis. The effort should also address the extent to which the fair-value framework and related regulatory requirements appropriately take into account valuation adjustments to reflect liquidity and other risks in strong as well as weak markets.

The Principles of Conduct and Best Practice Recommendations made below are intended to contribute to the effort to provide more stable, more transparent, and better-understood valuations in a manner that will promote market confidence.

Principles of Conduct:

Principle IV.i: Firms should maintain robust valuation processes in accordance with applicable accounting and regulatory guidance, incorporating critical expert judgment and discipline.

Principle IV.ii: Firms should maintain a comprehensive governance framework around valuation processes, including rigorous verification and control procedures. Internal governance should ensure independence of the functions for control and validation of valuations.

Principle IV.iii: Firms should participate in efforts with the official sector and standard setters to develop meaningful, comparable disclosures on valuations, valuation processes and methodologies, and uncertainties associated with valuations and on approaches to incorporating those uncertainties into the valuation process.

Principle IV.iv: Firms should participate in efforts to enhance the comprehensiveness of coverage and quality of transaction reporting and pricing services in the market. Firms should strengthen governance of price information supplied to the market, particularly data that are not firm quotes. There should be rigorous governance and documentation of procedures covering pricing information supplied to the market to ensure that it is timely, accurate, and balanced.

A. MANAGEMENT AND GOVERNANCE OF THE VALUATION PROCESS

Recommendation IV.1: *Traders, desk heads, and heads of business all should be accountable for and sign off on proposed valuations to ensure that the business takes primary responsibility for appropriate valuation, subject to proper review and governance as outlined in Recommendations IV.2–IV.8.*

Recommendation IV.2: *Firms should ensure consistent application of independent and rigorous valuation practices.*

Recommendation IV.3: *Firms should apply appropriate expert judgment and discipline in valuing complex or illiquid instruments, making use of all available modeling techniques and external and internal inputs such as consensus-pricing services while recognizing and managing their limitations.*

Recommendation IV.4: *For assets that are measured at fair value on a basis related to intended use rather than their actual current status (e.g., whole loans in a warehouse or pipeline that are likely to be distributed or securitized and are measured as a pool), there should be additional internal monitoring of the valuations at which they could be disposed of in their current form if securitization is not carried out.*

Recommendation IV.5: *A firm's governance framework around valuation processes should integrate input from risk management, finance, and accounting policy to ensure proper product and risk control. The process should include senior management involvement.*

Recommendation IV.6: *Internal governance should ensure independence of those responsible for control and validation of valuations. This should be structured to ensure that valuation control groups are not too remote from market functions to understand developments or too close to the sales and trading functions as to compromise their independent posture.*

Recommendation IV.7: *Relevant control functions within a firm should regularly review independent price verification procedures and sources and challenge their usage as appropriate. There should be clear procedures for resolution of disagreements about valuation issues and for escalation of material valuation issues to the audit or risk committee of the Board when appropriate.*

Recommendation IV.8: *There should be regular involvement of the CRO and/or CFO (or equivalent positions) in considering valuation issues, including valuations of assets held by off-balance-sheet vehicles. Finance committees and the CFO should be aware of and consider valuation issues on a regular basis.*

Discussion of Recommendations IV.1–IV.8:

Valuation is becoming more complex in a market-based financial system, and special disciplines are required. It needs to be understood that valuation of complex and less-liquid products such as Collateralized Debt Obligations (CDOs) and ABS are based on several elements: available market information, assessment of the intrinsic value of underlying assets, well-understood modeling, and critical management judgment. Sound valuation procedures can have business advantages as well as serving a risk management necessity. The cost of resources for appropriate valuation of complex instruments and governance of the valuation process should be understood as a necessary cost of doing that business.

The basic responsibility for valuations lies with the relevant business unit at which positions are carried, in accordance with the normal practices of many firms. However, valuation and risk are interlinked, and an appropriate governance framework around valuation processes should include relevant functions depending on the firm's organization, such as risk management, finance, and accounting policy. In firms dealing with more complex instruments, multiple levels of control, and multiple points of challenge of prices and valuation, decisions are necessary. It is important that these functions apply judgment and not rely solely on mechanical processes. Particularly with respect to securitized assets, due diligence considerations are also important.

Firms should test the accuracy and reliability of inputs and valuation estimates. For material classes of complex products (or assets held in pipeline for securitization) held by them, firms should have the ability to assess the credit quality of underlying assets in order to understand any

distinction between fundamental valuations[26] and mark-to-market fair-value accounting values, both when mark-to-market falls below fundamental model valuations and the reverse. The firm should have a process to determine when it is appropriate to escalate material divergences to the appropriate committee of the Board.

Prices[27] and other valuation inputs have many sources, and price verification for valuation purposes needs to reflect the strengths and weaknesses of various sources.[28]

Virtually all pricing information needs to be considered critically. It is, of course, appropriate to rely on widely available information for highly liquid securities, but beyond that, issues arise quickly. As some of the official-sector discussion has pointed out, it may be tempting to rely on dealer quotes alone to value, for example, generally liquid Over-the-Counter (OTC) derivatives, but it may be risky to count on the continued liquidity of the market for valuation purposes, which is where judgment and good internal controls become critical. While quotes of other dealers are important, reliance on such quotes should not be carried to the extreme of abdication of the basic responsibility of traders to understand the risks they are taking.

Moreover, certain instruments are generally priced using models and calibrated to market because of their inherent characteristics, even in the most liquid markets, using market inputs. For example, even a plain-vanilla swap requires a model to include the relevant discount factor, forward rate building, turn-of-year effect, funding cost, counterparty risk, and other factors. For certain securitizations, modeling will need to include consideration of the waterfall of cash flows through potential default events.

There needs to be a clear articulation of who owns valuation and price testing, who has primary responsibility for specific aspects of the valuation control functions, and how valuation issues are escalated in the firm.

Review by the CRO and/or CFO or their delegates should include the appropriate application of "day-one profit" and other issues and regular updating of businesses' valuations. Finance should apply both accounting and policy control and make sure that aggregations make sense across businesses. The finance and risk functions need to work together to provide good explanations of P&L changes, for example, making clear the effects of changes of correlations, interest or exchange rates, or other material variables.

With respect to material assets held either on an accrual basis or on a fair-value basis, it is important to understand fundamental valuations as well as current market-based values. At the top of the cycle, the market may underestimate the

[26] "Fundamental valuations" for this purpose would be understood to be the firm's estimate of the likely paying capacity of assets (including underlying assets of complex structures to which the firm is exposed). For equities, the same issue arises when a stock is trading below its book value.

[27] Senior Supervisors Group, *Observations on Risk Management Practices during the Recent Market Turbulence,* 12, stated that "The goal of verifying prices is to estimate the price at which the firm could sell or transfer a financial instrument in a normal market transaction today. This price may reflect either an outright sale of the position to a buyer or the cost of hedging the position."

[28] There are various sources of prices: actual trades, broker prices on screen, quotes from the provider of the product, consensus-pricing services, indices, collateral transactions, internal models, back-up valuation procedures, and primary-market transactions. Each may have its own advantages and limitations, depending on the circumstances. Actual trades, although real, may be abnormal as to size or date or may reflect specific motivations not related to overall market views; broker prices on screens may not correspond to actual traded prices in illiquid markets, are not always available, and may reflect a specific view; quotes from providers of products may not reflect a commitment to trade or may include an unwind margin (the larger the transaction requested, the more the price may decrease); indices may be limited in their inputs, may be decorrelated, or may not be a close proxy for actual instruments; internal models or back-up valuation procedures rely on proprietary assumptions, inputs, and model design. Primary-market transactions may in some respects be misleading as indicators of secondary-market transactions. Moreover, the sources of information and valuation techniques available to and appropriately used by a party may vary with its role as a market-maker, trader, large investor, or small investor.

risks of assets; at the bottom, current market values may underestimate the economic value of the assets if held for an appreciable period beyond the measurement date. In other words, the business needs to have a view on valuation and not just accept prices passively.

Audit of valuations should also be clear and feed into the normal reporting to the audit committee of the Board. There should be a periodic audit that valuation governance and control procedures are working effectively (see Consideration for the Official Sector IV.D).

Recommendation IV.9: *Firms should ensure that new-product and associated model and pricing-approval processes are in place to ensure that new products, asset classes, and risk types are valued appropriately, given volumes and other operational risk factors.*

Discussion of Recommendation IV.9:

New-product approval processes should involve those areas offering the requisite modeling skills and valuation experience for such products. Valuation issues, including models, input sources, controls, and resources, should be considered for each new-product approval.

Robust operational support is as important as any legal, compliance, or business check on a new product. The development of appropriate valuation infrastructure is important in the development of a product. Whereas valuations of a one-off or initial transaction may appropriately be based on spreadsheets or other ad-hoc developments (subject to appropriate controls), trading any material volume of a complex product requires well-controlled, fully vetted valuation programs and investment in fully developed valuation programs.

While some flexibility about the technical underpinnings of valuation for a one-off transaction or start-up business, with an acceptable and limited risk profile, is appropriate, subject to control-function oversight and creation of a reliable audit trail for all developments and changes, both desk and risk functions must monitor growing business to avoid gradual building up of volume before fully robust valuation programs to support that volume are available. When new products are approved subject to conditions such as requirements to build screens or limits as volumes develop, procedures should be in place to see that limits or conditions are strictly observed, especially when the business is growing rapidly.

Recommendation IV.10: *Firms should have business-as-usual model-review and price-verification organizational structures, processes, and policies in place.*

Discussion of Recommendation IV.10:

Model validation and price verification should be an ongoing part of the firm's conduct of business. Such processes and policies would include tolerance bands (i.e., what level of valuation variance constitutes a red flag), interpolation processes for less-liquid assets (i.e., processes for using on-the-run [more-liquid] prices to interpolate pricing for off-the-run [less-liquid] securities), and mark-to-model processes for illiquid securities. Model validation and price verification should be an ongoing part of the firm's conduct of business. Firms should consider the benefit of external review of models in appropriate cases.

Recommendation IV.11: *Firms should ensure that they have a consistent valuation approach for similar assets and liabilities. Firms should ensure that there is a process in place to identify and escalate inconsistencies to senior management.*

Recommendation IV.12: *Valuations should be subject to sensitivity analysis to evaluate and inform the organization about the range of uncertainty and potential variability around point estimates.*

Recommendation IV.13: *Firms should have a robust framework in place to oversee and ensure*

the integrity and consistency of accounting policy as applied within the firm.

Recommendation IV.14: *Firms should ensure that there is a process to highlight accounting policy decisions for management consideration; this process should include developing an understanding within the firm of the impacts of accounting requirements and accounting policy on the valuation process.*

Discussion of Recommendations IV.11–IV.14:

There should be consistent application of independent and rigorous valuation practices used within the firm for valuation of assets or liabilities on its own books (valuation practices and procedures for asset management purposes are legitimately different and kept distinct from those for the firm's proprietary purposes, although similarly rigorous procedures should be applied). In addition, testing should focus on robust sensitivity analysis of valuations intended to disclose their potential volatility and range of possible results and to improve evaluation of the riskiness of assets and contingency planning for volatility events (see Recommendation I.52). Valuation uncertainty and market risk are inter-linked. The key need is to ensure that issues receive the prompt attention of the appropriate control functions.

Accounting guidance seeks to induce firms to apply their best approaches to fair value to produce results that are neither too aggressive nor too conservative. At the same time, there is a perception that market incentives in times of stress encourage firms to take aggressive writedowns to "get the problem behind the firm," even if erring on the conservative side would not necessarily be consistent with the best reading of accounting guidance.

Another issue of accounting interpretation arises when price information obtained from limited market inputs differs from prices as obtained via internal models; there is a tendency not always to consider the internal model and to use the external price information instead. However, a well-designed internal model that is calibrated on the basis of market information will in many cases give indications of trends that are important both for risk management purposes and for assessment of the degree of uncertainty of accounting valuations (which are always point-in-time). In certain market circumstances, such a model may in fact be more reliable as an indication of fair value than isolated, individual transactions or other constrained market inputs.

Recommendation IV.15: *Firms should recognize that transaction prices may become dated and dealer quotes may not reflect prices at which transactions could occur, especially during periods of low liquidity. Firms should devote the analytical resources necessary to checking valuations made on such bases and make adjustments when deemed appropriate.*

Recommendation IV.16: *Small to medium-sized firms, given their limited resources, should develop at least internal benchmarking and not rely purely on dealer quotes for valuations.*

Discussion of Recommendations IV.15–IV.16:

There is a risk in excessive reliance on indicative dealer quotes. At least for material positions, firms should undertake their own analysis in addition to gathering indicative prices from dealers. Similarly, small, isolated, or dated trades may be misleading in many circumstances, and consensus-pricing services or other available inputs should also be used in valuing relevant instruments.

Firms need tools and qualified personnel to assess pricing information. However, it needs to be recognized that, especially for small to medium-sized firms with limited portfolios, it is difficult to make the investment in the data sources or the analytical resources necessary for all asset classes. There may be less-sophisticated approaches, such as benchmarking, available in cases in which a cost/benefit analysis does not justify full-scale modeling of all assets.

Recommendation IV.17: *Firms should have valuation procedures, with appropriate governance processes, in place for times of market stress, including how to recognize and react when changes in market liquidity or volatility require changes in valuation approaches for individual assets.*

Recommendation IV.18: *Firms should assess the infrastructure and price testing implications of moving from observable market prices to other valuation techniques, including mark-to-model for material asset classes, and incorporate such implications in resource planning.*

Recommendation IV.19: *Firms should have adequate resources to accommodate the demands of producing valuations during a period of market disruption.*

Recommendation IV.20: *For purposes of regulatory capital, the process of evaluation of whether an instrument should be placed in the trading or banking book should be subject to objective criteria and control procedures. Firms should provide clear explanations internally and to auditors as to why instruments were initially placed in the trading book or the banking book under prudential and accounting tests.*

Discussion of Recommendations IV.17–IV.20:

Operational risk issues of valuation need close examination and periodic reexamination as markets, volumes, and trading patterns change. The recent turmoil has shown that assets widely assumed to be liquid, hedgeable, and appropriate for the trading book may rather suddenly become highly illiquid and difficult to hedge. Firms may need to make more investment in this aspect of operational risk management.

Under FAS 157 *Fair-Value Measurements*, Level 1 assets have an observable market price. While the price might change over time, there is no uncertainty around the valuation of those assets at any given moment. On the other hand, there is uncertainty around valuations of Level 2 and 3 assets (using indirect inputs or mark-to-model) for which a range of prices could apply.[29]

Level 2 and 3 valuations often are more resource intensive than Level 1. In addition, full-scale model validation looking at tactical implementation of models, verifying inputs, and back-testing outputs is a very labor-intensive exercise. As a result, volatile markets and the migration of assets from Level 1 to Level 2 or 3 put stress on valuation capabilities and governance structures. Firms generally have found that there was a scarcity of human resources to cope with changes and value less-liquid instruments, particularly in the cases in which data were problematic.

Market-turmoil events have led to questions about whether specific assets or asset classes were appropriately placed in firms' trading or banking books for regulatory purposes and, therefore, whether they had been given the appropriate accounting and capital treatment. While there may be instances in which decisions were made too aggressively, many of the questions that now seem evident arise because of market-liquidity conditions that have changed more radically than anyone could reasonably have expected. Nonetheless, this experience shows that great care, with necessary attention to both accounting and regulatory requirements and guidelines, is needed in clarifying the appropriate designation of assets to one treatment or the other.

Valuation-related issues and uncertainties can arise in either the trading-book or the banking-book context. It has been questioned whether the valuation-related challenges are greater or lesser when looking through a fair-value lens on the trading-book side than accrual accounting in the banking book. For example, some firms with subprime-related positions hold these positions in the banking book but face similar issues in formulating credit reserves to those faced by firms holding such instruments in the trading book and addressing mark-to-market valuation issues.

[29] There are parallel IFRS concepts. This *Report* uses the U.S. terminology as a proxy for similar issues under IFRS for convenience of exposition.

The trading book is subject to constant review in terms of price. The banking book is commonly considered less frequently; however, it is required to mark down assets that are judged to be impaired. Thus, in a general sense it can be said that, if there are actual losses (i.e., other than temporary impairment) as opposed to market volatility, the difference between the trading book and the banking book is in part one of timing of recognition of losses.

Another source of discussion concerns complex instruments that often have been held in the trading book but were not actively traded, although they might be hedged or managed consistently with trading-book assets. During the period of liquid markets, many complex instruments, including CDOs, did have trading-book characteristics (two-way activity, hedging), and certain products that are illiquid would nonetheless not be suitable for the banking book (e.g., short puts).

B. IMPROVING INFRASTRUCTURE

Recommendation IV.21: *Price discovery for valuation purposes should be improved through broader, more widely available, and easily accessible price utilities (including aggregate transaction-price reporting where available or consensus-pricing services or similar services), incorporating a wider array of instruments and data on underlying assets.*

Recommendation IV.22: *Firms should have appropriate controls over prices submitted to utilities to ensure not only that high-quality prices, consistent with the rules or requirements of each service, are submitted but also that the firm submits prices for as many material positions as possible when available.*

Recommendation IV.23: *Utilities should seek inputs from as broad a range of sources as possible, provided that entities supplying inputs meet clearly defined criteria as to their technical capabilities and the quality of prices supplied.*

Discussion of Recommendations IV.21–IV.23:

Information in the public domain enables financial institutions and others to compare their values. Price discovery should be improved through existing price utilities or similar private-sector services. Consensus-pricing services are a useful tool that should be used with care. They can be better indications of prices than dealer quotes or isolated market transactions. Several efforts are under way that go in this direction.

A major complaint from investors and collateral agents has been the absence of actual prices or reliable price quotes for certain complex types of instruments. While transactional quotations may not always be available, pricing services can provide valuable input.

The reliability of such indicative pricing utilities for valuation and other purposes in the market depends on the volume and quality of inputs. With respect to some instruments, there are likely many firms that do not submit valuations to pricing utilities.

Prices are generally not obtained from investors or parties such as hedge funds, but this is a pattern that might be reconsidered, at least for the most sophisticated parties. The more dealers or other entities contribute prices (whether model-driven and indicative or firm-dealing quotes), the more prices available from services will command confidence in the market and contribute to valuation reliability and relative consistency. Broadening and deepening the sources and quality of prices in the market is important to reduce uncertainty.

The SSG Report[30] notes that some firms that performed well in late 2007 tested their valua-

[30] Senior Supervisors Group, O*bservations on Risk Management Practices during the Recent Market Turbulence,* 3, stated that "Subsequent to the onset of the turmoil, these firms (that performed better in late 2007) were … more likely to test their valuation estimates by selling a small percentage of relevant assets to observe a price or by looking for other clues, such as disputes over the value of collateral, to assess the accuracy of their valuations of the same or similar assets."

tion estimates by selling a small percentage of relevant assets or by "looking for other clues" such as noting disputes over collateral values. While such techniques can indeed be valuable, they need to be approached with caution. Collateral issues are discussed under Recommendation IV.24. The utility of selling small percentages of positions depends very much on the context. Among the issues to be considered are the size of a "test" trade relative either to usual trades in the market (a trade that is substantially smaller than the norm may not be a good indicator) or the size of the firm's own position; the number of participants in the market at the time of the trade; whether the firm is testing a long or a short position; how many other trades were reported in the market around the same time; and other indications of the quality of the market and of the trade. Even more importantly, use of such trades to test the market waters should be done in accordance with established firm-wide policies as to when and how to conduct such trades, and they should be subject to independent control and review. If used, such trades should be conducted as objectively as possible, in accordance with such policies, given that the timing, size, or manner of such trades could substantially affect the result, and gaming the timing or other aspects would be contrary to the purpose of conducting a test.

Recommendation IV.24: *Where other valuation indications are less than satisfactory, firms may wish to consider using available information about valuations from collateral and repo experience.*

Discussion of Recommendation IV.24:

Valuations for collateral and repo purposes are obviously of great importance to the good functioning of markets. Confidence in valuations for such purposes has a substantial effect on firms' ability to finance themselves and generally to carry out market functions. Valuations assigned for collateral and repo purposes may, however, be subject to negotiation on different bases and different market effects than purchases and sales and thus are generally not appropriate to use as a basis for valuation without further consideration.

Such information can nonetheless be a useful input; however, sound practice needs to be developed. The existence of disputes about, for example, collateral valuations may be a useful indicator that an especially critical approach should be taken toward market indicators of values. In considering such sources, care should be taken to assess counterparties' ability to price the relevant instrument. It seems obvious, but also is worth stressing, that distressed sales of less-liquid collateral resulting from margin calls or defaults should be considered carefully before being used as indicators of fair value.

Recommendation IV.25: *There is a need for index providers and the industry to address the recognized weaknesses of some of the most-used indices, including improving coverage, liquidity, and transparency as to inputs and attention to reliance on them for different purposes (e.g., market making, trading, traders' valuations, hedging, investors' valuations).*

Discussion of Recommendation IV.25:

As the SSG Report notes, firms have been using information drawn from indices, such as the ABX series, which comprises credit-default swaps on subprime mortgages, to help estimate losses on the underlying mortgages. While it has sometimes been necessary to use such indices as inputs to update models, the limitations of such indices for valuation purposes have also become more apparent as they may not be as liquid or as representative as might be hoped, although they often remain essential points of reference.

Generally, there needs to be a serious examination of the indices to make them, insofar as possible, more reflective of the market and more useful for multiple purposes. It should be recognized that inclusion of an instrument in an index is likely by itself to change its liquidity charac-

teristics and hence its pricing efficacy relative to non-included instruments. The deliverability of an index contract is a key component in ensuring arbitrage trading to make sure the index contract stays in line with its components.

C. CONSIDERATIONS FOR THE OFFICIAL SECTOR

Consideration for the Official Sector IV.A:
Accounting standard setters should provide further guidance, perhaps via examples, clarifying boundaries between levels in the valuation hierarchy, especially on appropriate usage of indirect inputs or mark-to-model processes, in order to improve the understanding of the valuation hierarchy among firms, auditors, and the market.

Discussion of Consideration for the Official Sector IV.A:

Unlike the case of Level 1 assets, which have an observable market price, there is uncertainty around valuations of Level 2 and 3 assets for which a range of prices could apply. When bids cannot be found in the market, it does not automatically follow that their value is zero, and firms must resort to Level 3 to value them (in some cases needing to develop Level 3 methodologies for previously liquid instruments).

The borders between Levels 2 and 3 are perceived to be unclear. Owing to the lack of clarity in the definitions of Levels 2 and 3, there is divergence in how firms make the distinction between the levels. For example, if all that is available is a non-binding quote from a dealer, and there is no trade behind it, some firms consider it a Level 2 input while others consider it a Level 3. This categorization also requires a great deal of management judgment, and hence there is a need for careful disclosure, as discussed above.

In recent months, "mark-to-model," although well established in the accounting literature, has been criticized as "mark-to-myth." However, others have maintained that this view loses sight of the fact that the process of modeling the positions' value ensures that complex risks are understood. Simply relying on a price from another market participant involves no such understanding of risks. In other words, Level 3 valuations may be more reliable than Level 2 valuations based on thin markets, partly because the boundaries between Level 2 and 3 are unclear.

Enhanced guidance on the key characteristics of each level from standard setters will drive consistency in categorization of assets and disclosures by firms.

There also is a need for enhanced guidance on how transitions from one level to another should be handled, both internally and for external stakeholders, to provide more useful disclosure of migration between categories.

As on other issues, it is highly important that new guidance on the subjects discussed here be coordinated and made as consistent as possible among international, U.S., and other accounting standards and contribute to convergence.

Consideration for the Official Sector IV.B:
Accounting standard setters should provide additional guidance on the valuation of financial instruments when markets are no longer active and on critical concepts such as what constitutes an active market or a distressed sale.

Discussion of Consideration for the Official Sector IV.B:

Accounting standard setters should, within the principles-based approach, provide additional guidance as to conduct of valuations in highly volatile or illiquid markets or when there is a migration of assets from liquid to illiquid status because of market change.

Moreover, further guidance is required on basic operative concepts, such as determining

when there is an active market or a distressed sale or when it is or is not appropriate to use small volumes of secondary-market trading as valuation inputs.[31]

Again, new guidance on the subjects discussed here should be coordinated and made as consistent as possible among international, U.S., and other accounting standards.

