Toward Greater Financial Stability: A Private Sector Perspective

The Report of the
Counterparty Risk Management
Policy Group II

July 27, 2005

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A Private Sector Perspective

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TABLE OF CONTENTS

Transmittal Letter ..... *iii*

CRMPG II Members ..... *vii*

CRMPG II Working Groups ..... *ix*

Section I: Introduction 1

Section II: Executive Summary and Recommendations 5

Section III: Risk Management and Risk-Related Disclosure Practices 41

Section IV: Financial Infrastructure: Documentation and Related Policies and Practices 69

Section V: Complex Financial Products: Risk Management, Risk Distribution and Transparency 119

Section VI: Emerging Issues 139

Appendix A: Complex Financial Products A-1

Appendix B: Financial Market Developments, 1999-2005 ..... B-1

Appendix C: Major Legislative and Regulatory Developments C-1

Appendix D Risk Management Challenges Facing Institutional Fiduciaries D-1

July 25, 2005

Mr. Henry M. Paulson, Jr.
Chairman and Chief Executive Officer
Goldman, Sachs & Co.
85 Broad Street
New York, NY 10004

Dear Hank:

On behalf of the Counterparty Risk Management Policy Group II, I am pleased to convey to you our Report entitled *Toward Greater Financial Stability: A Private Sector Perspective,* dated July 27, 2005. As you will readily observe, the Report is a broad and far-reaching effort aimed primarily at further strengthening the stability of the global financial system. The scope and reach of the Report is a great tribute to the Members of the Policy Group. Their efforts have been truly extraordinary not only in terms of the rigor and quality of their work but, more importantly, in the statesmanship they displayed in their willingness to put aside narrow interests in order to produce a Report that unquestionably serves the public interest. In that regard, I want to express to you my sincere gratitude for the time and effort devoted to this project by Craig Broderick who served as a Member of the Policy Group and the others from Goldman Sachs who participated in the project and are named in the Report.

The Report itself — building on the 1999 work of Counterparty Risk Management Policy Group I — is directed at initiatives that will further reduce the risks of systemic financial shocks and limit their damage when, rarely but inevitably, such shocks occur. The context of the Report is today's highly complex and tightly interconnected global financial system. The Report's Recommendations and Guiding Principles focus particular attention on risk management, risk monitoring and enhanced transparency.

In addition, the Report covers a number of related areas including: (1) strengthening the infrastructure of the financial system; (2) in the context of complex products, better defining the respective roles and responsibilities of financial intermediaries and their institutional clients; (3) suitability standards for the sale of complex products to retail investors; (4) the management of potential conflicts of interest; and (5) the changing risk management challenges facing institutional fiduciaries. Finally, and of great importance, the Report also examines in considerable detail the challenges faced by market participants with regard to the management and use of highly complex financial instruments.

While much of the Report is directed at well-known categories of financial risk, a great deal of attention is also focused on operational and reputational risks. This emphasis on operational and reputational risks reflects the hard reality that these elements of risk are critically important ingredients to sustaining public confidence in the financial system. As such they are highly relevant to the goal of financial stability.

Many of the Report's Recommendations and Guiding Principles are enhancements and refinements of initiatives already underway across the financial system. However, even where this is the case, the enhancements and refinements are substantive and material. Needless to say, these measures are a complement to — and not a substitute for — various laws and regulations in jurisdictions around the world.

The Policy Group views its Recommendations and Guiding Principles as a forward-looking and integrated framework of initiatives. They are written in a manner that should make it straightforward for senior management, auditors, boards of directors and regulators to track the progress individual institutions are making relative to these standards. The Report also repeatedly stresses that while the initiatives outlined in the Report are central to the goal of financial stability, they are by no means substitutes for the overriding importance of the time-honored basics of managerial competence, sound judgment, common sense and the presence of a highly-disciplined system of corporate governance. Indeed, these basics are key ingredients to building and sustaining a culture in which reputational excellence and commercial excellence can thrive side-by-side.

Most of the Recommendations and Guiding Principles relate to measures that are within the control and reach of individual institutions. Others entail collective actions by institutions and their so-called "trade groups." In that latter category, I want to call your particular attention to Recommendations 12, 21 and 22, which call for urgent industry-wide efforts (1) to cope with serious "back-office" and potential settlement problems in the credit default swap market and (2) to stop the practice whereby some market participants "assign" their side of a trade to another institution without the consent of the original counterparty to the trade. Among other things, this practice has the potential to distort the ability of individual institutions to effectively monitor and control their counterparty credit exposures.

I should also note that in the course of its deliberations, the Policy Group met twice with a group of about one dozen representatives of supervisory and regulatory bodies from various parts of the world. The purpose of these informal meetings was to keep these officials informed of the progress of our work and to share with them the broad thrust of our Recommendations and Guiding Principles. It was clearly understood by all at the outset that these individuals were not representing nor speaking on behalf of their employers and that neither the individuals nor their employing agencies were being asked to endorse the Report or any of its component parts.

In closing I want to emphasize that the Policy Group believes that senior management of individual financial institutions should ensure that such institutions review the Recommendations and Guiding Principles contained in this Report and, where appropriate, take steps to bring their business practices into line with these standards.

Sincerely,

E. Gerald Corrigan

Please note: virtually identical letters have been sent to the Chief Executive Officers (or their equivalents) of all of the institutions having members on the Policy Group.

EXHIBIT I

Counterparty Risk Management Policy Group II

E. Gerald Corrigan, Chairman
Managing Director
Office of the Chairman
Goldman, Sachs & Co.

Don M. Wilson III, Vice Chairman
Chief Risk Officer
JPMorgan Chase & Co.

David C. Bushnell, Vice Chairman
Senior Risk Officer
Citigroup Inc.

Policy Group Members

Michael J. Alix
Senior Managing Director
Head of Global Credit Risk Management
Bear, Stearns & Co., Inc.

Dr. Hugo Bänziger
Chief Risk Officer (Credit & Operational Risk)
Deutsche Bank

Craig W. Broderick
Managing Director
Chief Credit Officer
Head of Credit, Market & Operational Risk
Goldman, Sachs & Co.

Scott C. Evans
Executive Vice President
Chief Investment Officer
TIAA-CREF

Douglas J. Flint
Group Finance Director
HSBC Holdings plc

Christopher B. Hayward
Managing Director
Head of Holding Company Supervision
Chief Operating Officer - Corporate Risk Management
Merrill Lynch & Co., Inc.

John G. Macfarlane III
Chief Operating Officer
Tudor Investment Corporation

W. Allen Reed
President & Chief Executive Officer
General Motors Asset Management

Edward J. Rosen, Esq.
Partner
Cleary Gottlieb Steen & Hamilton LLP

Thomas A. Russo
Vice Chairman and Chief Legal Officer
Lehman Brothers

David H. Sidwell
Executive Vice President and CFO
Morgan Stanley

Associate Member

Adam Gilbert
Managing Director
JPMorgan Chase & Co.

Secretariat

Pawel Adrjan
Associate
Goldman, Sachs & Co.

Pierre-Hugues Verdier, Esq.
Associate
Cleary Gottlieb Steen & Hamilton LLP

The members of CRMPG II wish to thank Manar Zaher of Goldman Sachs for her efforts in support of this project. In addition, we would like to thank Goldman Sachs, Citigroup, JPMorgan Chase and Lehman Brothers for their hospitality in hosting meetings of the Policy Group.

EXHIBIT II

Working Groups

I. Risk Management and Risk-Related Disclosure Practices

Co-Chairmen

Michael J. Alix
Senior Managing Director
Head of Global Credit Risk Management
Bear, Stearns & Co., Inc.

Craig W. Broderick
Managing Director
Chief Credit Officer
Head of Credit, Market & Operational Risk
Goldman, Sachs & Co.

Members

Pawel Adrjan
Associate
Goldman, Sachs & Co.

John J. Hogan
Managing Director
Global Head of Credit Portfolio Management and Hedge Fund Credit Risk Management
JPMorgan Chase & Co.

Jane D. Carlin
Managing Director and Global Head of Operational Risk Management
Credit Suisse First Boston

Jeff Marcus
Senior Managing Director
Bear, Stearns & Co. Inc.

Cindy Gargano
Managing Director
Chief Credit Officer
Global Head of Hedge and Leveraged Funds
Barclays Capital

Timothy S. Wilson
Chief Risk Officer
Caxton Associates LLC

II. Financial Infrastructure — Documentation and Related Policies and Practices

Chairman

Thomas A. Russo
Vice Chairman and Chief Legal Officer
Lehman Brothers

Members

Jane D. Carlin
Managing Director and Global Head of Operational Risk Management
Credit Suisse First Boston

Michael M. Chamberlin
Executive Director
EMTA

Joshua D. Cohn
Partner
Allen & Overy

Ernest C. Goodrich, Jr.
Managing Director and Senior Counsel
Deutsche Bank

Zdenka Griswold
Senior Vice President
Lehman Brothers

Marjorie E. Gross
Senior Vice President & Regulatory Counsel
The Bond Market Association

Seth Grosshandler
Partner
Cleary Gottlieb Steen & Hamilton LLP

Guy M. Kulman
Vice President
Lehman Brothers

Alexandra Loria
Senior Vice President & CAO of Equities Technology
Lehman Brothers

Sharmini Mahendran
Executive Director and Counsel
Morgan Stanley

Locke R. McMurray
First Vice President
Merrill Lynch & Co.

Robert G. Pickel
Executive Director and
Chief Executive Officer
International Swaps and Derivatives Association

Ricardo Salaman
Vice President and
Associate General Counsel
Goldman, Sachs & Co.

Kimberly Summe
General Counsel
International Swaps and Derivatives Association

Aviva Werner
General Counsel
EMTA

III. Complex Financial Products — Risk Management, Risk Distribution and Transparency

Co-Chairmen

Don M. Wilson III
Chief Risk Officer
JPMorgan Chase & Co.

John G. Macfarlane III
Chief Operating Officer
Tudor Investment Corporation

Members

Andrew Abrahams
Managing Director
JPMorgan Chase & Co.

Peter S. Allen
Vice President
JPMorgan Chase & Co.

Alberto Antonini
Vice President
Tudor Investment Corporation

Robert Berry
Managing Director
Goldman, Sachs & Co.

Abib Bocresian
Managing Director
JPMorgan Chase & Co.

Fred Chapey
Managing Director
Citigroup Inc.

Adam M. Gilbert
Managing Director
JPMorgan Chase & Co.

Ben Graves, CFA
Associate
JPMorgan Chase & Co.

John W. Ingraham
Senior Vice President
Citigroup Inc.

Clinton D. Lively
Managing Director
JPMorgan Chase & Co.

Adriana Madrid
Associate
JPMorgan Chase & Co.

Clarke Pitts
Managing Director
JPMorgan Chase & Co.

Ricardo Salaman
Vice President and
Associate General Counsel
Goldman, Sachs & Co.

Andrew J. Scott
Associate
JPMorgan Chase & Co.

M. Andrew Threadgold
Managing Director
JPMorgan Chase & Co.

IV. Sale of Complex Products to Retail Investors

Chairman

Edward J. Rosen, Esq.
Partner
Cleary Gottlieb Steen & Hamilton LLP

Members

Diane M. Genova
Managing Director
Co-General Counsel, Investment Bank
JPMorgan Chase & Co.

Robert C. Martin
Global Head of Underwriting, Distribution, Conflicts and Structured Products
Citigroup Inc.

Carlos Morales
Senior Vice President
Associate General Counsel
Merrill Lynch & Co., Inc.

James E. Solberg
Managing Director
Chairman, Retail Distribution Committee
Citigroup Global Markets

John Vitha
Vice President
Associate General Counsel
Goldman, Sachs & Co.

Peggy Willenbucher
First Vice President
Senior Counsel
Merrill Lynch & Co., Inc.

V. Financial Market Developments, 1999-2005

Co-Chairmen

Dr. Hugo Bänziger
Chief Risk Officer
(Credit & Operational Risk)
Deutsche Bank

David C. Bushnell
Senior Risk Officer
Citigroup Inc.

David H. Sidwell
Executive Vice President and CFO
Morgan Stanley

Members

Richard Berner
Managing Director and Chief US Economist
Morgan Stanley

Ralf Hoffmann
Director
Head of Risk Analysis
Deutsche Bank

Christopher Mills
Director
Citigroup Inc.

VI. Major Legislative and Regulatory Developments

Co-Chairmen

Douglas J. Flint
Group Finance Director
HSBC Holdings plc

Christopher B. Hayward
Managing Director
Head of Holding Company Supervision
Chief Operating Officer - Corporate Risk Management
Merrill Lynch & Co., Inc.

Members

David T. Bloom
Head of Legal - Corporate, Investment Banking and Markets
HSBC Holdings plc

Timothy J. Howell
Head of Group Asset and Liability Management
HSBC Holdings plc

Kristin Malcarney
Vice President
Holding Company Supervision
Merrill Lynch & Co., Inc.

Carlos Morales
Senior Vice President
Associate General Counsel
Merrill Lynch & Co., Inc.

Peggy Willenbucher
First Vice President
Senior Counsel
Merrill Lynch & Co., Inc.

VII. Risk Management Challenges Facing Institutional Fiduciaries

Co-Chairmen

W. Allen Reed
President & Chief Executive Officer
General Motors Asset Management

Scott C. Evans
Executive Vice President
Chief Investment Officer
TIAA-CREF

Members

Jayesh D. Bhansali
Head of Derivatives Strategies and Trading
TIAA-CREF

Michael P. Cloherty
Vice President, Operations
General Motors Asset Management

SECTION I: INTRODUCTION

On January 15, 2005, the organizational meeting of the Counterparty Risk Management Policy Group II (CRMPG II) was held in New York. CRMPG II is comprised of senior officials from major financial institutions and is chaired by E. Gerald Corrigan, Managing Director, Goldman Sachs. The members of CRMPG II, including its Vice Chairmen (David Bushnell, Senior Risk Officer, Citigroup, and Don M. Wilson III, Chief Risk Officer, JPMorgan Chase) and its Secretariat, are listed in Exhibit I, and the members of its various working groups are listed in Exhibit II.

The primary purpose of CRMPG II — building on the 1999 report of CRMPG I — is to examine what additional steps should be taken by the private sector to promote the efficiency, effectiveness and stability of the global financial system. As practitioners, the members of CRMPG II recognize that periodic financial disruptions and shocks are inevitable. However, the Policy Group also believes that it is possible to take steps that would be capable of reducing the frequency of such shocks and, especially, to reduce the risk that such shocks would take on the contagion features that can produce systemic damage to the financial system and the real economy.

In approaching its task, the Policy Group shared a broad consensus that the already low statistical probabilities of the occurrence of truly systemic financial shocks had further declined over time. The belief that the risk of systemic financial shocks had fallen was based on a number of considerations including: (1) the strength of the key financial institutions at the core of the financial system; (2) improved risk management techniques; (3) improved official supervision; (4) more effective disclosure and greater transparency; (5) strengthened financial infrastructure; and (6) more effective techniques to hedge and widely distribute financial risks.

Indeed, members took some collective comfort from the fact that in the post LTCM/Russia period, financial markets had absorbed with remarkable resiliency the effects of multiple disturbances, including but not limited to: (1) the bursting of the technology bubble of the late 1990s; (2) a mild recession; (3) September 11; (4) two wars; (5) an oil shock; and (6) a wave of corporate scandals (including a handful of major bankruptcies).

That sense of comfort, however, must be tempered by the recognition that the collective capacity of financial market participants and policy makers to anticipate the specific triggers that spawn financial shocks is very low. Indeed, if that collective capacity to anticipate such triggers were high, logic would tell us that major shocks would almost never occur. There is a further complication — namely, while the Policy Group members believe that the risks of large scale financial shocks occurring are lower, they also recognize that even very rare financial shocks can produce significant damage to the financial system and/or the real economy. Moreover, many factors make it impossible to anticipate in advance how financial shocks will play out once triggered: the complexity of the financial markets; the tighter linkages between financial markets and participants; and the enormous speed with which market developments are transmitted throughout the financial markets, all on a global scale. Ironically, perhaps, this rise in speed and complexity and the attendant tightening of linkages are driven by the very same advances in technology and telecommunications that are driving the profound positive changes we are witnessing in financial practices.

Thus, we are left with a classic dilemma — that is, how do we design programs, practices and policies that can reasonably cope with very low probability financial contingencies having potentially large consequences without undermining the substantial societal benefits generated by the contemporary global financial system?

The members of CRMPG II are under no illusion that they can or will resolve that dilemma. However, as noted above, the Policy Group does believe that its analysis, its Recommendations and its Guiding Principles can help reduce the frequency and contain or limit the damage associated with major financial shocks when, on occasion, they inevitably occur.

In approaching its mission, the design of the Policy Group's work was based on the premise that the informational building blocks for this Report should include four major elements as follows:

- First, to compile a comprehensive inventory of major developments in financial markets — and in supervisory and regulatory policies — since the publication of the 1999 CRMPG I report. (As a part of that inventory of post-1999 developments, an overview of changing investment strategies — and their risk management implications — of major institutional fiduciaries was also prepared);

- Second, to revisit the recommendations of CRMPG I, examine how they have withstood the test of time and identify areas in which those earlier recommendations should be strengthened and enhanced;

- Third, to systematically explore a family of complex financial products in order to illustrate their behavioral characteristics and to analyze their implications for risk management, risk distribution and transparency; and

- Fourth, to examine a number of so-called "Emerging Issues" that were not covered by CRMPG I but are now of such importance that the Policy Group determined they should not be ignored.

With regard to complex financial instruments, the primary objectives of the Policy Group were two-fold. One objective was the seemingly straightforward — but critically important — goal to enhance understanding of these complex instruments with emphasis on how their prices respond to specified stress factors. The second objective of the exercise was to frame Recommendations and Guiding Principles regarding the use, risk monitoring and risk management of such instruments, both for financial intermediaries and their institutional clients.

As noted above, as the work of the Policy Group progressed it became obvious that there were four subjects not directly related to counterparty risk management that could not be ignored in the current setting, all of which are related primarily to reputational risk. Those subjects are:

- First, the heightened issues of suitability and disclosure associated with the sale of complex financial products to retail investors;

- Second, the management of the reputational and financial risks associated with potential conflicts of interest that are inherent in the activities of financial intermediaries;

- Third, the increasingly complex risk management challenges faced by institutional investors having fiduciary responsibilities; and

- Fourth, the official oversight of hedge funds.

Finally, in the discussion of "Emerging Issues," the Policy Group has spelled out four "Supervisory Challenges" representing major areas where both the official and the

private sector should work together to better harmonize supervisory, regulatory and accounting policies with the practicalities of managing complex financial institutions.

With those introductory remarks in mind, the content of the Report is presented as follows:

Section I:	*Introduction*	Pages 1 to 4
Section II:	*Executive Summary and Recommendations*	Pages 5 to 40
Section III:	*Risk Management and Risk-Related Disclosure Practices*	Pages 41 to 68
Section IV:	*Financial Infrastructure: Documentation and Related Policies and Practices*	Pages 69 to 118
Section V:	*Complex Financial Products: Risk Management, Risk Distribution and Transparency*	Pages 119 to 138
Section VI:	*Emerging Issues*	Pages 139 to 154
Appendix A:	*Complex Financial Products*	Pages A-1 to A-54
Appendix B:	*Financial Market Developments 1999-2005*	Pages B-1 to B-22
Appendix C:	*Major Legislative and Regulatory Developments*	Pages C-1 to C-16
Appendix D	*Risk Management Challenges Facing Institutional Fiduciaries*	Pages D-1 to D-9

SECTION II: EXECUTIVE SUMMARY AND RECOMMENDATIONS

In order to place this Report's "Recommendations" and "Guiding Principles" in perspective, this section of the Report will begin with an overview of the causes, triggers and dynamics of contemporary financial shocks which have the potential to take on systemic characteristics.

As a starting point, a distinction must be drawn between financial disturbances and systemic or potentially systemic financial shocks. Financial disturbances arise with some frequency and can have their origins in a number of factors ranging from a geopolitical event such as September 11 to a failure of a specific financial or non-financial corporation. However, financial disturbances do not exhibit the very rapid contagion effects present in financial shocks as discussed below. The absence of rapid and far reaching contagion effects may be due to any number of factors including: (1) the event was widely discounted in the first place, (2) public or private policy responses are swift and decisive, and/or (3) the event does not raise broad-based concerns about potential or actual credit losses that could compromise the ability of financial counterparties to perform in a manner consistent with their obligations. Credit-related problems, as discussed below, are of special concern because — as we have seen on many occasions — financial markets have a remarkable capacity to cope with financial disturbances so long as widespread credit problems are not seen as an imminent threat. Experience also shows that the fact or the fear of large credit losses is often the key variable through which financial disturbances become financial shocks.

With that distinction in mind, it is fair to say that the past twenty-five years have witnessed dozens of financial disturbances, but only a very small number of financial shocks having potential or actual systemic consequences that caused major damage to the financial system and the real economy. In fact, over the past twenty-five years there were probably only three financial shocks that, by most counts, achieved the "red zone" characteristics of systemic risk. They were:

- The LDC debt and banking crisis of the early to mid 1980s;
- The stock market crash of 1987; and

- The Asian, Russian and LTCM crises that culminated in the late summer and early fall of 1998.

There were also a number of "near misses," centering on situations that had the potential to become very serious, but did not. One example of such near misses was the seriously weakened financial condition of a number of very large banks and non-bank financial institutions in the late 1980s.