Consideration for the Official Sector IV.C: *Accounting standard setters should have in place an expedited due process for interpretations or amendments of standards necessary to respond to issues arising in extraordinary times of stress.*

Discussion of Consideration for the Official Sector IV.C:

Standard setters' due processes must be respected in considering any issues of interpretation or application. Nevertheless, there is a need for an expedited process for interpretation of how appropriately to apply standards in extraordinary stress situations where available interpretations of current accounting standards are not adequately equipped to deal with unforeseen market stress. This would assist firms and auditors to deal with changing circumstances and perhaps permit a higher degree of comparability across issuers in the market, thereby lessening confusion and perhaps stemming to some degree the erosion of confidence.

By the same token, developments may indicate that amendments of standards are in order to achieve the purposes of high-quality accounting standards under changed circumstances. While due process will always be important, and changes should not be unduly hurried, an expedited version of due process for situations and instruments in which there is widespread perception of a need for change would be appropriate and prudent and could contribute to mitigation of future crises. Provisions made for expedited treatment should include coordination between the standard setters. They should be designed to facilitate continued convergence of standards, despite the urgency of certain issues.

Consideration for the Official Sector IV.D: *Audit standard setters should provide clear guidance on how fair-value values based on indirect inputs or models are to be audited.*

Discussion of Consideration for the Official Sector IV.D:

Enhanced guidance should be provided by audit standard setters for audits of valuations of complex or illiquid financial products and related disclosures. Such guidance should permit due attention to uncertainty, model, and other risks. Robust guidance provided by audit standard setters would promote consistent auditing practices and could be essential to enable firms to implement evolving accounting guidance and practices on valuation.

Consideration for the Official Sector IV.E: *To enhance understanding of valuations, clarify valuation techniques, and discuss how best to summarize for disclosure the uncertainties, assumptions, adjustments, and sensitivities of valuations in the mark-to-market environment, especially in cases in which indirect inputs are used or valuations are based on models, the Committee recommends that there be a technical dialogue in the short term among firms and with auditors, rating agencies, investors, analysts, accounting standard setters, and supervisors. Consideration also should be given to reviewing the implications of mark-to-market techniques on the incentives to structure transactions that may embed significant liquidity risks.*

[31] The Committee of European Banking Supervisors, *Report on Issues Regarding the Valuation of Complex and Illiquid Financial Instruments*, June 2008, 7, stated that, "CEBS believes that there is a need to clarify the criteria for determining what constitutes an active market and what can be considered an observable input in IAS 39."

Discussion of Consideration for the Official Sector IV.E:

The FSF Report stated that "Financial institutions and auditors have worked together to improve valuation approaches and related disclosures in end-year financial accounts. But further work is needed to provide confidence that valuation methodologies and related loss estimates are adequate, to clearly highlight the uncertainties associated with valuations, and to allow for more meaningful comparisons across firms."[32]

The type of dialogue envisioned in Consideration for the Official Sector IV.E is akin to that proposed by the FSF Report, which proposed an expert advisory panel to help "enhance its guidance on valuing financial instruments when markets are no longer active."[33] The establishment of this advisory group is a welcome and valuable step. The Committee urges, however, that this group be given a sufficiently wide mandate to consider all current valuation issues with respect to Level 2 as well as Level 3 assets. In addition, the discussion needs to be conducted at many levels simultaneously and should include exchanges of ideas and debate among all of the concerned parties, including firms, auditors, rating agencies, investors, and analysts. The discussion should also be designed to reinforce coordination between the IASB and FASB on resolution of these issues, which are faced under both international and U.S. accounting standards.

Structured credit products such as CDOs are typically valued using complex mathematical models. These techniques became increasingly challenging in stressed market conditions, especially where thin or dried-up markets failed to provide sufficient inputs and references. Moreover, these instruments also might require the use of specialized databases and a close analysis of the cash flows and event-of-default triggers within the structures. Such complexity and, with respect to some asset classes, lack of readily available or easily used data limited the ability of investors, analysts, and other third parties to assess the valuations applied by individual institutions.

The expectation is that dialogue among all parties concerned and improved disclosure about valuations, methodologies, and the uncertainties associated with valuations will help to achieve greater convergence and robustness in valuation approaches and greater confidence in the results of the valuation process. Such dialogue should include discussion of models, approaches to model adjustments and reserves across the industry, and the role and composition of market indices. This may need to take place under official auspices to address legal concerns that could inhibit communications among firms on valuation questions (see Principle of Conduct IV.iii).

Prior to the market turmoil, liquidity was plentiful, and therefore undervalued and often not taken into account in model valuation adjustments; this was especially true in the period through mid-2007 because of the low-interest environment and cheap and abundant liquidity in the market. However, in light of recent events, how an instrument is funded should be taken into account in the valuation of the entire book, which a pure credit-based model does not do.

Thus, the industry also should consider how changes in the accounting for financial instruments and structures have impacted the way in which the system trades, values, and allocates liquidity risk.

Consideration for the Official Sector IV.F: *When examining mark-to-market issues, standard setters, supervisors, and the industry should assess the extent to which mark-to-market valuation can and should appropriately take into account valuation adjustments necessary to reflect liquidity and other risks, in both strong and weak markets.*

[32] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 33.
[33] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 27.

Discussion of Consideration for the Official Sector IV.F:

As fair-value issues are considered among the industry, accounting and auditing communities, the prudential supervisors, and accounting standard setters, it is important to consider appropriate adjustments to pricing to correct for liquidity risk as well as other risks such as basis risk, model risk, and counterparty risk, and on such valuation or model reserves as may be appropriate. This should be a symmetrical discussion, to address issues applicable in good times as well as in downswings.

Consideration for the Official Sector IV.G: *Financial and monetary authorities should support the establishment of a group including all relevant parties to engage in a high-level dialogue with both leading accounting standard setters to consider (1) the potential lessons learned of the effects, including possible pro-cyclical effects, of fair-value accounting and the implementation of mark-to-market techniques during times of illiquid markets, and (2) meaningful medium-term improvements that might be made on the basis of lessons learned through the market turmoil.*

Discussion of Consideration for the Official Sector IV.G:

Fair-value accounting has been very useful in promoting transparency and market discipline. However, at times there are issues relating to how best to implement it. It continues to be a reliable accounting method for financial instruments that have liquid markets, but as already stated, there is a need for clarification on several fronts, including on pricing inputs in illiquid or dislocated markets and conditions for use of mark-to-model approaches.

Beyond that work of clarification, however, a broad dialogue among all stakeholders is also needed to consider meaningful medium-term improvements that could help fair-value accounting play an even more constructive role for the financial system. The objective should be to reduce uncertainties while avoiding excessive complexity.

As emphasized earlier, it is recognized that significant changes of interpretations or standards in the midst of financial turmoil could cause confusion among investors and thus would be counterproductive. However, the basic issues merit careful and thorough consideration.

While views differ widely, concerns have been raised about the extent to which current interpretations of mark-to-market techniques may have pro-cyclical effects or contribute to market uncertainty. When there is no or severely limited liquidity in secondary markets, mark-to-market requirements for some portion of the assets in the system have led to reported results that deviate from the fundamental valuations of those assets.[34] Also, as noted earlier, the application of fair-value accounting via mark-to-market in circumstances of widespread illiquidity arguably has the potential to create self-reinforcing effects.

This dialogue should review the unintended consequences and potential lessons to be learned of the recent turmoil. Such review should include whether there is a need to mitigate the feedback effects of mark-to-market techniques in illiquid markets. For example, some have suggested using alternative valuation approaches, including use of

[34] Bank of England, *Financial Stability Report*, 44, stated that "loss estimates based on market prices are likely to overstate significantly banks' losses as they will reflect factors such as illiquidity and uncertainty, which are unrelated to credit fundamentals and should ease over time. So unless there is a significant deterioration in the economic outlook, well beyond that currently anticipated, financial institutions in aggregate are unlikely to suffer losses on anything like the scale implied by market prices; indeed some banks may eventually write back part of the losses announced to date if they have been based on estimates implied by market prices." Bank for International Settlements, *BIS Quarterly Review*, June 2008, 6, "Estimating valuation losses on subprime MBS and ABX HE index—Some potential pitfalls."

underlying discounted expected future cashflows, in defined circumstances of market dislocation. Others have suggested that permitting accounting classification changes from "trading" to another status under certain defined conditions could allow firms to arrive at more appropriate valuations for certain instruments. It is noted that there is no consensus within the industry on either of these suggestions. Other ideas for useful medium-term improvements might also emerge from the type of dialogue envisioned here. Full disclosure would be a prerequisite of the use of any medium-term solution that might be adopted.

There also is a need for discussion and debate on other critical topics, including the presentation through fair-value accounting of liabilities and marking to market own-credit risk. It appears that further guidance is required, given that financial institutions have taken rather different approaches to the measurement of the fair value of own-credit, which may have caused significant differences in reported results. These differences are again exacerbated by apparent differences in interpretations between U.S. GAAP and IFRS.

Regardless of the outcome of the broader discussion proposed here, it is important that the accounting standard setters achieve greater consistency than there is today between international and U.S. accounting standards, on issues including transfers between accounting categories. Similarly, regulatory requirements need to be consistent across the major jurisdictions, including with respect to trading-book versus banking-book issues.

V. Credit Underwriting, Ratings, and Investor Due Diligence in Securitization Markets

The Committee has analyzed the rating of asset-backed structured products from origination to risk assessment of securities by rating agencies, the assignment of final ratings, and the investment decision by institutional investors. There are several parties involved in the end-to-end processes, each with its own duties and responsibilities. To maintain the integrity of the end-to-end process, each party needs to conduct its business with integrity and perform adequate due diligence.

In its analysis of the run-up to the credit market turmoil with regard to the credit underwriting and ratings processes, the Committee found that, as the market matured and the number of structured deals grew, standards weakened at various points in the process. Pressures to keep costs down and speed up time to market put pressure on due diligence processes. Also, given the number of deals, risk assessment became a data- and model-driven process with less attention to important qualitative factors such as quality of lending standards and potential scope for fraud. Offer documents[35] grew longer and longer as structures became more complex.

The Committee also found that credit rating agencies have not conveyed a full array of risks embedded in structured products, nor have they provided sufficient information on the assumptions behind the modeling of particular structures or on the sensitivity of outcomes to small changes in assumptions. In addition, the Committee found that while more sophisticated institutional investors were able to make their own assessments to a degree, many less sophisticated investors relied excessively on ratings when making credit decisions.

In drafting its recommendations, the Committee has considered what due diligence is carried out on underlying borrower quality, the possible conflicts of interest in the firms and the rating agencies, as well as the kind and amount of information disclosed. Discussions also have been carried out with the investor community to assess their needs. Accordingly, Principles of Conduct and Recommendations have been developed for three constituencies:

A. Originators[36]/Sponsors,[37] Underwriters,[38] and Distributors;[39]
B. Rating Agencies; and
C. Investors.

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[35] Offer documents should be understood to include any public prospectus, public offering memorandum, or similar deal disclosure documents.

[36] "Originator" means either of the following:

(a) An entity which, either itself or through related entities, directly or indirectly, is involved in the original agreement which creates the obligations or potential obligations of the debtor or potential debtor giving rise to the exposure being securitized, or

(b) An entity that purchases a third party's exposures, brings them on to its balance sheet, and then securitizes them.

[37] A "Sponsor" is an entity that establishes and manages an ABCP program or other securitization scheme that purchases exposures from third-party entities. Originators can be sponsors.

[38] An "Underwriter" is the entity that acts as an intermediary between the issuer of a security and the investing public.

[39] A "Distributor" is the entity that buys structured products directly from originators for the purpose of reselling to interested buyers.

Note: A financial institution can act in different capacities described above. For practical purposes, any reference to Originators includes Sponsors and any reference to Underwriters includes Distributors in this *Report*.

A. ORIGINATORS/SPONSORS, UNDERWRITERS, AND DISTRIBUTORS

Principles of Conduct:

> ***Principle V.i:*** Firms involved in the "originate-to-distribute" process should conduct thorough due diligence at all stages to maintain the integrity of the process.

> ***Principle V.ii:*** For all loans or products in pools, originators should apply appropriate lending standards.

> ***Principle V.iii:*** Sponsors compiling and maintaining pools to underpin structures should clearly define an appropriate approach to credit approval for exposures included in the structures, and should ensure that this is carried out as thoroughly as would be the case if the exposures were to be held on the sponsor's own balance sheet.

> ***Principle V.iv:*** Originators and underwriters should disclose, on a timely basis, appropriate and relevant information about structured products and their underlying assets to investors and rating agencies.

> ***Principle V.v:*** Originators and underwriters need to consider the general appropriateness of a structured product being sold to an institutional investor.

Underwriting activities should be monitored to avoid the types of weaknesses that contributed to the stress in the market. Essentially, the industry needs to ensure that robust standards will be employed regardless of whether assets are to be held or distributed to third parties.

1. Due Diligence

Recommendation V.1: *Originators, sponsors, and underwriters should:*

- *Adopt and follow appropriate due diligence standards;*
- *Ensure that appropriate and relevant information is released in a timely manner; and*
- *Ensure that appropriate ongoing monitoring and disclosure of the performance of the underlying collateral is carried out.*

Discussion of Recommendation V.1:

One of the critical factors behind the turmoil in the past year was that declining lending and due diligence standards in the U.S. MBS markets undermined the "originate-to-distribute" model, creating wider confidence effects. For example, the percentage of sampling of borrower documentation is understood to have fallen substantially in many cases, leaving pools of underlying loans used in ABS potentially open to fraud. Mortgage brokers and non-bank originators sometimes originated loans without applying bank-equivalent lending standards. A further problem was that, as the number of deals grew, the time between announcement and completion shortened substantially. This did not always allow enough time for sufficient due diligence. Investors and rating agencies have not always had ready access to necessary loan-by-loan data or summary data on the quality of loans in the pools underlying structured products or their ongoing performances. In order to strengthen the "originate-to-distribute" model and enhance market confidence, adherence to minimum standards is needed. Special areas for attention include the following:

- Within the industry, the roles and accountability of all market participants, including originators, sponsors, and underwriters, should be well defined;
- Originators and sponsors should observe appropriate credit due diligence standards applied to loans or products underpinning structures;
- Underwriters should ensure that the time allowed for due diligence is adequate;

- Originators, sponsors, and underwriters should ensure that there is full and factual disclosure to the rating agencies and the market of the core lending standards applied to the loans and changes, if any, to each standard over time;
- Where appropriate, originators, sponsors, and underwriters should make the following information available prior to issuance and, as relevant, on an ongoing basis to the market and the rating agencies:

    - o Performance of loans in the pools underlying structured products such as arrears data, default data, and prepayment rates (in the case of mortgages); insofar as possible, ongoing disclosure of the performance of underlying assets should take into account data available on relevant benchmarks, such as changes of house prices for RMBS;
    - o Percentage of sampling for borrower documentation;
    - o Any change in lending standards from prior, similar deals or relevant to underlying assets;
    - o Loan quality by PD/loss given default (LGD) band where available; and
    - o Loan-to-value (LTV) ratio data for mortgage pools, where available.

- A minimum of 10% of underlying borrower documentation should be sampled and the level of sampling disclosed in the offer document;
- Offer documents should make clear the type of monitoring information that would be provided on an ongoing basis; and
- Ways should be found to make the above data readily available to prospective secondary investors and to assist comparative assessment across products.

Recommendation V.2: *Firms should subject assets that they help originate and distribute to the same credit due diligence standards as used for similar assets that are to be carried on the firm's own balance sheet. For third-party assets for which financial institutions act as sponsors, an appropriate due diligence process should be conducted. Alternately, firms should disclose reasons for not observing their usual credit due diligence processes.*

Discussion of Recommendation V.2:

A criticism coming out of the subprime market turmoil is that sponsoring firms did not always conduct adequate due diligence on third-party assets that they helped distribute. It was agreed that the industry had to address this issue in earnest and introduce processes that will induce firms to maintain high due diligence standards. The Committee suggests that, when third-party assets are included in structures for which a firm is acting as sponsor, the sponsoring firm should assess such assets as it would do for originate-to-hold assets. This would require sponsoring financial institutions to, in principle, apply the same underwriting criteria as used for assets that would be taken on the firms' own balance sheet subject to appropriate adjustments.

For management-oversight purposes, firms should avoid fragmented approval structures for their securitization commitments (see Recommendation I.36). In other words, there should be a coherent, integrated process for vetting structures, including relevant risk and credit departments, and approvals should not be given by transactional departments in isolation from firm-wide processes and procedures.

Recommendation V.3: *Firms should consider the general appropriateness of products for specific types of institutional investors. Sales processes within firms should be reviewed to ensure proper consideration of the risk factors of products and risk profiles of investors at the time of sale.*

Discussion of Recommendation V.3:

The Committee believes that, while firms are responsible under applicable law for assessment of the suitability of products of specific retail customers, firms should not be held to a suitability obligation to assess the investment ability or goals of an institutional investor. Nevertheless, firms should consider the general appropriateness of products for specific types of investors. Issues regarding appropriateness of products can be effectively addressed through disclosure.

Consideration for the Official Sector V.A: *Authorities should review and amend the regulation that makes it difficult to release loan-by-loan information to all market participants.*

Discussion of Consideration for the Official Sector V.A:

The official sector needs to review all legal obstacles, which can range from privacy concerns to limited dissemination of privately placed securities that may impede the dissemination of, for example, critical data such as LTV distribution for loans. They need to consider revising legislation and regulation to allow for better dissemination of information in the marketplace.

Regulations that may create difficulties for the distribution of information on underlying assets differ across jurisdictions. Offer documents for many structured products are drawn under Rule 144A in the United States, which limits dissemination of the document beyond a limited group of qualified purchasers. While Rule 144A has been highly beneficial in clarifying terms on which private-placement transactions can be done, by restricting information to qualified offerees, it has had the unintended consequence of restricting information available in the market in general.

Rule 144A reflects fundamental U.S. securities law concerns that limit dissemination of deal information on privately placed securities. While these concerns are legitimate for protection of U.S. retail investors, they could prevent the development of deeper market knowledge of the distribution, risk, and composition of deals in ways that have been found to damage market transparency, including in non-U.S. markets.

2. Origination Standards in U.S. Subprime Mortgage Market

Non-bank originators of U.S. mortgages have been held to less-stringent standards than those applicable to U.S. bank originators. As is well known, mortgage brokers and lightly-regulated mortgage originators created increasingly sharp competitive conditions in subprime mortgages, in which buyers were allowed or encouraged to take out mortgages with low teaser rates followed by high re-set rates, little or no money down, negative amortization features, low or non-existent documentation, and poor or lacking verification of payment ability. Borrowers were allowed or encouraged to count on continuously rising house prices and a presumed ability to refinance out of onerous conditions. It is widely alleged that, in addition to laxity by originators, there was considerable fraud in the market.

Recommendation V.4: *All originators of assets underlying securitized instruments, whether regulated as banks or not, should adhere to basic credit principles, such as making a reasonable assessment of the borrower's ability to pay; documentation should be commensurate with such basic requirements.*

Consideration for the Official Sector V.B: *Non-bank mortgage originators should be held to the same standards as banks with regard to consumer protection and loan origination.*

Discussion of Recommendation V.4 and Consideration for the Official Sector V.B:

To prevent a recurrence of the trigger issue of recent turmoil, mortgage originators not cur-

rently regulated as banks should be held to the same standards as banks with regard to consumer protection and loan origination. The Committee believes that oversight of mortgage originators should ensure that they:

- Carry out recognized standards of initial due diligence on loans included in the structured product;
- Take steps to ensure that appropriate arrangements are in place to provide continuing operational support for the servicing of assets included in each transaction; and
- Ensure adequate and appropriate initial disclosure of the risks in the assets being delivered to any pooled transactions.

While it does not appear that issues have arisen to the same degree in other classes of underlying assets, the same principles should apply, mutatis mutandis, to such asset classes.

3. Origination Standards for Leveraged Loans and Other Corporate Obligations

Recommendation V.5: *Basic credit principles need to be followed during negotiations between borrowers and lenders (including underwriters, sponsors, and other agents), and the risk implications of negotiated terms of lending transactions need to be analyzed carefully.*

Discussion of Recommendation V.5:

Credit terms are appropriately subject to intense negotiation between borrowers and lenders; however, lenders must keep fully in mind the implications of any dilution of traditionally recognized credit principles. One of the most salient features of the period leading up to July 2007 was the development of "cov-lite" loans in the leveraged-finance market. In a highly competitive market, leveraged-loan borrowers were able to negotiate often-unprecedented favorable covenants and terms and conditions for loans, which reflected very favorable pricing and highly diluted traditional creditors' protections. In some cases, the competitive pressure to transact also may have diluted due diligence beyond reasonable levels. However, the large overhang of such leveraged loans that could not be syndicated or distributed as intended, or sold off, in the inventories of certain firms created important and persistent capital and risk management problems.

While it would be inappropriate to suggest constraints on future negotiations between borrowers and lenders in an institutional market, it is clear that the risk management implications of aggressively negotiated terms need to be given sufficient weight in future business cycles. This, in turn, means that firms' risk management processes need to be robust enough to make sure that the risk management process is not eclipsed in future periods of intensive competitive pressure. A related problem is the need to manage underwriting or "pipeline" risks appropriately, taking into account the possibility that assets intended to be packaged or distributed might end up remaining on the firm's books.

4. Potentially Conflicting Large Trading Patterns

Recommendation V.6: *Firms should implement mechanisms for escalating potential conflicts or contradiction between their trading and placing strategies to an appropriate senior-management body. Such body should be at a level with sufficient authority to adopt measures deemed necessary to resolve any such conflict, including change of sales or trading strategy, where appropriate. Clear policies also should be in place to determine when to disclose any such conflict to potential investors in a particular product.*

Discussion of Recommendation V.6:

Current compliance requirements, as well as sound business practice, indicate that units

within a firm that trade in any particular asset class should remain independent of sales units promoting or placing the same or similar asset classes. An automatic consequence of such independence is that such trading units within a firm must be free to take a more negative view about sectors or products that other sections of the firm are promoting or placing. However, when trading positions that contradict an investment tactic reflected in products being promoted to clients are large, this may raise potentially serious reputational issues for the firm.

In order to avoid reputational risks to the firm, there should be clear policies regarding how to resolve conflicts when contradictions arise between the strategies followed by trading and sales business units. The senior management body in charge of resolving such conflicts should have the capacity to suspend the placement or sale of a product (if considered appropriate and to the extent that option is legally open to the firm); to suspend the firm's proprietary trading in that product; or to close out positions, provided that such action would not breach applicable market abuse regulations or any similar standards. In addition, in cases in which the contradiction either cannot be resolved or the determination is that it makes sense to continue with both strategies for good and sufficient reasons after full consideration, senior management should consider whether, consistent with applicable rules on market disclosures, potential investors should be advised of the existence of conflicting or apparently conflicting trading views. This may depend on the nature of the product, the nature of the issue being considered, or the nature of the potential investors.

Nothing in the above is intended to restrict a firm's ability to establish or increase offsetting positions to hedge risks incurred by the firm in any placement. To the extent, however, that the firm considers overhedging to profit from an adverse price movement in the issue, then such practice should be treated as if it were a potentially conflicting short position. Firms should, of course, also satisfy themselves that all hedging activities are conducted in full compliance with all applicable local regulations.

B. RATING AGENCIES[40]

In the aftermath of the credit market turmoil, several rating agencies have moved to improve internal processes to increase independence of the credit-rating process, transparency, and quality of credit ratings. Some specific measures include:

- Explicitly forbidding credit-rating analysts from making proposals or recommendations regarding the creation or design of securitization products;
- Requiring that rating agencies not provide consulting or advisory services;
- Conducting "look-back" reviews, as appropriate, when analysts leave rating agencies to work for issuers or advisors with whom they have regularly interacted;
- Conducting formal, periodic, internal reviews of remuneration policies and practices for analysts and other rating-agency employees who participate in rating committees to ensure that these policies and practices do not compromise analyst objectivity;
- Conducting formal, periodic, internal reviews of rating criteria and methodologies to promote ratings quality;
- Establishing separate teams for initial credit ratings and ongoing surveillance of ratings of structured finance transactions, whenever feasible;
- Requiring analysts to participate in continuing education programs on credit analysis, methodologies, and rating-agency policies and procedures; and

[40] Four rating agencies have participated in the work of the Committee, but some of these agencies do not feel comfortable supporting all the Recommendations and Discussions. However, the credit-rating agencies are working with authorities and participants on measures to enhance credit-rating agency performance and confidence in the credit-rating process.

- Encouraging greater market understanding of securitization products by supporting full disclosure by issuers to the market of the information needed to make informed investment decisions about structured finance transactions.

In addition, rating agencies have independently instituted changes they deemed necessary to improve their internal processes and strengthen their analytics and disclosure of additional information relevant for structured products. The Committee welcomes the joint and independent initiatives by rating agencies.

Given the extensive work done by other groups, the Committee has focused its efforts on the internal processes around risk assessments. As with underwriters and distributors, there is a view in the market that pressures caused by the large number of transactions may have led to use of processes that reduced cost and time.

In order to reestablish confidence in the market, the Committee believes that the market needs to be assured that internal processes within the agencies are always robust in terms of independent validation and oversight and that the data and systems support this. There also is a strong view that ratings should reflect qualitative issues such as lending standards and sampling of borrower information as well as purely data-driven models.

The Committee suggests that, to give the market confidence that processes are robust with regard to the rating of structured products, standards for internal processes should be adopted by the agencies, and a mechanism should be found to provide external review to ensure that agencies adhere to such standards.

The Committee has set out in Appendix C areas that it considers important, in the light of developments in the past year, for standards to cover as they are developed.

The International Organization of Securities Commissions (IOSCO) has published an extensive discussion of rating-agency issues and has proposed updating its Code of Conduct.[41] In general, the Committee supports IOSCO's efforts and endorses the changes IOSCO proposes to make, which are congruent with the Committee's own work done before publication of IOSCO's report. The Committee notes several refinements proposed by IOSCO that should be implemented—for example, the requirement that rating agencies explain what they consider to be ancillary businesses, in connection with the prohibition on providing consulting services, or the proposals intended to discourage "ratings shopping."

Principles of Conduct:

Principle V.vi: Ratings reports (published by rating agencies) should assess and clearly articulate the key risk features and underlying structures of products, including qualitative information such as the lending standards being applied and amount of sampling of borrower documentation, as well as quantitative factors that the ratings agency considers relevant.

Principle V.vii: Industry standards should be developed regarding the internal processes within rating agencies, covering independent validation and regular monitoring of models, assumptions, and stress testing.

Principle V.viii: External review of rating-agency processes against agreed standards is essential for the credibility and reliability of ratings.

Recommendation V.7: *Rating agencies should provide greater clarity regarding the target for a structured finance rating; the definition of default and probability of default should be clearly set out. More information should be provided on the*

[41] International Organization of Securities Commissions, *Role of Credit Rating Agencies in Structured Finance Markets,* May 2008.

assumptions behind the modeling of particular structures and the sensitivity of outcomes to small changes in assumptions, for example, by discussing correlation and stress tests. More focus should be given to likely recovery (taking into account relevant factors such as triggers) for different securities either in the rating or in an additional marker. There also should be clarity with regard to the factors that could lead to a downgrade.

Recommendation V.8: *Ratings should take into account qualitative factors such as lending standards of the originator and the amount of sampling of borrower documentation.*

Recommendation V.9: *The ratings for different tranches also should take into account the effect of default triggers*[42] *on the behavior of structured products (impact on capacity to pay) and recovery values for investors given default.*

Discussion of Recommendations V.7–V.9:

The lack of understanding of the nature of ratings has made it difficult for investors to consider whether the basis for the rating fits their own risk philosophies. It has been very difficult to cross check the accuracy of the modeling and assumptions used.

A further issue is that LGD effects have been fundamentally different across different structures, severely affecting some investors. An example would be structures with market-value triggers in which some, even AAA tranches, have been wiped out by the ability of investors in the super-senior tranche to insist on the fire sale of the assets underpinning the structure when a market-value trigger has been reached. Taking into account the potential effects of triggers and more focus on the LGDs for different tranches will be important to establish clarity in future deals.

In addition, the modeling for some structures may be very sensitive to assumptions, with small changes in, say, correlation, affecting the possible outcomes in a major way. Likewise, small changes in the stress tests used could have a major effect on the reported results thereof. Information on these sensitivities should be made available. This would be particularly important for some synthetic structures. In ABS market-value products, information on the price move that could lead to tranches being wiped out would be important.

Recommendation V.10: *Rating agencies should provide information on risk factors relevant to structured products. In addition, rating agencies should develop a different or additional ratings scale or indicator for structured products (compared to corporate bonds).*

Discussion of Recommendation V.10:

Rating agencies use the same ratings scale for structured products and for corporate and sovereign bonds. While comparability of ratings across products is viewed as useful by investors, characteristics of complex structured products significantly differ from those of more traditional bonds. It is now clear that, in stress periods, the rating and price volatility of these products can be much higher than that for corporate bonds historically. There are mixed views regarding the merits of a separate rating scale for structured products. Some investors are concerned that it could necessitate substantial systems changes and could mean that rating agencies would not be forced to consider comparability in terms of default and loss rates. However, others such as the FSF,[43] IOSCO,[44] and

[42] For this purpose, a "trigger" is a provision in a loan agreement or indenture that precipitates a specified action in the event of a downgrade of the borrower's credit rating.

[43] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 38, states that "CRAs should differentiate ratings on structured finance from those on bonds, and expand the initial and ongoing information provided on the risk characteristics of structured products."

[44] IOSCO, *Role of Credit Rating Agencies in Structured Finance Markets*, May 2008, 16, states that "Rating agencies should differentiate ratings of structured finance products from other ratings, preferably through a different rating symbology."

the SEC[45] believe that differentiation by symbols or a separate scale would highlight to investors the different characteristics, and on balance the Committee supports this route.

On balance, the Committee is inclined to believe that a separate scale or indicator for structured products would be better in the long run. In any event, the Committee underscores the fact that adopting a separate scale would not reduce the importance of rating agencies' providing clear information regarding risk factors, including the definition of default and weight given to LGD in each rating.

Recommendation V.11: *To restore market confidence, standards should be adopted by rating agencies regarding internal processes for independent internal validation and monitoring of the models used to rate structured products.*

Recommendation V.12: *Independent monitoring units within the agencies should review the reasonableness of the assumptions and stress tests for structured products against ongoing performance data on the loans in the pools as well as any changes in the qualitative factors. IT and data archiving should support frequent monitoring and validation.*

Discussion of Recommendations V.11–V.12:

In the rating of structured products, rating agencies employ a variety of different modeling approaches. These rely to differing degrees on formal Monte Carlo modeling of loss rates, on stress scenarios, and on modeling of cash-flow waterfalls. In some cases, cash-flow modeling is performed by the agency itself, and sometimes it is outsourced. In general, one may expect the accuracy of the risk assessment to depend on:

- The modeling and analysis of loss distributions reflecting the quality of loans in pools, lending standards, and due diligence vis-à-vis borrower documentation;
- The modeling of the cash-flow waterfalls;
- The treatment of other features in the structures, such as triggers;
- The treatment of non-credit factors important for some structures, such as prepayment rates; and
- Assumptions regarding correlations.

The models are made available (sometimes for a fee), but it is difficult for all investors to agree with rating opinions without data on many factors (e.g., LTV on a loan-by-loan basis for mortgages). Even for the most sophisticated investors there are substantial costs in repeating the full modeling for an actual deal, and the rating is likely for many to be the starting point for their own risk analysis. This means that the market is very reliant on the internal processes within the rating agencies to ensure that the models, assumptions, and stress tests for individual structures are reasonable. This would include, for each transaction, the reasonableness of the correlations and other assumptions, the accuracy of the waterfall calculations, and the reasonableness of the stress testing. As already stated, qualitative factors such as the lending standards applied by the originator and amount of sampling of borrower documentation should be fully reflected in the ratings. After a rating has been assigned, assurance should be given that new information will be reviewed regularly and its implications for ratings assessed.

To assess whether the original assumptions remain valid, information on changes in lending standards and changes in sampling of borrower documentation should be taken into account by rating agencies in their assumptions. Rating agencies and the market may have been slow to take note of changing practices in the U.S. mortgage market and to adjust assessments accordingly.

[45] On June 12, 2008, the SEC voted to propose a series of credit-rating agency reforms intended to increase transparency, including requiring rating agencies to use new symbols to clearly identify the ratings of structured products.

If agencies are seen to have robust processes, it could help to counterbalance concerns about conflicts of interest and would help to restore confidence to the market. To restore confidence to the market, it is important that participants be assured that there are appropriate independent processes *within* the agencies for validating the reasonableness of the models and the assumptions and stress testing used for individual structures. The market also needs to be confident that, once ratings have been assigned to tranches, there is regular monitoring of performance data and of underlying pools such as pre-payment rates on mortgages. Any such monitoring process should, however, not affect the independence of the ratings agencies or question their assumptions or the outcome of specific ratings.

Recommendation V.13: *An external mechanism including rating-industry experts should be created to develop standards and to review rating agencies' internal processes to assess adherence to such standards. Such review would address the robustness of processes surrounding model building, development of applications, monitoring of models and processes, and governance. It would not, however, seek to validate criteria, methodologies, models, or assumptions as such. Such standards should be developed taking into account the issues highlighted in Appendix C, and any additional issues as stakeholders or rating agencies may suggest from time to time.*

Consideration for the Official Sector V.C: *IOSCO should consider whether additional standards with respect to external review of internal processes could be part of its future Code of Conduct for Credit Rating Agencies. This also would cover adequacy of resources to meet the standards.*

Discussion of Recommendation V.13 and Consideration for the Official Sector V.C:

Some market participants are of the opinion that independent review processes within rating agencies are not fully developed. In particular, there are concerns that modeling may be driven by short data histories and that the IT and data infrastructure in certain agencies may not be sufficient to support frequent monitoring (e.g., reviewing up-to-date performance data for the pools of loans underpinning rated structures). Pressures caused by processing a large number of deals also could reduce the extent to which qualitative issues such as lending standards of the originator and the amount of sampling of borrower documentation have been reflected in the ratings.

Given the importance of ratings in the structured finance market, financial institutions feel that the agencies' internal processes for monitoring of models and assumptions should be as robust as those required for banks. This would include the internal data and archiving processes as well as IT systems needed to support this.

In very active markets, when there are large numbers of transactions and downward pressure on fees, pressures will build up against necessary processes.

The Committee believes mechanisms should be put in place for external review of processes in the agencies, including resource adequacy, against agreed standards. Therefore, the Committee supports the CESR's Recommendation of creating an international rating agencies' standard setting and monitoring body, which would monitor compliance with international standards in line with the steps taken by IOSCO.[46]

C. INVESTORS

These principles and recommendations apply to institutional investors and investment divisions within banks that invest in structured products.

[46] Committee of European Securities Regulators, *The Compliance of Credit Rating Agencies with the IOSCO Code and the Role of Credit Rating Agencies in Structured Finance,* May 2008.

Principles of Conduct:

> ***Principle V.ix:*** Investors should conduct their own due diligence on structured products and analyze each product against their investment mandates, investment time horizons, and risk appetites.

Recommendation V.14: *Investors in structured products should ensure that they have sufficient technical skills and resources to understand the products and conduct in-house risk assessment rather than rely simply on ratings.*

Discussion of Recommendation V.14:

The Committee's analysis indicated that some institutional investors, particularly those with small investment teams, did not have adequate resources to conduct the due diligence required to assess the complexity and suitability of a structured product prior to investment. There is some evidence that investors relied too heavily on ratings when buying structured products. Investors should ensure that they have the skills and resources to conduct the necessary due diligence prior to investment.

The due diligence required as a basis for risk assessment of different types of investments varies with the risk and the purpose of the investment (e.g., investments for a hedge fund imply different sorts of diligence than investments for a public money-market fund). Due diligence for this purpose implies acquiring all the documentation necessary to perform an appropriate level of analysis under the applicable facts and circumstances. The resources available for such purpose need to be proportionate to the size and resources of the investor, and such requirements should not be understood to put disproportionate burdens on smaller institutions, once basic understanding is achieved and regulatory requirements applicable to the investor are met. As discussed in IOSCO's *Report of the Task Force on the Subprime Crisis,*[47] institutional investors should in particular have a clear understanding of the basic risk and valuation characteristics of their investments, notably their risk–reward profiles. IOSCO suggests the development of due diligence standards for use by investors in different types of products.

Recommendation V.15: *Investors should develop robust in-house risk-assessment processes that would require them to conduct a thorough analysis of each structured product before making an investment decision.*

Discussion of Recommendation V.15:

It is important that a full risk assessment be carried out by investors prior to buying a structured product. Investors should seek more information from the rating agencies and the originators if, for example, there is uncertainty about assumptions made or quality of the loans underpinning the structures. Firms should develop an internal assessment process that should require:

- Analysis of the cash-flow waterfall of each product;
- Review of the thickness of tranches and the resulting risk implications, as well as the implications of the position of a particular tranche in the overall structure;
- Analysis of the convexity and leverage embedded in structured products;
- Analysis of all materials released by rating agencies regarding rating of the end structure, including the assumptions made and stress tests carried out, as well as sensitivity analysis;
- Analysis of appropriateness of stress tests used given their own risk appetite;
- Information on the quality of assets in underlying pools;
- Information on the originator and data on the amount of sampling of underlying

[47] IOSCO, *Report of the Task Force on the Subprime Crisis,* May 2008, 8–9.

borrower documentation carried out;
- Analysis of the current and future liquidity of the products, as well as possible volatility in the price; and
- Analysis of the implications of triggers in the structures on potential losses for holders of particular tranches.

Recommendation V.16: *Investors should review their governance processes to ensure that there are adequate controls over possible investments in structured products. Controls or mandates should not refer solely to ratings; there should be separate, documented risk decisions and review processes regarding structured products.*

Recommendation V.17: *Prior to purchase, and on a regular basis thereafter, investors should assess that products are consistent with the risk appetite for the particular portfolio in which they are to be held.*

Recommendation V.18: *A monitoring process should be established by investors to consider ongoing performance data on the pool of each material structured product. Clearly documented internal processes should ensure regular revaluation of products.*

Recommendation V.19: *Control of valuations by investors should be independent of portfolio managers or traders.*

Discussion of Recommendations V.16–V.19:

Investors do not always appear to have had appropriate governance and valuation processes for structured products. The risk-assessment processes and ongoing monitoring and valuation processes for investment in structured products should be clearly documented. Senior management should have an understanding of the products and the risks in them.

In addition to the above Recommendations, the Committee supports and, depending on its findings, expects to endorse the *Investment Industry Principles for Structured Credit Valuations and Credit Assessment* being developed by the European Securitisation Forum (also see Recommendations VI.2–VI.3).

Recommendation V.20: *When considering investments in structured products, institutional investors are encouraged, as part of their due diligence process, to ascertain and take into account whether firms originating or sponsoring such products have a policy of holding a portion of the products, and consider whether such policy ought to influence their investment decisions.*

Discussion of Recommendation V.20:

An argument is frequently made that the quality of many structured products that were issued would have been better if firms had been required to retain a portion of the structured products (or each tranche of each product) that they helped originate or sponsor. There has been, however, significant debate regarding the feasibility of such a requirement.

Another proposal under consideration required firms to disclose if, at the time of issuance of each product, whether they intend to retain a portion of the product and their policies with respect to hedging or disposal of such positions over time. However, it was widely acknowledged that, while such proposals may, on the face of it, address the "agency problem" analysis of economic theory, as a practical matter such proposals are problematic and unlikely to address the problem. Risks associated with exposures to structured products often can be hedged, and prudent risk management would suggest in most cases that they should be hedged. Moreover, a requirement to "hold" positions in products they structure, sponsor, or underwrite (especially products structured to meet client needs) might often be at odds with firms' investment policies and could seriously distort asset and liability management. A related matter is whether any

such policy should apply to third-party assets as well as own-originated assets.

From a market standpoint, such a requirement could limit products offered to those that fit firms' own strategies and, in any case, such a requirement would distort the bargaining between investors' demands for products and what firms are willing and able to offer. For instance, there might be demand from insurance companies for very long-dated products or from hedge funds for very speculative products that originating or sponsoring firms would be reluctant for good reasons to retain. Moreover, the argument overlooks the fact that much of the damage since July 2007 has occurred from products that firms did in fact retain rather than distribute.

The Committee's analysis therefore concluded that there were more appropriate ways to address concerns about the quality of products offered in the market. One such approach is requiring investors to conduct their own due diligence as well as requiring firms to conduct adequate due diligence and subject underlying assets to internal credit due diligence standards.

Therefore, the Committee is encouraging investors, as part of their due diligence, to inquire if an originating, underwriting or sponsoring firm retains a portion of a structured product that it is offering for sale. If investors attach a great deal of value to an originator's, underwriter's, or sponsor's retention of a tranche, they can express that preference through the deals they choose to buy.

The Committee has also recommended that financial institutions subject assets that they help originate and distribute to the same credit due diligence standards as used for similar assets that are to be carried on the firm's own balance sheet (see Recommendation V.2).

Consideration for the Official Sector V.D:
Authorities should consider reviewing and revising their official or quasi-regulatory investment rules that may create artificial requirements or inducements for investors to rely on ratings.

Discussion of Consideration for the Official Sector V.D:

The Committee supports the FSF's recommendation that "authorities should check that the roles that they have assigned to ratings in regulations and supervisory rules are consistent with the objectives of having investors make independent judgment of risks and perform their own due diligence, and that they do not induce uncritical reliance on credit ratings as a substitute for that independent evaluation."[48]

Some regulators have already begun a review process of their investment rule requirements—for example, the SEC in late June 2008 made proposals to diminish official references to credit ratings and to encourage investors to pay close attention to what ratings actually mean.

[48] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 38.

VI. Transparency and Disclosure Issues

The Committee has discussed in detail concerns about transparency of structured products and of firms engaged in that business and has developed practical measures that need to be implemented to improve the information available in the market. The Committee also has considered complementary efforts by other organizations such as the European Securitisation Forum (ESF), the Securities Industry and Financial Markets Association (SIFMA), and the European Banking Federation (EBF), which it hopes to endorse when completed, to avoid duplication of standards.

This discussion addresses disclosure and transparency issues generally. It always is important to distinguish the purposes of disclosure. While target users of different types of disclosures of course overlap, they also respond to different needs. Product and transaction disclosures, aimed primarily at investors in such products, are intended to provide a sound basis for investment decisions. One lesson that many are drawing from the market turmoil is that product disclosures (including underlying assets) also are important for the market in similar products as a whole, and both issuers of offering and disclosure documents and the official sector may need to put more emphasis on the market element of disclosure.

Accounting disclosures are traditionally intended for a known set of users, in large part represented by investors in the equity or obligations of a firm. Other disclosures, such as under Pillar 3 of Basel II, while aimed at the market generally with the goal of reinforcing market discipline, are intended as much for transaction counterparties as investors. Finally, of course, disclosures to rating agencies and, especially, to supervisors, appropriately include much more information than should be made public or would be useful. Keeping the purposes of disclosure in focus will help contain the serious problem of information overload. Too much information can be and has been as much a source of opacity as too little.

Thus, all disclosure Recommendations should be understood as subject to the qualification that disclosures should be kept "relevant and useful" for their intended purposes and users.

In the wake of the credit market turmoil, there is an awareness that, owing to the generally perceived opaque nature of assets in structured products and their associated risks, there is a need for more information and transparency about structured products. However, the Committee found that, while there was already much disclosure pertaining to structured products, not all the information was presented in a succinct and easily digestible form, and access to information on underlying assets was difficult. While the Committee agrees that there is a need for more transparency, it believes that transparency should come from better explanation and presentation that is more useful rather than just from more information.

Therefore, the Committee has developed transparency- and disclosure-related Recommendations that would facilitate investor understanding of the economic impact of a securitization transaction and allow stakeholders as well as regulators of firms to assess the aggregate risks incurred by a firm for its activity in and exposure to securitization. Consequently, the Committee has developed Recommendations to improve transparency and disclosure at the levels of:

- Structured products—to provide comprehensive and useful information, primarily to investors in structured finance; and

- Financial institutions—to better inform firms' stakeholders and regulators, notably debt and equity investors and also counterparties, of direct and indirect exposures to the securitization markets and the risks inherent in that activity.

Principles of Conduct:

> ***Principle VI.i:*** The content and clarity of firms' disclosures as well as comprehensiveness of coverage are of primary importance.

> ***Principle VI.ii:*** Risk disclosures should provide the clearest possible picture of a firm's overall risk profile and the evolving nature of risks as well as salient features of the risk management processes.

> ***Principle VI.iii:*** Global standardization and harmonization of market definitions and structures are essential for the future development of the structured-products market.

> ***Principle VI.iv:*** In fulfilling disclosure mandates, firms should ensure that disclosures include the most relevant and material risks or exposures arising under current market conditions at the time the disclosure is made, including off-balance-sheet risks or exposures, especially for securitization business.

> ***Principle VI.v:*** Firms' public disclosures should include substantive quantitative and qualitative information about valuations, valuation processes and methodologies, assumptions, sensitivities, and uncertainties.

A. AT THE STRUCTURED-PRODUCTS LEVEL

1. On Prospectus Disclosure

Recommendation VI.1: *Offer documents*[49] *should have an executive summary of key features and a list of certain central risk features in a prominent position. An industry group should produce a reasonably standard layout for an executive summary and risk information.*

Discussion of Recommendation VI.1:

Offer documents for structured products have grown longer and longer, in some cases reaching 2,000 pages and frequently several hundred pages. While, in general, there is a lot of standardization in offer documents for structured products, offer documents tend to be voluminous and too specific to each deal. This affects an investor's ability to assimilate the critical elements of the transaction, especially given the short time investors often have to make a buy decision.

The Committee found that there was a need for a short-form summary of the offer document that would highlight key characteristics of the offering. This would make it simpler for investors to understand the structured product, and to identify detailed disclosures in the main document of potential interest. The full offer document would of course still be required, among other things to meet legal requirements.

The Committee has developed an indicative template of a summary sheet (for Residential Mortgage-Backed Securities products) containing key features of a deal. This summary sheet abstract, which can be found in Appendix D, lists salient features of a transaction. The content is drawn largely from *pre-sale reports* that firms make available to buyers in the primary market. Pre-sale reports present key information rel-

[49] See definition of "offer documents" in the Credit Underwriting, Ratings, and Investor Due Diligence in Securitization Markets section of this *Report*.

evant to the structured product in an easy to read format. However, such summary information has not generally been available after the pre-sale period for a number of legal and practical reasons. It is recognized that these issues will need to be worked through carefully, and should not be minimized. Nevertheless, availability of such summary information, in a format that would not increase the liabilities of issuers and distributors, could reduce the problem of access to product information in the market.

The Committee hopes that an industry body will develop a relatively standardized short-form summary that can be adopted by all firms. However, it also recognizes that resolution of legal considerations must precede full implementation of this Recommendation.

The Committee also identified a need to provide prominently in each prospectus a list of key risk factors inherent in each structured product. A summary of risk factors would:

- Help investors identify key drivers of the product, enabling them to evaluate the ratings of structured products independently; and
- Provide investment committees with various reference points (in addition to the rating) that could help shape investment mandates.

A suggested outline for the executive summary and the page of risk factors is set out in Appendix D.

2. On Standardization and Increased Transparency

Recommendation VI.2: *Firms should endeavor to standardize market definitions and structures and to clarify and standardize the roles of agents at a global level.*

Discussion of Recommendation VI.2:

Although a great deal of information on securitized products is in fact available, the general criticism from the industry, investors, and regulators is of the level of opacity of markets. This is in part because of the lack of standardization of presentation formats and readily accessible sources, which makes the information difficult to use and expensive to obtain. Because formats for presentation of information are affected by legal guidelines of the jurisdictions in which structured products are distributed, any standardization will require the support of various authorities.

In addition to standardization of presentation formats, there is a need to standardize terms and definitions used in the structured-products industry. A lack of standardization of terms has created confusion among market participants, driving some investors away from structured-products investments altogether. Lack of clear definitions also has, in some cases, impeded effective risk management within firms. This would include product, vehicle, role, and credit- and liquidity-enhancement descriptions and also deal terms such as events of default. The cross-border nature of the securitization markets makes it necessary to develop uniform market standards and definitions with regard to securitization terminology and disclosure. Improved standardization of market definitions and structures, and clarification and standardization of the roles of agents, would be a great help, particularly if these can be coordinated across the Atlantic Ocean. Standardized term sheets and new-issue disclosure will be important in restarting the issuance market.

To this effect, the ESF is working on standardization of certain market definitions used in various European markets. It is developing a paper (due later in 2008) on global common definitions for securitization, including prime and subprime, and on more specific definitions on the following:

- Asset classes such as ABS, RMBS, commercial mortgage-backed securities (CMBS), CDOs, insurance-linked securities (ILS), whole business securitization (WBS); and
- Categorization of asset classes: RMBS (prime, near-prime, non-conforming,

subprime), ABS (credit cards, consumer loans), CMBS (conduit, single property), and CDO (cash, synthetic, CDOs of CDOs).

The Committee also is encouraged by various industry efforts to develop standardized issuance and surveillance formats for securitization transactions, which will incorporate existing data as well as a substantial increase in new loan-level data.