With the benefit of hindsight, it is not difficult to draw distinctions between financial disturbances and financial shocks. Unfortunately, in real time it is virtually impossible to draw such distinctions. Indeed, neither financial market participants nor policy makers have a good track record of anticipating the specific triggers — or their timing — that will cause financial disturbances, much less distinguishing in advance which disturbances have the likelihood of taking on shock-like features with systemic properties. In fact, even when the threat of a major financial disturbance is recognized by many — as for example, recent concerns about a dollar crisis or a significant rise in credit spreads — such awareness of a threat provides little assurance that the marketplace in general will anticipate whether, when and with what degree of severity such a disturbance will actually occur, much less anticipate whether the fact of the disturbance will have potential systemic implications.

In other words, while great progress had been made in containing financial disturbances, rare but potentially virulent financial shocks may occur with little, if any, warning. Thus, while the specific triggers and precise timing of these very low probability events cannot be anticipated, it is possible to look at after-the-fact experiences with such events and to draw lessons which may be helpful in order to avoid future problems or at least limit their adverse consequences. For example, the recent history of both financial disturbances and shocks tells us something about their behavioral characteristics which may be relevant for the future. At the risk of gross oversimplification, for example, there are three traits that seem to have been associated with major financial shocks in the past. These traits are as follows:

- First, the triggering event or events cause sharp and sudden declines in one or more classes of asset prices. The decline in asset prices is sufficiently steep to raise questions about the creditworthiness of major counterparties or institutions such that the analytical distinction between market risk and credit risk blurs as market risk and credit risk feed on each other.

- Second, the combination of falling asset prices and the erosion of creditworthiness causes market participants to commence risk mitigation efforts such as position liquidations which — while perfectly reasonable at the micro level — add to macro pressures on asset prices which in turn trigger the initial evaporation of market liquidity for one or more classes of assets. The evaporation of asset liquidity aggravates both market and credit risk and begins to call into question balance sheet liquidity for some institutions. Investor position liquidations intensify these pressures.

- Third, in these circumstances, once seemingly generous amounts of margin or collateral are rapidly called into question, thereby dramatically elevating credit concerns. The escalation of credit concerns further influences the defensive behavior of financial market participants, all of which acts to reinforce the cumulating adverse market dynamics. Hence, a financial crisis with potential systemic risks is at hand.

In reality, the dynamics discussed above are not sequential but are virtually simultaneous in that they interact quickly to form a financial "perfect storm." The financial perfect storm has certain traits in common with its meteorological cousin in that its exact timing and severity cannot be predicted with any precision. However, as with the meteorological perfect storm, we do know something about the preconditions that can influence the severity of the financial perfect storm and we can take steps in advance that will help to limit its damage. For example, in thinking about the simplified dynamics of financial shocks outlined above, it is not difficult to identify a number of factors that lie beneath those dynamics and may help to better understand and anticipate gathering financial storms and thus limit their prospective damage. The Policy Group believes that better anticipating financial shocks and being better positioned to limit their severity centers on the following ten fundamentals:

- First, credit risk, and in particular counterparty credit risk, is probably the single most important variable in determining whether and with what speed financial <u>disturbances</u> become financial <u>shocks</u> with potential systemic traits.

- Second, the evaporation of market liquidity is probably the second most important variable in determining whether and at what speed financial disturbances become financial shocks with potentially systemic traits.

- Market liquidity will be importantly influenced by the presence of "crowded trades" in the financial marketplace in circumstances in which crowded trades are inevitable. The hard reality is that individual financial institutions will never be able to anticipate the order of magnitude of such crowded trades even if it is true that the most sophisticated market participants are able to develop a sense of gathering crowded trades.

- In periods of acute market stress, market liquidity can largely evaporate even in what is normally the most liquid of markets. When this occurs, a downward pressure on asset prices intensifies.

- Third, the value of many classes of complex financial instruments can change very rapidly even in a matter of hours or days. Rapid changes in value can be especially pronounced for instruments having "embedded leverage."

  - The risk of rapidly changing prices can be of particular consequence with highly complex instruments in an environment in which investor behavior is influenced by the "reach for yield" phenomenon.

- Fourth, even in normal circumstances, determining the value of many classes of financial instruments is very difficult and often heavily dependent on complex proprietary models.

  - The fact that many financial institutions use broadly similar analytical tools to model price changes in response to external events heightens the risk of precipitous price changes in the face of crowded trades

  - Because of this, final authority for valuations must be vested in a business unit that is fully independent of the revenue producing businesses.

- Fifth, most statistically driven models and risk metrics such as value at risk calculations fail to capture so called "tail events." As such, their use must be supplemented by a wide range of complementary risk management techniques, such as stress tests and hybrid VaR measures that take account of market liquidity.

  - For example, model-driven correlation estimates between the properties of various classes of activities — or even between measures of creditworthiness of individual companies or counterparties — can change very rapidly and in ways that statistical measures cannot anticipate.

- Sixth, the integrity and reliability of all elements of financial "infrastructure" including, for example, payments, settlement, netting and close out systems — as well as the smooth functioning of back offices, especially in times of stress — are critical risk mitigants and must be managed and funded accordingly.

- Seventh, many classes of financial institutions including banks, investment banks, hedge funds and private equity funds now have sizeable investments in assets that are highly illiquid even in normal market conditions.

  - The valuation of such assets is very difficult.

  - Stress tests are one of the few risk management tools that can provide insight into the downside financial risks associated with such investments.

- Eighth, the day-to-day costs of comprehensive risk management and control-related functions for financial intermediaries are very substantial. Indeed, for the largest and most complex intermediaries, such costs can run into the tens or even hundreds of millions of dollars per year. While such costs are related to size and complexity, for smaller intermediaries and users the costs associated with core risk management capabilities are substantial and may outweigh the potential of higher returns associated with higher levels of risk tolerance. Thus, while smaller intermediaries and end-users of complex financial products may appropriately look to outside experts for advice and guidance in the use of these complex instruments, they should also recognize that they themselves must ultimately accept responsibility for their decisions. If the operating costs of effective end-to-end risk management are seen as too high to bear, the logical conclusion may be that the risks are too great — a judgment that can only be made at the highest level of management.

- Ninth, in the past, one of the great strengths of the financial system has been its capacity to organize and execute restructurings for troubled but viable companies and countries. Such restructurings typically occurred through groups of primary creditors having a major financial interest in the outcome. To the extent such primary creditors now use the credit default swap market to dispose of their credit exposure, restructuring in the future may be much more difficult.

- Tenth, since we know that financial disturbances and even financial shocks will occur in the future, and we know that no approaches to risk management or official supervision are fail-safe, we also know that we must preserve and

strengthen the institutional arrangements whereby, at the point of crisis, industry groups and industry leaders, as well as supervisors, are prepared to work together in order to serve the larger and shared goal of financial stability.

A central and recurring theme to every aspect of this Report is, in a word, complexity. Indeed, there is literally nothing about the subject matter of the Report that is simple, straightforward and one-dimensional. For example, even the seemingly mundane — but critically important — back-office operations of all classes of financial institutions are now enormously complex and entail sizeable elements of financial, operational and reputational risk.

The reality of complexity gives rise to an apparent paradox. Namely, at first blush, it would seem that complexity gives rise to the need for ever more detailed "Rules of the Road" in order to manage and control the risks inherent in such a complex business environment. However, while rules have their place, the fundamentals of managing financial risks in today's complex environment are not to be found in excessive reliance on a rules-based framework for risk management.

Thus, the fundamentals of managing risk in the face of heightened complexity point not to the need for more rules but rather to the time-honored basics of managerial competence, sound judgment, common sense and the presence of a highly disciplined system of corporate governance. The stress placed on these fundamentals is not a substitute for needed rules but it is a forceful reminder that the cause of financial stability is more rooted in these fundamentals than it is in highly prescriptive rules. Thus, a central feature of the underlying philosophy of this Report is the Policy Group's belief that still more effective financial risk management calls for striking a better balance between principles and rules.

Reflecting that philosophical tilt, the Report includes both "Recommendations" and "Guiding Principles." The distinction between "Recommendations" and "Guiding Principles" is narrow but meaningful. The term "Recommendation" as used in this context points to a reasonably specific and well-defined course of action the Policy Group believes should be followed. In contrast, "Guiding Principles" are typically more directional in nature and less specific in content.

In using this approach, the Policy Group is mindful that some might suggest that reliance on such Guiding Principles is seriously flawed in that these principles frustrate the cause of accountability on the part of individual institutions. Recognizing the legitimacy of that

concern, the Guiding Principles are framed in language and sufficient detail that auditors, accountants, senior management, board audit committees and official supervisors should be able to determine with relative ease whether individual institutions are adhering to the intent of the Guiding Principles.

While the Report contains a relatively large number of Recommendations and Guiding Principles, this relatively large absolute number should not be interpreted as symptomatic of widespread evidence of shortcomings on the part of individual institutions. To the contrary, financial institutions have made great progress in strengthening their practices in the areas covered in this Report. Moreover, the Report is very broad in its reach and most of its Recommendations and Guiding Principles are distinctly forward-looking. Because they are forward-looking, the Policy Group strongly believes that widespread support for and adherence to these Recommendations and Guiding Principles will make a significant and ongoing contribution to the universally accepted goal of financial stability.

The Recommendations and Guiding Principles which follow are classified into one or more of the following categories:

- Category I are actions that individual institutions can and should take at their own initiative.
- Category II are actions which can be taken only by institutions collectively in collaboration with industry trade groups.
- Category III are actions which require complementary and/or cooperative actions by the official sector.

In the summary presentation that follows, the Recommendations and Guiding Principles are presented in the order in which they appear in the Report. The page numbers listed below are the pages in the Executive Summary in which each section of Recommendations and Guiding Principles appear. In turn, individual Recommendations and Guiding Principles are referenced to the page numbers in the full text where the subject matter is discussed.

Section III:	*Risk Management and Risk-Related Disclosure Practices*	Pages 13 to 18
Section IV:	*Financial Infrastructure: Documentation and Related Policies and Practices*	Pages 18 to 24
Section V:	*Complex Financial Products: Risk Management, Risk Distribution and Transparency*	Pages 24 to 34
Section VI:	*Emerging Issues*	Pages 34 to 40

A. Recommendations and Guiding Principles: Risk Management and Risk-Related Disclosure Practices (Section III, pages 41 to 68)

1. Improving Transparency and Counterparty Credit Assessments

1. Recommendation, Category I (pages 45 to 46)

Where market participants lack sufficient relevant information prior to making a credit decision, CRMPG II recommends that they seek entity-level portfolio and other data from counterparties on a private and confidential basis, to the extent such information is needed to accurately assess credit quality. CRMPG II further recommends that market participants attempt to periodically review the risk metrics, stress test methodologies, behavioral characteristics of models and other analytics used by their counterparties' risk managers in assessing the entity's overall risk profile; that they assess both the quality of the processes and systems that generate the counterparties' data, as well as the details of the associated market scenarios; and that they run their own sensitivities on the institution-specific portfolio, when required. Where appropriate, additional information should be requested from counterparties based on the results of running these sensitivities. As part of the due diligence process, CRMPG II recommends that credit providers also obtain disclosure of contingencies that may have a material impact on the credit quality of the counterparty (e.g., increases in collateral requirements due to rating triggers, etc.). The scope of requests for information may depend on the quality and availability of data on a given counterparty in the public domain, as well as the size and nature of exposure. Where satisfactory information is not available, market participants should adjust their credit parameters accordingly.

When determining how much information to provide on a confidential basis to their counterparties, market participants should recognize that provision of relevant credit data increases the level of the counterparties' comfort and improves the likelihood that access to credit will remain during periods of systemic and institutional stress. CRMPG II recommends that credit users and OTC market participants seek a proper balance between preserving proprietary information and providing information that will enable their counterparties to gain an appropriate level of understanding of their management, investment process and philosophy and material risks.

2. *Recommendation, Category I & II (page 47)*

   CRMPG II recommends that trade associations, such as the Global Documentation Steering Committee, continue efforts to attract widespread acceptance of documentation standards for the treatment of confidential information. Individual firms should also continue to independently develop and refine their internal policies and procedures for managing sensitive client data and endeavor to address confidentiality issues raised by counterparties by disclosing and following such policies and procedures with regard to confidential materials. CRMPG II further recommends that firms evaluate and understand the operational risks associated with customized legal documents that deviate from the firm's existing procedures for the handling of confidential counterparty information and take such risks into account when considering such agreements.

3. *Recommendation, Category I (pages 48 to 50)*

   CRMPG II recommends that market participants continue to work to improve their understanding of their own portfolios, and to identify portfolio concentrations to a security or a market factor. Credit and market systems should be enhanced to better approximate directionalities across clients and products by risk factor. Credit systems should isolate the key risk factors that drive exposures, including exposures arising from complex transactions, and ensure that risk metrics fully reflect the impact on performance, based on movement of the underlying factors. Those key risk factors should be aggregated across the portfolio to assess the degree to which concentrations exist. This information is useful in assessing the credit quality of counterparties, in addition to providing some insight into crowded trades.

2. Improving Risk Measurement, Management and Reporting

4. *Guiding Principle, Category I (pages 51 to 52)*

   Investment in risk management systems should continue to be a high priority and will almost certainly require greater resources in the future. Full testing and validation prior to use is essential, keeping in mind that model verification should be performed independently of the business units. Market participants should avoid over-reliance on any one model or metric when analyzing risk; rather, a portfolio of analytics including stress tests, scenario analysis and expert judgment should be employed. Special attention should be paid to the

assumptions underlying these models and on understanding the impact on the results if inputs and assumptions turn out to be incorrect. The resiliency and reliability of such models should be regularly reviewed through independent periodic verification of both pricing and risk models, given that the former often provide multiple inputs for the latter.

5. *Recommendation, Category I (pages 53 to 56)*

   5a. CRMPG II recommends that collateral be used as a tool to address material differences in transparency and credit quality of counterparties, as well as to reflect asymmetry of exposure profiles. Credit terms, including margin arrangements, should be established at levels that are likely to be sustainable over time. The Policy Group believes that initial margin is an important credit risk mitigant and that the establishment of prudent initial margin requirements at the commencement of a trading relationship can play an important role in promoting financial stability during periods of stress. In addition, CRMPG II recommends that market participants continually review their collateral policies, practices and systems, and where necessary formulate remediation plans.

   The development of model-based portfolio margining programs is useful in mitigating counterparty risk by relating the amount of initial margin to the underlying risks. However, because the amounts of required margin may increase with changes in volatility, users should fully analyze the liquidity and risk management impact of potential margin requirements during times of market stress.

   5b. CRMPG II recommends that financial institutions be alert to the potential for overall leverage in the system to increase (arising from a liberalization of credit terms, increased utilization of credit facilities under pre-existing terms, or the development of new structures that facilitate the taking of leveraged positions in new forms); that financial institutions carefully monitor their resulting actual and potential credit exposures; and that in determining what actions are appropriate they take into consideration both individual counterparty and sectoral risk issues. CRMPG II recommends that financial institutions understand how counterparties analyze their own funding liquidity and leverage

levels, and consider whether collateral levels are appropriate relative to funding flexibility.

5c. CRMPG II recommends that financial institutions ensure that their risk measures and analyses comprehensively capture a full range of actual and contingent exposures, such as committed funding arrangements. As further discussed in Section IV, market participants should ensure that netting and collateral enforceability are appropriately reflected in risk measures. Dealers should also make certain that in the context of term commitments and similar arrangements, their credit policies appropriately reflect the creditworthiness of the counterparty. These commitments, as well as collateral policies and practices, should be reported periodically to senior management.

6. *Recommendation, Category I (page 57)*

CRMPG II recommends that financial institutions implement robust credit pricing models, as recommended by CRMPG I, and measure and report returns adjusted for credit costs. Firms should expand their models to incorporate the risk of counterparty default and portfolio volatility and carefully evaluate the correlation of exposures to the likelihood of counterparty failure. The impact of collateral should be considered, such that increases in collateral reduce expected counterparty loss and therefore the implied credit cost.

7. *Guiding Principle, Category I (pages 58 to 60)*

The sophistication of stress tests, scenario analyses and liquidity-adjusted metrics as alternative and sometimes more appropriate measures for credit exposures should continue to be enhanced, and the exposure information that they contain should be carefully and regularly considered by risk practitioners and senior management, with additional elevation of stress test findings to senior management when appropriate. Whether based on historical events or hypothetical events, scenarios used for stress testing should be plausible, so as to resonate with the users and senior management. When analyzing exposure measures, institutions should consider the status and adequacy of trade-related documentation.

8. *Guiding Principle, Category I (pages 61 to 62)*

   Financial market participants should re-emphasize recruitment, training and retention of skilled credit analysts and market risk managers who understand their clients and the strategies clients employ, as well as the dynamics of complex portfolios under stressed circumstances. Firms should ensure adequate staffing levels, independent of the trading units, to allow credit analysts to spend sufficient time with clients in order to obtain and maintain a comprehensive understanding of their business and credit characteristics. Additionally, operations and risk management areas need to be staffed so that they can function adequately through periods of market stress.

3. Prime Brokerage

9. *Recommendation, Category I & II (pages 63 to 67)*

   The volume of prime brokerage business continues to grow substantially. While properly executed prime brokerage activities have the potential to reduce overall systemic risk, they are also subject to a variety of legal, operational, credit and other risk challenges. To mitigate those issues, CRMPG II recommends that significant industry participants intensify industry-sponsored efforts to define the important relationships among hedge funds and other customers, executing dealers and prime brokers across all product areas and business lines. In addition, each participant in the prime brokerage market, whether executing dealer, client or prime broker, should on an ongoing basis maintain a full and clear understanding of the risks (e.g., credit, market, contractual and operational) that it incurs in this market, its internal controls and its contractual relationships, taking into account the credit, market and operational factors that can arise in these three-way arrangements. As a component of this Recommendation, prime brokers should ascribe a high priority to actively monitoring the credit quality of each of their counterparties, including conducting regular due diligence calls and/or meetings.

   Participants should consider the development of cross-product prime brokerage and netting agreements that would comprehensively address credit, commercial and risk issues. Such agreements could incorporate by reference each underlying master trading agreement that may have been entered into, and serve to harmonize disparate credit and other material

commercial terms such as events of default, cure periods and close-out procedures.

As derivative prime brokerage products develop further, market participants should continue to work with industry groups to standardize terms and agreements that govern give-up arrangements. Participants need to ensure that they have the operational capability to monitor and track transactions executed pursuant to those arrangements. The magnitude of current and prospective prime brokerage trading volume is such that systems and processes must be automated further through solutions like straight through processing.

B. Financial Infrastructure: Documentation and Related Policies and Practices (Section IV, pages 69 to 118)

1. Documentation Policies and Practices

10. Guiding Principle, Category I (page 72)

Market participants should look to the GDSC publication, "How to Improve Master Agreement and Related Trading Agreement Negotiations — A Practitioner's Best Practice Guide," for guidance in negotiating master agreements. The Best Practice Guide suggests certain time frames for completing the negotiation of master agreements, and market participants should also prioritize the negotiation of unsigned master agreements by assessing portfolio exposure; evaluating unsigned master agreements in combination with unsigned confirmations; looking to collateral, counterparty type and counterparty jurisdiction in assigning risk to unsigned master agreements and confirmations; and identifying which ongoing negotiations are with prospective versus live counterparties.

11. Recommendation, Category I (page 73)

CRMPG II recommends that market participants also ensure that credit, legal and documentation departments and the relevant businesses have access to master agreements themselves and an understanding of their content, and should consider developing a process to identify agreements in need of updating.

2. Operational Efficiency and Integrity

12. Recommendation, Category I & II (pages 74 to 75)

Market participants recognize the immediate need to address the backlog of unsigned confirmations on an industry-wide basis and are currently committing substantial resources to its resolution. CRMPG II recommends that, as a matter of urgency, market participants apply additional resources to this task, take part in and strongly encourage the development of electronic trade matching and confirmation generation systems and work together as well as cooperatively with trade associations to identify and implement solutions. In addition, market participants should make use of one or more of the following: using master confirmations, circulating drafts of structured confirmations pre-trade, pre-negotiating short form confirmations pre-trade, signing or initialing term sheets pre-trade and orally verifying material trade terms promptly after trade date. Moreover, individual institutions should periodically inform senior management and their primary regulator about progress being made in reducing confirmation backlogs. In extreme cases, senior management should be prepared to consider whether trading volumes need to be reduced until the backlog is normalized. CRMPG II endorses the convening of an industry-wide roundtable in the near term to focus on aggressively reducing confirmation backlogs by working toward further technological and operational enhancements, and by strengthening back-office operations.

13. Guiding Principle, Category I & II (page 76)

In addition to the pressing tasks outlined in Recommendation 12, market participants should also engage in industry initiatives to identify and develop effective methods of monitoring and addressing backlogs and compliance with policies, use internal audit or other independent mechanisms to identify shortcomings and measure progress and foster vigorous governance and management controls.

14. Guiding Principle, Category I & II (pages 77 to 79)

Electronic trade assistance services promote efficiency and confidence in the markets, and both market participants and trade associations should strongly encourage automation in the processing of OTC transactions. Automation, including electronic trade affirmation and matching and straight through

processing, is a key risk mitigation device, at least in part because most risk metrics assume the existence of an underlying, undisputed transaction. Automation must be pursued whether or not it presents any short-term economic benefit.