3. On Harmonization

Recommendation VI.3: *The industry should develop harmonized guidelines for transparency and disclosure for structured products across major markets.*

Discussion of Recommendation VI.3:

Transparency and disclosure guidelines differ among jurisdictions. There is need to harmonize disclosure guidelines among the major markets of the EU, United States, Japan, and Switzerland. As emerging markets turn to securitized markets, they should use the standards that are being developed.

With regard to harmonization of transparency and disclosure practices in the structured-products industry, the ESF also has ongoing projects to help develop issuer industry guidelines for transparency and disclosure in the ABCP, ABS, RMBS, CMBS, CDO, ILS, and WBS markets.

The IIF supports these ESF projects and provides inputs where possible. Moreover, several IIF member firms also are members of the ESF and have actively participated in the discussions. Therefore, the Committee expects to support, when completed, the ESF's standardization and transparency and disclosure initiatives project.

Consideration for the Official Sector VI.A: *Efforts by the private sector to improve transparency should be supported by the regulatory and accounting bodies.*

Discussion of Consideration for the Official Sector VI.A:

Development of standardized definitions and disclosure approaches over time by the private sector will be more widely accepted if also adopted, when relevant, by public-sector bodies. Given the global nature of the structured-products industry, it is imperative for standard setters to facilitate and endorse private-sector efforts to standardize market definitions and terms and harmonize disclosure practices, adopting market-developed definitions for official purposes. While it is preferable for the market to develop specific patterns of disclosure over time on the basis of transaction requirements and investor demand, for wider adoption by all market participants, it is important that the public sector facilitate such efforts through the supervisory process and by taking cognizance of them in official guidance when issued.

Consideration for the Official Sector VI.B: *Accounting standards concerning structured products should, to the greatest extent possible, be clear and consistent without significant divergence between standard setters.*

Discussion of Consideration for the Official Sector VI.B:

Convergence of accounting standards, particularly between IFRS and U.S. GAAP, continues to be a top priority. Any new disclosure or other standards adopted by either the IASB or the FASB should be identical or at least as consistent as possible. While the purposes of regulatory standards and of accounting standards are different, and there sometimes may be necessary differences, clarity to the market and compliance by the industry would be greatly facilitated by making provisions applicable to the same subject matter as consistent as possible, especially with respect to terminology.

4. On Dissemination of Information

Recommendation VI.4: *The industry should consider adopting common platforms and technology to improve access to information and widen the dissemination and distribution of information and documents among market participants.*

Discussion of Recommendation VI.4:

There is a need to increase availability and usability of information to investors, including more comprehensive deal information such as term sheets, offering memoranda, indentures, portfolio information, and improved access to information on underlying assets. The industry should adopt the use of electronic formats for documents and presentations to make documents easily transferable and increase usability of information by investors to make more informed investment decisions.

The Committee is encouraged that commercial data providers are developing "data portals" whereby prospectus and investor information could be centrally available through Web sites by market participants.

Consideration for the Official Sector VI.C: *Authorities should support the industry's efforts to improve dissemination of information. Authorities should review and amend regulations that make it difficult to release information to all market participants. Attempts should be made to harmonize disclosure requirements among different jurisdictions.*

Discussion of Consideration for the Official Sector VI.C:

At present, disclosure of information is restricted in some jurisdictions for a variety of reasons, which can range from privacy concerns to limited circulation of privately placed securities. The official sector needs to review all legal obstacles and revise legislation to allow for better exchange of information in the marketplace (see Consideration for the Official Sector V.A).

B. AT THE FINANCIAL INSTITUTION LEVEL

1. On Risk

Recommendation VI.5: *Firms should ensure that their disclosure provides a sufficient overview of their current risk profiles and risk management processes, and highlights key changes (from previous periods) to their current risk profile, including their securitization activities. This overview should have an appropriate balance between qualitative and quantitative information, with a view to providing both a snapshot of the risk position and a perspective on the risk strategy of the firm, including its approach to liquidity risk management.*

Consideration for the Official Sector VI.D: *The official sector should work closely with industry and market participants to improve the market's understanding of Pillar 3 disclosure content.*

Discussion of Recommendation VI.5 and Consideration for the Official Sector VI.D:

The disclosures under Pillar 3 of the Basel framework were designed to increase market discipline by shining a light on the risk measurement and risk management practices of firms. Pillar 3 disclosures, when implemented, should allow market participants to more easily analyze and compare the risk profiles and frameworks of firms. Pillar 3 will introduce incentives across the industry to improve risk management practices and processes.

There are, however, concerns that Pillar 3, designed at the earlier stages of the development of the revised Basel framework, does not sufficiently capture all important elements of firms' risk approaches and could lead to confusion in the market owing to excessive expectations of

comparability. There is a need to improve further the broader understanding of Pillar 3 disclosure. It is particularly important that there be greater emphasis on the qualitative elements of Pillar 3 to allow users of disclosures to gain insight into the varying approaches of firms. A predominant focus on quantitative data around risk measurement would inevitably lead to misleading comparisons given the firm-driven nature of the advanced approaches under Basel II. A good understanding of a firm's risk profile can be gained only when putting the numbers in context and with due consideration of the firm-specific risk management and risk measurement approaches.

Dialogue within the industry, with regulators, and with analysts and investors is clearly needed to foster the needed understanding of Pillar 3 disclosures, which in some ways are quite different from traditional investor-focused financial disclosures. By the same token, it is necessary to let firms' Pillar 3 practices develop and "bed down" over a reasonable amount of time, so that the concept of disclosures to reflect each firm's risk exposures and policies can develop and mature in an orderly manner.

Consideration for the Official Sector VI.E: *To be meaningful, requirements around risk disclosures should be based on a risk- and principles-based approach to qualitative and quantitative information. To promote industry-wide consistency, firms should be asked to consider leading practice principles and disclosures, in a manner that fully and appropriately reflects the nature of their business and the markets in which they operate.*

Discussion of Consideration for the Official Sector VI.E:

Many firms have already adjusted their disclosures over recent quarters in order to address market participants' needs for information in the context of the current market turbulence. Based on these industry-developed disclosures, the FSF has issued its recent recommendations. In Annex B, "Summary of Leading Practice Disclosures for Selected Exposures," the April 2008 FSF Report recommends content and format for disclosure of such information, at least for the short term. More specifically, the FSF encourages financial institutions to make disclosures on a range of structured credit products in their upcoming mid-year 2008 reports. The FSF anticipates that greater disclosure on these issues will help regulators and the market to better assess risk.

Firms should continue improving transparency to enable users of financial information to make informed decisions. In particular, firms need to examine with due care how FSF disclosure recommendations apply to their business and the markets in which they operate and how to implement such recommendations to the benefit of market participants.

In assessing and adopting needed disclosures, firms also need to take into account and disclose their dynamic risk profiles and ensure that all quantitative and qualitative information is material and relevant to the needs of information users, and appropriately reflects their business.

Also, disclosure recommendations developed in times of market turmoil need to distinguish between guidelines of a permanent nature and those that will remain in place temporarily until the crisis dissipates.

2. On Valuations

Recommendation VI.6: *Firms should put in place substantively useful disclosure of valuation processes and methodologies and of the limitations of models, including adjustments and risk sensitivities.*

Recommendation VI.7: *Firms should include clear and useful disclosures of valuations based on limited market inputs or based on mark-to-model procedures and about material changes in the bases of valuations if, for example, certain assets become less liquid and can no longer be valued from market inputs.*

Recommendation VI.8: *Firms should disclose the inherent uncertainties associated with material valuations, the limitations of models, and the sensitivities of assumptions and inputs into the models, model adjustments, and reserves, for all positions deemed material, to enhance the understanding of market participants.*

Recommendation VI.9: *Firms should disclose the limitations of indices used in valuations.*

Discussion of Recommendations VI.6–VI.9:

As noted above, the Principle of Conduct on valuations disclosure states that firms should actively participate in efforts with the official sector and standard setters to develop meaningful and comparable disclosures on valuation uncertainties and sensitivities and approaches to incorporating those uncertainties into the valuations themselves.

It is widely agreed that improved transparency about valuations and valuation policies and procedures would be a good idea. Greater disclosure should lead over time to greater comparability and consistency of valuations. This would build confidence in the process.

Firms' disclosures of their financial positions would be better understood, especially with respect to the types of writedowns seen since July 2007, if disclosures more generally included fuller discussion of valuation assumptions, data sources and modeling approaches, and the inevitable uncertainties around exposures and mark-to-market loss estimates. It often will be appropriate to discuss refinement or modification of valuation methodologies. Disclosures also could provide an indication of investors' exposures to the volatility that could result from the potential uncertainty of the valuation. Such discussions might help educate the market to understand the valuation process and to avoid attaching excessive precision to valuations assigned to reflect market conditions at a given point in time.

However, implementation of such disclosures raises several issues given the risk of information overload on the one hand and the complexity and granularity of valuation decisions on the other. Thus, a materiality threshold should be introduced to limit such disclosures to amounts deemed material, both focusing disclosures on impact areas and maximizing the cost/benefit of any disclosure exercises.

There also should be consistency in the disclosure requirements of international accounting standards and U.S. GAAP standards.

There is insufficient understanding of the inherent uncertainties associated with valuations, especially model-based valuations, in the market. Greater disclosure of the scope of uncertainty around valuations; the limitations of models; and the sensitivities of assumptions and inputs into the models, model adjustments, and reserves would enhance the understanding of market participants and thus enable market participants to evaluate valuation risks and anticipate more effectively potential fluctuations of valuations. In addition to model limitations and the like, substantial uncertainties have arisen about the valuation of, for example, leveraged-loan assets held in the pipeline, and experience indicates that it may be appropriate to disclose such uncertainties about valuation of warehousing or pipeline assets (see Recommendation IV.E).

This suggests that firms should reveal both the critical assumptions that underpin the estimated values that they assign to their assets and the possible range or margin of error around those estimates. The U.S. SEC has stated that firms should "consider providing a range of values around the fair-value amount you arrived at to provide a sense of how the fair-value estimate could potentially change as the significant inputs vary."[50]

The uncertainties and possible ranges of values just discussed are inherent in a mark-to-market system and naturally become more apparent in times of high volatility or thin mar-

[50] U.S. SEC, *Sample Letter Sent to Public Companies on MD & A Disclosure Regarding the Application of SFAS 157 (Fair Value Measurement)*, March 2008, 3.

kets. It needs to be stressed, however, that the need to address such issues internally and to make appropriate disclosures about them in no way calls into question the integrity or validity of firms' valuation procedures. The market needs to understand the context in which firms' valuations are determined. A false sense of the fixity or precision of inherently changeable figures can be highly misleading, as the recent FSF Report points out.[51] The accounting standard setters have long acknowledged that fair-value accounting requires acceptance of a good deal of volatility. But it also needs to be understood that fair-value numbers reported by firms are the product of work by numerous highly skilled persons, following accounting standards, procedures, and tests that are quite demanding and have become more so since July 2007 and subject to audit and regulatory supervision. Thus, changes, even rather rapid changes, in valuations do not necessarily reflect negatively on the quality of the valuation procedures within firms (see Recommendation IV.25).

3. On Liquidity

The IIF report *Principles of Liquidity Risk Management* (March 2007) provides detailed principles of liquidity management. With regard to disclosure of a firm's liquidity position, the report recommends that "firms should ensure that there is appropriate disclosure of qualitative and quantitative information about each firm's sources of liquidity risk and liquidity risk management practices." The 2007 report has an extensive discussion of this issue, and a slightly revised version of its recommendation is presented as Revised and Restated Recommendation 13 in the Liquidity Risk, Conduit and Securitization Issues section of Appendix B.

Recommendation VI.10: *Firms should provide meaningful disclosures for material actual or contingent funding requirements for off-balance-sheet vehicles, including contractual obligations and funding requirements that may reasonably be expected to arise for reputational or other reasons.*

Discussion of Recommendation VI.10:

Firms should ensure that risk exposure and potential losses associated with off-balance-sheet entities are clearly identified and presented in financial disclosures (whether or not the vehicles are consolidated), subject to materiality thresholds. There also should be consistency in the disclosure requirements of international accounting standards and U.S. GAAP standards. Auditors and supervisors should not necessarily conclude from any disclosure of potential extra-contractual funding requirements that the related vehicle should be consolidated. Consolidation decisions should be made independently of disclosures in order not to discourage disclosure of possible but less-than-certain funding obligations (see Recommendation III.11).

[51] *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience,* 27.

E SYSTEMIC RISKS AND THE CREATION OF A MARKET MONITORING GROUP

By early 2007, a growing number of market participants and expert observers had begun to warn that turbulence could hit global financial markets in light of evident weakening of risk management and underwriting standards—consequences of which were seen most vividly in the U.S. subprime market and the leveraged-loan market—and conspicuous compression of risk premiums. No one knew when, of course, but the probability of such an event was seen as clearly on the rise.

Yet this latest turmoil still came as something of a surprise, not so much in terms of the fact that it happened but in terms of its severity, multidimensional character, and systemic nature. No one saw this coming the way it did. In particular, no one anticipated the extent of the developing trouble in the U.S. subprime market, which after all is a small part of U.S. financial markets, to culminate in such a global liquidity squeeze. The damage done has been considerable.

Clearly, the market dynamics set in motion by a shock somewhere in the system is now significantly different and more complicated than in the past because of the major changes that have taken place in the global financial landscape (with the growing prominence of players with high leverage and a proliferation of complex instruments, and the interconnectedness among these). Moreover, in the face of rapid financial innovation, conventional risk-assessment techniques are showing signs of inadequacy.

In light of these difficulties, suggestions have been made that the IIF should consider providing a forum, in the form of a global financial Market Monitoring Group, that would allow IIF members to work together to detect early on the emergence of vulnerable spots and to anticipate possible market dynamics which could culminate in financial market strains of a major proportion. A timely assessment of market developments with systemic implications by a group of industry experts with extensive capital market experience, who can bring together in a coherent manner information and observation from diverse perspectives, should be expected to confer benefits to member firms for their risk management.

Another potential benefit of such a group would be to help member firms consider the likely consequences of the herd-like market tendency that develops with some frequency in phases of credit cycles. In the current episode, for example, despite growing awareness of the build-up of excesses in late 2006 and into 2007, it was found difficult to initiate a pull back from the course dictated by the market due to the risk of losing business. A well-thought-out cautionary note sounded for the whole industry by an expert group could have a different impact than alarm bells rung within individual firms.

In addition, there is a strong expectation by the official sector that the financial industry will undertake every effort to try to avoid a repetition of recent turmoil in financial markets. In their view, this would include all efforts to identify early on any fault lines, severe dislocations, and apparent mispricings of assets that may turn out to be the source of significant market disturbances. The official sector would welcome these

as useful contributions by the industry in cooperating with official market-monitoring efforts, as noted by the FSF and other official bodies.

Principles of Conduct:

> ***Principle E.i:*** In their risk management, individual firms should take due account of systemic risks in addition to the risks to which they are more directly exposed.

> ***Principle E.ii:*** While risks should be managed by individual firms, the analysis and assessment of systemic risks would benefit from diverse expertise, experiences, and perspectives that are available in the financial industry as well as those available in the official sector.

Recommendation:

Recommendation E.1: *A proposed Market Monitoring Group under the auspices of the IIF, which the Board has endorsed, will be formed to serve as a forum for member firms to monitor global financial markets for early detection of vulnerabilities having systemic implications and for examination of market dynamics that could lead to major financial-market strains and to discuss ways to address such risks.*

The Market Monitoring Group is expected to provide private sector interface with the various public-sector groups that are engaged in similar monitoring activities through regular meetings.

Proposed Terms of Reference of the MMG:

Mandate

The MMG should have a focused mandate—serving as a forum for IIF member firms to monitor global financial markets for early detection of vulnerabilities having systemic implications and for examination of market dynamics that could lead to major financial-market strains. The MMG should aim to "connect the dots," bringing together observations and assessments of various developments to build a systemic picture of current risks and their potential negative impacts and seeking to mitigate those risks by encouraging member firms to take the Group's findings into account in their risk management and collaborating closely with the official sector.

Monitoring of vulnerabilities will be carried out with an eye toward assessment of risks and fault lines in global financial markets, with a focus on perceived mispricing of risk, crowded trade, and concentration risk, taking into account potential contagion among markets. As we have already seen, root causes of systemic risks may arise from potential shortcomings in (1) industry implementation of sound practices; (2) regulatory landscape and supervisory practices requiring enhancements; (3) accounting, auditing, financial-reporting, and other standards that may create unintended distortions; or (4) market infrastructures in the face of rapid financial innovation and growth of activity. Each of these might, individually or collectively, foster vulnerabilities.

Structure

The MMG will be constituted and launched by the Board of Directors of the IIF but will operate on an independent basis from the IIF Board or any other entities.

The MMG would meet 2 to 3 times a year, or as needed, to discuss major developments and potential stress points in global financial markets on the basis of terms of reference to be drafted. Confidentiality of individual interventions in MMG meetings will be assured. The IIF staff will prepare background notes to serve as a basis for discussion.

The MMG may invite, on an ad hoc basis, guests with specific expertise to participate in MMG meetings.

When the need arises, the co-chairs will appoint or replace members after consulting with the IIF Board.

The IIF staff will serve as the secretariat of the MMG.

Member Profile

The MMG is envisioned to have 15–20 members, to be rotated on a 3-year term, reflecting a broad and balanced mix of types of businesses/functions and institutions as well as geographic areas. All members should have distinguished careers and a range of experiences.

It is of particular importance that the MMG has several members who have their "fingers on the pulse" of global financial markets and the ability to relate market practices and developments to potential impact on the real economy and policy challenges. Membership is extended to persons and not transferable to another employee of the member's institution should the member leave that institution. In addition, no substitute would be allowed to attend MMG meetings.

The types of institutions should include banks and investment banks; insurance companies; buy-side institutions such as asset management companies, hedge funds, private equity funds, and sovereign wealth funds; and a custodian bank/clearing organization. The key is to have diverse expertise, experience, and perspectives.

The co-chairs of the MMG should be prominent participants in the financial community of highest distinction to ensure the Group's credibility and its ability to draw warranted attention of member firms and collaborate most effectively with the official sector.

Use of Outputs

Findings of the meeting will be presented to the IIF Board and communicated to IIF members. Those findings are expected to be used by member institutions as important inputs to their risk management process.

The findings could be used as well for such specific purposes as developing firms' stress-testing scenarios (as suggested by the Working Group on Risk Management). Members also could consider such findings to identify a set of relevant risks to be disclosed for the reporting period, as suggested in the FSF Report.[52]

Findings of the meetings will be communicated also to the official sector. The effectiveness of the MMG will be in its ability to collaborate with financial-stability groups in the official sector so as to monitor collectively the financial system on a global basis in an effort to minimize systemic risk.

IIF Board leadership and MMG co-chairs might choose to make public statements about key findings and suggested courses of action.

[52] For reference, the *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 25, recommends that "investors, industry representatives, and auditors should meet together, on a semi-annual basis, to discuss the key risks faced by the financial sector and to identify the types of risk disclosures that would be most relevant and useful to investors at the time."

APPENDIX A Analysis of Market Events: The Financial Stress and Its Key Features

The developments that led to the market strains since summer 2007 are familiar but worth recalling. An extended period of ample global liquidity and low interest rates provided fertile ground for financial excesses, including high leverage. Large amounts of money available for investment led to compressed risk spreads, and increasingly aggressive and sometimes lax lending and underwriting standards became notable as the credit cycle reached mature stages in 2005–2006.

Particularly in the U.S. subprime mortgage market, mortgages were written with progressively more aggressive terms, often offered by substantially unregulated mortgage originators. There appears to have been a widespread assumption of continued rise in real estate prices, and there are indications that there was increasing fraud at a time of generally declining due diligence. Indeed, the terms of "subprime" mortgages changed over time and, equally importantly, consumer behavior with respect to default on mortgage debt changed in ways that were not anticipated by rating-agency or industry analysts.

In addition, some structural factors within the changing global financial market landscape have been at work to give the current episode some unprecedented features. Over several years, the markets shifted to an "originate-to-distribute" model in which credit that once would have been retained by banks on their own books was converted into market products of increasing sophistication and complexity. Banks sought to optimize use of capital by getting assets off their books, and accounting and regulatory standards encouraged recognition of upfront fee income.

The ability to distribute credit risk away from the banking system—through the use of structured products—to investors with an appetite for it has produced significant benefits for the functioning of financial markets, with positive economic impact. A shift of the dominant business model from "buy and hold" toward "originate-to-distribute" has allowed investors to gain access to a wider range of financial products, including tailor-made products, thus facilitating portfolio optimization through diversification and risk management through hedging.

For the "originate-to-distribute" model to work effectively, however, all participants must observe high standards of risk management and disclosure and have in place sound incentive structures. Also, credible and well-understood ratings are essential to help gauge relative risks. In the context of the unusually accommodating financial conditions of the few years through 2007, however, those basic requirements for a viable "originate-to-distribute" model too often were not met.

The ongoing turmoil is the result, calling into question many aspects of the "originate-to-distribute" model and structured products. It is clear that realizing the full constructive potential of that model will require focused attention to address shortcomings in market practices that were seen in the run-up to the turmoil. The Committee's five Working Groups are dealing squarely with those issues, taking into account the steps that individual firms have already started taking to remedy the situation.

Mortgages were the segment of the financial market where the "originate-to-distribute"

model developed earliest and most extensively. In the United States, where subprime mortgages progressively came to assume an increasing share of the whole market in the past few years, such mortgages were securitized into a significant volume of structured products. Those developments reflected investors' search for yield and market pressure by analysts and investors on firms for short-term results. In many cases, firms' behavior was driven by incentive structures focused on short-term performance.

Since last summer, ratings of structured products have proved very volatile relative to their past performance and that of ratings on corporate and sovereign bonds. This reflects particular features (such as event triggers) of complex structures, the implications of which have been underestimated by firms, investors, and the rating agencies.

A rise in subprime delinquencies that accelerated toward summer 2007, along with multi-notch ratings downgrades in many mortgage-linked securities, led to elevated uncertainty about ratings, asset values, and creditworthiness of counterparties. This, in turn, contributed to plummeting liquidity for subprime-linked products and tainted the much larger markets for other structured products. Markets' attention then focused on conduits and SIVs, many of which were set up by banks to warehouse undistributed CDO tranches and funded by short-term ABCP. Investors, mainly in money-market funds, moved out of ABCP and other structured assets to such safer assets as Treasury bills or bank deposits. Denied funding and faced with very tight "triggers" potentially requiring wide liquidations of assets, certain conduits and SIVs came to the point at which they had to draw upon backstop bank lending lines or their sponsors chose to take the assets onto their balance sheets.

Disappearing marketability and sharply increased doubts about valuations of complex products and structured vehicles fed on each other to bring markets in certain asset classes to a virtual halt, with transactions that have taken place marked by huge discounts. Leading banks faced a surge in potential liquidity demands and were sometimes led, despite the lack of legal obligation, to bring assets onto their own balance sheets for reputational risk reasons or to avoid firesales. Faced with highly uncertain potential demands for liquidity, banks became reluctant to participate in money markets beyond very short terms. At the same time, non-bank participants in the money markets became highly averse to investing in credit instruments of private issuers beyond very short terms. With this, subprime credit problems turned into a systemic liquidity crunch, with term money markets being the center of the storm.

Leading financial firms have faced substantial writedowns, inducing many of them to replenish capital. As of mid-June 2008, writedowns by those firms have amounted to more than $400 billion, which is of an unprecedented size, although about $55 billion of that total represents credit losses. There are growing concerns that the way fair-value accounting has been applied through marking to the current markets of hardly any liquidity has been exaggerating losses incurred by those firms, thereby exacerbating market unease, stress, and dislocation.

Sustained and increasingly coordinated liquidity infusion by central banks has been undoubtedly helpful in alleviating market strains and keeping the risk of a systemic meltdown at bay. In particular, the exceptional action the Federal Reserve took in the mid-March episode involving a major U.S. non-bank financial firm was seen as reflecting its determination to do all it could to prevent the turmoil from getting out of control. That action was a watershed that has changed the course of events, which could have gone into truly uncharted territory.

Since that episode, some risk indicators, such as CDS spreads for financial firms, have shown some improvements reflecting, inter alia, reduced perception of counterparty risks. However, financial firms increasingly face challenges stemming from slowing global growth and accelerating inflation, in addition to the problems that they have

been coping with over the past year. The impact of those challenges on credit quality and revenue growth is being factored into earnings prospects, and this is clearly reflected in the weak stock market performance of the financial sector.

Strong cross currents witnessed in day-to-day financial market developments leave open the issue of how much longer the turmoil will persist. The critical elements of the answer to that question are continued attentive policies of central banks but also, and even more important, maximum efforts by financial firms to strengthen their business practices. To be sure, those are not the only determinants of the way financial markets perform in the weeks and months ahead, with the weakening of the global economic situation likely to be another key influence. However, a lengthy period of subpar performance would be a near certainty in their absence.

APPENDIX B

Principles of Conduct, Best Practice Recommendations, and Considerations for the Official Sector

For purposes of convenience, this appendix restates the Principles of Conduct, Best Practice Recommendations, and Considerations for the Official Sector contained in the main body of the *Report*, as well as the revised and restated Recommendations and Considerations for the Official Sector originally issued in the IIF's *Principles of Liquidity Risk Management* report from March 2007.

Risk Management

A. ISSUES OF RISK MANAGEMENT GOVERNANCE

Principles of Conduct:

***Principle I.i*:** A robust and pervasive risk culture throughout the firm is essential. This risk culture should be embedded in the way the firm operates and cover all areas and activities, with particular care not to limit risk management to specific business areas or to restrict its mandate only to internal control.

***Principle I.ii*:** Senior management, in particular the CEO, is responsible for risk management, under the direct oversight of the Board. Both should ensure that the firm has the proper focus on risk, which includes a clear definition of the firm's risk appetite and the constant monitoring of the risk profile in relation to such appetite.

***Principle I.iii*:** To ensure a strategic focus on risk management at a high level, each firm should assign senior management responsibility for risk management across the entire organization. The CRO (or equivalent) should have independence and sufficient seniority to affect decision making in the firm and have access to the Board when needed.

Recommendations:

1. Organizational Focus on Risk

Recommendation I.1: Firms should establish clear policies that define risk management as the responsibility of each institution's senior management, in particular the CEO, subject to the oversight of the Board. Senior management should be involved in the risk-control process, and both the Board and senior management should regard risk

management and control as essential aspects of the business.

Recommendation I.2: Boards have an essential oversight role in risk management. In attending to this duty, each Board should:

- Include members who have an adequate understanding of risk management. Each Board should be given the means to understand the risk profile of the firm and the firm's performance against it;
- Consider, depending on the characteristics of the firm, whether there should be separate audit and risk committees and whether at least some members of the risk committee (or equivalent) should be individuals with technical financial sophistication in risk disciplines;
- Set basic goals for the firm's risk appetite and strategy, such as ratings or earnings-volatility targets, with senior management and as guideposts for senior management in implementing risk management policies throughout the firm; and
- Review with senior management how the firm's strategy is evolving over time and when and to what extent the firm is deviating from that strategy (e.g., when a strategy resulted in heavy dependence on conduits or on structured products).

Recommendation I.3: Risk management should be a priority for the whole firm and not be focused only on particular business areas or made a purely quantitative oversight process or an audit/control function. Mutually reinforcing roles within each organization are essential to creating a strong, pervasive risk culture.

Recommendation I.4: Risk management should be a key responsibility of the entire business-line management, not just of those businesses that invest the capital of the firm on a proprietary basis.

Recommendation I.5: All employees in each organization should have a clear understanding of their responsibilities in regard to the management of risks assumed by the firm and should be held accountable for their performance with respect to these responsibilities.

Recommendation I.6: Firms should implement controls to ensure that the governance structure that has been adopted is actually implemented in managing day-to-day business. The regular and predictable functioning of risk management and governance structures is a fundamental element of effective risk management.

Recommendation I.7: Firms should establish clear policies so that control and audit functions are independent of organizations whose activities they review. Their responsibility is to provide assurance that line businesses and the risk management organization are complying with internal and regulatory policies, controls, and procedures concerning risk management.

Recommendation I.8: The finance and treasury functions should operate in a coordinated and cohesive manner with the risk management function to ensure important checks and balances.

2. Organizational Risk Appetite

Recommendation I.9: The Board should review and periodically affirm the firm's risk appetite as proposed by senior management. In so doing, the Board should assure itself that management has comprehensively considered the firm's risks and has applied appropriate processes and resources to manage those risks.

Recommendation I.10: When defining its risk appetite, the firm should be able to demonstrate consideration of all relevant risks, including non-contractual, contingent, and off-balance-sheet risks; reputational risks; counterparty risks; and

other risks arising from the firm's relationship to off-balance-sheet vehicles (see conduits and liquidity section).

Recommendation I.11: A firm's risk appetite will contain both qualitative and quantitative elements. Its quantitative elements should be precisely identified. Clearly defined qualitative elements should help the Board and senior management assess the firm's current risk level relative to risk appetite as adopted. Further, by expressing various elements of the risk appetite quantitatively, the Board can assess whether the firm has performed in line with its stated risk appetite.

Recommendation I.12: Risk appetite should be the basis on which risk limits are established. Limits need to cascade down from the firm-wide level to business lines and divisions, to regions, and to trading desks. Risk-appetite usage should be measured on a global, consolidated basis and constantly monitored against the limits.

Recommendation I.13: The firm's risk appetite should be connected to its overall business strategy (including assessment of business opportunities) and capital plan. It should dynamically consider the firm's current capital position, earnings plan, and ability to handle the range of results that may occur in an uncertain economic environment. It is fundamental, therefore, that the risk appetite be grounded in the firm's financials. The appropriateness of the risk appetite should be monitored and evaluated by the firm on an ongoing basis.

Recommendation I.14: Firms should involve the risk management function from the beginning of the business planning process to test how growth or revenue targets fit with the firm's risk appetite and to assess potential downsides. There should be clear communication throughout the firm of the firm's risk appetite and risk position.

3. Role of Chief Risk Officer and Risk Organizations

Recommendation I.15: Each firm should assign to the senior management–level the responsibility for risk management across the entire organization. In most cases, this would be to the CRO, although institutions may structure themselves differently to accomplish the same end.

Recommendation I.16: The CRO should have a sufficient degree of autonomy, be independent of line business management, and have sufficient seniority and internal voice in the firm to have a meaningful impact on decisions.

Recommendation I.17: While firms retain freedom to determine their internal structures, firms should strongly consider having the CRO report directly to the CEO and assign the CRO a seat on the management committee. The CRO should be engaged directly on a regular basis with a risk committee of the Board. Regular reporting to the full Board to review risk issues and exposures is generally advisable, as well as more frequently to the risk committee.

Recommendation I.18: CROs should have a mandate to bring to the attention of both line and senior management or the Board, as appropriate, any situation that is of concern from a risk management perspective or that could materially violate any risk-appetite guidelines.

Recommendation I.19: Firms should define the role of the CRO in such a way that, without compromising his or her independence, he or she is in frequent interaction with the business lines so that the CRO and all risk managers have sufficient access to business information.

Recommendation I.20: Firms should consider assigning the following key responsibilities to the CRO:

- Guiding senior management in their risk management responsibilities;
- Bringing a particularly risk-focused viewpoint to strategic planning and other activities of senior management;
- Overseeing the risk management organization;
- Assessing and communicating the institution's current risk level and outlook;
- Strengthening systems, policies, processes, and measurement tools as needed to provide robust underpinnings for risk management;
- Ensuring that the firm's risk levels and business processes are consistent with the firm's risk appetite, internal risk policies, and regulatory requirements for risk management; and
- Identifying developing risks, concentrations, and other situations that need to be studied through stress testing or other techniques.

Recommendation I.21: The CRO should report to senior management and, as appropriate, to the Board or its risk committee, on material concentrations as they develop, discuss material market imbalances, and assess their potential impact on the firm's risk appetite and strategy. The CRO should ensure a thoughtful, integrated view of the overall risks faced by the firm (including related off-balance-sheet vehicles).

At a more technical level, the risk management function should oversee internal risk-rating systems, segmentation systems, and models, and to ensure that they are adequately controlled and validated. Assumptions behind models, grading systems, and other components of quantification should be recognized, and appropriate updates should be made when assumptions no longer hold.

Recommendation I.22: The CRO and risk management function should be a key part of analyzing the development and introduction of new products, including the extension of products into new markets. New products with risk exposure, including those for which the bank accepts contingent liquidity or credit exposure, should be explicitly approved by the risk organization.

4. Resources for Risk Management

Recommendation I.23: Firms should ensure that the risk management function has a sufficient amount and quality of resources to fulfill its roles. Senior management should be directly responsible for this, under the oversight of the Board.

Recommendation I.24: During the planning and budgeting process, firms should ensure that adequate resources include personnel, data systems, and support and access to internal and external information necessary to assess risk. It is important that the allocation of resources be made under careful cost/benefit considerations as well as proportionality in relation to the firm's size and mix of business.

Recommendation I.25: Risk management personnel should posses sufficient experience, qualifications, and status to exercise control responsibilities. Credibility requires market and product knowledge as well as mastery of risk disciplines. In addition, firms should consider establishing some (bi-directional) career crossover between risk and line roles. Doing so will contribute directly to improving mutual understanding and strengthen the risk management function.

B. RISK MANAGEMENT METHODOLOGIES AND PROCEDURES

■ Principles of Conduct:

> ***Principle I.iv*:** A comprehensive, firm-wide approach to risk management should be implemented by all firms. Such an approach should allow the firm to identify and manage all risks across business lines and portfolios. Robust communication mechanisms should be established so that the Board, senior management, business lines, and control functions can effectively exchange information about risk.

> ***Principle I.v:*** The risk management framework of firms should clearly avoid over-reliance on single risk methodologies and specific models. Modeling and other risk management techniques should always be a part of the comprehensive risk management system and should be applied using expert judgment.

> ***Principle I.vi*:** Firms should have policies and procedures to identify and manage risk concentrations. In particular, firms should establish procedures and techniques that adequately aggregate risk exposures across the firm regardless of their contingent or non-contingent, on- and off-balance sheet, or contractual nature.

■ Recommendations:

1. Risk-Identification Issues

Recommendation I.26: Risk managers should manage and measure risks on the basis of the firm's approved risk parameters, in addition to any regulatory requirements. External ratings of transactions should not be a substitute for a firm's own due diligence processes especially because such ratings may not address the firm's specific issues or not be calibrated to the firm's standards and risk management goals.

Recommendation I.27: Firms should explicitly integrate an assessment of relevant elements of the macro-economic environment (e.g., from available research and forecasting) into risk decisions, for example, to identify likely impacts on positions, portfolios, or risk management strategy.

Recommendation I.28: Firms should improve, where needed, their approaches to portfolio-level risk management. The identification of the key risk factors and associated risk measures for a specific portfolio allows for the potential impact of changes in market fundamentals to be assessed, thereby facilitating effective risk management.

Recommendation I.29: Firms should implement procedures so that portfolio information is designed and organized in a way to facilitate aggregation of a soundly based, firm-wide view of all risks, including concentrations.

Recommendation I.30: Metrics should be calibrated closely to risk-appetite horizons. It may not be sufficient to rely on short-term VaR and long-term economic capital but metrics at other intervals may be necessary depending on the firm's businesses.

Recommendation I.31: Widely recognized weaknesses in VaR such as dependence on historical data and inadequate volatility estimates should be explicitly addressed by firms when revising and adapting their VaR methodologies. Back testing and stress testing provide powerful tools to identify VaR shortcomings and offset deficiencies.

Recommendation I.32: The risk management function should explicitly incorporate in its procedures the limitations of risk metrics and models (e.g., VaR) that are used in the firm. Such limita-

tions should be addressed by qualitative means, including expert judgment. Risk management procedures should explicitly prevent dependence upon single methodologies.

2. Risk-Integration Issues

Recommendation I.33: Firms should implement a comprehensive approach to risk, establishing procedures and techniques that adequately integrate different risk strands (in particular, credit, market, operational, liquidity, and reputational risk). Effective communication channels as well as common metrics and IT systems should be put in place in order to achieve a sufficient degree of integration of the different risk areas.

Recommendation I.34: Firms should develop, as needed, an integrated treatment of risk in the new-product process. Such an approach should include periodic review of new products. Firms should consider that migration of underlying assets or other relatively subtle changes in a product over time can affect the risk implications of a product or business.

Recommendation I.35: Close cooperation between the finance (product control and treasury) and risk management functions is essential for capital management, funding, liquidity, and profit-and-loss analysis.

3. Issues Regarding Securitization and Complex Products

Recommendation I.36: Regardless of whether the business focuses on any specific portion of a securitization or other product chain, risk management should assess risks on an integrated basis, recognizing interdependencies along the product chain, including those aspects in which the firm is not directly involved (e.g., the firm may not be involved in the origination of debt underlying the products it handles).

Recommendation I.37: Firms should pay particular attention to risk-integration issues especially in dealing with structured products and other product chains. The adequate measurement of correlations and interdependencies is key to appropriately managing risk in these types of products.

Recommendation I.38: Firms should continue developing risk models that specifically address the risks emanating from securitization and other forms of contingent risk. In particular, models should be able to “look through” the direct risk and capture the market sensitivities of the exposures. In this regard, it is fundamental that securitization models specifically address the risk arising from multi-name products.

Recommendation I.39: Both the risk management and finance functions should clearly understand the sources and risk/reward implications of P&L effects.

Consideration for the Public Sector I.A: Review of the Basel II framework for securitizations is advisable, as recommended in the FSF Report. This review should be done carefully, and will provide opportunities to improve the Accord, in particular, by providing an option for firms to use internal ratings in lieu of or in conjunction with external ratings with respect to securitization exposures, reflecting developing risk management capabilities.

Recommendation I.40: Risk assessment for new products should consider performance under stress, including both firm-specific and market stress, and new product approvals should include the conditions under which authorization is

granted. Examples of conditions include limits, performance requirements, and assumptions that must remain valid. Consideration of reputational risk is also a fundamental component of risk assessment of new products.

4. Concentration Risk

Recommendation I.41: Risk concentrations should be adequately identified and managed by all firms. An integrated approach to risk across the firm is fundamental so that all sources of risk (including on- and off-balance-sheet risks, contractual and non-contractual risks, and contingent and non-contingent risks, and including underwriting and pipeline risks) will be effectively captured. Models and procedures should be implemented in such a way that they will be able to capture concentration risks to individual obligors, risk factors, industries, geographic regions, and counterparties (including financial guarantors). Firms should also consider risk concentrations in global markets and how those may affect individual firms (e.g., by increasing asset volatility or reducing available liquidity).

Recommendation I.42: Firms should explicitly take into consideration, when defining their risk appetites and associated limits, the prevention of undue risk concentrations. Limits can play a fundamental role in preventing a firm from building risk concentrations.

Recommendation I.43: Risk metrics should include, when appropriate, a notional and asset-class view, recognizing that absolute size of position is important and a consolidated view of positions is essential if held by different trading desks or business units.

Recommendation I.44: Firms should develop and continue to refine stress-testing methodologies that adequately deal with risk concentrations.

C. STRESS-TESTING ISSUES

Principles of Conduct:

***Principle I.vii*:** Stress testing needs to be approached comprehensively, covering a wide range of risks and correlations among risks. It should be integrated with the overall risk management infrastructure. Policies and methodologies need to be consistently applied throughout the firm and designed in such a way that they effectively evaluate multiple risk factors.

***Principle I.viii*:** Stress testing needs to have a meaningful impact on business decisions. Senior management and Boards have an important role evaluating stress-testing results and their impact on the risk profile of the firm.

Recommendations:

Recommendation I.45: Firms should develop internal management procedures that make stress testing part of the management culture, so that its results have a meaningful impact on management decisions. Such procedures should discourage mechanistic approaches and promote a dialogue among the business, senior management, and risk function as to the types of stress tests to be performed, the scenarios most relevant, and the impact assessment of such tests (including the consideration of stress-testing results at the moment of determining the risk appetite of the firm).

Recommendation I.46: Firms should ensure that their stress-testing methodologies are consistently and comprehensively applied throughout the organization, evaluating multiple risk factors as well as multiple business lines and taking group-

wide views as well as business- and entity-specific views. Stress-testing methodologies should be integrated with other risk management tools as well as other internal processes. Equally importantly, methodologies should take into account proprietary models used by different front-office units.

Recommendation I.47: Stress-testing methodologies should be used actively to complement and explicitly address the limitations of other risk management tools, including VaR. In particular, given the dependence of VaR on historical data, stress testing should be used to test the risk implications of scenarios on which limited historical data are available.

Recommendation I.48: Stress testing should include challenging scenarios. Scenarios should be defined and developed as conditions evolve. Participation of senior management as well as business line staff is fundamental for the adequate definition of such scenarios. Methodologies should balance historical and forward-looking scenarios and avoid static scenarios or ones that no longer reflect market developments.

Recommendation I.49: Stress-testing policies should be designed so that the likelihood of severe events is not consistently underestimated and the firm's ability to manage crises in an effective and timely manner is not overestimated.

Recommendation I.50: Stress testing should play an integral role in assessing the firms' risk profile in relation to its risk appetite and be done across all business activities, risk types, and exposures.

Recommendation I.51: Stress-testing methodologies should be designed to deal adequately with risk concentrations. For this purpose, methodologies should be firm-wide and comprehensive, covering on-balance-sheet and off-balance-sheet assets, contingent and non-contingent risks, and all risks independent of their contractual nature.

Recommendation I.52: Stress testing and related analysis should take into account the risk of model error and in general, the uncertainties associated with models, valuations, and concentration risks that may arise through the cycle. Stress testing should be used to explore the assumptions and identify the limitations of models used for pricing and risk modeling.

Recommendation I.53: Firms should establish adequate procedures so that stress testing captures risks originating from securitization exposures. In particular, firms should ensure that, when dealing with securitized products, a full set of data related to the underlying assets is obtained so that such data can be incorporated in stress-testing models.

Recommendation I.54: Stress testing should include pipeline and warehousing risks (for example with respect to securitizations and leveraged loans) to which the firm accumulates positions for subsequent distribution, and should include events that might delay, change the terms of, or prevent such distribution.

Recommendation I.55: Firms should continue refining stress-testing techniques that take into account the effect of stresses on exposures to leveraged counterparties, including hedge funds, financial guarantors, derivatives counterparties (whether or not they provide hedges), including potential cross-correlation of the creditworthiness of such counterparties with the risks of assets being hedged.

Recommendation I.56: Firms should put particular emphasis on improving their stress-testing policies and techniques concerning liquidity risk factors, covering both firm-specific and market-related scenarios.

Recommendation I.57: Firms should reinforce procedures promoting active discussion between senior management and risk management as

to the tests to be performed, the scenarios to be tested, and their implications for the firm. Strong feedback loops are essential in any robust stress-testing methodology. Equally important, methodologies should take into account the relationships between stresses and valuation effects.

Recommendation I.58: Both private and public sectors should avoid excessive and misguided perceptions of stress testing as a "silver-bullet" solution. While the benefits and capabilities of stress testing need to be maximized, over-reliance on one single risk tool should be avoided.

Consideration for the Public Sector I.B: Public and private sectors should collaborate in the discussion of adequate stress testing. Banking regulators and central banks can contribute to the discussion of macroeconomic and market factors that should be considered when developing testing scenarios. However, the use of macro stress tests or "one-size-fits-all" scenarios and techniques should be avoided. Most stress testing done by a firm should be based on well-defined and specific scenarios relevant to the firm, and the interaction with supervisors should be structured through the Pillar 2 process.

Compensation Policies

Principles of Conduct:

Principle II.i: Compensation incentives should be based on performance and should be aligned with shareholder interests and long-term, firm-wide profitability, taking into account overall risk and the cost of capital.

Principle II.ii: Compensation incentives should not induce risk-taking in excess of the firm's risk appetite.

Principle II.iii: Payout of compensation incentives should be based on risk-adjusted and cost of capital-adjusted profit and phased, where possible, to coincide with the risk time horizon of such profit.

Principle II.iv: Incentive compensation should have a component reflecting the impact of business units' returns on the overall value of related business groups and the organization as a whole.

Principle II.v: Incentive compensation should have a component reflecting the firm's overall results and achievement of risk management and other general goals.

Principle II.vi: Severance pay should take into account realized performance for shareholders over time.

Principle II.vii: The approach, principles and objectives of compensation incentives should be transparent to stakeholders.

The Principles of Conduct for Compensation Policies set broad guidelines but it is neither possible nor desirable to state specific Recommendations as in other parts of this *Report*. Compensation—and especially "incentive" compensation—is a differentiating factor for firms and each firm must make its own decisions on how to apply the Principles of Conduct. Instead of precise recommendations there is discussion in the *Report* of examples of certain practices and techniques that firms are considering or have applied, and which may evolve into best practices over time.

Liquidity Risk, Conduit, and Securitization Issues

A. FUNDING LIQUIDITY ISSUES

■ Principles of Conduct:

Principle III.i: Firms should have sound and effective liquidity risk management practices incorporating insofar as applicable to their business models the Recommendations of *Principles of Liquidity Risk Management* as updated and restated in this *Report.*

Principle III.ii: Firms should have internal liquidity risk pricing policies sufficient to create incentives for business lines to act in full cognizance of the liquidity risks their businesses incur, permitting firms to manage their liquidity resources prudently.

1. Implementation of IIF's *Principles of Liquidity Risk Management*

Recommendation III.1: Firms should ensure implementation of sound industry practice for liquidity risk management through a continuous review and critical assessment process as appropriate for their businesses, using the Revised and Restated Recommendations set out in Appendix B and in the body of this *Report* as benchmarks.

Recommendation III.2: Firms should mandate that assets held to back their liquidity positions need to be dimensioned in relation to the anticipated liquidity and currency denomination of such assets and with respect to the reasonably anticipated depth and sustainability of the money markets and capital markets. Portfolios held for such purposes should be well diversified by type of instrument and counterparty. The assessment of assets held primarily for liquidity purposes should not be established solely on the basis of credit ratings. Reporting should keep senior management and relevant control functions apprised of risks associated with assets held for liquidity purposes.

Recommendation III.3: Firms should ensure that reporting to the appropriate committees (e.g., asset and liability committee, credit committee) disaggregates between direct and indirect risks relating to securitizations, so that information on gross as well as net positions is available, in order to ensure full transparency within the firm. At the same time, reporting should aggregate liquidity risks on a firm-wide basis, including both on- and off-balance-sheet transactions.

2. Internal Transfer Pricing

Recommendation III.4: Firms should ensure that they have in place effective internal transfer pricing policies to reflect implied or incurred actual or potential costs related to reasonably anticipated liquidity demands from both on- and off-balance sheet business. Transfer pricing should take closely into account the liquidity of relevant underlying assets; the structure of underlying liabilities, and any legal or reasonably anticipated reputational contingent liquidity risk exposures. Transfer pricing should be designed to ensure that lines of business within the firm that create liquidity exposures are proportionately charged for the cost to the firm of maintaining corresponding prudent liquidity positions.

3. Liquidity Risk Stress Testing

Recommendation III.5: Firms should ensure access to diversified funding sources (e.g., funding providers, products, regions, currencies) to avoid

the risk of overdependence on any form of funding. This includes access to securities and secured financing markets, in their day-to-day liquidity risk management, and for stress-testing and contingency-planning purposes. Firms should periodically reevaluate the appropriateness of the metrics employed and use a variety of firm-specific and market-related events in carrying out this analysis. Market-sensitivity analyses encompassing such items as the effects of contingent drains on liquidity and the adequate pricing of such facilities are important.

Recommendation III.6: Firms should examine through stress testing and analysis the conditions under which the size of their balance sheets might expand during times of stress, and consider appropriate and proportionate contingency plans for such eventualities.

Recommendation III.7: Firms' stress-testing analyses should include "tied-position" situations in instruments that are material for them.

B. MARKET LIQUIDITY

■ Principles of Conduct:

Principle III.iii: Firms that rely on secured funding or asset sales to a significant extent to manage their liquidity should have robust processes in place to evaluate asset liquidity under a variety of business-as-usual and stressed conditions.

Principle III.iv: Firms should conduct rigorous contingency planning for market risk developments, working cooperatively with the official sector to the extent practicable.

C. ROLES OF CENTRAL BANKS AND SUPERVISORS

1. Considerations for the Official Sector: Central Banks

Consideration for the Official Sector III.A: Central banks should continue to institutionalize cooperation among themselves, including in such key areas as harmonization of operational requirements and procedures.

Consideration for the Official Sector III.B: The term auction, securities lending, and swap facilities announced since December 12, 2007, by certain central banks should be continued for so long as market conditions warrant and then become parts of central banks' toolkits together with an established contingency plan to enable them to be made quickly available under appropriate circumstances.

Consideration for the Official Sector III.C: There should be maximum harmonization across systems of available market facilities insofar as possible. Where structural or legislative changes are necessary to complete harmonization, serious consideration should be given by the relevant authorities to making the changes necessary to allow each central bank to have a full set of tools to undertake concerted action with its peers.