15. Recommendation, Category I & II (pages 80 to 84)

CRMPG II recommends that trade associations and market participants must pursue and develop straight through processing of OTC transactions, a critical risk mitigant in today's high volume markets. As a fundamental matter, disputes over the existence or the terms of a transaction have the potential for enormously increasing risk, since each party to the disputed transaction hedges and risk manages the disputed trade based on certain economic assumptions. STP reduces the number and frequency of trade disputes and maximizes market efficiency, opportunity and access. STP therefore fosters legal, credit, market and operational certainty.

3. Netting, Close-out and Related Issues

16. Guiding Principle, Category I, II & III (pages 85 to 100)

16a. Market participants should decide bilaterally which of the three ISDA close-out methodologies would be most appropriate in the context of their trading relationship. As market participants gain experience in the use of Close-out Amount and as products and portfolios change, market participants should continue to evaluate the efficacy of the three ISDA methodologies against the objective of achieving close-out valuations that benefit both from the transparency and objectivity obtainable through market quotations for liquid products during normal markets, and the flexibility necessary to determine close-out valuations across the range of products they trade and the conditions of market stress they are likely to confront over time.

16b. Market participants should pursue opportunities to facilitate payment netting. This may mean continuing to develop systems and operational capabilities. Equally important, where industry standard documents provide for payment netting as an option, more parties need to make this election and put it broadly into practice to take better advantage of this settlement risk-reducing mechanism.

Market participants and trade associations should also review the Group of Thirty's Monitoring Committee on Global Clearing and Settlement interim report, published in April 2005, which discusses progress made since the January 2003 publication of the G30's *Global Clearing and Settlement: Plan of Action*. The G30 Plan of Action and interim report provide excellent guidance in the areas of interoperability, risk management and governance with respect to global securities clearing and settlement, and should be considered in the OTC derivative context.

16c. Rules governing capital computations have a major impact on the breadth and depth of financial markets and financial product trading activity. It is essential that those rules favor the use of risk-mitigating tools such as cross-product netting and not restrict their use through regulatory requirements unrelated to the goal of systemic risk reduction. Intraproduct, cross-product and cross-affiliate netting and collateral arrangements should be recognized and given full netting benefit when there is a well-founded basis for believing that they are legally enforceable. Supervisory regulators should not impose additional requirements that restrict the use of such netting arrangements.

16d. Trade associations and market participants should adopt as a best practice the pursuit of cross-entity and cross-product netting and cross-default provisions in master agreements governing OTC trading relationships. Increased use of such provisions will achieve greater efficiency and reduce market and counterparty risk in default scenarios by ensuring the swift and consistent termination of transactions across-product lines.

16e. To the extent industry documentation does not already include such provisions, trade associations and market participants should make it a best practice to define clearly the termination rights of parties to OTC transactions upon the occurrence of changes in law, changes in tax rules, regulatory changes or governmental actions. A termination "road map" is particularly important in circumstances where performance would otherwise be substantially more difficult or expensive, or be subject to substantial uncertainty.

16f. Recent occurrences, perhaps most notably the events of September 11, 2001 have served as a reminder of the need for force majeure provisions in trading documentation. Market participants should clearly address the consequences of force majeure events, including any delays in performance, in their master agreements to minimize disruption and uncertainty in the markets. While force majeure provisions in trading documentation may allow for delays in performance, in no circumstances should any party able to walk away from its obligations as a result of the occurrence of a force majeure event.

16g. Market participants should continue to harmonize and centralize counterparty credit risk assessment, and should strive for speedy and efficient identification of counterparty exposure across-product lines. To achieve such goals, market participants should develop systems and operational enhancements, utilize the internal audit function or other independent mechanisms and foster strong corporate governance, as appropriate. Trade associations should work with their membership to identify common concerns in this area and seek solutions.

17. Guiding Principle, Category II (pages 101 to 105)

The productive discussions in the markets in relation to the 1999 recommendation of CRMPG I on documentation harmonization should intensify. The fundamental mission of the GDSC, which was created as an outgrowth of CRMPG I, was to harmonize documentation standards and reduce documentation basis risk, and market participants should accordingly make it a best practice to facilitate harmonization and consistency in documentation standards. To that end, new standards should be incorporated in existing documentation to the extent possible, and new documentation should be used on a forward basis. Market participants should work cooperatively with trade associations to achieve greater harmonization.

18. Guiding Principle, Category II (page 106)

Collateral managers and other market participants should explore the development of standardized, automated processes for clearing, settlement and portfolio reconciliation of high volume ”vanilla” OTC products.

4. Credit Derivatives

19. Recommendation, Category I (pages 107 to 109)

CRMPG II recommends that financial intermediaries and end-users of credit derivatives redouble their efforts to ensure that they fully understand the nature of their credit derivative transactions and the similarities and differences between those transactions and other credit positions and exposures. In this regard, it is very important that market participants be thoroughly familiar with the terminology used to document credit derivatives, and the nuances surrounding various terms.[1] Market participants should be aware that credit derivative transactions may intentionally or unintentionally give rise to other risks, including retained credit risk, counterparty credit risk, legal risk, operational risk and concentration/liquidity risk.

20. Guiding Principle, Category I & II (pages 110 to 112)

Industry participants should continue to identify potential areas of confusion or misunderstanding and seek to develop or refine market practices or conventions, and the accompanying documentation, to eliminate or mitigate such areas of confusion or misunderstanding.

21. Recommendation, Category II (pages 113 to 114)

CRMPG II recommends that industry participants build on the experience gained through recent ad hoc multilateral initiatives and work to develop a standardized multilateral process for the exercise and settlement of both outstanding and future credit derivative transactions on a simultaneous net basis. The development of such a process should consider the use of electronic platforms to reduce the strain manual settlements place on the back-office resources of market participants and to further transition the market toward straight through processing.

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[1] (Unless otherwise defined herein, capitalized terms have the meanings used in ISDA's 2003 Credit Derivatives Definitions.) In a standard credit default swap, the "buyer" of the protection agrees to make periodic payments to the seller of the protection in exchange for the seller's commitment that, upon the occurrence of certain credit default-related events with respect to a named legal entity (the "Reference Entity"), the buyer will have the right to deliver loans or securities to the seller in exchange for an agreed upon amount (typically par). The events that parties most frequently agree to as triggering events are "Bankruptcy," "Failure to Pay," "Repudiation/Moratorium" (for sovereigns only) and "Restructuring," each of which is a complex defined term under the ISDA's 2003 Credit Derivatives Definitions.

22. Recommendation, Category I & II (pages 115 to 116)

Trade assignments require the same rigorous controls and discipline as new transactions. It is critical that market participants know their counterparty, and therefore, prior consent to assignments must be obtained. Specifically, CRMPG II recommends that market participants should not assign or accept assignments of transactions without the consent of all three parties. All market participants should initiate and take part in industry initiatives designed to facilitate compliance with the prior consent requirement can be more easily met. Industry efforts in this regard should include the use of electronic platforms to further the transition of the market toward straight through processing of assignments. With respect to existing assignments, CRMPG II urges market participants to dedicate substantial resources to ensure that these assignments are properly identified and properly documented.

CRMPG II recognizes that the prospective practices described above will require a transitional period and that it would be unreasonable to expect full implementation immediately. Nonetheless these goals should be achieved in the near term, and in the interim, market participants should keep senior management apprised of the progress being made in identifying and documenting assignments.

C. Complex Financial Products: Risk Management, Risk Distribution and Transparency (Section V, pages 119 to 138)

The Guiding Principles above related to managing market and credit risk provide a strong foundation for improving counterparty risk management practices across a full range of activities. CRMPG II believes that the complexity associated with recent product innovation raises the bar for financial intermediaries with respect to their risk management practices. Accordingly, the Guiding Principles below supplement those in Section III of the Report and are intended to help firms active in complex transactions achieve a high standard of risk management discipline.

23. Over-riding Guiding Principle, Category I (pages 126 to 127)

Senior management and business managers at financial intermediaries must rely first and foremost on sound judgment based on experience and the fundamentals of managing risk.

It is a core belief of Policy Group members that this Guiding Principle provides the foundation for strong risk management practices. In this regard, senior management and all relevant business managers at firms engaging in complex transactions should ensure that they: (1) understand the essential risk elements of the instruments their firms are buying and selling; (2) implement a well-developed process to ensure that reputational risks are adequately addressed and fit into the relationship framework being sought between firms and their clients; (3) understand the nature of the risk associated with the positions their businesses have taken; (4) understand the limitations of the pricing and risk models applicable to the instruments; (5) adjust risks tolerances and associated limits based on those limitations; (6) receive information that allows them to determine whether the risk positions are within agreed upon limits; and (7) hold business line personnel accountable for the financial, risk and operational performance of the activity.

1. Governance-Related Guiding Principles

24. Guiding Principle, Category I (pages 127 to 128)

New products and major variants of existing products should be subject to a systematic review and approval process by a senior level committee or similar group. The new product approval process should, at a minimum, have the following features:

- Effective internal communication as to the classes of activity that are subject to the review process.
- The involvement of independent control personnel.
- Reasonable expectations that the necessary operational and related infrastructure to support the new product are in place.
    - To the extent that such expectations are not being realized, management should be prepared to limit or curtail such business until the support infrastructure is well established.

- Adequate training of sales and related personnel.
- Rigorous documentation.

25. Guiding Principle, Category I (page 128)

Individual transactions that entail unique reputational issues should also be subject to an appropriate framework of escalation to senior management or committee review particularly when they entail questions regarding accounting, tax, regulatory or business intent or purpose on the part of the client. The transaction review process should, at a minimum, have the following features:

- Effective internal communication as to the classes of activity that are subject to the review process.
- The involvement of independent control personnel.
- Adequate training of sales and related personnel.
- Rigorous documentation.

26. Guiding Principle, Category I (page 128)

While new product and select individual transactions approval processes must involve both business and independent control personnel, it is an inherent responsibility of senior management to ensure that the independent control personnel are truly independent.

27. Guiding Principle, Category I (page 128)

At least annually, the effectiveness of the new product and unique transactional approval process should be reviewed by the highest level of management.

2. Intermediary/Client Relationship

Complex over-the-counter transactions in the wholesale market between a financial intermediary and an end-user require clarity with respect to the nature of the relationship between the parties and the attendant obligations each party may owe the other in connection with these transactions. Since these complex transactions will often remain outstanding for a significant period of time, it is in

the interests of both parties to have a firm and clear understanding of the principles that should guide the parties over the course of their relationship. The following principles should be considered in the context of each trading relationship in the wholesale market involving complex over-the-counter transactions between a financial intermediary and a sophisticated counterparty. These principles are intended to promote high standards of customer service and reputational as well as financial risk management. They are not intended to alter the arm's-length nature of the parties' relationship or to articulate legal standards. Of course, these principles are intended to complement, and not substitute for, compliance by financial intermediaries with their express contractual undertakings and with applicable legal and regulatory requirements relating to the offer or sale of such products.

(a) Pre-Trade

28. Guiding Principle, Category I (pages 128 to 130)

- Assess Client Sophistication and Experience — The financial intermediary should make reasonable efforts to determine the level of experience and sophistication a potential counterparty has in trading complex products to enable the financial intermediary to tailor its communications regarding the terms of, and the risks and opportunities associated with, a proposed transaction. As part of the financial intermediary's review of the potential counterparty's sophistication and experience, the financial intermediary should give careful consideration to whether the potential counterparty understands the arm's-length nature of the relationship and should take reasonable steps to reduce the risk of misunderstanding by clarifying the arm's-length nature of the relationship in written or other communication with the potential counterparty.

    - *Role of Financial Intermediary:* The financial intermediary is not, unless otherwise expressly agreed, the potential counterparty's advisor and the financial intermediary will execute a complex transaction strictly on an arm's-length basis. If the potential counterparty expects the financial intermediary to undertake any heightened responsibilities, it is the counterparty's responsibility to ensure that those expectations are clearly communicated and agreed in the transactional documentation.

- *Non-Reliance:* Because each party must independently evaluate whether the risks and benefits of a complex transaction are appropriate for it, the potential counterparty has the obligation to ensure that it has obtained any information or clarification it deems necessary to evaluate the appropriateness of the transaction in light of its own circumstances and objectives.

29. Guiding Principle, Category I (page 130)

- Term Sheets: Although it is standard market practice to reflect the terms of a complex transaction in a written confirmation exchanged by the parties following execution of the transaction, financial intermediaries have different practices with respect to furnishing potential counterparties with term sheets or other documentation describing transaction terms, including any early termination provisions, prior to execution of the transaction. This is particularly important with complex products. Financial intermediaries should provide such documentation in all situations where the particular complexities of the transaction create a risk of misunderstanding regarding the operative terms of the transaction.

30. Guiding Principle, Category I (pages 130 to 131)

- Disclosure: The financial intermediary should ensure that any written materials supplied to the potential counterparty relating to the risks of a proposed complex transaction fairly present the material risks to the potential counterparty. The form of disclosure, which may consist of scenario-based analysis or other appropriate text or metric descriptive of the risk, should be clear and accurate.

  - *Identifying Material Risks*: Both the financial intermediary and the counterparty should consider the material risks associated with each complex transaction and the financial intermediary should disclose the material risks to the counterparty upon counterparty request or if the financial intermediary believes the potential counterparty may not understand these risks. For example, a financial intermediary may conclude, under appropriate circumstances, that it should discuss the potential adverse impact of the financial intermediary's ordinary course hedging, market-making and proprietary activities on a

complex transaction's value, or the exercise by the financial intermediary of early termination rights.

- *Maintenance of Position*: Both parties to a complex transaction should consider and, as appropriate, discuss at the start of their relationship any significant issues relating to the maintenance of open positions, such as, how a complex transaction will be recorded, valued and margined. The financial intermediary should consider whether potential counterparties understand that valuation of a complex transaction is a function of the inputs and the proprietary financial models used by financial intermediaries and, consequently, that valuations determined by one financial intermediary may not be consistent with those of another or, to the extent capable of being modeled by the potential counterparty, those of the potential counterparty.

(b) Trade Execution

31. Guiding Principle, Category I (page 131)

- Trade Review: The financial intermediary should review with the potential counterparty the material terms of a complex transaction immediately prior to execution. The financial intermediary may satisfy this obligation either through explicit recitation of the key transaction terms, or by referring to a transaction summary or other document (describing the material terms of the transaction) previously provided to the counterparty and obtaining affirmation of the material terms from the potential counterparty.

32. Guiding Principle, Category I (pages 131 to 132)

- Confirmation: Both financial intermediary and counterparty must make reasonable efforts to confirm the execution of a complex transaction in a timely manner, in accordance with Recommendation 12 in Section IV of this Report.

  - *Notice of Delay:* If the financial intermediary anticipates delay in the creation of an appropriate confirmation reflecting the terms of a

complex trade, the counterparty should be promptly notified of the expected delay.

- *Trade Recaps:* Parties frequently exchange evidence of their agreement (for example, signed term sheets or electronic messages) prior to the execution of a confirmation. If the financial intermediary intends that this information will not serve as a binding confirmation of the transaction terms, the financial intermediary should disclose this fact to the counterparty before or at the time this information is provided. Even though this information may not constitute a binding confirmation and may have been provided by the financial intermediary only for informational purposes, each party should take reasonable steps to review the information for accuracy and completeness and should promptly notify the other party of any error or discrepancy it identifies.

(c) Post-Trade

33. Guiding Principle, Category I (pages 132 to 133)

- Valuations: If the counterparty requests a valuation of a complex transaction executed with the financial intermediary, the financial intermediary should have a clear understanding of the counterparty's intended use of the valuation so provided.

  - *Market Levels and Inputs*: It is acceptable market practice for a financial intermediary's sales and trading personnel to provide their sophisticated counterparties with general market levels or "indications," including inputs and variables that may be used by the counterparty to calculate a value for a complex transaction. Additionally, if a counterparty requests a price or level for purposes of unwinding a specific complex transaction, and the financial intermediary is willing to provide such price or level, it is appropriate for the financial intermediary's sales and trading personnel to furnish this information.

  - *Requests for Valuation*: If the counterparty wants to receive a valuation of a specific complex transaction from a financial intermediary, it should clearly communicate to the financial

intermediary that it is requesting a specific transaction valuation and not other more general market information. A financial intermediary should have formal procedures and controls in place for processing and responding to all valuation requests and, in addition, should have a unit independent of the financial intermediary's sales division prepare the valuation and provide it to the client in order to minimize any risk of conflict or appearance of impropriety.

- *Form of Valuation*: A valuation provided by a financial intermediary, whether based on market prices or financial models, should be in writing. Furthermore, the written valuation should clearly state the basis upon which the valuation is being provided.

34. Guiding Principle, Category I (page 133)

- Client Communication: Following execution of a complex transaction, the financial intermediary will often maintain communication with the counterparty in the interest of maintaining good client relations. As part of this communication, the financial intermediary, although under no legal obligation to do so, may wish to alert its counterparty to any observed market change that it determines may challenge the underlying assumptions or principal drivers that motivated the counterparty to establish the original position.

3. Risk Management and Monitoring

Guiding Principle 4 highlights independent model review and stress testing as important components of strong risk management practice. For firms that actively use complex products, the robustness of model review and stress testing practices take on even greater importance.

35. Recommendation, Category I (pages 133 to 134)

CRMPG II recommends that financial intermediaries have a dedicated and fully independent group of professionals who are fully responsible for all aspects of model verification including final approval of all changes in model design and specification. The model verification group should determine:

- The scope and frequency of all model reviews.
- Standards for review of model assumptions and methodology.

- Model testing and release requirements.
- Documentation and inventory standards, including user guides, technical documentation, testing notes and source code.

36. Guiding Principle, Category I (pages 134 to 135)

Firms should continue to invest in their risk measurement capabilities with a particular view towards making advances in areas of model uncertainty associated with new and complex products.

There are at least three areas where the Policy Group believes further enhancements may be warranted:

- Multi-period models for multi-name credit structures.
- Treatment of implied correlation.
- Treatment of long-dated cross-currency options.

37. Recommendation, Category I (page 135)

CRMPG II recommends that to gain insight into the potential for value changes in their portfolios, firms should conduct stress tests that alter key input variables of the models they rely on for pricing and risk measurement of new and complex products. Such tests should be both plausible and meaningful for the relevant portfolios. Firms should understand the limitations of such tests and conduct specialized tests, as appropriate.

To improve the value of stress testing exercises, firms should consider the following:

- Asking business managers and senior management to clearly express loss tolerance levels.
- Identifying a range of scenarios that could produce losses for portfolios or businesses.
- Ranking the scenarios by level of potential adverse impact.
- Assessing relative probabilities for the scenarios.
- Based on this probabilistic assessment, comparing potential loss estimates to expressed tolerance levels.

38. Guiding Principle, Category I (page 135)

Once a financial intermediary has accumulated a material position in a complex product, it should require its desk to trade a portion of the risk in the market. Such a practice is a promising way to promote price discovery and to narrow the potential for divergence between theoretical, model-derived prices and market prices, particularly if firms have accumulated similar risk positions.

4. Enhanced Transparency

39. Guiding Principle, Category I & III (page 136)

Where it is not already the practice, large and complex financial intermediaries should provide their primary supervisors with timely quantitative and qualitative risk-related information on a regular basis and be prepared to provide such information on an ad hoc basis when circumstances warrant.

- Such information should be provided on an informal and confidential basis so as to facilitate the flow of otherwise proprietary and trade-specific information, as needed.
- The responsibility for such informal exchanges of information should be vested with an appropriately senior official — typically the chief risk officer or his or her equivalent.
- Supervisory bodies should make every reasonable effort to accommodate this process by ensuring that appropriately senior supervisory personnel will be available to participate in such regular discussions of risk-related matters.

40. Guiding Principle, Category I (pages 136 to 137)

Consistent with the Policy Group's core principle concerning the importance of the judgmental aspects of risk management, firms should strive to enhance qualitative public disclosures around complex products.

Specifically, the Policy Group strongly urges that intermediaries take steps to incorporate the following in their public disclosures:

- Description of the roles the firm plays (e.g., market maker, structurer, distributor and investor).

- Discussion of how complex products are addressed in the firm's risk management framework, including:

  - The governance associated with complex transactions.

  - The nature of the limits associated with the transactions.

  - The extent to which the products are captured in reported measures of credit, market and liquidity risk, and related capital measures.

  - How the firm addresses the potential for losses in portfolio values associated with stressed market conditions.

  - Any special considerations in the areas of documentation and risk mitigation related to collateral practices and hedging.

  - How the products are valued for financial statement purposes.

In identifying these potential areas for qualitative public disclosure, the Policy Group recognizes that it would be a matter of firm preference whether to incorporate references to such products in the overall risk management discussion section or whether to develop a dedicated section.

D. Emerging Issues (Section VI, pages 139 to 154)

1. Sale of Complex Products to Retail Investors

(a) Suitability and Disclosure for Structured Products Sold to Retail Investors

41. Guiding Principle, Category I (pages 139 to 142)

Financial intermediaries should reevaluate their internal new product controls to ensure that they adequately manage the heightened reputational and related risks associated with the issuance of complex structured securities sold to retail investors. Enhanced practices that financial intermediaries should consider include:

41a. Financial intermediaries should ensure that as part of the new product approval process, an internal product description is prepared. The internal product description should cover, at an appropriate level of detail, the product's characteristics, potential conflicts of interest, targeted investors, fees, third party involvement and similar elements, so as to ensure that appropriate consideration is given to these factors by management and control personnel involved in product approval process.

41b. Where the financial intermediary is directly involved in the issuance, distribution or marketing of the product to retail investors, the approval process should designate responsibility for review and approval of disclosure documents and marketing material(s), whether for internal or external use, by personnel who have the requisite expertise in complex products and personnel who are independent of the proposing business unit or desk. Final product approval should incorporate or be subject to subsequent approval of proposed disclosure and marketing materials by designated personnel.

41c. Financial intermediaries should consider whether disclosure might be enhanced by quantitative or graphical presentations of a product's potential values at maturity in relation to specific market factors to which the value of the product is related, together with historical data for such market factors.

41d. Financial intermediaries should consider whether disclosure appropriately describes, where applicable, factors that would cause the secondary market value of the product, prior to maturity, to be materially lower than the value the product would have at maturity under identical market conditions, including, in particular, products that have a principal protection feature.

41e. Financial intermediaries should consider whether disclosure appropriately conveys the fact that the secondary market value of the product, at or near issuance, will be less than the issue price as a result of embedded pricing factors that reflect anticipated costs and revenues to the selling institutions.

41f. Product approval should delineate any appropriate limitations, in addition to asset or net worth based tests, on the eligible investors to whom the product may be marketed or sold. Product approval should also identify cases where the complexity of the product warrants the qualification of eligible investors by internal supervisory personnel on a case-by-case basis.

41g. Financial intermediaries should conduct ongoing training for marketing personnel to ensure that such personnel are familiar with, understand and can communicate effectively the performance and risk characteristics of the products offered for sale by the financial intermediary, and are able to perform required suitability evaluations. As part of the product approval process, consideration should be given to the need for additional specific training of marketing personnel, in light of any novel issues that may be presented by the product under consideration, as a condition to product approval.

41h. Senior management should conduct periodic reviews of the financial intermediary's internal controls for the sale of complex products to retail investors.

(b) Reputational Risks Associated with Third Party Conduct

42. Guiding Principle, Category I (page 142)

Where third parties are involved in the distribution or marketing of a complex product in which a firm has either a disclosed or undisclosed role, the financial intermediary may confront reputational and related risks despite the absence of legal responsibility for the conduct of such parties. A financial intermediary should take appropriate steps to evaluate those risks, familiarize itself with the other transacting parties and ensure that it is comfortable under the circumstances that it has effectively managed or addressed such risks, or otherwise determined that the relevant risks are acceptable to it based on its evaluation of the relevant circumstances. In connection with that evaluation financial intermediaries should consider, where appropriate, Guiding Principles 41a through 41h above.

2. Conflict Management

43. Guiding Principle, Category I (pages 142 to 145)

Business Review Process: Financial intermediaries should have in place a Business Review Process to help identify generic categories of conflicts and to strengthen conflict management policies and procedures, consistent with the following Guiding Principles:

43a. The Business Review Process should identify categories of potential conflicts, which might, for example, include such categories as situations involving access to non-public information, situations in which the firm has multiple roles or situations in which the firm acts as both agent and principal.

43b. The Business Review Process should take account of all relevant laws and regulations.

43c. The Business Review Process should consider the level of reputational and financial risks associated with various categories of potential conflicts.

43d. The Business Review Process should consider potential conflict questions that might arise in connection with the introduction of new products or differing regulatory requirements in various jurisdictions.

43e. The Business Review Process should identify and catalogue various measures that are designed to mitigate the financial and reputational risks associated with particular classes of potential conflicts. Financial intermediaries should consider, among other things, an assessment of the adequacy of risk mitigants such as (i) policies and procedures, (ii) disclosure practices, (iii) suitability standards and (iv) employee training programs.

43f. The Business Review Process should be documented with particular emphasis on the maintenance of a framework that permits ex-post review.

43g. The Business Review Process should include an annual assessment of the effectiveness of the conflict management process by a senior-level management committee.

3. Risk Management for Institutional Fiduciaries

44. Recommendation, Category I & II (pages 145 to 146)

44a. CRMPG II recommends that fiduciaries taking on the new and/or additional risks associated with "alternative" investments and complex products continue to conduct and, as applicable, enhance the due diligence and monitoring practices relating to their investments and investment managers. Fiduciaries should have the ability to: (a) monitor indirect investments, including derivative positions and/or risk characteristics, on a timely basis to ensure their investment managers are not taking risks beyond represented levels in terms of allowable investment exposures, leverage, etc.; (b) aggregate risk across their entire pool of assets in order to understand portfolio level implications; and (c) determine whether their investment managers are adhering to a stated investment strategy or style.

44b. It is further recommended that investment managers and fiduciaries work together along with industry groups to form a consensus on generally accepted techniques for supplying risk characteristics on a bilateral basis to provide "sufficient information to allow an independent analysis of credit and market risk being undertaken by" institutional investors, as required by ERISA. The result of such efforts should be to enable fiduciary investors to measure and monitor aggregate risk exposures in a manner that is consistent with their responsibilities as fiduciaries.

45. Guiding Principle, Category I & II (pages 146 to 148)

Market participants should take the following actions to further the goals of transparency, risk management, market discipline and financial stability:

45a. Encourage the clear disclosure in public financial statements of the use of "short cut" accounting treatment for hedging, including principles-based qualitative descriptions of the methods used to determine hedge effectiveness.

45b. Encourage the adoption by financial intermediaries and associated internal control organizations for the purpose of best practices, as

applicable, of the recommendations of the *Final Report of the Multidisciplinary Working Group on Enhanced Disclosure* published in April 2001; *Enhancing Public Confidence in Financial Reporting* published in 2004 by the Group of Thirty; and relevant related Recommendations and Guiding Principles in Sections III, IV and V of this Report.

45c. Encourage the adoption by hedge fund managers, for the purpose of best practices, of the 2*005 Sound Practices for Hedge Fund Managers* report published by the Managed Funds Association and relevant related Recommendations and Guiding Principles in Sections III, IV and V of this Report.

45d. Enhance the accounting and risk management discussion, including counterparty exposures, in the Management Discussion and Analysis sections of 10K or equivalent reporting and annual report filings in order to improve qualitative and quantitative reporting for stronger credit and overall risk management evaluation.

45e. Enhance the overall market transparency of derivatives transactions and/or risk characteristics. The goal would be assisted by:

- Encouraging industry and trade groups (e.g., Managed Funds Association, Alternative Investment Management Association) to issue surveys (on derivative uses, exposures/levels, counterparty types, etc.) to augment the information published by regulatory agencies;

- Encouraging more frequent and comprehensive surveys and derivative reporting from organizations currently issuing related information such as the reporting produced by the International Swaps and Derivatives Association, the Bank for International Settlements, the US Office of the Comptroller of the Currency and the British Banker's Association; and

- Encouraging financial intermediaries to be receptive to informal discussions with fiduciary investors regarding their risk profiles and risk management practices, particularly as they apply to prime brokerage operations.

45f. Encourage OTC market participants to take steps, including the broadening and deepening of the use of bilateral facilities, to increase the efficiency of the settlement, clearing and collateralization processes, especially for high volume and "vanilla" products (see Section IV of this Report for related recommendations and guiding principles).

45g. Encourage financial intermediaries and institutional fiduciaries (and their trade groups) to create a central clearinghouse with a dedicated website, to catalogue and make available at a single resource all reports and surveys regarding risk management practices and related statistics that might be helpful to risk management practices for fiduciaries.

4. Official Oversight of Hedge Funds

46. Recommendation, Category I (pages 148 to 149)

CRMPG II recommends that hedge funds, on a voluntary basis, adopt the relevant Recommendations and Guiding Principles contained in this Report as well as the relevant Sound Practices contained in the 2005 report of the MFA. Consistent with that, senior managers of hedge funds should systematically monitor the progress being made relative to these standards.

47. Recommendation, Category II & III (pages 149 to 150)

CRMPG II recommends that the private sector, in close collaboration with the official sector, convene a high level discussion group to further consider the feasibility, costs and desirability of creating an effective framework of large-exposure reporting at regulated financial intermediaries that would extend — directly or indirectly — to hedge funds. Using the indirect method, regulators would collect and aggregate large exposure data from traditionally regulated institutions and, through those institutions, collect data on hedge fund activity. Under the direct approach, hedge funds would, on a voluntary basis, provide large exposure data directly to the appropriate regulator.

SECTION III: RISK MANAGEMENT AND RISK-RELATED DISCLOSURE PRACTICES

A. Introduction

The purpose of this section is to review the recommendations contained in Sections I and II of the 1999 CRMPG I report and provide an update on the status of their adoption by financial institutions and their clients. The areas under consideration are: Transparency and Counterparty Risk Assessment (Section I) and Internal Risk Measurement, Management and Reporting (Section II). This section also contains a discussion of post-1999 developments in the area of prime brokerage.

One of the aims of the CRMPG I report was to recommend risk management best practices in order to reduce the risk of significant future market disruptions. A preliminary step to gaining insight into the level of systemic risk inherent in today's market environment is the evaluation of the extent to which firms have embraced the original recommendations. Market developments — such as growth in credit derivatives, an increase in the usage of complex products, and the rising prominence of hedge funds in general, and funds of funds in particular — also raise the question of how counterparty practices have adapted to these market changes, and whether the CRMPG I recommendations need to be modified or enhanced accordingly.

In order to address these issues, a working group was created, composed of risk and other professionals at several global financial institutions and hedge funds. More specifically, the group's analysis has focused on the following objectives:

- Exploring the current relevance of the CRMPG I recommendations;
- Evaluating the extent to which current practice is consistent with these recommendations;
- Identifying and analyzing new issues that have arisen since 1999 (limited to the areas covered by Sections I and II);
- Reviewing the original recommendations and making revisions where necessary; and

- Proposing new Recommendations and Guiding Principles in response to the changing market environment.

Information was gathered through interviews and discussions with representatives of seven financial intermediaries and two hedge funds, who either joined the working group or agreed to serve as a "sounding board" for ideas and conclusions. In addition, input was solicited on a less formal basis from other entities, including Mercer Oliver Wyman. The choice of participants was influenced by the desire to incorporate the viewpoints of a geographically diverse range of institutions, including "credit providers" (typically financial intermediaries), as well as of clients and "credit receivers" (leveraged institutions).

Recommendations contained in Sections III and IV of the original CRMPG are discussed in other sections of this Report. However, it is difficult to entirely separate the various components of the original recommendations, and the observations contained in this section touch upon themes beyond those strictly confined to 1999 Sections I and II. As a result, this section of the Report will occasionally comment on areas such as documentation or market practices as they relate to its stated objectives, while recognizing that they will be analyzed more comprehensively in other sections.

The views, observations and recommendations contained in this document primarily reflect the input of CRMPG II members, although publications that discuss topics related to CRMPG I recommendation groups I and II have also been reviewed. These have included the Deloitte & Touche *2004 Global Risk Management Survey* and the IMF's *Hedge Fund Industry Survey*. In general, the findings contained in those surveys were in line with the observations and views of the Policy Group.

B. General Observations

Among large financial institutions, the overall level of consistency in practice with Sections I and II of the original CRMPG recommendations is high. However, while firms have generally reported that they are in compliance with the key recommendations, the path to implementation has varied considerably. Some firms used the recommendations as a key "road map" to optimally manage credit risk and created cross divisional teams to implement changes to processes, analytical tools and reporting systems. Other firms report that they continued normal development of their credit risk infrastructure without a rigorous process to track progress against

the recommendations. Regardless of the path to implementation, the majority of firms report that the CRMPG recommendations provide a useful framework in which to discuss "best practice" policies with management, auditors and regulators.

Of the original recommendations discussed in this paper, progress has been most significant in the areas of exposure calculations (including the use of more advanced potential exposure and stress testing models) and in providing more comprehensive management reporting. In contrast, progress has been slowest in the areas of identifying crowded trades in the market and calculation of liquidity-adjusted risk metrics. Furthermore, there are numerous areas where, while progress has been made, firms could usefully recommit themselves to best practices as set out in the original recommendations where they remain relevant.

Assessing the relevance of the recommendations first requires a reflection on changes in market structure and participant practices since 1999. CRMPG II believes that there have been substantial developments, both positive (in terms of aggregate risk) and negative.

Among the many positive developments is a greater focus on liquidity-based adjustments to close-out values and on the interaction of asset liquidity and funding liquidity.[2] This has reduced firms' sometimes excessively optimistic assumption of high and stable liquidity as incorporated into their calculations of mark-to-market exposures and the value of applicable collateral, and it may be contributing to a reduction in overall levels of risk in the system. Additionally, financial intermediaries have embraced portfolio margining regimes that allow for a better understanding of the underlying risk positions and provide incentives for clients to maintain balanced portfolios with each dealer.

However, market developments have also introduced new risks, including risks having potential systemic implications. For example, while risk mitigation infrastructure across the industry has unquestionably improved, recent evolution in the financial markets has challenged even the best firms to continue to adapt their

[2] Asset liquidity signifies market capacity to sell or hedge a financial instrument or portfolio. It can be assessed by observing the size of the bid/offer spread and by analyzing the volume of transactions that can be completed in a given timeframe without a material impact on price. Funding liquidity is the ability to maintain financing for a financial instrument or portfolio. It can be assessed by relating the stressed holding period for an investment — which could be equal to the time to its final maturity — to the term of credit and equity available to finance that investment. The greater the liquidation horizon for an asset or portfolio, the greater the need for extended financing of such asset or portfolio.

risk systems at a sufficient pace. Among the noteworthy developments are the following:

- The market shift from a more qualitative and fundamental investment approach to a more quantitative, technical, model-driven approach has contributed to significantly higher overall trading volumes and shorter reaction periods, and has in turn contributed to the proliferation of new products, including CDS and numerous varieties of complex products.

- The design of these products allows risks to be divided and dispersed among counterparties in new ways, often with embedded leverage. Transparency as to where and in what form risks are being distributed among industry participants may be lost, as risks are fragmented and dispersed more widely.

- Associated hedging activities, especially with respect to the structured CDS market, tend to amplify liquidity measures.

Collectively, these developments challenge the credit risk model assumptions that are incorporated in stress-test and VaR models by potentially changing the liquidity and correlation characteristics of markets. To a credit analyst, they also increase the complexity of measuring and analyzing the directionality and magnitude of a client's trading portfolio. To compensate, credit analysis techniques must evolve to allow analysts to "look through" a portfolio of assets to identify the key factors that determine risk, irrespective of the form of the financial instrument.

Operational risks have also increased due to substantial growth in volume and complexity of transactions. As a component of this, one would include the increased reliance on, and concentration in, hedge fund administrators.

Taken together, these market developments require risk management policies and procedures that go beyond the scope of the CRMPG I recommendations. The following sections attempt to address these issues and discuss the original 1999 recommendations, their relevance in the current market and recommended additions and enhancements.

C. Improving Transparency and Counterparty Credit Assessments

CRMPG I Recommendation 1: Information Sharing

1a. Financial Intermediaries should perform robust credit evaluations of trading counterparties prior to engaging in dealings likely to entail significant credit exposure. In doing so, they should obtain and evaluate various types of information from counterparties, particularly those whose creditworthiness depends heavily upon the performance of a leveraged portfolio of financial assets.

1b. The scope, quality and timeliness of information availability should be an important ongoing consideration in determining the amount and terms of credit to be provided.

The level of information disclosure on individual counterparties has generally improved in the post-1999 period. This reflects a mutual recognition, by credit providers and clients, of the benefits of an improved understanding of risk positions, risk appetite, available mitigants and other determinants of credit risk. In particular, hedge funds have become more aware of the necessity to provide qualitative and quantitative data to counterparties and to assist the counterparties in interpreting this data. For example, there is an increased willingness on the part of hedge funds to facilitate due diligence, including making available senior fund managers and other key operating and strategic personnel. Some participants (typically from the larger funds) have even established units with the sole or primary purpose of communicating with credit providers. However, this is not to imply that there is consensus on this issue across the industry — due to practical limitations imposed by confidentiality and competitive considerations, there remains considerable variability across counterparties, with some of them continuing to be reluctant to share meaningful portfolio information.

Hedge funds' ability to generate credit-relevant information (e.g., VaR and stress-tested exposures) has generally improved. In part this is due to an increasing focus on risk-related metrics on the part of the fund managers themselves, who use such information for their own risk management or in their interaction with investors and other constituents. In addition, responsibility for the preparation of an expanding range of data is being outsourced to external providers, resulting in enhanced calculation capabilities. This latter trend, however, gives rise to service provider-related concentration risk and a need for explicit discussion of the capabilities of the administrator and other infrastructure providers as part of the due diligence process.

In order to fully understand the positions of hedge funds in particular, credit providers would ideally obtain comprehensive position details, including physical and derivatives positions held by each credit provider. However, it is rare to be able to obtain this position information from a hedge fund, even when a financial institution is serving as its prime broker. Therefore, there remains a high degree of reliance on risk measures provided by the counterparties themselves, which can be very difficult to compare across entities and which can be of uneven sophistication and quality.

1. Recommendation (Category I)

Where market participants lack sufficient relevant information prior to making a credit decision, CRMPG II recommends that they seek entity-level portfolio and other data from counterparties on a private and confidential basis, to the extent such information is needed to accurately assess credit quality. CRMPG II further recommends that market participants attempt to periodically review the risk metrics, stress test methodologies, behavioral characteristics of models and other analytics used by their counterparties' risk managers in assessing the entity's overall risk profile; that they assess both the quality of the processes and systems that generate the counterparties' data, as well as the details of the associated market scenarios; and that they run their own sensitivities on the institution-specific portfolio, when required. Where appropriate, additional information should be requested from counterparties based on the results of running these sensitivities. As part of the due diligence process, CRMPG II recommends that credit providers also obtain disclosure of contingencies that may have a material impact on the credit quality of the counterparty (e.g., increases in collateral requirements due to rating triggers, etc.). The scope of requests for information may depend on the quality and availability of data on a given counterparty in the public domain, as well as the size and nature of exposure. Where satisfactory information is not available, market participants should adjust their credit parameters accordingly.

When determining how much information to provide on a confidential basis to their counterparties, market participants should recognize that provision of relevant credit data increases the level of the counterparties' comfort and improves the likelihood that access to credit will remain during periods of systemic and institutional stress. CRMPG II recommends that credit users and OTC market participants seek a proper balance between preserving proprietary information and providing information that will enable their counterparties to gain an appropriate level of understanding of their management, investment process and philosophy and material risks.

CRMPG I Recommendation 2: Confidentiality

2a. FIs should have internal written policies and procedures in place governing the use of and access to proprietary information provided to them by trading counterparties as a basis for credit evaluations.

2b. To encourage the flow of adequate proprietary information, FIs should be prepared to reach understandings with their counterparties regarding the use of counterparty proprietary information and on safeguards against its unauthorized use.

Maintaining confidentiality of information remains an important consideration for market participants. The challenges of managing client information have increased as the range of contacts between financial intermediaries and their counterparties (including, for example, prime brokers, derivatives trading counterparties and investors, etc.) have proliferated. Practices in the industry have generally improved, and there appears to be a high level of comfort among clients that financial intermediaries have implemented and are enforcing appropriate policies with regard to client information.

Notwithstanding this general comfort, however, counterparties on occasion propose individual confidentiality agreements, either as part of the ISDA documentation or through separate agreements. Such customized documentation can introduce legal and operational risks, as difficulties in reliably tracking individual provisions in confidentiality agreements may lead to inadvertent breaches.

2. Recommendation (Category I & II)

CRMPG II recommends that trade associations, such as the Global Documentation Steering Committee, continue efforts to attract widespread acceptance of documentation standards for the treatment of confidential information. Individual firms should also continue to independently develop and refine their internal policies and procedures for managing sensitive client data and endeavor to address confidentiality issues raised by counterparties by disclosing and following such policies and procedures with regard to confidential materials. CRMPG II further recommends that firms evaluate and understand the operational risks associated with customized legal documents that deviate from the firm's existing procedures for the handling of confidential counterparty information and take such risks into account when considering such agreements.

CRMPG I Recommendation 3: Leverage, Market Risk and Liquidity

3 FIs should deepen and strengthen the ongoing monitoring of their own risk and the risk posed by their large trading counterparties by utilizing an integrated framework for evaluating the linkages between leverage, liquidity and market risk. Specifically:

3a FIs and large trading counterparties should manage the risk arising from their use of leverage by considering, among other factors, the magnifying and interconnected effects of leverage, under normal and stress conditions, on their (i) market risk, (ii) funding arrangements and collateral requirements, and (iii) asset liquidity risk. They should also evaluate factors that may mitigate the effects of leverage.

3b FIs and large trading counterparties should prepare regular, comprehensive estimates of their market risk, applied systematically across their trading portfolios. They should be prepared to share with key credit providers, as appropriate, information on the methodologies employed and periodic updates on the level of their market risk.

3c FIs and large trading counterparties should conduct regular and rigorous assessments of their funding and asset liquidity risk that take into account: (i) duration, stability and breadth of their funding, (ii) degree of reliance on collateral, (iii) strength and permanence of their capital, and (iv) potential for market losses under stress conditions including the additional impact of partial asset liquidation. They should be prepared to share with key credit providers information on their liquidity risk assessment methods, periodic updates of summary results and key elements of their contingency funding plans.

The vivid manifestation of the interrelationship between leverage, market risk and liquidity provided an enduring lesson of the LTCM crisis. Among others, the concept of "crowded trades" entered the lexicon as one of the most significant risks to be identified and mitigated. For the purposes of this analysis, a crowded trade is defined as multiple parties entering into correlated trading strategies across one or more markets, where the aggregate volume of trades in the market(s) is sufficient to constrain the ability of traders to exit from the position on a simultaneous basis without significantly impacting prevailing prices. Further, until traders seek to unwind positions, crowded trades are often characterized by a dampening of volatilities and an increase in perceived liquidity measures, leading to misleadingly low risk calculations in conventional VaR (including liquidity-adjusted VaR) and other risk models. A final characteristic of crowded trades is that, as spreads narrow, traders

have a greater economic incentive to increase leverage levels in order to achieve comparable returns.