Consideration for the Official Sector III.D: Central banks should continue to expand and harmonize eligibility of central bank collateral, including providing for the interoperability of collateral across systems, to enable firms to maintain global collateral pools. Accepting broader and generally consistent types of collateral in relevant currencies across central bank systems on a readily useable basis and continuing already-begun develop-

ments are increasingly important to international market health.

Consideration for the Official Sector III.E: The availability of central bank currency swaps should be harmonized across systems. Provisions for such swaps should be made available on a stand-by basis in both directions (e.g., USD/EUR, EUR/USD).

Consideration for the Official Sector III.F: Central banks should provide greater clarity of their roles in both firm-specific (lender-of-last-resort) and market-related crises.

- As to firm-specific crises, clarity should be provided insofar as possible as to the requirements that a firm should be prepared to meet to have access to lender-of-last resort facilities, but not necessarily the terms or conditions under which the lender of last resort would be available.
- As to market-related crises, clarity should be provided as broadly as possible as to the availability and terms of market-focused measures. In market-related situations, it is especially important that central banks avoid the "stigma" associated with use of certain traditional central bank facilities.
- Provision of clarity in both senses should be understood to be intended to facilitate quick action by firms and the public sector alike when needed but should not abridge central banks' flexibility to adopt appropriate responses to unanticipated or evolving situations.

Consideration for the Official Sector III.G: Central banks and other official-sector agencies should be willing to participate in firms' contingency planning, including periodic testing of central bank facilities.

2. Considerations for the Official Sector: Regulators and Supervisors

Consideration for the Official Sector III.H: Home and host supervisors should work together to evaluate a firm's integrated liquidity positions as well as strategies, policies, procedures, and practices related to the management of global liquidity. Supervisors should check that the firm has an effective system in place to measure, monitor, and control liquidity risk and has an appropriate liquidity contingency plan on a consolidated basis and, where required by regulation or deemed appropriate by the Board of Directors, for each legal entity. As needed, supervisors should leverage the firm's internal risk reporting to obtain sufficient and timely information to evaluate the firm's level of liquidity risk.

Consideration for the Official Sector III.I: Regulators should seek to harmonize, or at least promote greater consistency of, liquidity concerns, definitions, and standards among regulators so that firms are better prepared to address regulatory considerations when constructing liquidity risk management policies and practices for firm-wide implementation across multiple legal entities and jurisdictions.

Consideration for the Official Sector III.J: Liquidity regulations should be based on qualitative risk management expectations and not specific quantitative requirements, with host regulators putting more uniform reliance on home regulators and regulation to ensure adequacy of enterprise-wide management of liquidity. More-effective global management of liquidity by large firms should reduce systemic liquidity risk, even if at times this may mean that the national interests of individual regulators are not maximized.

Consideration for the Official Sector III.K: Regulatory and economic capital should not be tied

directly to funding liquidity risk. The Basel II requirement to take liquidity into consideration for purposes of Pillar 2 (Supervisory Review Process) should be met through regulatory assessment of firms' liquidity positions and risk management practices that consider each firm's various liquidity risk metrics and levels of acceptable risk tolerance in light of its internal and external environment and circumstances.

D. STRUCTURED FINANCE VEHICLES

■ Principles of Conduct:

Principle III.v: Effective risk management should ensure that exposures to conduits and other vehicles, as well as auction-rate securities, are captured in liquidity planning and management and that there is sufficient transparency, capital support, and disclosure by sponsoring firms.

Principle III.vi: Sound liquidity risk management requires inclusion of formal contingent obligations to off-balance-sheet vehicles and appraisal of potential effects of support of vehicles or auction-rate securities for relationship or reputation reasons.

6. Recommendations and Considerations for the Official Sector on Securitization and Vehicles

Recommendation III.8: Firms' systems of internal control should include all securitization processes, all formal commitments to off-balance-sheet vehicles, and all securitization transactions with which the firm is associated. All relevant transactions should be included in the analysis when the firm has formal, ongoing obligations to vehicles or exposures as investor, or simply a role in the transaction that could, under perhaps unforeseen circumstances, result in actual exposure for reputation risk or other reasons.

Recommendation III.9: For management oversight and risk management purposes and to ensure a global view of exposures, firms should have integrated approval procedures for securitization commitments and transactions. Fragmented approvals that are difficult to aggregate should be avoided, as they may lead to difficulties of aggregation or failure to recognize concentrations.

Recommendation III.10: A firm's risk management and governance procedures should entail frequent review, no less than annually, of all material potential exposures to securitization transactions and off-balance-sheet vehicles, broken down by product; underlying assets; the role played by the firm in transactions (e.g., as originator, sponsor, distributor, trustee); and its positions, if any, as investor in such transactions. Care should, however, be taken to reflect accurately the nature of the firm's exposures in analysis and reporting in each instance.

Recommendation III.11: Firms should consider whether risk of reputation damage could lead a firm to opt to take exposures back onto its balance sheet, with liquidity and capital consequences, even in the absence of legal obligation. The Board should assure themselves that senior management is appropriately attentive to regulatory and accounting requirements on significant risk transfer and consolidation. Supervisors and auditors, however, should not take a firm's assessment or stress testing of such risks as per se grounds to require consolidation for capital or accounting purposes.

Recommendation III.12: Firms should ensure that analysis of concentrations and counterparty risks include exposures to guarantors of transactions, such as monoline insurers. Such analysis also should include direct and indirect exposures arising from associated credit-derivative positions.

Recommendation III.13: Firms' risk management analysis of securitization transactions should include analysis of the performance of underlying assets and any actual or potential resulting exposures.

Recommendation III.14: Firms should ensure that warehousing and pipeline risks of assets held for future securitization or securitization tranches not yet sold are included in the global exposure analysis**.**

Recommendation III.15: For own-asset securitizations or securitizations structured by the firm, there should be functional separation of groups structuring transactions from those investing or trading in them. To avoid potential structuring/trading conflicts between the origination team and the trading desk that purchases any retained positions or to avoid distorting incentives regarding investment strategy, both groups should provide independent advice to a senior credit decision-making body in the firm with authority to make balanced decisions.

Recommendation III.16: Senior management should carefully assess the risks of vehicles associated with the firm, including assessment of the size and stability of the vehicles relative to their own financial, liquidity, and regulatory capital positions. Analysis should include structural, solvency, liquidity, and other risk issues, including the effects of covenants and triggers, and include such issues in their liquidity stress testing. Senior management should take care that the Board is apprised of the risks of vehicles and cognizant of their implications for the firm's overall risk appetite.

Recommendation III.17: Firms should have a periodic look-through analysis to provide senior management with a comprehensive overview of securitized assets and securitized asset classes. Both the relevant business units and the risk management function should have the duty to collect and transmit within the firm early-warning signals as to deterioration of underlying assets or other emerging risks that affect its securitization transactions. The firm's structure should ensure prompt risk management attention to such warnings. IT investment should be adequate to support this function.

Recommendation III.18: Firms should be able to include all associated securitization vehicles and their underlying assets in their assessments of group-wide risk concentrations, consistent with Recommendation I.41. Such concentrations should be included in regular reporting to the relevant oversight committees, such as the asset and liability committee or credit committees.

Recommendation III.19: The industry should support development of uniform terminology on securitization transactions and risks. Over time, standardization of deal terms, such as covenants and default triggers, would assist the development of market and management of risk.

Consideration for the Official Sector III.L: Any revision of regulatory-capital rules regarding securitizations or off-balance-sheet vehicles should be promulgated only after consultation with the industry and other stakeholders and subject to a careful impact analysis intended to verify that the results will achieve the goals of lessening risk while maintaining the credit capacity of the system and avoiding unintended consequences.

Consideration for the Official Sector III.M: To a substantial degree, supervisory dialogue and review of off-balance-sheet issues under Pillar 2 will be preferable to rule changes.

Consideration for the Official Sector III.N: Any revision of current accounting standards regarding derecognition, consolidation, or reconsolidation of assets in off-balance-sheet vehicles

associated with financial institutions should be promulgated only via established due process, including careful impact analysis to verify that the results will achieve the goals of accurately reflecting the liabilities and assts of firms while assuring appropriate disclosure thereof. Standard setters should take due cognizance of the need to maintain the credit capacity of the system and avoid unintended consequences. Any revisions of derecognition, consolidation, or reconsolidation of assets should be done in a manner consistent with the general goal of convergence of international, U.S., and global accounting standards.

Consideration for the Official Sector III.O: Insofar as possible, any regulatory capital changes with respect to "significant risk transfer" should be made, taking into account any accounting changes.

Consideration for the Official Sector III.P: Where legal doubts or other obstacles to the creation of covered bonds remain, these should be remedied in order to give the market an additional option for future financing transactions; it should be stressed, however, that covered bonds should be one of various secured-funding options available to the market.

REVISED AND RESTATED RECOMMENDATIONS FROM THE IIF PRINCIPLES OF LIQUIDITY RISK MANAGEMENT

Presented here are the amended and restated Recommendations and Considerations for the Official Sector originally issued in March 2007 in the IIF's *Principles of Liquidity Risk Management* report. Some Recommendations have not been changed but the entire suite is presented here in one document, for the convenience of the user.

A. GOVERNANCE AND ORGANIZATIONAL STRUCTURE FOR MANAGING LIQUIDITY:

■ Liquidity Risk Definition

Revised and Restated Recommendation 1: Firms should define the different forms of liquidity risk to which they are exposed (including relevant subsets within each form they define), identify where they fit in their enterprise risk universe, and communicate these definitions across their groups so that a common understanding is applied when identifying and evaluating liquidity risk related to existing businesses, business reviews, new businesses, products or initiatives, and acquisitions and alliances.

Revised and Restated Recommendation 2: Firms should distinguish between funding liquidity risk and market liquidity risk in their enterprise risk universe. As common events may trigger both and market liquidity risk can affect funding liquidity risk, especially in times of systemic stresses, firms should explain how market liquidity risk is considered in funding liquidity risk management (as well as in market and credit risk management). Within funding liquidity risk, firms should address their practices related to the management of the following:

- Structural (or long-term) liquidity risk;
- Tactical (short-term or operational) liquidity risk, including intraday cash and collateral management; and
- Contingency liquidity risk, including stress testing, contingency plans, and earmarked liquidity asset pools.

■ Roles and Responsibilities, Integrated Risk Management, and Limit Setting

Revised and Restated Recommendation 3: Firms should have an agreed strategy for the day-to-day management of funding liquidity risk that takes into consideration their business model and legal structure (e.g., mix of foreign branches vs. foreign

operating subsidiaries), complexity (the breadth and diversity of markets/products, geographies, and legal entities), key lines of businesses, home and host regulatory requirements and environments, marketplaces, and risk materiality in the context of the firm-wide risk management strategy and tolerance. The rationale for this strategy should be explained and the strategy should be communicated throughout the organization.

Revised and Restated Recommendation 4: A firm's Board of Directors (or a committee thereof under delegated authority) should approve the strategy and significant policies related to the management of funding liquidity risk under both normal and stressed conditions and review and approve these policies annually. Board-approved documents should be written in plain language and identify key funding liquidity limits and approval levels, as well as authorities delegated to senior management committees or executives for approving detailed strategies, goals, procedures, limits, and exceptions. The Board should also ensure that senior management takes necessary steps to appropriately manage, measure, monitor, and control funding liquidity risk in an integrated fashion with other closely associated risks to facilitate enterprise-wide risk management solutions. The board should be informed regularly of the funding liquidity position of the firm (metrics, indicators, and outlooks) and immediately if there are any material changes in the firm's current or prospective funding liquidity positions.

Revised and Restated Recommendation 5: Firms should have a management structure in place to execute effectively the funding liquidity strategy. Roles and responsibilities of various Board and senior management committees in the funding liquidity management structure, as well as those of different functional and business units, should be documented and demonstrate appropriate segregation of duties among the execution, design, and oversight and monitoring roles within the firm. This structure should include the ongoing involvement of members of senior management who must ensure that funding liquidity is effectively managed on a regular and timely basis and that appropriate policies and procedures are established to limit and control material sources of funding liquidity risk in conjunction with the management of other risks (e.g., market liquidity risk).

Revised and Restated Recommendation 6: Firms should have adequate information systems for measuring, monitoring, controlling, and internal reporting of its funding liquidity risk position. Management should be able to prepare these reports in times of firm-specific and systemic business contingencies.

Revised and Restated Recommendation 7: Firms should ensure that funding and liquidity risk management practices are incorporated within a firm-wide integrated risk management framework that also includes market, credit, operational, and other appropriate risks. A firm's culture, organizational structure, and management practices should facilitate recurring information sharing on new and existing products between businesses and functions to broaden and deepen understanding of the firm's funding liquidity risk exposures (e.g., through new business committees), thus recognizing that funding liquidity management is a shared responsibility across the organization and that these processes are necessary to ensure an appropriate balance between risk and reward.

Revised and Restated Recommendation 8: Having identified and understood in detail the liquidity risks and specific vulnerabilities that each firm is subject to, firms should describe in their policies and strategies their overall tolerance for unmitigated funding liquidity risk; the factors that may affect its choices of strategies and limits; the desirable (or, alternatively, unwanted) outcomes and key objectives of its funding liquidity management strategies; and the key drivers and stakeholders influencing the firm's risk appetite,

policies, and strategies. A firm's funding liquidity risk tolerance should be set in the context of its overall risk appetite and its targeted credit rating, ensuring sufficient liquidity is available to address remote yet plausible conditions. Firms should implement a framework of limits, targets, or triggers to ensure that they operate within the specified tolerances. Potential cash outflow and the ability to generate liquidity should be the basis of calculation of liquidity risk tolerance and feed into limit setting.

Centralization vs. Decentralization of Liquidity Management Practices

Revised and Restated Recommendation 9: With the premise that there is no right or wrong choice between a centralized or decentralized liquidity management structure (or a mix thereof), where detailed strategies and significant policies for principal operating subsidiaries of the group are in place, either to meet regulatory requirements or to accommodate a preferred decentralized structure, the Recommendations put forward in the previous section should be applied for each applicable subsidiary. Where a decentralized structure leads to key funding liquidity metrics being different or not consolidated at the group level, processes should be in place to ensure that the group's Board and senior management are made aware of material developments in key subsidiaries in a timely and effective manner. Irrespective of management structure, a group treasury or risk function should be responsible for central oversight of these subsidiaries. The group's strategy and policy documents should describe the structure for managing enterprise funding liquidity risk and for overseeing operating subsidiaries and foreign branches.

Intra-Group Liquidity Transfers

Revised and Restated Recommendation 10: Firms should have policies, limits, and processes in place to control the flow of funds (related to intraday, tactical, structural, or stressed liquidity) between its branches, between branches and subsidiaries, and between subsidiaries, which consider regulatory, legal, accounting, credit, and tax restrictions as well as the strategies and goals of their funding liquidity management framework.

Revised and Restated Recommendation 11: Senior management within firms should ensure that the right incentives, policies, and procedures to elicit appropriate behavior are in place within each of the businesses that causes the firm to incur liquidity costs (e.g., collateral, term funding) or expose it to potential incremental risks/costs, in order to consider and manage such current or potential costs effectively, drive the right behavior, and better assess the profitability of each business. Where applied, transfer pricing should be closely aligned with the liquidity of the underlying asset, the structural nature of the underlying liability, or the type of legal or moral/reputation contingent liquidity risk (and cost of related risk mitigants if any) the firm may be exposed to as a result of the activity.

Internal Controls

Revised and Restated Recommendation 12: Firms should have effective systems of internal controls over their liquidity risk management processes, including regular independent reviews and evaluations of the effectiveness of these systems. Firms should ensure that the frequency and scope of these reviews are consistent with and supported by their internal risk assessments. These reviews should be conducted by people that are well versed with liquidity management principles and practices and able to exercise critical judgment in conducting these assessments.

Public Disclosure

Revised and Restated Recommendation 13: Firms should ensure that there is appropriate disclosure of qualitative and quantitative infor-

mation about each firm's sources of liquidity risk and liquidity risk management practices. Mandating quantitative disclosure on liquidity metrics would not be meaningful or comparable across firms given that firms' liquidity practices vary significantly as do their internal and external environments.

B. ANALYTICAL FRAMEWORK FOR MEASURING, MONITORING, AND CONTROLLING LIQUIDITY RISK:

■ Forecasting, Measuring, and Monitoring Funding Requirements

Measurement and Monitoring Tools

Revised and Restated Recommendation 14: Firms should establish well-reasoned, robust, and documented methodologies to measure and monitor funding liquidity risk. Firms should forecast future cash flows of assets, liabilities, and, if material, off-balance-sheet items over appropriate timeframes and should consider, where appropriate, employing liquidity ratios as well as measures for monitoring concentration and diversification. Contingent liquidity risk associated with legal (contractual) and reputation/moral (non-contractual) commitments should also be considered.

Revised and Restated Recommendation 15: Firms should ensure that methodologies for forecasting the future cash flows of assets, liabilities, contingent requirements, and off-balance-sheet items are regularly validated to confirm that they continue to be appropriate and to identify the main assumptions and/or parameters to which net current and potential funding requirements are sensitive.

Estimation of Funding Capacity

Revised and Restated Recommendation 16: Firms should establish well-reasoned, robust, and documented methodologies to manage different components of its funding strategy, including (1) diversification of liabilities by types of depositors, investors, products, marketplaces, and currencies; (2) relationships with investors; and (3) financing and selling of assets. These components should be regularly reviewed to determine whether they continue to be adequate and to identify the main assumptions and/or parameters to which the net funding is sensitive. Firms should measure and/or estimate their secured and unsecured funding capacity (at the aggregate and in meaningful subsets) to better understand their current and prospective funding liquidity risk under varying conditions.

Firms should have an appreciation for how investors or potential lenders, including short-term investors and counterparties that have traditionally benefited less from road-shows and other investor-relations efforts, might react to various types of stresses, which could differ by type of product, within product type, by term, and by marketplace. Funding capacity should not only be analyzed for the firm's own balance sheet; this also should cover any other material off-balance-sheet entity for which the firm plays a lead funding role and to which it may have a legal obligation or decide for relationship or reputation reasons to fund it or buy its liabilities if market appetite disappears.

Asset and Funding Diversification Practices

Revised and Restated Recommendation 17: Firms should have asset and funding diversification strategies commensurate with the nature of their firm, the environment in which they operate, and the types of products and markets in which they are active to avoid undue concentrations. These strategies should be adjusted as changes occur in the internal or external environment.

Liquidity Position by Currency, Cross-Border, and Legal Entity

Revised and Restated Recommendation 18: Firms should have in place a system to measure, monitor, and control their liquidity positions (for all its material legal entities, jurisdictions, foreign branches, and subsidiaries as well as for other off-balance-sheet entities in which it plays a lead funding role and for which it may be exposed to contingent liquidity risk) in the significant major currencies in which it is active. In addition to assessing its aggregate foreign-currency liquidity risk commitments, firms also should undertake separate analysis of their strategy for each material currency individually, outlining as appropriate how strategies for established currencies with liquid markets and diverse funding alternatives may be different from those for emerging market currencies. Firms should identify the extent to which fungibility among pools of currencies (e.g., USD, EURO, JPY, GBP, CHF), legal entities, and jurisdictions can be relied upon, and this should be reviewed regularly. Firms should assess, monitor, and, where appropriate, limit acceptable mismatches between foreign and domestic currency in light of various internal and external factors. Firms need to regularly monitor cross-border funding dependencies as well as asset concentrations in jurisdictions where transferability of assets could be restricted.

Liquidity Position by Maturities

Revised and Restated Recommendation 19: Firms should choose the specific time horizons over which they measure, monitor, and control their funding exposures based on the nature of their exposure. At a minimum, short-term horizons should include a period from the next few days to the next few months, while long-term horizons should at least go out to 1 year. Measurement should be performed using, as appropriate, contractual or effective maturity dates as well as known and forecasted flows (e.g., taking into account assumptions with respect to changes in loans, assets, core deposits).

Retention Rates on Non-Maturing Assets and Liabilities and on Assets and Liabilities With Contractual Maturities

Revised and Restated Recommendation 20: Firms should use a robust qualitative and quantitative analytical framework that considers all relevant internal and external factors before assigning liquidity values to non-maturing assets and liabilities. The same process should be followed for other categories of assets and liabilities for which contractual maturity dates may not be a good indicator of liquidity value. Assumptions and judgments should be reviewed on a regular basis or as needed.

Revised and Restated Recommendation 21: Firms should understand the characteristics of their funding instruments and evaluate the effective cash flows under business-as-usual and stressed conditions. At a minimum, retention rates for non-maturing liabilities should be viewed differently for retail and commercial relationship-based deposit liabilities. Firms should analyze retention rates for non-maturing liabilities by domicile, investor type, product, currency, and scenario.

Revised and Restated Recommendation 22: In countries where there is depositor insurance, this insurance should, subject to appropriate judgmental analysis, be considered when modeling depositor behavior. In general, deposits covered by insurance may be considered to be more "sticky" in a crisis than other deposits. When applying this concept in practice, consideration should be given to whether there are any indications that recent developments may require prudent adjustment of historical patterns.

Sources of Contingent Liquidity Demand and Related Triggers

Revised and Restated Recommendation 23: Firms should ensure that liquidity risk measures take into account the potential liquidity consequences of undrawn legal commitments; commitments that may arise from reputation-based decisions; and any other types of triggering events that may cause an increase in funding, collateral, and/or inventories. A distinction should be made between different types of legal (contractual) commitments (e.g., revocable and irrevocable, conditional and non-conditional, purpose of facility, type of customer and their respective credit rating). Firms also should understand how contingent liquidity risk associated with potential reputation or relationship (non-contractual) decisions may arise (e.g., draw on new liquidity lines, inventory build-up, support of mutual funds business), even if imaginable only under severe conditions. Liquidity risk consequences should be modeled or estimated by applying drawdown probabilities under various stress scenarios.

Cash Flows of Financial Derivatives

Revised and Restated Recommendation 24: Firms should consider cash flows related to financial derivatives (net flows, where supported by legal frameworks, occurring at repricing or maturity date of contracts, as well as those covering exchange of margin or collateral during the life of these contracts) and interest rate flows in their liquidity risk analysis, if material.

■ Measuring and Monitoring Asset Liquidity

Revised and Restated Recommendation 25: Firms that rely on secured funding sources to a significant extent should have a robust process in place to evaluate asset liquidity and likely counterparty/investor behavior under a variety of conditions (business-as-usual and stressed). It should be recognized that liquidity values of similar assets may vary across firms depending upon the nature of their business and their respective market capabilities and capacities with counterparties/investors.

Revised and Restated Recommendation 26: Firms should ensure that asset liquidity is assessed based on a demonstrated ability to obtain liquidity, and firms should only take credit for active and ongoing programs for sale, securitization, or secured borrowings. Consideration should be given to adjusting haircuts if the state of markets (stressed) during the specified scenario warrants it.

Revised and Restated Recommendation 27: Firms with significant reliance on asset liquidity should evaluate haircuts and timing of cash flows from these sources. In determining the amount of available liquidity and the liquidation horizon, the evaluation should include a determination of whether the asset is encumbered, as well as an assessment of market haircuts, market capacity constraints, access to central bank facilities, concentrations in collateral, potential name-specific concerns, and operational ability to complete the transaction, bearing in mind the business strategy for these liquid assets (e.g., liquidity management, pledging, trading/sales, arbitrage, investment). In particular,

- Encumbered assets should be excluded from incremental liquidity value;
- Haircuts should be evaluated in business-as-usual as well as in stressed conditions;
- The capacity of the markets for a particular asset class should be evaluated irrespective of its credit quality, which may not necessarily be correlated with liquidity; and
- Operational capability to facilitate the transaction should be in place and tested.

Liquidity Risk Metrics and Limits

Revised and Restated Recommendation 28: Firms should use metrics that are relevant to the nature of the business they undertake. Firms that engage in a broad range of activities would be expected to use a similarly broad range of liquidity metrics.

Revised and Restated Recommendation 29: For each selected metric, firms should decide whether they will impose a prescriptive limit or a preferred target/range or just monitor it for historical trends. Not all metrics need to be assigned limits, and firms could make different choices for the same metric, bearing in mind their respective internal and external environment. Firms should consider using gross or net and notional or risk-adjusted limits, or a combination thereof, after giving due consideration to the type of metric needed, its control objective, and potential risk mitigants (e.g., gross or notional limits may work better to control funding liquidity risk arising from the use of leverage, especially if model risk is deemed high).