The post-1999 period has been characterized by increased awareness among market participants of the need to manage liquidity and close-out issues. This is especially true with regard to collateralized transactions, where the preservation of liquidity under stressed conditions has become of paramount concern. This, in turn, has lead to wider acceptance of term funding arrangements, fixed haircuts, bilateral mark-to-market arrangements and other provisions which have the effect of shifting liquidity risk away from clients to dealers, adding complexity to collateral structures and increasing the amount of leverage that some counterparties may feel it appropriate to incur.

Further, collateral arrangements relying on portfolio metrics, such as stress analyses or VaR, are not uniform across institutions and have generally not been tested in turbulent markets. The correlations, volatilities, liquidity and other position characteristics that will actually materialize in stressed periods are therefore uncertain and subject to ongoing change.

The more complex products and structures referenced above further complicate the assessment of portfolio characteristics. For example, the ability to isolate and transfer risks to market participants willing to hold them, which is facilitated by the multiple varieties of complex products now available, has made it difficult for dealers to understand and measure the relationship between different transactions, i.e., to link a portfolio of complex transactions together in a way that will give meaningful risk data. Therefore, firms must continue to invest in systems that enable them to isolate the risks embedded in complex transactions and to aggregate them in a meaningful way across single and multiple counterparties.

Finally, it is worth noting that despite the attention paid to managing crowded trades, relatively little new information is available to market participants to assist them in identifying such trades; accordingly they remain difficult to detect, measure and analyze. Therefore, while firms need to continue to incorporate liquidity considerations into their risk measures, a lack of knowledge about crowded trades makes it difficult to accurately or with certainty estimate a liquidity stress.

3. Recommendation (Category I)

CRMPG II recommends that market participants continue to work to improve their understanding of their own portfolios, and to identify portfolio concentrations to a security or a market factor. Credit and market systems should be enhanced to better approximate directionalities across clients and products by risk factor. Credit systems should isolate the key risk factors that drive exposures, including exposures arising from complex transactions, and ensure that risk metrics fully reflect the impact on performance, based on movement of the underlying factors. Those key risk factors should be aggregated across the portfolio to assess the degree to which concentrations exist. This information is useful in assessing the credit quality of counterparties, in addition to providing some insight into crowded trades.

D. Improving Risk Measurement, Management and Reporting

CRMPG I Recommendations 5 and 6:
Counterparty Exposure and Risk Estimation;
Market and Credit Risk Stress Testing

5a When exposures to a counterparty are large or illiquid, the information provided by current mark-to-market replacement value should be supplemented by an estimate of liquidation-based replacement value. Such an estimate should incorporate:

- *The potential for adverse price movement during the period until liquidation value of the contracts with the counterparty is set and value from the counterparty collateral can be realized; and*
- *The liquidity characteristics of the contracts and collateral involved under both normal and stressed market conditions.*

5b FIs should upgrade their ability to monitor and, as appropriate, set limits for various exposure measures including: current replacement cost, current net of collateral exposure, current liquidation exposure, and potential exposure.

6a When measuring exposure to stress events, FIs should estimate both market and credit risks. Tests should assess:

- *Concentration risk both to a single counterpart and to groups of counterparties;*
- *Correlation risk among both market risk factors and credit risk factors; and*
- *Risk that liquidating positions could move the market.*

6b Risk managers should work with trading and credit book managers to develop stress scenarios that probe for vulnerabilities within and across key portfolios, with particular analytical focus on the impact of stress events on large or relatively illiquid sources of risks.

In general, firms have invested heavily in credit systems since 1999 and accordingly have significantly enhanced their ability to measure credit exposures through potential exposure and alternative metrics. Typically, this includes substantial progress in implementing stress testing, scenario analysis and other risk analytics. However, in most cases considerable work remains necessary to enable calculation of correlated potential exposures, accurate reflections of netting and collateral enforceability and other components of a fully developed credit exposure system. Furthermore, the continued development of more complex products may result in credit systems that are perpetually "behind the curve" in terms of keeping up with the business units, leading to a persistent level of un-modeled or imprecisely modeled trades with consequent deficiencies in exposure reporting. Another concern is the

reliance of these models on underlying assumptions and inputs, including market risk factors, which are susceptible to underestimating risk during apparently benign market conditions, as discussed above.

Finally, in circumstances where similar risk management models are used across institutions, pro-cyclical systemic issues can ensue when multiple counterparties react to a market shock in a similar manner.

4. Guiding Principle (Category I)

Investment in risk management systems should continue to be a high priority and will almost certainly require greater resources in the future. Full testing and validation prior to use is essential, keeping in mind that model verification should be performed independently of the business units. Market participants should avoid over-reliance on any one model or metric when analyzing risk; rather, a portfolio of analytics including stress tests, scenario analysis and expert judgment should be employed. Special attention should be paid to the assumptions underlying these models and on understanding the impact on the results if inputs and assumptions turn out to be incorrect. The resiliency and reliability of such models should be regularly reviewed through independent periodic verification of both pricing and risk models, given that the former often provide multiple inputs for the latter.

CRMPG I Recommendation 7: Credit Practices

7a Recognizing the need for individual counterparty creditworthiness assessments, FIs should, as a general practice, require initial collateral for credit intensive transactions with counterparties whose creditworthiness depends heavily upon the performance of leveraged portfolios of financial assets.

7b When initial collateral is called for, the amount may be set on a transaction or portfolio basis and should take into account the factors used to develop estimates of liquidation-based replacement values.

7c Especially when initial collateral is not called for, the credit decision should reflect explicit risk tolerance limits for the size of potential liquidation (close-out) costs.

7d In cases where documentation specifies a threshold level of exposure that triggers an obligation to transfer collateral, limits on unsecured exposure should reflect updated estimates of liquidation costs and not just current mark-to-market values.

7e In cases where FIs participate in two-way variation collateral arrangements, estimates of liquidation costs and related credit limits should take account of the buy-in costs of collateral pledged.

While financial intermediaries continue to request initial margin for most leveraged counterparties, not all clients post initial margin for all of their transactions. Furthermore, in situations where initial margin is obtained, margin terms have generally tended to become more competitive, as the industry is moving toward extending credit based on VaR- or stress test-based margining in certain cases. Market participants have also proved willing to agree to cross-product or even cross-entity collateral techniques, thereby giving counterparties the benefit of a wider range of potential trade offsets. These practices, while conceptually logical, almost invariably result in counterparties posting less margin than would be required under alternative formulations. They may also expose the credit provider to a higher level of operational and legal risk, particularly where the operational systems lag in their ability to handle complex margin arrangements on an automated and reliable basis. However, the very high operational demands of complex trade-level margining are one of the factors driving expanded use of portfolio-level collateral arrangements, which, together with other considerations discussed below, offer potentially significant risk-reducing aspects as well. It is incumbent on each counterparty to

understand where it is taking risks associated with more sophisticated collateral mechanisms and to manage these risks appropriately.

An advantage of portfolio margining processes is that they provide an incentive for credit takers to execute arbitrage or other fully or partially offsetting positions with a single counterparty. CRMPG II has observed greater sensitivity by counterparties to having balanced portfolios and cross-product arrangements with dealers, with the objective of reducing amounts of collateral that would have to flow in a distressed scenario (the "traffic cop problem"). Fund managers are also increasingly focused on managing risk and structuring portfolios to prevent being "held hostage" by margin flows. The more sophisticated leveraged institutions undertake active portfolio risk management with each of their financial institution counterparties, a process which tends to result in lower credit and liquidity risk.

These sophisticated margin terms, however, also provide the potential for counterparties to increase leverage. Therefore, an added level of due diligence is required on the part of the market participants to ensure that their counterparties are not mismanaging the incremental liquidity provided in these arrangements.

Despite some relaxation of initial margin levels and the growth of complex margining methodologies, CRMPG II would not conclude that financial risk among leveraged counterparties has at present reached excessive levels. In fact, leverage among hedge funds appears to be relatively modest, although this conclusion must be tempered by the observation that the lack of transparency inherent in more sophisticated products makes a definitive conclusion problematic. However, collateral standards based on insufficient information or inappropriate risk evaluation clearly pose the potential for leverage to reach levels that could increase systemic risk.

Another consequence of the focus being given to the management of liquidity risk by leveraged institutions arises through the increasing requests for term commitments and fixed haircuts for margin financing. While this represents an understandable attempt on the part of leveraged institutions to avoid being subject to rapid changes in collateral requirements, it also has the effect of shifting the liquidity burden onto the credit provider, as well as reducing their credit cushion.

5a. Recommendation (Category I)

CRMPG II recommends that collateral be used as a tool to address material differences in transparency and credit quality of counterparties, as well as to reflect asymmetry of exposure profiles. Credit terms, including margin arrangements, should be established at levels that are likely to be sustainable over time. The Policy Group believes that initial margin is an important credit risk mitigant and that the establishment of prudent initial margin requirements at the commencement of a trading relationship can play an important role in promoting financial stability during periods of stress. In addition, CRMPG II recommends that market participants continually review their collateral policies, practices and systems, and where necessary formulate remediation plans.

The development of model-based portfolio margining programs is useful in mitigating counterparty risk by relating the amount of initial margin to the underlying risks. However, because the amounts of required margin may increase with changes in volatility, users should fully analyze the liquidity and risk management impact of potential margin requirements during times of market stress.

5b. Recommendation (Category I)

CRMPG II recommends that financial institutions be alert to the potential for overall leverage in the system to increase (arising from a liberalization of credit terms, increased utilization of credit facilities under pre-existing terms or the development of new structures that facilitate the taking of leveraged positions in new forms); that financial institutions carefully monitor their resulting actual and potential credit exposures; and that, in determining what actions are appropriate, they take into consideration both individual counterparty and sectoral risk issues. CRMPG II recommends that financial institutions understand how counterparties analyze their own funding liquidity and leverage levels, and consider whether collateral levels are appropriate relative to funding flexibility.

5c. Recommendation (Category I)

CRMPG II recommends that financial institutions ensure that their risk measures and analyses comprehensively capture a full range of actual and contingent exposures, such as committed funding arrangements. As further discussed in Section IV, market participants should ensure that netting and collateral enforceability are appropriately reflected in risk measures. Dealers should also make certain that in the context of term commitments and similar arrangements, their credit policies appropriately reflect the creditworthiness of the counterparty. These commitments, as well as collateral policies and practices, should be reported periodically to senior management.

CRMPG I Recommendation 8: Valuation and Exposure Management

8a FIs should establish internal counterparty credit risk cost allocation and valuation practices that provide incentives for trading business and credit risk managers to manage proactively their counterparty credit risks. This could include methods for recognizing the cost of credit risk in internal risk or capital charges, proactive adjustments to limits, as well as tools for periodically evaluating the adequacy of credit valuation adjustments to asset carrying values.

8b Both FIs and large trading counterparties should develop and apply strong, consistent independent price verification procedures. These procedures should include fair value adjustments to mid-market values which should be assessed dynamically and consistently to account for:

- *Open risks that are marked to either the bid or offer side of the market;*
- *Illiquidity characteristics of complex instruments or positions;*
- *Credit valuation adjustments to address credit quality, generic credit market spreads and any substantial specific repayment concerns;*
- *Operational and model risks associated with complex or large positions; and*
- *Servicing costs associated with the ongoing hedging of transactions.*

While significant progress has been made across financial institutions on credit valuation, sophisticated pricing of credit risk is not universal across dealer firms.

6. Recommendation (Category I)

CRMPG II recommends that financial institutions implement robust credit pricing models, as recommended by CRMPG I, and measure and report returns adjusted for credit costs. Firms should expand their models to incorporate the risk of counterparty default and portfolio volatility and carefully evaluate the correlation of exposures to the likelihood of counterparty failure. The impact of collateral should be considered, such that increases in collateral reduce expected counterparty loss and therefore the implied credit cost.

CRMPG I Recommendations 9-12: Management Reporting

9 *Senior management should convey clearly information on its overall tolerance for risks, including loss potential in adverse markets. This type of information should also be conveyed to the firm's Board of Directors, as appropriate. The independent risk management function should be responsible for designing a flexible reporting framework to enable senior management to monitor its risk profile relative to its expressed risk tolerance.*

10 *Senior management should receive periodic information on large counterparty exposures/risks. These reports should meet the following standards:*

- *Aggregate exposure to a counterparty should include all material on- and off-balance sheet exposures relating to such counterparty.*
- *Exposures should be measured under conservative assumptions as to the efficacy of netting and collateral arrangements.*
- *Position replacement cost and collateral values should be measured both at market and estimated liquidation value.*
- *Potential exposure measures should be robust and appropriately reflect risk reduction and risk mitigation arrangements.*
- *Quantitative and qualitative analysis should be used to identify counterparties for which large moves in specific market risk factors would result in large exposure levels, a material deterioration in credit quality or both.*

11 *Senior management information should highlight possible concentrations of market and credit risk resulting from positive correlation among the firm's own principal positions, counterparties' positions with the firm and collateral received or posted. In preparing such reports, due regard should be given to understandings reached with counterparties on access to and uses of counterparty proprietary information.*

12 *Senior management should periodically receive contextual information sufficient to assess the degree of reliance placed on quantitative risk management information, to highlight key judgments and assumptions involved in developing the quantitative risk information, and to shed additional light on a firm's overall risk profile.*

CRMPG I recommendations on management reporting remain as valid and appropriate now as they were in 1999. In general, as a result of internal initiatives and external mandates (including Sarbanes-Oxley, aspirations for more efficient regulatory capital treatment and other motivations), senior management oversight of

risk incurrence and mitigation has increased meaningfully. For example, in its 2004 survey, Deloitte & Touche noted an increased involvement of the Board in risk oversight at financial institutions. In consequence, risk reporting has become meaningfully more detailed, robust and frequent. The survey observed an increase in the proportion of participants with a Chief Risk Officer or equivalent; in addition, of those institutions with CROs, 75% indicated that the CRO reported directly to the CEO, the Board or a Board-level risk management committee. This senior-level reporting corresponds with the Policy Group's own observations.

The sophistication of reporting to senior management has increased as well, with exposure reporting across counterparties, including industry and risk factor aggregations, more commonly incorporated. In addition, there is more frequent reporting of metrics such as VaR, liquidity-adjusted VaR and stress tests / scenario analysis, which provide greater insight into both the magnitude and the directionality of credit exposures. Scenarios describe unusual or difficult market environments, often associated with a plausible but unexpected geopolitical event or macroeconomic shock, while stress tests provide quantification, through identification of changes in risk factors that would be associated with a scenario, of the impact on values of portfolios. While progress has been made, the scope, content and quality of reporting to senior management varies significantly across financial institutions and is not necessarily sufficient even among the most advanced. For example, certain measures, including VaR and potential exposure, remain difficult to aggregate across counterparties on a meaningful (such as correlation-adjusted) basis. Moreover, because these measures are complex in nature, management must be made aware and reminded of their limitations.

Finally, many of the most significant losses in the industry over the past four years were not credit losses per se, but rather were due to inadequate underwriting standards or similar deficiencies, which would escape conventional current, potential or other risk measures.

7. Guiding Principle (Category I)

The sophistication of stress tests, scenario analyses and liquidity-adjusted metrics as alternative and sometimes more appropriate measures for credit exposures should continue to be enhanced, and the exposure information that they contain should be carefully and regularly considered by risk practitioners and senior management, with additional elevation of stress test findings to senior management when appropriate. Whether based on historical events or hypothetical events, scenarios used for stress testing should be plausible, so as to resonate with the users and senior management. When analyzing exposure measures, institutions should consider the status and adequacy of trade-related documentation.

CRMPG I Recommendation 4: Credit Risk Analysis Skills

4 FIs should ensure an appropriate level of experience and skills in the risk managers involved in credit decisions on trading counterparties for whom this expanded information is significant and provide those managers with access to: analytical capabilities in derivatives and other financial instruments; and risk management expertise sufficient to assess the robustness of the risk management frameworks and methods employed by such counterparties.

As discussed above, increasing product complexity and the need to consider market risk, liquidity issues and a multitude of other factors have placed new and unprecedented demands on credit analysts. The need for high quality credit risk managers who are able to handle these demands has been generally recognized by financial institutions across the industry. Many institutions are also hiring professionals with quantitative backgrounds for their credit risk departments in order to assist in interpreting quantitative data and to be able to access their expertise when evaluating individual transactions and portfolios.

Generally, the dialogue between financial market participants has become more sophisticated since 1999. Financial institutions have improved their counterparty risk information systems and have continued to invest in skilled analysts. However, demand for qualified credit professionals continues to intensify (both within financial institutions as well as at hedge funds and funds of funds). At the same time, complexities in analysis, coupled with growth in the industry, put an ever increasing demand on practitioners. These factors challenge firms' ability to maintain staffing at desired levels. As a result, some leveraged institutions report concerns regarding the lack of adequate communication with their financial institution counterparties. Additionally, these firms report a lack of sophistication among some of the smaller or newer entrants in the field.

8. Guiding Principle (Category I)

Financial market participants should re-emphasize recruitment, training and retention of skilled credit analysts and market risk managers who understand their clients and the strategies clients employ, as well as the dynamics of complex portfolios under stressed circumstances. Firms should ensure adequate staffing levels, independent of the trading units, to allow credit analysts to spend sufficient time with clients in order to obtain and maintain a comprehensive understanding of their business and credit characteristics. Additionally, operations and risk management areas need to be staffed so that they can function adequately through periods of market stress.

E. Prime Brokerage

The number and size of hedge funds has grown significantly during the past five years and has been accompanied by profound growth in prime brokerage arrangements. Prime brokerage arrangements have also now been extended to include derivative and fixed income transactions that raise additional considerations for market participants. The use of prime brokers by hedge funds and other substantial end users often includes the involvement of multiple dealer legal entities for transactional booking purposes, and in some cases reliance on multiple prime brokers. In this respect, although prime brokerage arrangements are designed to consolidate reporting and credit exposure, in fact in many cases the exposure is distributed to numerous transactional entities and prime brokers.

For purposes of this document, prime brokerage refers to a common arrangement for facilitating the execution, clearance and settlement of transactions entered into by active market participants, typically hedge funds. In a prime brokerage relationship, a customer may execute transactions with different executing dealers and have those transactions cleared by single or multiple prime brokers. Prime brokerage permits the customer to use the prime broker as a clearing facility for all of the customer's transactions, wherever executed, as well as a central custodian for the customer's positions and collateral.

The prime brokerage relationship with a hedge fund is often only part of the overall relationship with the fund or family of funds. The totality of the relationship with the fund may include numerous additional transactional and advisory involvements outside of the prime brokerage activity. The competitive pressure to secure relationships with hedge funds, including newly established funds, may lead, if not prudently managed, to an erosion of the credit standards and protections applied to this new business. It is essential that institutions on both sides of these arrangements fully understand and consider the terms that govern such credit relationships from a credit, risk and funding/treasury perspective.

Prime brokerage arrangements are documented with a variety of industry standard master agreements. Historically, in connection with equity prime brokerage arrangements, participants relied on a combination of a customer margin agreement and regulatory pronouncements, including disaffirmance rights on the part of the prime broker. As fixed income and derivative transactions have increasingly become

the subject of prime brokerage arrangements, participants must also rely on industry standard master trading agreements for these products. This has resulted in the following two additional concerns.

The diversification of these relationships to a broader product mix results in a series of documents that may themselves have different key commercial terms. Differences in terms, including events of default and cure periods, create anomalies between and among these transactions. This is further exacerbated in instances in which the transactions have been entered into in consideration of each other. These concerns also arise in direct trading with clients. Participants in the prime brokerage market should examine the analyses and policies developed with respect to derivatives documentation and netting generally, as many of these analyses and policies will be applicable to prime brokerage relationships.

Today's prime brokerage arrangements may have their roots in historic "give-up" agreements that have been used for decades in the futures and cash securities markets to document tri-party transactions involving an executing broker, a clearing broker and a customer. These agreements allow clients to effect transactions with multiple executing brokers, dealers or futures commission merchants, who then "give up" or transfer the transactions to one or more prime brokers for clearing and settlement. The purpose of these arrangements is both to permit clients to enhance liquidity by diversifying their "source of supply" to prevent market awareness of sizeable position-taking, and to maximize pricing and execution of these positions. These arrangements have generally been effective in accomplishing client goals without undue disputes or uncertainty because the transactions involved are relatively simple and standardized from a settlement perspective due to the spot nature of cash securities and the exchange margin and settlement rules in the case of listed derivatives.

In the early 1990s, a similar practice developed in the foreign exchange markets, under which a prime brokerage client would execute spot transactions with an executing dealer who would "give up" the transactions to a prime broker. This resulted in separate transactions between the executing dealer and the prime broker on the one hand, and equal and opposite transactions between the prime broker and the prime brokerage client on the other. This practice, as it extended to forward and option transactions involving foreign exchange, could introduce an element of market and credit risk to the executing dealer, which in theory is mitigated by the often

greater credit quality of the prime broker as compared to that of its client. However, executing dealers can address these risks by adopting internal controls and negotiating appropriate give-up agreements so that, at the time a trade is executed, the dealer should expect that the prime broker is legally obligated to accept it because the trade is within the parameters specified by the prime broker. If it uses this approach, the executing dealer should avoid or minimize a period of uncertainty as to whether or not the counterparty to the transaction will be the prime broker or the client. The allocation of these risks is typically subject to a detailed negotiation that sometimes involves compromises between the parties with respect to different periods of time in the transaction life cycle. Nonetheless, foreign exchange prime brokerage is now a widespread practice, which industry groups, including the Financial Markets Lawyers Group, have sought to standardize by means of a standardized give-up agreement. This agreement does, however, leave several risk allocation decisions to be elected and, accordingly, negotiated on a case-by-case basis.

More recently, prime brokers have sought to extend this service to other derivative transactions, specifically credit default swaps and, to a somewhat lesser extent, interest rate, currency and equity swap transactions. These transactions are often far less standardized than foreign exchange transactions and the uncertainty and risk of non-acceptance described above can be correspondingly more acute if not managed appropriately by the parties. The marketplace continues to struggle with successful reconciliation of these issues, and ISDA has launched a project to standardize give-up agreements across the range of derivative products. Certainly, as give-up arrangements involve increasingly complex products, prime brokers also need to consider issues that arise in relation to internal trading restrictions on specific underlying securities and issuers, and potentially to emerging responsibilities with respect to the scope and character of client trading activity.

An approach that has been successfully implemented by a number of large institutions and may be gaining widespread acceptance involves the upfront agreement between the executing dealer and the prime broker on all material credit terms under which transactions will be accepted by the prime broker. These terms often include permissible transaction types, trading and settlement limits and trade acceptance procedures. Under this approach, the executing dealer and the prime broker are each responsible for monitoring their own compliance with agreed-to terms. The executing dealer, by ensuring that all transactions it executes are

allowable and that it follows all agreed-to procedures, should expect that the transactions will be binding upon the prime broker. The internal control procedures incorporated into this approach meaningfully define the expectations of the executing dealer and prime broker and should be encouraged and strengthened. Although this approach has been implemented by some, other institutions do not have the operational capability to monitor and track transactions executed pursuant to prime brokerage arrangements. These institutions should consider developing or purchasing operational tools to monitor and control this aspect of their trading activity. In addition, as with all dealers and prime brokers, institutions should understand the applicable contractual terms and standards that govern the relationship between the executing dealer and the prime broker.

9. Recommendation (Category I & II)

The volume of prime brokerage business continues to grow substantially. While properly executed prime brokerage activities have the potential to reduce overall systemic risk, they are also subject to a variety of legal, operational, credit and other risk challenges. To mitigate those issues, CRMPG II recommends that significant industry participants intensify industry-sponsored efforts to define the important relationships among hedge funds and other customers, executing dealers and prime brokers across all product areas and business lines. In addition, each participant in the prime brokerage market, whether executing dealer, client or prime broker, should on an ongoing basis maintain a full and clear understanding of the risks (e.g., credit, market, contractual and operational) that it incurs in this market, its internal controls and its contractual relationships, taking into account the credit, market and operational factors that can arise in these three-way arrangements. As a component of this Recommendation, prime brokers should ascribe a high priority to actively monitoring the credit quality of each of their counterparties, including conducting regular due diligence calls and/or meetings.

Participants should consider the development of cross-product prime brokerage and netting agreements that would comprehensively address credit, commercial and risk issues. Such agreements could incorporate by reference each underlying master trading agreement that may have been entered into, and serve to harmonize disparate credit and other material commercial terms such as events of default, cure periods and close-out procedures.

As derivative prime brokerage products develop further, market participants should continue to work with industry groups to standardize terms and agreements that govern give-up arrangements. Participants need to ensure that they have the operational capability to monitor and track transactions executed pursuant to those arrangements. The magnitude of current and prospective prime brokerage trading volume is such that systems and processes must be automated further through solutions like straight through processing.

F. Conclusion

The comprehensive nature of the CRMPG I recommendations leads us to conclude that they remain highly relevant six years after the publication of the document. In the case of the majority of recommendations, industry participants have broadly accepted and implemented the recommendations. However, this is not universally the case, and CRMPG II recommends that each financial institution revisit the extent to which its current practices are consistent with the original recommendations, in order to identify deficiencies and develop remediation plans where necessary. Further, due to changes that have occurred in the markets since 1999, it is the Policy Group's view that market participants need to continue to enhance their processes and analytical tools and otherwise strengthen risk management practices, in order to maintain pace with a business environment that is increasing in complexity. In the Policy Group's view, such continued enhancements in the understanding and management of risk by market participants will play an important role in reducing systemic risk and enhancing the efficiency of the market.

SECTION IV: FINANCIAL INFRASTRUCTURE — DOCUMENTATION AND RELATED POLICIES AND PRACTICES

In this section, the Policy Group provides a review of the recommendations made in Section III of the 1999 CRMPG I report, and includes updates and new Recommendations and Guiding Principles as necessary. Section III of the 1999 report, entitled "Improving Market Practices and Conventions," focused on three broad areas: improvements in documentation policies and practices, with a special emphasis on timelines; improvements in documentation content, with special attention to close-out and valuation issues and the basis risk arising from inconsistencies in standard forms of industry documentation; and improvements in collateral management practices. The recommendations shared two common goals: to improve a creditor's ability to deal with failing counterparties in a timely manner, and to enhance the market's ability to contain the risks of failures of large, leveraged participants.

The 1999 report led to the establishment of the Global Documentation Steering Committee, whose mission is to implement the documentation-related recommendations contained in Section III. In particular, the GDSC's objective is to carry out the CRMPG's 1999 mandate by minimizing "documentation basis risk" — the risk that market, credit and legal risk will be exacerbated by disparities in documentation — in the over-the-counter markets.

Much progress has been made since 1999, but much remains to be done.

First, a suite of robust, contractual tools to reduce documentation basis risk has been developed. These tools include recommendations made by the GDSC as part of its documentation harmonization efforts, the development of the Bond Market Association's Cross-product Master Agreements and the publication of the 2002 ISDA Master Agreement and the 2001 ISDA Bridge Agreement. Although these contractual tools were developed with broad participation of various market segments, their utilization has so far been limited. Thus, their effectiveness may be dulled by lack of usage.

Second, rules governing the calculation of regulatory capital as well as accounting principles have a significant impact on the financial markets, and should be crafted to encourage the use of risk-mitigating tools such as cross-product and cross-affiliate netting agreements. These include the rules of the Basel Committee on Banking

Supervision and related national supervisory rules relating to the calculation of regulatory capital, US margin rules relating to regulated broker-dealers and US and international accounting practices.

Third, the integration of trading, reporting and control functions, known as "straight through processing," promises a multitude of systemic benefits for the financial sector. These benefits include the reduction of counterparty risk through transaction affirmation, confirmation matching, more timely and accurate risk assessment of trading information, greater control of the trading process itself, enhanced collateralization techniques and a potential decrease in regulatory capital charges as these improvements demonstrate their risk reduction capabilities. The emergence of electronic trading and confirmation matching and generation platforms, ISDA's development of FpML (an electronic information transfer protocol for the over-the-counter derivatives market) and the availability of services such as those offered by the Fixed Income Clearing Corporation for the repo market present a compelling opportunity to move the industry closer to straight through processing. These technological innovations, coupled with set-off rights across affiliates of a non-defaulting party and expanded acceptance of netting for regulatory capital purposes, would have a potentially significant impact on the industry. In sum, straight through processing would provide major advantages in each risk category addressed in this paper. Accordingly, implementation of straight through processing must be an industry priority going forward.

At the Policy Group's request and on its behalf, the GDSC has taken the lead in compiling this update and providing any new or revised Recommendations or Guiding Principles. Set forth below is the Policy Group's discussion of post-1999 developments and its recommendations for future market practices. Discussion of credit derivatives, which have gained in significance since 1999, has been added as a separate section. As a general matter, to the extent that standard industry documentation is updated to facilitate market efficiency and reduce documentation basis risk, market participants are encouraged to adopt such new standards in existing as well as prospective agreements with counterparties.

A. Documentation Policies and Practices

1999 Recommendation #13

FI's should have in place written policies to manage documentation risk. Such policies should be approved by senior management and reflect the nature and scope of their business and risk profile. Such policies should address the following factors:

- *Creation and execution of documents pertaining to privately negotiated OTC transactions, including master agreements and confirmations;*
- *Sensitivity to documentation risk factors, such as counterparty credit quality, jurisdiction and transaction complexity;*
- *Procedures for identification of principals acting through agents;*
- *Timelines for completion of master agreements and confirmations;*
- *Procedures for granting exemptions and exceptions; and*
- *Procedures for tracking backlogs and violations.*

Update

To the extent that trading occurs in advance of master agreement execution, market participants have established formal or informal policies to address such trading. These policies and procedures are typically administered by the legal, documentation, compliance or credit functions or a combination thereof. Market participants have similarly developed systems to track violations of any applicable documentation policies and backlogs of unsigned trade confirmations and other documents. The role of investment managers who trade on behalf of principals has grown significantly, and the monitoring of such arrangements has accordingly become more refined. Tools which are used in assessing counterparty and jurisdictional risk include internal data bases and products such as Netalytics and CSAnalytics, which respectively summarize ISDA's netting and collateral opinions. The importance of good documentation and robust documentation procedures is generally recognized by senior management as an effective risk mitigant and a key component of the internal oversight and control function. Since 1999, the ongoing development of internal documentation tracking and scanning systems has greatly facilitated the monitoring of documentation status and the attendant risks.

1999 recommendation affirmed, with increased emphasis on risk-based assessment of documentation risk rather than strict timelines.

1. Timeframes and Monitoring

1999 Recommendation #14a

> *FI's should adopt a goal to execute new master agreements within 90 days of a transaction and, pending such execution, utilize a "long form" confirmation that incorporates the industry standard form of master agreement.*

Update

Significant market participants have developed methods to monitor unsigned documentation and to assess the time frames required for completing master agreements, and prioritize their negotiations accordingly. To the extent that master agreements are not signed when a trade is done, trade confirmations which incorporate a form of master agreement are commonly used. In addition, in October 2004, a conference on "How to Improve Master Agreement and Related Trading Agreement Negotiations" was held at the Federal Reserve Bank of New York, which led to publication by the Global Documentation Steering Committee of *A Practitioner's Best Practice Guide*. This Best Practice Guide is intended to serve as a model for evaluating and developing master agreement negotiation procedures. These policies and initiatives are critical in view of the lengthy time frames required to finalize some master agreements.

10. Guiding Principle, Category I

Market participants should look to the GDSC publication, *How to Improve Master Agreement and Related Trading Agreement Negotiations — A Practitioner's Best Practice Guide*, for guidance in negotiating master agreements. The Best Practice Guide suggests certain time frames for completing the negotiation of master agreements, and market participants should also prioritize the negotiation of unsigned master agreements by assessing portfolio exposure; evaluating unsigned master agreements in combination with unsigned confirmations; looking to collateral, counterparty type and counterparty jurisdiction in assigning risk to unsigned master agreements and confirmations; and identifying which ongoing negotiations are with prospective versus live counterparties.

11. Recommendation, Category I

CRMPG II recommends that market participants also ensure that credit, legal and documentation departments and the relevant businesses have access to master agreements themselves and an understanding of their content, and should consider developing a process to identify agreements in need of updating.

B. Operational Efficiency and Integrity

1999 Recommendation #14b

> *FI's should send out confirmations for privately negotiated OTC transactions by the business day following the trade date and, within five business days thereafter, assure themselves that there is agreement with their counterparty on the material terms of the trade and that they have written evidence of their binding agreement. There should also be agreement at the outset of a relationship on which party will initiate the confirmation.*

Update

Confirmations are sent out as soon as possible after the trade date, and market convention as well as bilateral agreements between market participants typically establish which party will send a confirmation. While "plain vanilla" transactions are increasingly confirmed swiftly via electronic trade matching systems such as DTCC and SwapsWire and confirmation generating services such as Thunderhead, more structured transactions require significant drafting and internal review. Experience has shown that this process typically takes more than one day. As a general matter, the ISDA Operations Benchmarking Survey, available at www.isda.org, is a helpful resource in this area.

In the recent past, derivatives trading volume has grown dramatically, especially for credit derivatives. This greatly increased volume, together with internal resource limitations, prevents many confirmations from being processed, reviewed and signed promptly after the trade date, and has led to a significant industry-wide backlog of unsigned confirmations.

12. Recommendation, Category I & II

Market participants recognize the immediate need to address the backlog of unsigned confirmations on an industry-wide basis and are currently committing substantial resources to its resolution. CRMPG II recommends that, as a matter of urgency, market participants apply additional resources to this task, take part in and strongly encourage the development of electronic trade matching and confirmation generation systems and work together as well as cooperatively with trade associations to identify and implement solutions. In addition, market participants should make use of one or more of the following: using master confirmations, circulating drafts of structured confirmations pre-trade, pre-negotiating short form confirmations pre-trade, signing or initialing term sheets pre-trade and orally verifying material trade terms promptly after trade date. Moreover, individual institutions should periodically inform senior management and their primary regulator about progress being made in reducing confirmation backlogs. In extreme cases, senior management should be prepared to consider whether trading volumes need to be reduced until the backlog is normalized. CRMPG II endorses the convening of an industry-wide roundtable in the near term to focus on aggressively reducing confirmation backlogs by working toward further technological and operational enhancements, and by strengthening back-office operations.

1999 Recommendation #14c

FI's should track unexecuted masters, unsent confirmations and unaffirmed trades, develop a risk-based approach to clearing backlogs and report to senior management material deviations from internal documentation policy. Furthermore, they should develop incentives for business units and clients to correct material deficiencies in their documentation practices, which might include trading restrictions, mandatory unwinds and reserves for losses.

Update

Market participants have generally developed systems or methods to track master agreements and confirmations via a risk-based approach. As part of an internal control framework, they also typically involve senior management when material documentation deficiencies arise. Many market participants also take part in industry efforts to improve and streamline operational practices, such as ISDA's initiatives in this area. Regulatory capital guidelines which recognize the benefits of executed master agreements by providing more favorable netting and collateral treatment also provide quantitative and qualitative incentives for document execution.

13. Guiding Principle, Category I & II

In addition to the pressing tasks outlined in Recommendation 12, market participants should also engage in industry initiatives to identify and develop effective methods of monitoring and addressing backlogs and compliance with policies, use internal audit or other independent mechanisms to identify shortcomings and measure progress and foster vigorous governance and management controls.

1999 Recommendation #15

Industry participants should support efforts to introduce greater automation in the documentation process for privately negotiated OTC contracts. The Policy Group also encourages service providers to consider new opportunities that may exist in these markets, and it encourages regulators to work in cooperation with industry participants and service providers to facilitate these efforts and refrain from erecting regulatory barriers that may impede service innovations.

Update

Since 1999, the industry has placed great emphasis on automated trade processing and matching with the goal of reducing the risk of trade discrepancies as well as backlogs of unconfirmed trades, and major strides have been made. Today, at least four major service providers are focused on auto-matching of OTC derivative transactions. In alphabetical order, they are:

(a) Depository Trust Clearing Corp. (DTCC)

DTCC's DerivServ product is currently used to match default swap transactions. As of this writing, DerivServ's membership numbers one hundred as of June 30, 2005, and includes some twenty investment and commercial banks and eighty buy-side firms. Approximately a third of DerivServ members' credit derivative volume is confirmed in DTCC. Both membership numbers and the percentage of trades confirmed through DTCC are expected to increase as more participants, particularly hedge funds, join DTCC. It is also anticipated that assignments, which comprise a large part of the default swap market, may be confirmed through DerivServ in the future, and that DTCC may expand to other products such as equity derivatives. The inclusion of assignments within the scope of DerivServ would significantly increase the percentage of DTCC member firms' credit default swaps confirmed via DTCC, perhaps reaching 60 – 70% of all DTCC member trades.

(b) eConfirm

The IntercontinentalExchange provides an internet-based back-office system for efficient matching of trades and execution of confirmations in select commodities markets through their "eConfirm" product. Participants are offered documentation to modify existing master agreements to recognize

eConfirm electronic confirmations. The eConfirm system accepts inputs of extracted trade data from participants' systems (using an XML application programming interface or other means) and uses this data to match trades with those of other participants. Matched trades then become executed confirmations. Through this process, eConfirm provides participants with the matched status of their trades and tracking information to facilitate the resolution of unmatched trades. IntercontinentalExchange states that eConfirm provides its customers with real-time results and match rates of up to 95% of the trades submitted to its system within a short period of time (typically, a few minutes to a few hours). eConfirm's matching system functions in North America, Asia and Europe for a variety of commodities markets, including physical and financial natural gas and physical and financial power, and a ”variety” of trade types. eConfirm participants include investment banks, utilities, energy marketers and hedge funds.

(c) SwapClear — LCH.Clearnet (LCH)

SwapClear is a central counterparty and clearing-house service for OTC interest rate derivative transactions. SwapClear’s membership is comprised of nineteen banks. In SwapClear, LCH.Clearnet acts as the ”counterparty” to both sides of an interest rate derivative transaction. At trade execution, two SwapClear members submit an eligible trade for clearing, and on acceptance, the trade is novated so that each member faces LCH Clearnet for the life of the trade. Historical trades can also be back loaded into the facility.

(d) SwapsWire

SwapsWire provides electronic trade confirmation, electronic broker confirmation, and trade capture primarily for interest rate derivatives. A trade processed through SwapsWire is thus executed, accepted and confirmed through the facility. Once a trade is affirmed by a trader in SwapsWire, acceptance is instantaneous and internal documentation specialists are not involved in the trade confirmation process. SwapsWire has electronically confirmed over 330,000 transactions, with an annualized ”run rate” of 400,000. 99% of transactions are confirmed on trade date. SwapsWire’s membership includes over twenty five banks as well as fifteen brokers and ”buy side” firms.

DTCC, eConfirm, SwapClear and SwapsWire are only a few examples of the multiple service providers focused on auto-matching of OTC derivative transactions.

Regulators, among them the CFTC and the SEC, have taken a number of formal and informal steps to clarify the status of and encourage certain electronic trade assistance services. The Commodity Futures Modernization Act of 2000 was a positive development on the legislative front.

Please note: the above descriptions of service providers and services are based on publicly available information or information available from the service providers themselves.

14. Guiding Principle, Category I & II

Electronic trade assistance services promote efficiency and confidence in the markets, and both market participants and trade associations should strongly encourage automation in the processing of OTC transactions. Automation, including electronic trade affirmation and matching and straight through processing, is a key risk mitigation device, at least in part because most risk metrics assume the existence of an underlying, undisputed transaction. Automation must be pursued whether or not it presents any short-term economic benefit.

Realized and potential benefits of electronic trade processing and matching include:

- Paperless environment, highly efficient and much more accurate;
- Greatly reduced counterparty risk stemming from unsigned trade confirmations and trade disputes;
- Faster and more accurate risk management access to trading processes and information;
- Efficient and accurate margining;
- Tremendous scale, allowing growth in volume without adding manual process;
- Reduced fund transfer costs and error ratio; and
- Potential reduction in regulatory capital costs as regulators recognize the risk reduction benefits of these initiatives.

Discussion — Straight Through Processing

Confirmation matching, discussed above, and payment netting, discussed under Guiding Principle 16b, are two important aspects of trade processing in a number of markets. As noted above and below, there are substantial gains in electronic automation taking place with respect to both of these aspects. The ultimate promise of electronic automation, however, is "straight through processing" (STP), a term used to describe the much-anticipated integration of the trading, reporting and control function of trading businesses through electronic media. Ideally, STP would begin with a trade accomplished electronically and continue by electronic transmission and manipulation of trade data through confirmation messaging, middle-office functions and finally back-office systems reporting; record keeping; payment netting; and settlements. Ultimately, straight through processing should surround the trading process itself with inputs yielding better informed and controlled trades. The promise of STP is greater speed and accuracy of the above processes, increased netting capabilities, the elimination of operational redundancies and, most importantly, through the combination of such benefits a reduction in financial market risk.

To realize the potential of STP, a variety of technical systems such as electronic trading platforms, automated confirmation and trade matching systems, middle and back office reporting, record keeping and payment netting functions must all be seamlessly integrated internally. In addition, even if counterparties enjoy seamless internal processing, they must be able to communicate easily with one another at very low rates of error.

The challenges in achieving STP vary from market to market. As is illustrated in the examples below, it is perhaps easier (though by no means easy) to develop STP in relatively centralized markets involving relatively standardized financial products. Even in such markets, however, along with technological issues, STP presents an array of concerns about transparency, access, competition, confidentiality, enforceability and governmental oversight, among others. These concerns, variable in nature from market to market, must be addressed if we are to realize the systemic benefits of STP.

(a) Privately Negotiated Derivatives

As illustrated above, the over-the-counter derivatives markets have focused on developing electronic automation of affirmation and confirmation matching

processes as well as payment netting, discussed under Guiding Principle 16b. More generally, the International Swaps and Derivatives Association has undertaken a number of projects intended to promote awareness of the need for and development of the automated processes that may be linked into STP. ISDA gathers data on these processes annually.

ISDA's development of FpML, an XML based electronic information transfer protocol specific to over-the-counter derivatives, is an enormous contribution to the development of STP in the over-the-counter derivatives markets. The hallmark of these markets has been product customization and diversity. FpML provides a necessary uniform basis for electronic data transmission in this diverse transactional environment.

(b) Futures Trading

Understanding that differences may exist in the degree of automation of futures trading on various exchanges, the status of STP on the Chicago Mercantile Exchange (CME), a highly prominent exchange that has actively developed its electronic capabilities, is used here as a case study.