Revised and Restated Recommendation 30: Firms should ensure that liquidity risk limits are set only on a consolidated basis when it is practicable to do so, given the regulatory, legal, accounting, credit, tax, and internal constraints upon the effective movement of liquidity. Firms' risk tolerance should be evaluated at the individual entity level unless there is an unrestricted ability to transfer funds between entities and across borders. If such an unrestricted ability does exist, then consolidated limits that encompass these entities and geographic areas may be appropriate.

C. STRESS TESTING AND CONTINGENCY PLANNING

Stress Testing (Sensitivity and Scenario Analysis)[53]

Revised and Restated Recommendation 31: Firms should analyze liquidity using a variety of scenarios and/or sensitivity analyses, both firm-specific and market-related, or a combination of the two. Stress testing may be appropriate at a group level, by geographical region, and at a subsidiary level. The rationale behind the choice of time horizons over which a crisis is to be measured, severity levels of crises considered, and reporting frequency should be appropriately documented.

Revised and Restated Recommendation 32: Firms should ensure that stress tests are used to measure the behavior of all off- and on-balance-sheet sources of cash inflows and outflows that could potentially be material to the firm under various sets of assumptions. Consistent with a risk-based approach, assumptions should be set after giving consideration to the firms' own internal and external environments, as well as capacities and capabilities, and reviewed on a regular basis. The potential correlation between various sources of risk (e.g., reduction in the self-financing capability of some trading assets at the same time as their market value is reduced and net collateral requirements go up) and various potential

[53] "Stress testing" is a risk management technique used to evaluate the potential effects on an institution's financial condition of a specific event and/or movement in a set of financial variables. The traditional focus of stress testing relates to exceptional but plausible events. Sensitivity analyzes are generally less complex to carry out because they assess the impact on an institution's financial condition of a move in one particular risk factor and the source of the shock not being identified, whereas "scenario tests" tend to consider the impact of simultaneous moves in several risk factors, the stress events being well-defined.

adverse product triggers should be considered by analyzing data and relying on the expert judgment of product specialists. When reviewing the potential risks of new and existing products and businesses, firms should identify, understand, and quantify their tail liquidity risk and the firm's potential responses to these stresses. To the extent that these tests indicate an unwanted shortage of funding over the time horizon over which they are conducted, consideration should be given, in light of the probability of the scenario, to modifying underlying normal course of business limits to address this shortfall and/or take other risk-mitigating steps.

Revised and Restated Recommendation 33: The appropriate starting point for stress-testing assumptions for firms should be a business-as-usual approach with clients. This approach assumes that the entity will continue to operate as a going concern and that the franchise has significant value. Different scenarios should be used to evaluate how various events may impact the firm, including the point at which growth plans may need to be curtailed if the severity of the crisis warrants such an action. This should then be used to plan the evolution of the balance sheet in a crisis.

Revised and Restated Recommendation 34: Firms should ensure that the results of key stress tests are periodically communicated to senior management and, as appropriate, to the Board. Firms should have an understanding of the worst-case scenarios that may trigger implementation of contingency plans. The assumptions and parameters underlying these tests and resulting cash flows, including funding capacity assumptions, should be regularly reviewed and challenged. The results of key stress tests provide management with a range of liquidity gaps that could open up, which should be considered when designing a contingency plan or survival strategy for the firm.

Contingency Planning-Governance

Revised and Restated Recommendation 35: Firms should have contingency plans in place that address potential early-warning signals of a crisis, the strategy and tactics used in normal course of business to prevent escalation of liquidity concerns, and the possible strategies for dealing with different levels of severity and types of liquidity events that cause liquidity shortfalls. The breadth and depth of these strategies should incorporate recovery objectives that reflect the role each firm plays in the operation of the financial system (e.g., provision of collateral to payment/settlement systems) such that these strategies enable the firm to continue to play its role, even in times of major operational disruptions. Firms should make efforts to assess the effectiveness of their contingency plans.

Revised and Restated Recommendation 36: Firms should ensure that contingency plans are proportionate to the size and complexity of the firm and involve input from senior management. Contingency plans should be reviewed as business or market circumstances change and allow for flexibility in executing contemplated action plans to take into account the circumstances faced during a real crisis.

Revised and Restated Recommendation 37: Firms should ensure that contingency planning includes establishing policies and procedures and clear divisions of roles and responsibilities for liquidity events so as to avoid confusion or lack of clarity of roles during a crisis. This should include strategies and procedures for timely, clear, consistent, and uninterrupted internal and external communication flows to ensure timely decisions; to avoid undue escalation of issues; and to provide adequate assurance to market participants, employees, clients, creditors, regulators, and shareholders. This would include the designation

of leadership roles in a liquidity crisis and may include designating a formal crisis team that would be a contact point for senior management. The planning process should include the designation of back-ups for key functions and ensure that key systems and processes have been considered in the firm's business continuity planning.

Revised and Restated Recommendation 38: Firms should outline in their liquidity policies the benchmark periods requiring evaluation for whether liquidity needs can be met. Selection of the benchmark periods should be based on several qualitative factors, including stress tests, reporting frequency, and current measurement periods for related "normal-conditions" liquidity metrics.

Asset Reduction and Financing Strategy

Revised and Restated Recommendation 39: Firms should have in place an asset reduction plan and financing strategy for both firm-specific and market-related liquidity events that gives due consideration to ensure availability of the source of liquidity and funding under the respective stress circumstance.

Revised and Restated Recommendation 40: Back-up plans may involve invoking unused credit facilities granted to the firm; however, firms should not rely excessively on such lines, as counterparties could elect not to honor their obligations to provide funding if the firm is in trouble.

Cushion of Liquid Assets

Revised and Restated Recommendation 41: Firms should develop methodologies and policies to determine the level of specifically earmarked and unencumbered liquid assets that they should maintain at all times to meet immediate liquidity needs when faced with adverse conditions. Liquid assets held as a safety cushion should exclude assets pledged to payment systems or clearing houses to enable smooth flow of funds. Investment criteria are vital to ensure minimum quality and diversification in instruments and currency and need to consider most conceivable conditions. A self-liquidating portfolio is preferred over a portfolio of tradable assets for which liquidation in the markets might prove difficult. Besides criteria for asset composition, these policies should also include funding guidelines, as a liquidity reserve is considered available only for the term for which it is funded.

Central Bank Facilities

Revised and Restated Recommendation 42: Firms should ensure that assumptions regarding potential funding from central banks are evaluated taking into account the level of severity and type of crisis. Firms should differentiate between different types of central bank facilities (e.g., "standing" facilities and "emergency" facilities).

Revised and Restated Recommendation 43: Firms can include standing central bank facilities that are granted on a "no-questions-asked" basis in their contingency plans. The inclusion of such funding should be consistent with the timing of the availability of the respective collateral at the central bank.

Revised and Restated Recommendation 44: Emergency lending facilities (lender-of-last-resort facilities) should be considered in firms' stress testing. When implementing firms' "what-if" scenarios, the potential use of these facilities should be dimensioned under each scenario. However, in terms of dimensioning risk (and establishing liquidity risk limits), emergency facilities should be considered available only in extreme events subject to conditions under which the facility can be used legally and under conditions that would not exacerbate a liquidity event for the institution.

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Reliance on Secured Financing Sources: Revised and Restated Recommendations from *Principles of Liquidity Risk Management*

While there is a need to continue to look for ways to address the potential risk of liquidity drying up in secured finance and liquid asset markets, we believe that

Revised and Restated Recommendation A1: The main focus should be to take steps, through collaborative mechanisms between the industry and the official sector, to reduce the probabilities that such events will occur, and when they do occur, to reduce their impact; and

Revised and Restated Recommendation A2: The industry should not commit significant resources to materially refine the quantitative measurement of this risk in liquidity stress tests conducted by various firms other than ensuring that all proper sources of risk have been conservatively estimated based on judgment and past experiences. These measures remain speculative and arbitrary and could in the extreme produce results that senior management would consider too expensive and impractical to remedy. Rather, firms should continue to refine their risk management practices and focus on risk mitigation.

Recommendations-Financial Institutions:

Revised and Restated Recommendation A3: Firms that rely on secured funding sources to a significant extent should have a robust process in place to evaluate asset liquidity and likely counterparty/investor behavior under a variety of conditions (business-as-usual and stressed). Please see Recommendation 25. Firms with significant reliance on asset liquidity should evaluate the haircuts and timing of the cash flows from these sources.

Revised and Restated Recommendation A4: In determining the amount of available liquidity and the liquidation horizon, the evaluation should include whether the asset is encumbered, as well as an assessment of market haircuts, market capacity constraints, access to central bank facilities, and the operational ability to complete the transaction bearing in mind the business strategy for these liquid assets (e.g., liquidity management, pledging, trading/sales, arbitrage, investment). Please see Recommendation 27.

- Encumbered assets should be excluded from incremental liquidity value;
- Haircuts should be evaluated in business-as-usual as well as in stressed conditions;
- The capacity of the markets for a particular asset class should be evaluated irrespective of its credit quality, which may not necessarily be correlated with its liquidity; and
- Operational capability to facilitate the transaction should be in place and tested.

Revised and Restated Recommendation A5: Liquidity value should be given only to asset classes in which their liquidity has been demonstrated through active and ongoing sales, secured funding, or securitization program. Please see Recommendation 26.

Revised and Restated Recommendation A6: In determining the available liquidity from these sources, the depth of the markets should be evaluated in business-as-usual and stressed conditions. Capacity can be evaluated by asset class/security type through discussions with customers regarding their available credit facilities, capacity, and pricing. Please see Recommendation 25.

Revised and Restated Recommendation A7: Business strategy should be considered in evaluating the liquidity of an asset class. For example, if a liquid asset is held as a hedge of another asset or derivative transaction as part of an overall busi-

ness strategy, consideration should be given to the impact on that business strategy, even assuming such assets could, in light of existing business or regulatory requirements or obligations, be sold or pledged. Please see Recommendation 27.

Revised and Restated Recommendation A8: To the extent practicable, firms should test their ability to access lender-of-last-resort facilities. This test should be coordinated with the central bank. Please see Recommendation 25.

Revised and Restated Recommendation A9: Central banks should provide greater clarity on the role of the central bank as lender of last resort in both firm-specific and market-related crises.

Revised and Restated Recommendation A10: The official sector, including central banks, should be willing to participate actively in firms' contingency planning, including periodic testing of lender-of-last-resort facilities.

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Analytical Discussion 2: "Impact of Complex Financial Instruments upon Liquidity Management Policies and Practices: Recommendations" from *Principles of Liquidity Risk Management*

Revised and Restated Recommendation B1: The function within the firm that is responsible for liquidity risk should receive regular management information or have access to information on the nature and profile of all material arrangements that expose the firm to a legal (contractual) and/or moral/reputation (non-contractual) contingent liquidity risk. Any material negative liquidity implications related to these arrangements should be captured in the firm's liquidity measures.

Revised and Restated Recommendation B2: All transactions that expose a firm to a material legal and/or moral/reputation contingent liquidity risk should be subject to pre-approved business limits or be reportable and subject to pre-approval and, where appropriate, conditions of sanction by treasury management.

Revised and Restated Recommendation B3: The function within the firm that is responsible for liquidity risk should be actively engaged in the evaluation of new product offerings to ensure that liquidity issues are adequately addressed and appropriate actions taken to report and mitigate such risks as appropriate.

Revised and Restated Recommendation B4: The function within the firm that is responsible for liquidity risk should have a detailed understanding of the nature of the structured investment products business undertaken and the way in which such products are booked and reported in liquidity reporting frameworks.

Revised and Restated Recommendation B5: The function within the firm that is responsible for liquidity risk should have a detailed understanding of the asset profile of each trading desk, including access to information on the estimated period of time to liquidate, substitute via derivative, or repo the assets held on such books.

Revised and Restated Recommendation B6: As part of the new business approval process for material transactions involving highly structured assets as underlyings, trading desks should clarify how they aim to fund these positions and what the potential alternatives are for liquidating these positions and the expected time scales to achieve such exits.

Revised and Restated Recommendation B7: Firms should consider whether a policy should be established requiring that assets and asset packages be funded for a tenure equivalent to their expected liquidity profile and/or limits placed on ensuing funding gaps, or alternatively, whether processes should be implemented to recognize

these gaps in firm-wide liquidity reports and allocate where applicable related term funding costs may be incurred.

Revised and Restated Recommendation B8: As stated in Recommendation 14 of the main report, where applicable, transfer pricing should be closely aligned with the liquidity of the underlying asset or structural nature of the underlying liability. Liquidity costs should be charged to those businesses that consume liquidity.

Revised and Restated Recommendation B9: A firm's policies on the management of funding and liquidity risk should incorporate funding gaps arising from the usage of derivative products within trading areas.

Revised and Restated Recommendation B10: The function within the firm that is responsible for liquidity risk should understand how structured transactions are booked in legacy and risk systems and how they roll up in the balance sheet to ensure that adjustments to automated liquidity risk measurement processes are made where necessary.

Revised and Restated Recommendation B11: Regular management information should be produced or made available as required for treasury detailing the on and "off balance-sheet" funding profile of each trading desk, including any roll risk.

Revised and Restated Recommendation B12: The function within the firm that is responsible for liquidity risk should have a detailed understanding of the contractual contingent liquidity risk to which it is exposed by extending backstop liquidity facilities to conduits, as well as the events that may trigger the drawdown of these liquidity facilities.

Revised and Restated Recommendation B13: The potential liquidity consequences of the conduit business should be integrated into the overall liquidity planning of the firm. These plans should take into account contractual contingent liquidity demands from various businesses.

Revised and Restated Recommendation B14: A firm should mitigate the contractual contingent liquidity risks arising from the provision of such back-stop liquidity facilities by establishing an appropriate strategy, policy, and limit framework and other mitigants as appropriate for this activity that take into consideration the types of assets being securitized and their degree of liquidity. Such a framework could include, for example, limits on the size and nature of ABCP facilities offered, limits on the amount of CP maturing during any one time period (e.g., overnight, 1 week, 2 weeks, 1 month), or holding risk-adjusted pools of earmarked liquid assets to mitigate against short-term disruptions.

Revised and Restated Recommendation B15: Any material transactions that incorporate ABCP-based liquidity facilities should be subject to treasury approval or prior business limit approval.

Valuation Issues

Principles of Conduct:

Principle IV.i: Firms should maintain robust valuation processes in accordance with applicable accounting and regulatory guidance, incorporating critical expert judgment and discipline.

Principle IV.ii: Firms should maintain a comprehensive governance framework around valuation processes, including rigorous verification and control procedures. Internal governance should ensure independence of the functions for control and validation of valuations.

Principle IV.iii: Firms should participate in efforts with the official sector and standard setters to develop meaningful, comparable disclosures on valuations, valuation processes and methodologies, and uncertainties associated with valuations and on approaches to incorporating those uncertainties into the valuation process.

Principle IV.iv: Firms should participate in efforts to enhance the comprehensiveness of coverage and quality of transaction reporting and pricing services in the market. Firms should strengthen governance of price information supplied to the market, particularly data that are not firm quotes. There should be rigorous governance and documentation of procedures covering pricing information supplied to the market to ensure that it is timely, accurate, and balanced.

A. MANAGEMENT AND GOVERNANCE OF THE VALUATION PROCESS

Recommendation IV.1: Traders, desk heads, and heads of business all should be accountable for and sign off on proposed valuations to ensure that the business takes primary responsibility for appropriate valuation, subject to proper review and governance as outlined in Recommendations IV.2–IV.8.

Recommendation IV.2: Firms should ensure consistent application of independent and rigorous valuation practices.

Recommendation IV.3: Firms should apply appropriate expert judgment and discipline in valuing complex or illiquid instruments, making use of all available modeling techniques and external and internal inputs such as consensus-pricing services while recognizing and managing their limitations.

Recommendation IV.4: For assets that are measured at fair value on a basis related to intended use rather than their actual current status (e.g., whole loans in a warehouse or pipeline that are likely to be distributed or securitized and are measured as a pool), there should be additional internal monitoring of the valuations at which they could be disposed of in their current form if securitization is not carried out.

Recommendation IV.5: A firm's governance framework around valuation processes should integrate input from risk management, finance, and accounting policy to ensure proper product and risk control. The process should include senior management involvement.

Recommendation IV.6: Internal governance should ensure independence of those responsible for control and validation of valuations. This should be structured to ensure that valuation control groups are not too remote from market functions to understand developments or too close to the sales and trading functions as to compromise their independent posture.

Recommendation IV.7: Relevant control functions within a firm should regularly review independent price verification procedures and sources and challenge their usage as appropriate. There should be clear procedures for resolution of disagreements about valuation issues and for escalation of material valuation issues to the audit or risk committee of the Board when appropriate.

Recommendation IV.8: There should be regular involvement of the CRO and/or CFO (or equivalent positions) in considering valuation issues, including valuations of assets held by off-balance-sheet vehicles. Finance committees and the CFO should be aware of and consider valuation issues on a regular basis.

Recommendation IV.9: Firms should ensure that new-product and associated model and pricing-approval processes are in place to ensure that new products, asset classes, and risk types are valued appropriately, given volumes and other operational risk factors.

Recommendation IV.10: Firms should have business-as-usual model-review and price-verification organizational structures, processes, and policies in place.

Recommendation IV.11: Firms should ensure that they have a consistent valuation approach for similar assets and liabilities. Firms should ensure that there is a process in place to identify and escalate inconsistencies to senior management.

Recommendation IV.12: Valuations should be subject to sensitivity analysis to evaluate and inform the organization about the range of uncertainty and potential variability around point estimates.

Recommendation IV.13: Firms should have a robust framework in place to oversee and ensure the integrity and consistency of accounting policy as applied within the firm.

Recommendation IV.14: Firms should ensure that there is a process to highlight accounting policy decisions for management consideration; this process should include developing an understanding within the firm of the impacts of accounting requirements and accounting policy on the valuation process.

Recommendation IV.15: Firms should recognize that transaction prices may become dated and dealer quotes may not reflect prices at which transactions could occur, especially during periods of low liquidity. Firms should devote the analytical resources necessary to checking valuations made on such bases and make adjustments when deemed appropriate.

Recommendation IV.16: Small to medium-sized firms, given their limited resources, should develop at least internal benchmarking and not rely purely on dealer quotes for valuations.

Recommendation IV.17: Firms should have valuation procedures, with appropriate governance processes, in place for times of market stress, including how to recognize and react when changes in market liquidity or volatility require changes in valuation approaches for individual assets.

Recommendation IV.18: Firms should assess the infrastructure and price testing implications of moving from observable market prices to other valuation techniques, including mark-to-model

for material asset classes and incorporate such implications in resource planning.

Recommendation IV.19: Firms should have adequate resources to accommodate the demands of producing valuations during a period of market disruption.

Recommendation IV.20: For purposes of regulatory capital, the process of evaluation of whether an instrument should be placed in the trading or banking book should be subject to objective criteria and control procedures. Firms should provide clear explanations internally and to auditors as to why instruments were initially placed in the trading book or the banking book under prudential and accounting tests.

B. IMPROVING INFRASTRUCTURE

Recommendation IV.21: Price discovery for valuation purposes should be improved through broader, more widely available, and easily accessible price utilities (including aggregate transaction-price reporting where available or consensus-pricing services or similar services), incorporating a wider array of instruments and data on underlying assets.

Recommendation IV.22: Firms should have appropriate controls over prices submitted to utilities to ensure not only that high-quality prices, consistent with the rules or requirements of each service, are submitted but also that the firm submits prices for as many material positions as possible when available.

Recommendation IV.23: Utilities should seek inputs from as broad a range of sources as possible, provided that entities supplying inputs meet clearly defined criteria as to their technical capabilities and the quality of prices supplied.

Recommendation IV.24: Where other valuation indications are less than satisfactory, firms may wish to consider using available information about valuations from collateral and repo experience.

Recommendation IV.25: There is a need for index providers and the industry to address the recognized weaknesses of some of the most-used indices, including improving coverage, liquidity, and transparency as to inputs and attention to reliance on them for different purposes (e.g., market making, trading, traders' valuations, hedging, investors' valuations).

C. CONSIDERATIONS FOR THE OFFICIAL SECTOR

Consideration for the Official Sector IV.A: Accounting standard setters should provide further guidance, perhaps via examples, clarifying boundaries between levels in the valuation hierarchy, especially on appropriate usage of indirect inputs or mark-to-model processes, in order to improve the understanding of the valuation hierarchy among firms, auditors, and the market.

Consideration for the Official Sector IV.B: Accounting standard setters should provide additional guidance on the valuation of financial instruments when markets are no longer active and on critical concepts such as what constitutes an active market or a distressed sale.

Consideration for the Official Sector IV.C: Accounting standard setters should have in place an expedited due process for interpretations or amendments of standards necessary to respond to issues arising in extraordinary times of stress.

Consideration for the Official Sector IV.D: Audit standard setters should provide clear guidance on how fair-value values based on indirect inputs or models are to be audited.

Consideration for the Official Sector IV.E: To enhance understanding of valuations, clarify

valuation techniques, and discuss how best to summarize for disclosure the uncertainties, assumptions, adjustments, and sensitivities of valuations in the mark-to-market environment, especially in cases in which indirect inputs are used or valuations are based on models, the Committee recommends that there be a technical dialogue in the short term among firms and with auditors, rating agencies, investors, analysts, accounting standard setters, and supervisors. Consideration also should be given to reviewing the implications of mark-to-market techniques on the incentives to structure transactions that may embed significant liquidity risks.

Consideration for the Official Sector IV.F: When examining mark-to-market issues, standard setters, supervisors, and the industry should assess the extent to which mark-to-market valuation can and should appropriately take into account valuation adjustments necessary to reflect liquidity and other risks, in both strong and weak markets.

Consideration for the Official Sector IV.G: Financial and monetary authorities should support the establishment of a group including all relevant parties to engage in a high-level dialogue with both leading accounting standard setters to consider (1) the potential lessons learned of the effects, including possible pro-cyclical effects, of fair-value accounting and the implementation of mark-to-market techniques during times of illiquid markets, and (2) meaningful medium-term improvements that might be made on the basis of lessons learned through the market turmoil.

Credit Underwriting, Ratings, and Investor Due Diligence in Securitization Markets

A. ORIGINATORS/SPONSORS, UNDERWRITERS, AND DISTRIBUTORS

Principles of Conduct:

Principle V.i: Firms involved in the "originate-to-distribute" process should conduct thorough due diligence at all stages to maintain the integrity of the process.

Principle V.ii: For all loans or products in pools, originators should apply appropriate lending standards.

Principle V.iii: Sponsors compiling and maintaining pools to underpin structures should clearly define an appropriate approach to credit approval for exposures included in the structures, and should ensure that this is carried out as thoroughly as would be the case if the exposures were to be held on the sponsor's own balance sheet.

Principle V.iv: Originators and underwriters should disclose, on a timely basis, appropriate and relevant information about structured products and their underlying assets to investors and rating agencies.

Principle V.v: Originators and underwriters need to consider the general appropriateness of a structured product being sold to an institutional investor.

1. Due Diligence

Recommendation V.1: Originators, sponsors, and underwriters should:

- Adopt and follow appropriate due diligence standards;
- Ensure that appropriate and relevant information is released in a timely manner; and
- Ensure that appropriate ongoing monitoring and disclosure of the performance of the underlying collateral is carried out.

Recommendation V.2: Firms should subject assets that they help originate and distribute to the same credit due diligence standards as used for similar assets that are to be carried on the firm's own balance sheet. For third-party assets for which financial institutions act as sponsors, an appropriate due diligence process should be conducted. Alternately, firms should disclose reasons for not observing their usual credit due diligence processes.

Recommendation V.3: Firms should consider the general appropriateness of products for specific types of institutional investors. Sales processes within firms should be reviewed to ensure proper consideration of the risk factors of products and risk profiles of investors at the time of sale.

Consideration for the Official Sector V.A: Authorities should review and amend the regulation that makes it difficult to release loan-by-loan information to all market participants.

Recommendation V.4: All originators of assets underlying securitized instruments, whether regulated as banks or not, should adhere to basic credit principles, such as making a reasonable assessment of the borrower's ability to pay; documentation should be commensurate with such basic requirements.

Consideration for the Official Sector V.B: Non-bank mortgage originators should be held to the same standards as banks with regard to consumer protection and loan origination.

3. Origination Standards for Leveraged Loans and Other Corporate Obligations

Recommendation V.5: Basic credit principles need to be followed during negotiations between borrowers and lenders (including underwriters, sponsors, and other agents), and the risk implications of negotiated terms of lending transactions need to be analyzed carefully.

4. Potentially Conflicting Large Trading Patterns

Recommendation V.6: Firms should implement mechanisms for escalating potential conflicts or contradiction between their trading and placing strategies to an appropriate senior-management body. Such body should be at a level with sufficient authority to adopt measures deemed necessary to resolve any such conflict, including change of sales or trading strategy, where appropriate. Clear policies also should be in place to determine when to disclose any such conflict to potential investors in a particular product.