On the CME, trading can be accomplished electronically or through traditional means. Even in the case of traditional means, the open outcry methodology of the pits is electronically supported in a number of respects. Generally speaking, all interactions of a clearing firm with the clearing house are electronically automated. It is possible, as a result, for the other entities in the life cycle of a trade to join in the creation and distribution of electronic information and manage their participation in the trading process electronically.

Customers can electronically access either their Futures Commission Merchants (FCM) or the CME directly (in which case the FCM is electronically notified) in order to initiate a trade. Responses from the clearing house to the clearing member will indicate that trades are filled (e.g., committed, subject to a period when a break process may intervene) and separate messages will be sent to back offices. Customers, who may use “front end” systems provided by independent vendors, may be apprised of their trades' status through these front end systems. Controls may be imposed at each step of the process so that, for instance, customer identity, trading limits and margin requirements are verified. Similarly, appropriately equipped back and middle

offices can examine and process the electronically available trade information. The CME clearing system is now processing more than two million trades a day, including trades emanating from the Chicago Board of Trade.

FIXML, an XML implementation of the FIX open message standard, is used for exchanging electronic trade information and is a valuable new tool for sending trade-related messages. It can assist market participants in achieving straight through processing and is also important to the success of the CME system. FIXML allows for real-time communication between the clearing house and clearing members to accomplish post-execution processing. Other such protocols and implementations are available and in use in other contexts. To connect to the CME system and generate and receive compatibly organized messages, any front end system must use "iLink," the CME's implementation of the FIX protocol.

The degree of flexibility afforded by the CME's electronic automation is illustrated by the "CME FX on Reuters" project. This project enables users of the Reuters Dealing 3000 spot foreign exchange electronic trading platform to electronically access CME foreign exchange futures presented in "spot-equivalent" terms.

It is important to consider, when comparing the degree of electronic processing available through the CME to that in the OTC derivatives markets, that (i) the financial instruments available through the CME are relatively standardized and (ii) the position of the CME clearing function as the central counterparty in the market gives the CME the standing to make systems choices and then enforce those choices.

(c) Repos

Over the last ten years, the US repo market has experienced consistent substantial growth. Nonetheless, the market is very liquid and a significant portion of traded contracts are relatively standardized and undifferentiated. In addition, the interdealer market is supported by a central clearing facility, the Fixed Income Clearing Corporation (FICC). All of these factors make this an attractive market for electronic trading.

The US repo market is served by just a few electronic trading platforms. The following is a summary of several of these platforms and some of their products:

- *BrokerTec:* Repos on overnight and term Treasury general collateral, agency general securities, all general securities finance repo products, Treasury specials, agency benchmark specials, TIPS and STRIPS.
- *Morgan Stanley Repo Link:* Repos on Treasuries, agencies, GNMA and MBS pools, corporates, money markets and whole loans.
- *LehmanLive:* Repos on overnight and term general securities, general securities finance repo products, specials, agencies, mortgages, corporates, emerging market debt and whole loans.

To accommodate the tremendous volume growth in the repo markets, numerous enhancements have been made to foster straight through processing. These enhancements have focused on trade execution, trade entry and settlements. For instance, in the interdealer market, FICC has a real-time trade matching engine that accepts trades from participants that could have been transacted via an electronic platform or via voice execution. When coupled with the fact that FICC also acts as a central counterparty, this allows for trades to compare gross (per counterparty) but settle on a net novated basis per CUSIP number. FICC has also developed and brought to market a product called General Collateral Financing (GCF), which allows market participants to trade a securities class rather than a specific issue. This is accomplished by trading generic CUSIPs which represent the principal value of the repo transaction, and which are collateralized by existing securities on an automated basis and settled outside of the normal delivery versus payment (DVP) cycle on the Fed Book Entry Settlement System. Since many participants in the funding markets are not eligible to become members of FICC nor does FICC presently support all securities, the tri-party repo method has been developed to alleviate some of the burden of DVP transactions. A tri-party transaction is one in which two counterparties agree to a purchase or sale of acceptable securities agreed to in the financing documentation. The transaction is facilitated at a clearing bank which acts as an agent for both parties to ensure simultaneous processing of cash and

securities, as well as of maintenance events such as rate resets and re-pricing. The growth of these two mediums, FICC and tri-party repo, has added enormous capacity to the market. Many market participants trade over 70% of their generic financing needs via these methods.

The next phase of STP for the repo markets is taking place in the trade maintenance sector. This maintenance can take many forms, such as re-rating in the case of variable rate trades, re-pricing to alleviate market exposure, rolling over or terminating in order to meet new daily funding requirements and netting of deliveries and receipts to reduce security and cash processing. FICC, as well as many dealers and some vendors, are in the midst of developing web-based interactive tools to accomplish much of this. Whether participants develop their own methods for addressing these issues or purchase a vendor package will depend on the technological expertise, economies of scale and customized relationships that exist between client and dealer. In either case, many options are available.

15. Recommendation, Category I & II

CRMPG II recommends that trade associations and market participants must pursue and develop straight through processing of OTC transactions, a critical risk mitigant in today's high volume markets. As a fundamental matter, disputes over the existence or the terms of a transaction have the potential for enormously increasing risk, since each party to the disputed transaction hedges and risk manages the disputed trade based on certain economic assumptions. STP reduces the number and frequency of trade disputes and maximizes market efficiency, opportunity and access. STP therefore fosters legal, credit, market and operational certainty.

C. Netting, Close-Out and Related Issues

1999 Recommendation #16a

Close-out and Valuation: Documentation should be revised as necessary to ensure that a non-defaulting party has the flexibility to value transactions in a good faith and commercially reasonable manner. This should be a common industry standard, as incorporated in the TBMA/GMRA, and FEOMA agreements and ISDA's Loss methodology.

1999 Recommendation #16b

To the extent that market quotations are employed to achieve commercially reasonable valuations, ISDA agreements should be modified to provide that:

- *Potential quotes provided by third parties may include not only price, but also yields, yield curves, volatilities, spreads or other relevant inputs. These inputs should be based on the size of the transaction, the liquidity of the market and other relevant factors.*
- *The number of third parties from whom inputs are sought may be reduced.*
- *Third parties from whom inputs may be sought may include not only dealers, but also major end-users, third party pricing sources or other relevant sources.*
- *Market quotations are but one means to achieve good faith valuations and may be by-passed when, in the judgment of the non-defaulting party, they are unlikely to produce a timely and commercially reasonable result.*

As noted in the 1999 report, the MRA, GMRA, FEOMA and similar master netting agreements provide for a significant degree of flexibility in close-out valuations. Similarly, the 2004 International FX and Currency Option Master Agreement (the IFXCO Master Agreement), published by the Foreign Exchange Committee, adopts a flexible close-out approach. ISDA's "two-pronged" approach to close out valuation was amended in the 2002 ISDA Master Agreement, when the election between Market Quotation and Loss was replaced with a single provision, Close-out Amount.

Close-out Amount was designed to offer greater flexibility to the party making the determination of the amount due upon the occurrence and designation of an Early Termination Date, and to address some of the potential weaknesses of Market Quotation that became apparent during periods of market stress in the late 1990s.

Close-out Amount was the product of extensive discussions between banks, hedge funds and other market participants, and it accomplishes the goals set forth in the

1999 Recommendation. The Policy Group also appreciates that the process followed in producing Close-out Amount was motivated by a desire to strike the balance that the Policy Group believes is appropriate for an effective close-out methodology. Nonetheless, some Policy Group members and a number of market participants continue to favor the Loss or Market Quotation methodologies set forth in the 1992 Master Agreement. The reluctance of some market participants to adopt the Close-out Amount definition appears to result from concerns regarding provisions in the definition specifying the circumstances in which valuations need not be based directly on market quotations for replacement transactions or on other third party market data and from related concerns that the discretion afforded the Determining Party under that definition, even though circumscribed by standards of good faith and commercial reasonableness, could produce a close-out amount that is unduly favorable to the Determining Party.

The Policy Group recognizes that each of the three ISDA methodologies has certain strengths and weaknesses that depend on, among other factors, the characteristics of the underlying product and prevailing market conditions. The Policy Group is concerned, however, by the significant potential uncertainty associated with liquidation values that could arise either in connection with the close-out of less liquid products or in connection with the close-out of otherwise liquid products in a period of significant market stress and illiquidity, where contracting parties have not adopted the Close-out Amount definition or a comparable, individually negotiated analogue.

Under normal market circumstances, this uncertainty may not raise significant concerns, or may be susceptible to mutually satisfactory resolution by the parties at the time of liquidation. However, in the case of the insolvency of one or more very significant market participants, or in circumstances of severe market stress, this uncertainty may be significant and will likely not be susceptible to contemporaneous resolution by agreement of the parties. In addition to the potentially significant adverse impacts on the close-out values of affected transactions, resulting delays and disputes could significantly impede the orderly termination and close-out of affected transactions and, in the most serious cases, contribute to market disruption and uncertainty in periods of extreme market stress.

The Policy Group believes that any close-out methodology must be measured against the need to balance the transparency and objectivity obtainable through market quotations for liquid products during normal markets, with the flexibility necessary to determine close-out valuations across a range of products and in conditions of market stress.

16a. Guiding Principle, Category I, II & III

Market participants should decide bilaterally which of the three ISDA close-out methodologies would be most appropriate in the context of their trading relationship. As market participants gain experience in the use of Close-out Amount and as products and portfolios change, market participants should continue to evaluate the efficacy of the three ISDA methodologies against the objective of achieving close-out valuations that benefit both from the transparency and objectivity obtainable through market quotations for liquid products during normal markets, and the flexibility necessary to determine close-out valuations across the range of products they trade and the conditions of market stress they are likely to confront over time.

1. Documentation Content — Other Credit Related Provisions

1999 Recommendation #17i

> *Delivery of Notice: Documentation should be revised as necessary to permit delivery of notice by any commercially reasonable method that is legally sound in the relevant jurisdictions (e.g., facsimile or e-mail sent with telephone confirmation satisfying sender's burden of proof as to delivery).*

Update

The notice provisions of the 2002 ISDA Master Agreement were amended to provide for greater flexibility in the delivery of notices, particularly in light of technology developments over the past several years. Under the 2002 ISDA Master Agreement (as well as the 2004 IFXCO Master Agreement) notices or communications may be given in six different forms, including by facsimile and by e-mail. Notices relating to events of default, termination events and the early termination and close-out process may not, however, be given by e-mail, although they may now be given by facsimile. Use of facsimile for default and termination notices should be exercised cautiously, however, as new advances in technology have enabled facsimile communications to be sent directly to an e-mail address.

1999 Recommendation #17ii

> *Payment Netting: Documentation should be revised as necessary to provide for the netting of all amounts (in a single currency) that are payable on the same day. At the most elementary level, documentation should provide for payment netting across like kind transactions. To be more effective, documentation should provide for payment netting across multiple products appropriately linked under a master agreement, or by a master-master.*

Update

Payment netting/matching in OTC transactions has become even more important over the past few years as trading volume has grown. Although described primarily as a documentation issue in the 1999 CRMPG I report, technological advances have allowed remarkable developments in this area. The primary driver of this technological innovation has been the credit derivatives market, where industry participants have consolidated settlement to four discrete days per year when tens of thousands of settlements are processed. Settlements occur on the 20th of each March, June, September and December, and track

settlement days used in the international money markets and on futures exchanges. The initial impetus for this settlement initiative was the desire for greater liquidity. As trading volumes have grown and new participants, including hedge funds, enter the credit derivatives market, consolidated settlement has become more challenging. Although not all parties to credit derivatives transactions use DTCC's payment netting service, described below, it greatly facilitates the process. More generally, technology and service providers have become available to facilitate speedy netting and matching in a number of product areas.

Two major service providers for payment netting are:

(a) DTCC

DTCC's DerivServ provides a cash flow matching service for credit derivatives. Through DerivServ, over twenty-five industry participants bilaterally net matched cash flows. As an example, for the March 2005 credit derivative swap quarterly settlement, DTCC processed approximately 560,000 payments with a 93% match rate. The service provides netting through a central payments database and real-time break resolution capability. Going forward, DTCC plans to implement straight through processing to settlement.

(b) SwapClear

Interest rate swap transactions are matched in Swiftnet and cleared through the LCH.Clearnet for netting and settlement. Some twenty industry participants currently net and process approximately 3,000 – 5,000 cash flows a month.

Please note: the above descriptions of service providers and services are based on publicly available information or information available from the service providers themselves.

16b. Guiding Principle, Category I, II & III

Market participants should pursue opportunities to facilitate payment netting. This may mean continuing to develop systems and operational capabilities. Equally important, where industry standard documents provide for payment netting as an option, more parties need to make this election and put it broadly into practice to take better advantage of this settlement risk-reducing mechanism.

Market participants and trade associations should also review the Group of Thirty's *Monitoring Committee on Global Clearing and Settlement* interim report, published in April 2005, which discusses progress made since the January 2003 publication of the G30's *Global Clearing and Settlement: Plan of Action*. The G30 Plan of Action and interim report provide excellent guidance in the areas of interoperability, risk management and governance with respect to global securities clearing and settlement, and should be considered in the OTC derivative context.

1999 Recommendation #17iii

Cross-Product Obligation and Collateral Netting: Parties should make the best possible use of multi-product master agreements, and master-masters, to facilitate obligation netting and collateral netting across-product lines. Where the parties do not have the ability to net collateral, documentation should be modified, subject to applicable law, to entitle the secured party to retain excess collateral to secure other obligations of the pledgor to that party.

Recommendation 17(iii) focused on the need for financial market participants to develop systems to support cross-product and collateral netting. It also recommended that documentation be modified to effect cross-product collateral netting.

1999 Recommendation #17iv

Set-off: Where permissible under applicable law, documentation should be modified to allow the non-defaulting party to exercise broad rights of set-off. These include:

- *The right of the non-defaulting party to set-off against the obligations of the defaulting party.*
- *Obligations of the non-defaulting party to the defaulting party under other transactions or other documentation.*
- *Collateral or property of the defaulting party held by the non-defaulting party in connection with other transactions or under other documentation.*
- *Obligations of affiliates of the non-defaulting party to the defaulting party under other transactions or under other documentation.*
- *Collateral or property of the defaulting party held by affiliates of the non-defaulting party in connection with other transactions or under other documentation.*
- *Obligations of the non-defaulting party to affiliates of the defaulting party under other transactions or other documentation.*
- *Collateral or property of affiliates of the defaulting party held by the non-defaulting party in connection with other transactions or under other documentation.*
- *The right of the non-defaulting secured party to transfer excess collateral to an affiliate of the secured party to secure obligations of the pledgor to such affiliate.*

In summary, Recommendation 17iv stated that documentation should be modified to allow the non-defaulting party broad rights of set-off, including the

right to net across (i) agreements, (ii) affiliates of the non-defaulting party and (iii) products, and the non-defaulting party should have the ability to apply collateral pledged by the defaulting party or its affiliates to all obligations (even those owed under agreements other than those under which the collateral was pledged) owed to the non-defaulting party and its affiliates. 17iv also recommended strengthening netting and set-off legislation to allow for broad netting and collateral setoff rights.

Update

(a) Capital, Margin and Accounting Rules

The rules relating to regulatory capital calculations published by the Basel Committee on Banking Supervision have a significant impact on financial markets. By giving recognition to cross-product netting arrangements that are legally enforceable, these rules will encourage the use of risk-mitigating tools. Similarly, cross-affiliate netting and collateral arrangements that are legally enforceable should be given recognition for regulatory capital calculation purposes.

Net capital requirements applicable to US registered broker-dealers pursuant to SEC Rule 15c3-1 should recognize the risk-reducing benefits of legally enforceable cross-affiliate netting and collateral arrangements. Margin regulations should not impede the implementation of netting arrangements that do not increase the amount of securities credit available to counterparties.

GAAP accounting principles impose differing requirements for netting different products. For example, the requirements for netting repo transactional exposures under Financial Interpretation Number 41 are inconsistent with the requirements for netting OTC derivative exposures under both GAAP rules and Basel rules, thereby increasing the potential disparity between a firm's balance-sheet disclosure and its regulatory capital calculations. The resulting added operational and accounting complexity increases operational costs, the risk of reconciliation errors and other risks inherent in running parallel accounting systems.

(b) Systems

Since 1999, most significant financial market participants have developed systems to monitor credit and collateral exposure to a counterparty on a firmwide basis. Market participants have not generally allowed set-off against affiliates of a defaulting party, however, due to concerns regarding possible regulatory issues and the enforceability of such contractual provisions in an insolvency proceeding.

(c) Documentation

Since 1999, various industry-standard agreements have been created or enhanced to allow for broad netting and collateral rights. For example, the Bond Market Association produced two Cross-Product Master Agreements, "CPMA 1" and "CPMA 2," which are umbrella agreements intended to "sit on top" of individual master agreements or transactions between two or more parties. These CPMAs allow for a global termination right and the netting of termination amounts across the underlying master agreements and transactions, and, in the case of CPMA 2, across affiliates. The CPMAs also allow for the application of excess credit support provided under one master agreement to obligations owed under other master agreements.

Similarly, ISDA produced a Bridge Agreement to achieve cross-master, though not cross-affiliate, netting. ISDA has also obtained legal opinions in 45 jurisdictions confirming the enforceability of the Bridge Agreement. These initiatives have enhanced market participants' knowledge of the legally enforceable techniques available to achieve broad netting and collateral rights, and have influenced similar bespoke agreements used in the marketplace.

(d) Legislation

Since 1999, several legislative developments have enhanced netting and collateral rights. In the United States, the passage of amendments to the US Bankruptcy Code and US bank insolvency laws to allow for broad rights to net across-products and apply related collateral to obligations owed by the insolvent party is a significant development. Outside the United States, the EU Insolvency Regulation, the related Winding-Up Directives for banks and insurance companies and the EU Collateral Directive have also increased the scope of netting rights and the right to apply related credit support. However,

as described below in our 2005 Guiding Principle for this section, uncertainties remain.

Legislation based on the ISDA Model Netting Act has been passed in the British Virgin Islands (where many hedge funds are organized), Poland, Hungary and the Czech Republic. Similar legislation is being considered by the Indian parliament and Anguilla. Enactment of favorable netting laws increases the legal certainty of netting and credit support rights of a non-defaulting party with respect to a broad range of financial contracts, including over-the-counter derivatives and securities financing transactions.

16c. Guiding Principle, Category I, II & III

Rules governing capital computations have a major impact on the breadth and depth of financial markets and financial product trading activity. It is essential that those rules favor the use of risk-mitigating tools such as cross-product netting and not restrict their use through regulatory requirements unrelated to the goal of systemic risk reduction. Intraproduct, cross-product and cross-affiliate netting and collateral arrangements should be recognized and given full netting benefit when there is a well-founded basis for believing that they are legally enforceable. Supervisory regulators should not impose additional requirements that restrict the use of such netting arrangements.

Similarly, US broker-dealer net capital and margin rules should be amended to encourage the use of netting arrangements. GAAP rules on netting should also be amended to be consistent with regulatory capital calculation rules to avoid inconsistencies between financial disclosure and capital calculations.

In the legislative arena, more work needs to be done to ensure the enforceability of netting and collateral rights with respect to certain types of counterparties that are now significant participants in financial contract markets. In particular, close-out netting and credit support liquidation safe harbors based on principles similar to those embodied in the US Bankruptcy Code should be considered and as applicable developed for government-sponsored entities, pension plans, insurance companies and similar entities, and should be crafted to ensure broad protection of close-out netting rights and to reduce systemic risk. Similarly, in view of the increased booking of financial products in different affiliates within

16c. Guiding Principle, Category I, II & III (continued)

financial conglomerates, close-out netting and collateral safe harbors should contemplate netting of a non-defaulting party's affiliates' obligations with a defaulting party. It is recommended that these initiatives be proposed to the President's Working Group for consideration and, if appropriate, sponsorship, as they will require consultation with various federal and state regulatory and self-regulatory authorities in the United States. It is also recommended that the relevant US Congressional committees and members of the US Congress sponsor the passage of amendments (embodied in the Bennett Amendment to S. 256) to make certain technical changes to the newly-enacted US bankruptcy law.

The introduction of the EU Financial Collateral Directive (the FCAD) has significantly strengthened the legal framework for financial collateral arrangements in member states of the EU It is recommended that those few EU member states which have not implemented the FCAD do so soon. It is also recommended that the European Commission study ways to encourage greater consistency of implementation across the EU, perhaps by means of the "Legal Certainty Group" of national experts it has established in connection with its clearing and settlement initiatives. This group is examining issues relating to indirectly held securities that should further strengthen legal certainty for financial collateral arrangements.

The FCAD requires EU member states to strengthen their close-out netting regimes in collateralized relationships, but gives little guidance as to what that entails in practice. It is particularly important that guidance be given to the ten new EU accession states, some of whom have implemented the FCAD without having yet enacted netting legislation, as to the implementation of an effective regime for close-out netting. Greater convergence of existing netting regimes in the original fifteen member states would also help strengthen legal certainty in the European financial markets. It is also recommended that the European Commission resolve the uncertainties arising from differential treatment of set-off and close-out netting rights in the Insolvency Regulation and the Winding-Up Directives for banks and for insurance companies, which include inconsistent carve-outs for set-off and close-out netting arrangements.