B. RATING AGENCIES[54]

■ Principles of Conduct:

Principle V.vi: Ratings reports (published by rating agencies) should assess and clearly articulate the key risk features and underlying structures of products, including qualitative information such as the lending standards being applied and amount of sampling of borrower documentation, as well as quantitative factors that the ratings agency considers relevant.

Principle V.vii: Industry standards should be developed regarding the internal processes within rating agencies, covering independent validation and regular monitoring of models, assumptions, and stress testing.

Principle V.viii: External review of rating-agency processes against agreed standards is essential for the credibility and reliability of ratings.

Recommendation V.7: Rating agencies should provide greater clarity regarding the target for a structured finance rating; the definition of default and probability of default should be clearly set out. More information should be provided on the assumptions behind the modeling of particular structures and the sensitivity of outcomes to small changes in assumptions, for example, by discuss-

[54] Four rating agencies have participated in the work of the Committee, but some of these agencies do not feel comfortable supporting all the Recommendations and Discussions. However, the credit rating agencies are working with authorities and participants on measures to enhance credit-rating agency performance and confidence in the credit-rating process.

ing correlation and stress tests. More focus should be given to likely recovery (taking into account relevant factors such as triggers) for different securities either in the rating or in an additional marker. There also should be clarity with regard to the factors that could lead to a downgrade.

Recommendation V.8: Ratings should take into account qualitative factors such as lending standards of the originator and the amount of sampling of borrower documentation.

Recommendation V.9: The ratings for different tranches also should take into account the effect of default triggers[55] on the behavior of structured products (impact on capacity to pay) and recovery values for investors given default.

Recommendation V.10: Rating agencies should provide information on risk factors relevant to structured products. In addition, rating agencies should develop a different or additional ratings scale or indicator for structured products (compared to corporate bonds).

Recommendation V.11: To restore market confidence, standards should be adopted by rating agencies regarding internal processes for independent internal validation and monitoring of the models used to rate structured products.

Recommendation V.12: Independent monitoring units within the agencies should review the reasonableness of the assumptions and stress tests for structured products against ongoing performance data on the loans in the pools as well as any changes in the qualitative factors. IT and data archiving should support frequent monitoring and validation.

[55] For this purpose, a "trigger" is a provision in a loan agreement or indenture that precipitates a specified action in the event of a downgrade of the borrower's credit rating.

Recommendation V.13: An external mechanism including rating-industry experts should be created to develop standards and to review rating agencies' internal processes to assess adherence to such standards. Such review would address the robustness of processes surrounding model building, development of applications, monitoring of models and processes, and governance. It would not, however, seek to validate criteria, methodologies, models, or assumptions as such. Such standards should be developed taking into account the issues highlighted in Appendix C, and any additional issues as stakeholders or rating agencies may suggest from time to time.

Consideration for the Official Sector V.C: IOSCO should consider whether additional standards with respect to external review of internal processes could be part of its future Code of Conduct for Credit Rating Agencies. This also would cover adequacy of resources to meet the standards.

C. INVESTORS

■ Principles of Conduct:

> ***Principle V.ix:*** Investors should conduct their own due diligence on structured products and analyze each product against their investment mandates, investment time horizons, and risk appetites.

Recommendation V.14: Investors in structured products should ensure that they have sufficient technical skills and resources to understand the products and conduct in-house risk assessment rather than rely simply on ratings.

Recommendation V.15: Investors should develop robust in-house risk-assessment processes that would require them to conduct a thorough analysis of each structured product before making an investment decision.

Recommendation V.16: Investors should review their governance processes to ensure that there are adequate controls over possible investments in structured products. Controls or mandates should not refer solely to ratings; there should be separate, documented risk decisions and review processes regarding structured products.

Recommendation V.17: Prior to purchase, and on a regular basis thereafter, investors should assess that products are consistent with the risk appetite for the particular portfolio in which they are to be held.

Recommendation V.18: A monitoring process should be established by investors to consider ongoing performance data on the pool of each material structured product. Clearly documented internal processes should ensure regular revaluation of products.

Recommendation V.19: Control of valuations by investors should be independent of portfolio managers or traders.

Recommendation V.20: When considering investments in structured products, institutional investors are encouraged, as part of their due diligence process, to ascertain and take into account whether firms originating or sponsoring such products have a policy of holding a portion of the products, and consider whether such policy ought to influence their investment decisions.

Consideration for the Official Sector V.D: Authorities should consider reviewing and revising their official or quasi-regulatory investment rules that may create artificial requirements or inducements for investors to rely on ratings.

Transparency and Disclosure Issues

■ **Principles of Conduct:**

Principle VI.i: The content and clarity of firms' disclosures as well as comprehensiveness of coverage are of primary importance.

Principle VI.ii: Risk disclosures should provide the clearest possible picture of a firm's overall risk profile and the evolving nature of risks as well as salient features of the risk management processes.

Principle VI.iii: Global standardization and harmonization of market definitions and structures are essential for the future development of the structured-products market.

Principle VI.iv: In fulfilling disclosure mandates, firms should ensure that disclosures include the most relevant and material risks or exposures arising under current market conditions at the time the disclosure is made, including off-balance-sheet risks or exposures, especially for securitization business.

Principle VI.v: Firms' public disclosures should include substantive quantitative and qualitative information about valuations, valuation processes and methodologies, assumptions, sensitivities, and uncertainties.

A. AT THE STRUCTURED-PRODUCTS LEVEL

1. On Prospectus Disclosure

Recommendation VI.1: Offer documents[56] should have an executive summary of key features and a list of certain central risk features in a prominent position. An industry group should produce a reasonably standard layout for an executive summary and risk information.

2. On Standardization and Increased Transparency

Recommendation VI.2: Firms should endeavor to standardize market definitions and structures and to clarify and standardize the roles of agents at a global level.

3. On Harmonization

Recommendation VI.3: The industry should develop harmonized guidelines for transparency and disclosure for structured products across major markets.

Consideration for the Official Sector VI.A: Efforts by the private sector to improve transparency should be supported by the regulatory and accounting bodies.

Consideration for the Official Sector VI.B: Accounting standards concerning structured products should, to the greatest extent possible, be clear and consistent without significant divergence between standard setters.

[56] See definition of "offer documents" in the Credit Underwriting, Ratings, and Investor Due Diligence in Securitization Markets sections of this *Report*.

4. On Dissemination of Information

Recommendation VI.4: The industry should consider adopting common platforms and technology to improve access to information and widen the dissemination and distribution of information and documents among market participants.

Consideration for the Official Sector VI.C: Authorities should support the industry's efforts to improve dissemination of information. Authorities should review and amend regulations that make it difficult to release information to all market participants. Attempts should be made to harmonize disclosure requirements among different jurisdictions.

B. AT THE FINANCIAL INSTITUTION LEVEL

1. On Risk

Recommendation VI.5: Firms should ensure that their disclosure provides a sufficient overview of their current risk profiles and risk management processes, and highlights key changes (from previous periods) to their current risk profile, including their securitization activities. This overview should have an appropriate balance between qualitative and quantitative information, with a view to providing both a snapshot of the risk position and a perspective on the risk strategy of the firm, including its approach to liquidity risk management.

Consideration for the Official Sector VI.D: The official sector should work closely with industry and market participants to improve the market's understanding of Pillar 3 disclosure content.

Consideration for the Official Sector VI.E: To be meaningful, requirements around risk disclosures should be based on a risk- and principles-based approach to qualitative and quantitative information. To promote industry-wide consistency, firms should be asked to consider leading practice principles and disclosures, in a manner that fully and appropriately reflects the nature of their business and the markets in which they operate.

2. On Valuations

Recommendation VI.6: Firms should put in place substantively useful disclosure of valuation processes and methodologies and of the limitations of models, including adjustments and risk sensitivities.

Recommendation VI.7: Firms should include clear and useful disclosures of valuations based on limited market inputs or based on mark-to-model procedures and about material changes in the bases of valuations if, for example, certain assets become less liquid and can no longer be valued from market inputs.

Recommendation VI.8: Firms should disclose the inherent uncertainties associated with material valuations, the limitations of models, and the sensitivities of assumptions and inputs into the models, model adjustments, and reserves, for all positions deemed material, to enhance the understanding of market participants.

Recommendation VI.9: Firms should disclose the limitations of indices used in valuations.

3. On Liquidity

Recommendation VI.10: Firms should provide meaningful disclosures for material actual or contingent funding requirements for off-balance-sheet vehicles, including contractual obligations and funding requirements that may reasonably be expected to arise for reputational or other reasons.

Systemic Risks and Market Monitoring Group

Principles of Conduct:

Principle E.i: In their risk management, individual firms should take due account of systemic risks in addition to the risks to which they are more directly exposed.

Principle E.ii: While risks should be managed by individual firms, the analysis and assessment of systemic risks would benefit from diverse expertise, experiences, and perspectives that are available in the financial industry as well as those available in the official sector.

Recommendation:

Recommendation E.1: A proposed Market Monitoring Group under the auspices of the IIF, which the Board has endorsed, will be formed to serve as a forum for member firms to monitor global financial markets for early detection of vulnerabilities having systemic implications and for examination of market dynamics that could lead to major financial-market strains and to discuss ways to address such risks.

The Market Monitoring Group is expected to provide private sector interface with the various public-sector groups that are engaged in similar monitoring activities through regular meetings.

APPENDIX C Indicative Sample of Internal Process Standards for Rating Agencies[57] (Recommendation V.13)

(The Committee recommends that these and other areas be covered in standards for internal rating agency processes. This discussion is intended to be indicative and to be used as a starting point for development of standard, not as a standard per se.)

Independent Validation and Monitoring Standards for Structured-Products Ratings

Rating agencies should adopt well-established and transparent practices regarding the governance, validation, stress testing, and transparency of models. In rating structured products, rating agencies frequently employ models to facilitate the assessment of risk. These models deploy a range of approaches including, for example, Monte Carlo simulation, stochastic cash flows, or other applications that provide a means to assess aspects of risk under varying sets of assumptions.

While the models utilized vary meaningfully by the type of structured product being rated, the models for the largest segments of structured finance generally include:

- An assessment of the performance of the assets or referenced risks being securitized;
- An analysis of the implications of the contractual cash-flow waterfall of the transaction for rated liabilities given varying assumptions about the credit performance of underlying assets and other relevant risk factors, such as prepayment rates and interest rates, that could impact the repayment of the rated security;
- The modeling and analysis of loss distributions reflecting the quality of loans in the pools, lending standards, and due diligence vis-à-vis borrower documentation; and
- The treatment of other features in the structures such as triggers.

Internal Documentation

The agency should document the approaches used in building the generic modeling approaches and in the modeling, stress, and cash-flow analysis for each transaction. Documentation should enable validation and later reassessment of the reasonableness of the models and assumptions used for the transaction. For example, the following elements could be important and should be considered in developing standards:

- The build and rationale for the design of generic models, as well as changes to the design of the models, should be documented;

[57] The examples of areas to cover in the standards are broadly based on Basel II requirements for banks regarding internal processes for models. This is not because banking regulation is regarded as appropriate for rating agencies but because this forms a body of well-established guidelines for internal processes around data, validation, governance, and monitoring of models. However, rating agencies are of the view that, given the rating agencies' different responsibilities to customers compared with banks and the public nature of the rating agencies' methodologies, the analogy to the Basel II framework is not appropriate. The banks, on the other hand, believe that the ratings agencies should meet the same standards in these areas, given the central role that ratings play in some markets, the role played in setting bank capital requirements for structured products, and the difficulty banks and other investors have in validating for themselves all the assumptions behind ratings.

- The risk drivers affecting loss for each transaction should be described clearly;
- The justification for correlation assumptions for each transaction should be documented;
- The treatment of risk drivers (not necessarily susceptible to modeling) such as lending standards and the management of delinquent claims as well as due diligence should be explained. For example, it should be clear how the quality and quantity of sampling of borrower documentation affect ratings assessments in each transaction, and other factors affecting the quality of loans in pools need to be assessed;
- Any changes in assumptions or cut-offs during the process of rating a structured product should be documented and the reasons set out;
- Where a stress approach is employed, the target loss rates associated with different ratings should be clearly set out and justified with detail on rates of default and loss given default;
- Where Monte Carlo techniques are employed, explanations of the target tranche default or expected loss rates should be clearly documented;
- In both cases, back testing should be performed on the reasonableness of the model and the assumptions, wherever possible;
- The agency should satisfy itself that the cash-flow waterfall modeling has been carried out satisfactorily for the transaction, and this should be documented; and
- This modeling should be documented and, if it is not performed by the agency itself, audited.

External Documentation

Documentation polices should cover the approaches used in models, including the rationale for each approach. The agency should produce and publicly disclose technical documents explaining how models work. Changes in models also should be documented, including the rationale for the change. Where a rating agency utilizes the models of a third-party model provider, an issuer, or an underwriter, the agency should require the provider to attest to the accuracy of the model and provide documentation of the sort the agency should monitor.

Rating agencies should publish criteria that include a clear explanation of the risk factors that drive the models and rationales for the assumptions used in the models regarding those risk factors, including both quantitative and qualitative considerations. The criteria publication should be updated for any change in assumptions utilized in the model. Where the capacity of the structured security to pay according to terms is assessed utilizing stress scenarios, such stress scenarios, including their rationale, should be included.

Data

Rating agencies should have documented guidelines or procedures for assessing the sourcing, quality, and sufficiency of the data used to build and validate models. Where possible, data used as the basis of model development or model validation should be maintained. Adjustments and additions to the data should be documented.

Data should be managed and stored in a secure way to ensure that models and assumptions are based on solid data foundations and that validation and monitoring can be carried out on accurate data. For example, the following elements would be important:

- The accuracy and completeness of the data used to build and validate the model should be assessed and determined to be of sufficient quality to underpin the model and the assumptions;
- The quality of the data used to monitor the model also should be assessed to ensure quality is sufficient;
- Data sources should be documented;

- Data should be archived in a way that permits subsequent analysis of outcomes;
- Controls should be adopted to prevent contamination of data. Any adjustments to the data should be documented; and
- There should be clear and documented standards and polices on the use of data in practice, covering data access and security, accuracy, completeness, appropriateness, and testing.

Governance

Governance processes should be in place to provide oversight of validation and monitoring and ensure the robustness of the overall processes. For example, rating agencies should consider the following when designing their internal processes:

- A governing body that oversees the quality and monitoring of the models, the rating process, and decisions regarding the need to re-rate particular transactions;
- Oversight to ensure that the input variables, assumptions, and stress tests form a reasonable and effective basis for the rating assessment;
- A governing body that ensures that there are internal standards setting out requirements for independent validation, monitoring, data, and IT. Exceptions to the standards should be reported to the governance committee;
- Standards that set out the degree of conservatism that should be applied when there is a limited history;
- Established procedures in which model weaknesses or inaccurate assumptions can come to light;
- Procedures that ensure consistency of approaches in modeling across similar transactions;
- Internal reporting to the governance committee that covers the performance of models/assumptions;
- Comparison against prior expectations and assumptions of realized default rates and loss given default in the pools, transitions of rated securities, and loss rates by rating, as well as prepayment rates in underlying pools, that form a central part of the monitoring;
- Senior management that is regularly informed about the performance of the modeling process, the areas that need improvement, and the status of efforts to improve previously identified deficiencies;
- Senior management that has a good understanding of the models and modeling and monitoring process;
- Senior management that ensures that the resources deviated to model validation and monitoring are sufficient;
- A modeling control unit separate from the model build that reports directly to senior management; and
- A unit that provides ongoing review and monitoring of the modeling/assumptions used in the transactions and that reviews the material on the original build and the frequency with which the models are run post issuance of the securities.

Validation

An agency should have robust systems in place to validate the accuracy and consistency of the modeling/analysis of loss rates and the estimation of key parameters and assumptions for each transaction. This should cover the reasonableness of the stress tests, and the validation/review process should be independent from those involved in the original modeling for the transaction. For example, the following would be important:

- The validation reports should go to the modeling control unit, and concerns/exceptions should be raised with the governing body;
- The analysis must be based on data that are appropriate and updated regularly. For

example, as a key aspect of risk is the quality of the underlying pool, there should be regular monitoring of default and loss rates on the pool;
- Sensitivity analysis to small changes in assumptions or stress tests used should be carried out;
- The analysis should be forward looking and not just backward looking; and
- Stress tests used should be independently reviewed to check that the events covered are sufficiently severe and that key risk aspects of the particular transaction are reflected (for example, implications of triggers, future changes in economic conditions that would adversely affect the performance of the securities, likelihood of fraud given amount of sampling).

IT Systems

The IT systems, including data archiving, must be appropriate to support frequent monitoring and the back testing of models and assumptions. For example, the following should be important:

- The appropriate infrastructure should be in place to allow timely, regular monitoring of the structures and rerunning of the ratings process when performance of the loans in the pools or the environment indicates that there has been a significant change;
- An appropriate archiving process is necessary; and
- Workflows and processes related to data collection and storage should be documented and contingency processes and plans should be in place.

Monitoring, Review and Re-rating

The original modeling of the structure and decisions regarding core parameters and stress tests must be followed by regular review of up-to-date data on the performance of pools and, where appropriate, prepayment rates, as well as any indications that lending standards have changed. The new information should be used to assess whether the original assumptions or modeling is still valid. The monitoring should be carried out by a group independent of the original modeling. For example, the following would be important to consider:

- The information on the structures should be reviewed at least once a month; this should include reviewing the information on performance in the underlying pools;
- Changes in behavior such as changes in prepayment rates or lending standards on new loans into the pools should be monitored;
- If there have been material changes, then the rating process should be repeated. A view should be taken regarding tolerances around certain parameters/performance when the original rating is given, movements outside of which should trigger a re-rating process; and
- Clearly set out policies covering re-rating should be adopted.

External and Internal Audit

Internal standards should be developed to implement the principles. An internal audit should annually review compliance with the internal standards. A mechanism should be found to provide external review of compliance with the standards.

APPENDIX D Sample of Short-Form Prospectus Information and Risk-Disclosure Factors

Below is an indicative sample of information that could be provided in summarized form in an offer document.

[ISSUER NAME]

Indication Transfer Summary

[COUNTRY] RMBS New Issue

Note Class	Rating (S&P/ Moody's/ Fitch)	Currency	Initial Size	Initial Amount	WAL (yrs) @ [•]%CPR	Principal Window Begin	(mths) End	Benchmark Index	Legal final maturity
A1	AAA/ Aaa/ AAA	GBP						3m GBP-LIBOR	[•]
A2	AAA/ Aaa/ AAA	EUR	[•]	GBP[•] m n equiv.	[•]	[•]	[•]	3m EURIBOR	[•]
A3	AAA/ Aaa/ AAA	USD						3m USD-LIBOR	[•]
B1	AA/ Aa2/ AA	GBP						3m GBP-LIBOR	[•]
B2	AA/ Aa2/ AA	EUR	[•]	GBP[•] m n equiv.	[•]	[•]	[•]	3m EURIBOR	[•]
B3	AA/ Aa2/ AA	USD						3m USD-LIBOR	[•]
C1	A/ A2/ A	GBP						3m GBP-LIBOR	[•]
C2	A/ A2/ A	EUR	[•]	GBP[•] m n equiv.	[•]	[•]	[•]	3m EURIBOR	[•]
C3	A/ A2/ A	USD						3m USD-LIBOR	[•]
Total			100%	GBP[•] m n equiv.	[•]				

Note: [Summarize Assumptions, if any]

Brief description (if applicable) of:

- Issuer
- Originators
- Administrators
- Other Relevant Agents
- Collateral
- Loan Profile
- Status of Notes
- Legal Maturity
- Redemption Profile
- Credit Enhancement
- Liquidity Support
- Arrears Trigger
- Minimum Mortgage Rate (MMR)
- Margin Reserve Fund
- Margin Step-up and Call
- Clean-up Call
- Tax Call
- Coupon Dates
- Interest Basis
- Principal Paying Agent
- Trustee
- Basis Hedging
- Interest Rate Hedging
- Cross Currency Hedging
- Expected Settlement
- Form
- Listing, Denominations
- Selling Restrictions
- Bookrunners
- Bloomberg
- Investor Reporting

Indicative Sample of Provisional Pool Characteristics

PROVISIONAL POOL CHARACTERISTICS (as at [•])				
Number of Loans		[•]	Weighted Average LTV	[•]%
Total Current Balance		[•]	Minimum Current LTV	[•]%
20 Largest Loans		[•]%	Maximum Current LTV	[•]%
Weighted Average Margin		[•]%	Average Current Balance	[•]
Minimum Margin		[•]%	Minimum Current Balance	[•]
Maximum Margin		[•]%	Maximum Current Balance	[•]
Weighted Average Original DSCR		[•]	Weighted Average Original Term	[•] years
Credit Status	No CCJ	[•]%	Minimum Original Term	[•] years
	1 CCJ	[•]%	Maximum Original Term	[•] years
	>1 CCJ	[•]%	Weighted Average Remaining Term	[•] years
Arrears	Current	[•]%	Minimum Remaining Term	[•] years
	>1 month	[•]%	Maximum Remaining Term	[•] years
	>3 months	[•]%	Weighted Average Seasoning	[•] years
Loan Purpose	Purchase	[•]%	Minimum Seasoning	[•] years
	Refinance	[•]%	Maximum Seasoning	[•] years

Indicative Sample of Collateral Comparison

Issuer	[•]	[•]	[•]	[•]	[•]	[•]
Closing Date	[•]	[•]	[•]	[•]	[•]	[•]
Rating Agencies	Moody's/ S&P/ Fitch	Moody's/ S&P/ Fitch	Moody's/ S&P/ Fitch	Moody's/ S&P/ Fitch	Moody's/ S&P/ Fitch	Moody's/ S&P/ Fitch
Total Notes	GBP [•] mn	GBP [•] mn	GBP [•] mn	GBP [•] mn	GBP [•] mn	GBP [•] mn
Provisional Pool Balance	GBP [•] mn	GBP [•] mn	GBP [•] mn	GBP [•] mn	GBP [•] mn	GBP [•] mn
% of Prefunding	[•]%	[•]%	[•]%	[•]%	[•]%	[•]%
% of AAA Notes	[•]%	[•]%	[•]%	[•]%	[•]%	[•]%
% of Sub Notes	[•]%	[•]%	[•]%	[•]%	[•]%	[•]%
% of First Loss Fund	[•]%	[•]%	[•]%	[•]%	[•]%	[•]%
Originator	[•]	[•]	[•]	[•]	[•]	[•]
% of IHL	[•]%	[•]%	[•]%	[•]%	[•]%	[•]%
LTV	[•]%	[•]%	[•]%	[•]%	[•]%	[•]%
Seasoning (months)	[•]	[•]	[•]	[•]	[•]	[•]
Arrears>1m	[•]%	[•]%	[•]%	[•]%	[•]%	[•]%

Risk Factor Disclosure

Please note that this should not be considered as an inclusive list of risk factors. In addition to these factors, investors are advised to conduct their own sensitivity analysis around their risk appetite and investment mandate criteria or review sensitivity analyses provided by third parties. Furthermore, investors are encouraged to review material pertaining to the credit rating assigned to the issue made publicly available by rating agencies.

Summary of Indicative Risk Factors To Be Disclosed in the Offer Document

1. A basic chart of the capital structure (tranches) of the structured product.
2. A chart showing the cash flows per tranche at origination, with clear guidance that cash flows change upon issuance.
3. A chart on the cash flow waterfall of the structured product.
4. At the time of issuance (if applicable):
   – Asset spread

– Service fee
– LIBOR or related interest rate
– Current rate default
– Swap spread

5. Nature of assets in the pool.
6. Name of issuer or arranger and whether they are regulated.
7. Distribution of loans in the pools across PD, LGD bands (bank originators should be encouraged to provide this) and, for mortgages, LTV bands.
8. For ABS market value products, percentage fall in the value of the assets that would wipe out the tranches.
9. For RMBS, the percentage delinquencies (sum >60 days, foreclosures, RE owned) in the underlying mortgage pool and assumed severity rate or LGDs for that specific pool.
10. Percentage of loans with full documentation.
11. Percentage of loans for which borrower documentation is checked/tested for accuracy.

APPENDIX E IIF Committee on Market Best Practices Working Group Lists and the Market Monitoring Preparatory Group

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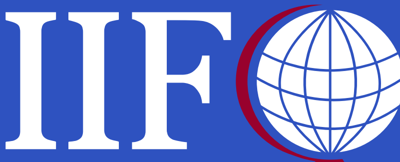

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