1999 Recommendation #17v

> *Events of Default: Cross-default provisions in each agreement should, at a minimum, include as an event of default thereunder any default by the counterparty under any other transaction or agreement with the non-defaulting party or the non-defaulting party's affiliates. Parties should consider the need for broader cross-default provisions in individual cases.*

Update

The increasing use of cross-product master agreements, such as the agreements recently developed by TBMA or the ISDA Bridge Agreement, go a long way towards accomplishing the standardized application of cross-default provisions.

The 2002 ISDA Master Agreement includes Cross-Default and Default Under Specified Transactions. As it relates to Cross-Default, a Threshold Amount must be exceeded before a default is triggered. The scope of Cross-Default may be regulated by the parties through several methods, including how the Threshold Amount is defined, how broadly or narrowly Specified Indebtedness is defined and by parties included within its scope.

Default Under Specified Transaction is designed to address defaults that occur under transactions not covered by an ISDA Master Agreement. The provision can apply to each party, their respective Credit Support Providers and any other entities that a party may want to include within the scope of the provision.

16d. Guiding Principle, Category I, II & III

Trade associations and market participants should adopt as a best practice the pursuit of cross-entity and cross-product netting and cross-default provisions in master agreements governing OTC trading relationships. Increased use of such provisions will achieve greater efficiency and reduce market and counterparty risk in default scenarios by ensuring the swift and consistent termination of transactions across-product lines.

1999 Recommendation #17vi

No-Fault Termination: Documentation should be modified as necessary to specify the consequences of events such as changes in law, changes in tax rules, regulatory changes, or governmental actions that render performance substantially more difficult or expensive or introduce substantial uncertainty.

Update

The 2002 ISDA Master Agreement modified and expanded the no-fault termination provisions of the 1992 Master Agreement. More specifically, the 2002 Master Agreement provides that a Termination Event will occur if it becomes unlawful under any applicable law: (i) for the office through which a party makes and receives payments or deliveries with respect to such transaction to make or receive a payment or delivery under such transaction or to comply with any material provision of the 2002 ISDA Master Agreement with respect to such transaction; or (ii) for a party or its Credit Support Provider to perform under a Credit Support Document. Illegality is anticipatory in that it may be triggered if it would be unlawful to make a payment or delivery or to comply on a day if the relevant payment, delivery or compliance were required on that day, even if no such payment, delivery or compliance is in fact required on that day. Changes in tax rules are covered through a separate tax-specific Termination Event.

16e. Guiding Principle, Category I, II & III

To the extent industry documentation does not already include such provisions, trade associations and market participants should make it a best practice to define clearly the termination rights of parties to OTC transactions upon the occurrence of changes in law, changes in tax rules, regulatory changes or governmental actions. A termination ”road map” is particularly important in circumstances where performance would otherwise be substantially more difficult or expensive, or be subject to substantial uncertainty.

1999 Recommendation #17vii

> *Acts of God: Documentation should be modified as necessary to define and capture various such events to the extent that they are not clearly covered by existing provisions. It is imperative that contracts remain enforceable according to their terms, notwithstanding the occurrence of such events and that counterparties have a clear agreement at the time the contract is made as to the consequences of such events and the method of valuation in the case of such events. In no event should either party be entitled to walk away from its obligations as a result of the occurrence of such an event.*

Update

A number of industry master agreements include a force majeure provision. Unlike the 1992 ISDA Master Agreement, the 2002 ISDA Master Agreement also introduced a new Force Majeure Termination Event. A Force Majeure Event differs from an Illegality in that it covers occurrences that fall outside of the definition of Illegality, but which still hinder or prevent performance of the party or its Credit Support Provider. A "laundry list" of acts considered to fall within the definition of Force Majeure Event is not provided, but "acts of state" are explicitly referenced to address actions by sovereign states, such as a foreign invasion, that may not fall within the scope of Illegality.

To constitute a Force Majeure Event, the force majeure or act of state must be beyond the control of the office, party or Credit Support Provider, as the case may be, and it must also be the case that the office, party or Credit Support Provider could not, after using all reasonable efforts (not requiring the incurrence of a material loss) overcome the relevant problem. Once a Force Majeure Event (or an Illegality) occurs, a temporary standstill generally applies in respect of affected transactions for the duration of a pre-defined Waiting Period. The Force Majeure Event does not entitle either party to walk away from its obligations as a result of the occurrence of such an event.

16f. Guiding Principle, Category I, II & III

Recent occurrences, perhaps most notably the events of September 11, 2001, have served as a reminder of the need for force majeure provisions in trading documentation. Market participants should clearly address the consequences of force majeure events, including any delays in performance, in their master agreements to minimize disruption and uncertainty in the markets. While force majeure provisions in trading documentation may allow for delays in performance, in no circumstances should any party be able to walk away from its obligations as a result of the occurrence of a force majeure event.

1999 Recommendation #17viii

> *Coordination: The documentation and credit functions within each firm should be coordinated to ensure that any required credit condition, such as an obligation to provide specified financial information, to maintain a specified financial condition, or to provide notice of any failure to maintain a specified financial condition, is appropriately incorporated in the firm's documentation and the consequences thereof specified.*

Update

Technological and systems developments have greatly improved credit risk management and coordination between credit and documentation functions. Master agreements and "long-form" confirmations typically include credit terms, and credit approval is generally required before OTC derivative transactions may be entered into. Credit analysts and documentation specialists also work in coordination with the business and other departments as necessary when negotiating master agreements.

16g. Guiding Principle, Category I, II & III

Market participants should continue to harmonize and centralize counterparty credit risk assessment, and should strive for speedy and efficient identification of counterparty exposure across-product lines. To achieve such goals, market participants should develop systems and operational enhancements, utilize the internal audit function or other independent mechanisms and foster strong corporate governance, as appropriate. Trade associations should work with their membership to identify common concerns in this area and seek solutions.

2. Harmonization

1999 Recommendation #18

Documentation Harmonization: Industry associations should undertake an initiative to harmonize standard documentation across-products, and, where possible, jurisdictions in areas including: clauses covering notices, grace and cure periods, definitions of events of default and insolvency, and close-out valuation standards. The focus should be to:

- *Reduce notice and grace periods and make both more consistent where appropriate;*
- *Ensure that the grace period for failure to make a payment or delivery or to transfer collateral should not exceed one business day after notice;*
- *Clarify the specific points at which grace periods commence and expire to avoid confusion arising from differences in time zones, currencies of payment and close of business conventions, and the timing of notices of non-performance;*
- *Harmonize definitions of events of default and insolvency and include as broad a range of such events as possible (i.e., general inability to pay debts, written or oral admission of inability to pay, failure to pay debts as they come due, etc.);*
- *Provide for a consistent 15 day maximum cure period for involuntary insolvencies, with the ability to close-out if the counterparty has not challenged the insolvency within five days; and*
- *Improve and harmonize close-out valuation standards.*

Update

Since its creation, the Global Documentation Steering Committee has engaged in discussions and conducted a review and analysis of certain industry standard agreements with a view to harmonizing the operation of these agreements, particularly in crisis situations. This process has taken into account the experiences of GDSC members in several recent periods of market volatility.

Several industry associations, represented by their officers and staff, joined a number of market participants in the GDSC harmonization efforts. Representatives of ISDA, TBMA and EMTA (the trade association for emerging markets) participated in the full range of GDSC discussions, acting as conduits for the views of their members.

The GDSC has recommended model provisions covering the following issues:

- Cross-default (to permit termination of a relationship at the moment when other creditors may begin to seek remedies against a weakened counterparty, so that no creditors may achieve an advantaged position in either the counterparty's insolvency or its ongoing business — including expanded definitions of events of default and insolvency);

- Involuntary insolvency default (to establish a consistent definition of an "involuntary insolvency event" that appropriately accommodates the interests of defaulting and non-defaulting parties, including a standard grace period of five (5) business days as an adequate period of time to notify counterparties and offer assurances of its continuing ability to perform, notwithstanding commencement of the proceeding);

- Force majeure (to establish a uniform definition of a "force majeure event" that would capture the types of events that, while not constituting an excuse from performance or affecting the contract's enforceability, ordinarily should trigger early termination of a financial market transaction and application of an appropriate contractual methodology for determining the remaining obligations owed by the parties);

- Notice provision (to enhance the ability to give notice in crisis situations by providing for the use of any commercially reasonable method that is legally sound in the relevant jurisdictions);

- Default notice (standard forms of default notice to facilitate the ability of market participants to act quickly in response to default situations);

- Harmonization of close-out time frames; and

- A model Confidentiality Agreement.

In addition to these model provisions, the GDSC has drafted an optional "adequate assurances" clause, which is intended to provide a party with a means of protecting itself against uncertainties that do not, by themselves, otherwise constitute an enumerated event of default or termination event under the applicable master agreement or confirmation.

The GDSC has also worked on improving master agreement and related trading agreement negotiations to mitigate the risks arising from undocumented relationships, to minimize inefficiencies resulting from delays in developing beneficial trading relationships due to documentation issues and from wasted resources. Finally, there is an ongoing GDSC program to study default provisions and their enforceability.

These recommendations are generally consistent with the CRMPG I recommendations.

Of the participating industry groups, ISDA in particular, which was in the course of publishing its 2002 Master Agreement, was able to harmonize its document with several CRMPG I recommendations. In an effort to comply with the recommendations, ISDA reduced the grace period for failure to pay or deliver to one business day, and the grace period for most involuntary insolvency defaults from 30 days to 15 days. In addition, while ISDA has an array of pre-existing default mechanisms, it has modified its capital markets transaction cross-acceleration provision to include a special provision with respect to delivery failures that is intended to take account of the ordinary course treatment of individual transaction "fails" in other markets. The 2004 IFXCO Master Agreement, similarly, incorporates several CRMPG I and GDSC recommendations.

TBMA established working groups to evaluate the GDSC recommendations on cross default, adequate assurances, insolvency, notice provisions and force majeure in the context of securities transactions covered by TBMA agreements.

The BMA Working Group on cross-default decided to adopt provisions identical to those incorporated in the 2002 ISDA Master Agreement for the BMA's standard master agreements. With respect to the adequate assurances clause, the Working Group concluded that it did not provide much additional comfort in the context of short-term, fully secured transactions, and might add ambiguity and raise legal issues such as material non-public disclosures and preference concerns under the Bankruptcy Code. Accordingly, no action was taken on the adequate assurances provision.

The BMA insolvency Working Group drafted optional "Involuntary Insolvency Amendments" which adopt verbatim the GDSC definition. However, noting that

the GDSC recommends no grace period to contest proceedings instituted by regulatory entities, the Working Group is continuing to review whether an event of default would be triggered by an insolvency proceeding filed by a regulator outside the counterparty's home jurisdiction.

With respect to the GDSC notice provisions, the BMA Working Group decided to draft conforming provisions for use as optional annexes with pre-existing standard TBMA documentation and to incorporate the provision in the CPMA 2, discussed below, which had not yet been finalized at the time. The BMA version would closely track the GDSC recommendation and be slightly broader than the notice provision in the 2002 ISDA Master Agreement with regard to the manner and deemed effectiveness of delivery.

After considering the model force majeure provision, the BMA Working Group opted not to amend the repo documentation used in the US repo markets, taking the view that, under existing documentation, market participants could rely on the ability to promptly close out a repo transaction upon the failure of a counterparty to meet its obligations. However, BMA members are considering adopting a force majeure provision in documentation used in non-US repo markets, and particularly emerging markets, where the concept of "strict performance" may not be as prevalent in the repo markets as it is in the United States.

In terms of the CRMPG I recommendations, revision of TBMA forms was not necessary on many issues, including reduced notice and grace provisions, because the recommendations were consistent with pre-existing TBMA forms. For example, TBMA agreements already provide for a grace period of one business day as well as a 15-day cure period for involuntary insolvencies.

Since 1999, various industry-standard agreements have been created or enhanced to allow for broad netting and collateral rights. More specifically, TBMA's two versions of a cross-product master agreement, CPMA 1 and CPMA 2, enable cross-product netting and margining, including among different types of securities financing transactions, and ISDA published its Bridge Agreement. (Please note that these three agreements are also discussed under the Update for 1999 Recommendations 17iii and 17iv.)

In general, both CPMA 1 and CPMA 2 are bilateral, "master-master" agreements that provide cross-defaults, termination rights and the netting of termination

amounts across the underlying master agreements, covering TMBA-sponsored agreements as well as other master agreements such as the ISDA Master Agreement. CPMA 2 goes further to allow netting across affiliates. Similarly, the ISDA Bridge Agreement is a cross-product master-master agreement that functions much the same as does TBMA's CPMA I. By providing for cross-default among the covered agreements, these cross-product agreements facilitate the reduction in documentation basis risk.

Finally, the GDSC plans to examine whether the different definitions of "business day" merit a documentation harmonization effort.

17. Guiding Principle, Category II

The productive discussions in the markets in relation to the 1999 recommendation of CRMPG I on documentation harmonization should intensify. The fundamental mission of the GDSC, which was created as an outgrowth of CRMPG I, was to harmonize documentation standards and reduce documentation basis risk, and market participants should accordingly make it a best practice to facilitate harmonization and consistency in documentation standards. To that end, new standards should be incorporated in existing documentation to the extent possible, and new documentation should be used on a forward basis. Market participants should work cooperatively with trade associations to achieve greater harmonization.

3. Collateral Management

Update

Since 1999, use of collateral on a bilateral basis has increased dramatically, and has served to mitigate counterparty and market risk accordingly. Discrepancies in timing for margin calls and for closing out counterparties remain, although there have been efforts to standardize such provisions. The availability of master-master agreements, together with the use of industry standard credit support or margining arrangements, that provide for collateralization across products and across underlying master agreements have provided more consistency in margining, as has a recent trend to VAR margining.

18. Guiding Principle, Category II

Collateral managers and other market participants should explore the development of standardized, automated processes for clearing, settlement and portfolio reconciliation of high volume ”vanilla” OTC products.

D. Credit Derivatives

1. The Role and Impact of Credit Derivatives on the Financial Markets

Credit derivatives were not addressed in the 1999 CRMPG I report as a significant documentation issue in their own right. While credit derivatives were traded in 1999, the size of the market, the scope of transactions and the varied uses of credit derivatives were not nearly as broad as they are today. In evaluating the current state of the derivatives markets and its infrastructure, it is impossible to ignore the impact of credit derivatives on the financial markets. We have therefore included a brief discussion of credit derivatives in this update as a new topic. The subject of credit derivatives is discussed in much greater detail in Section V and Appendix A of this Report as part of the much broader discussion of complex financial products.

Broadly speaking, credit derivatives are financial instruments that transfer all (or a portion) of the credit risk of an underlying obligation or entity (or group of obligations or entities) from one party to another party without necessarily transferring the underlying asset.

When the CRMPG I report was published in June 1999, the credit derivatives market was in an early phase of development. Over the past six years, the credit derivatives market has grown exponentially in terms of transactional volumes. As of the end of 2004, the estimated size of the credit derivatives market (based on notional amount outstanding) was over $5.0 trillion (as reported in the ISDA 2004 ISDA Year-End Survey). Equally importantly, the range of market participants in the credit derivatives market has grown significantly and now includes a wide variety of banks, insurance companies, hedge funds, pension plans and asset managers. The range of credit derivative products has also grown considerably and now covers a wide variety of products and transactions including “nth-to-default” transactions, credit index products and various correlation products.

Credit derivatives have become important risk management tools for market participants by allowing borrowers, lenders and intermediaries to assume or distribute credit risk in a customized fashion. In addition, credit derivatives have become important measures of credit risk and are increasingly used to assist in the pricing of loans and securities in the primary and secondary cash markets.

Credit derivatives have also emerged as important sources of liquidity for cash market investors and intermediaries, particularly with respect to illiquid cash instruments.

(a) Joint Forum Report

The growth of the credit derivatives market and its impact on the financial markets have not gone unnoticed by industry observers or regulators. In March 2005, the Joint Forum released a report entitled *Credit Risk Transfer*, which addressed a number of key issues relating to the use of credit derivatives. In summary, the Joint Forum's report concluded that (i) credit derivatives had achieved a relatively good record, to date, of "cleanly" transferring risk, (ii) market participants seemed largely aware of the risks associated with credit derivatives and (iii) the credit derivatives market does not appear to have produced any "hidden concentration" of credit risk. These conclusions are generally consistent with various rating agency surveys of the credit derivatives markets.

The Joint Forum's report also included seventeen recommendations relating to risk management practices, disclosure and supervisory practices applicable to credit risk transfers. These recommendations are consistent with sound risk management principles for the derivatives markets that have been previously endorsed by various groups, including the Group of Thirty in 1993 and the CRMPG I in 1999.

In addition, the Financial Services Authority in the United Kingdom has raised the issue of unsigned credit derivatives confirmations as a concern. The issue of unsigned confirmations generally is addressed elsewhere in this Report, most notably in Recommendation 12.

19. Recommendation, Category I

CRMPG II recommends that financial intermediaries and end-users of credit derivatives redouble their efforts to ensure that they fully understand the nature of their credit derivative transactions and the similarities and differences between those transactions and other credit positions and exposures. In this regard, it is very important that market participants be thoroughly familiar with the terminology used to document credit derivatives, and the nuances surrounding various terms.[3] Market participants should be aware that credit derivative transactions may intentionally or unintentionally give rise to other risks, including retained credit risk, counterparty credit risk, legal risk, operational risk and concentration/liquidity risk.

[3] (Unless otherwise defined herein, capitalized terms have the meanings used in ISDA's 2003 Credit Derivatives Definitions.) In a standard credit default swap, the "buyer" of the protection agrees to make periodic payments to the seller of the protection in exchange for the seller's commitment that, upon the occurrence of certain credit default-related events with respect to a named legal entity (the "Reference Entity"), the buyer will have the right to deliver loans or securities to the seller in exchange for an agreed upon amount (typically par). The events that parties most frequently agree to as triggering events are "Bankruptcy," "Failure to Pay," "Repudiation/Moratorium" (for sovereigns only) and "Restructuring," each of which is a complex defined term under the ISDA's 2003 Credit Derivatives Definitions.

(b) Retained Credit Risk

Market participants should recognize that credit derivative transactions generally transfer credit default risk, which is not necessarily identical with the price risk associated with credit risk. To the extent that a "Reference Entity" does not "default" within the meaning of the relevant credit derivative transaction, the buyer of protection will retain the credit risk of the Reference Entity. This is particularly relevant where the term of the credit derivative transaction is less than the term of the obligations that the buyer of protection is seeking to hedge. The definition and scope of a "default," therefore, is critical.

(c) Counterparty Credit Risk

Most credit derivative transactions involve some degree of counterparty credit risk. In a credit default swap, the most significant counterparty credit risk is typically borne by the buyer of protection who is exposed to the risk that the seller of protection will default on its obligations following the occurrence of a credit event with respect to the Reference Entity. Less obvious, but equally real is the risk that the buyer of protection will fail to make whatever payments the buyer may be required to make over the term of the credit derivative transaction.

Most market participants seek to mitigate counterparty credit risk by limiting their dealings to well capitalized counterparties and/or requiring initial and/or mark-to-market collateral. The use of collateral to mitigate counterparty credit risk is generally effective, provided that the secured party uses accurate values and requires any collateral deficiencies to be promptly cured. Alternatively, buyers of credit protection can largely eliminate counterparty credit risk by issuing credit linked notes, which effectively are fully collateralized credit default swaps.

One notable trend in the credit derivatives market is the increased participation by hedge funds and other leveraged counterparties as sellers of credit protection. This increased participation should serve to diversify counterparty credit risk in the credit default market. At the same time, such participation may marginally increase counterparty credit risk due to some hedge funds' leveraged nature.

(d) Basis Risk

Market participants should be aware that there may be important differences between different types of credit derivative products (e.g., credit default swaps, credit-linked notes or bond options). In addition, there are frequently important differences in contractual terms and market conventions between credit derivative products and other financial products or transactions that involve transfers of credit risk (e.g., surety bonds, guarantees or participations). For example, the buyer of credit protection in a credit derivative transaction is not required to have a credit exposure to the Reference Entity or to demonstrate that the buyer sustained a loss as a consequence of the occurrence of a Credit Event with respect to the Reference Entity. In the case of financial guaranty insurance, the insured must have an insurable interest and is only entitled to be reimbursed for actual losses sustained as a result of the default. These differences can become very important where a market participant is seeking to offset risks using different products. For example, three or four years ago, certain dealers used credit default swaps to buy or sell protection and hedged their position through financial guaranty insurance from monoline insurers or reinsurance contracts with reinsurance companies.

Market participants that are seeking to hedge the credit risk associated with a specific asset should also be aware of differences between the credit derivative transaction and the hedged asset. For example, most credit derivative transactions impose various requirements (e.g., maturity, currency or transferability) on the types of obligations that may be delivered in connection with the settlement of the transaction.

(e) Legal Risk

According to a September 2004 report by Fitch Ratings, approximately 14% of credit events captured in a recent Fitch survey were reported to involve some form of legal dispute. While the vast majority of these disputes have been resolved privately, a handful of disputes have resulted in litigation.

Most of these disputes appear to have involved contractual claims relating to one of the following issues: (i) the identity of the Reference Entity that is the subject of the transaction, (ii) whether a particular event qualified as a Restructuring or Repudiation/Moratorium so as to trigger a Credit Event

under the transaction, (iii) the timeliness of notices delivered under the transaction, (iv) the nature of assets that may be delivered under the transaction or (v) the timeliness of deliveries of assets in connection with the settlement of the transaction.

The industry has reacted to these disputes in a number of different ways, including by developing a centralized database of Reference Entity names and modifying industry standard definitions to clarify provisions or offer the parties an opportunity to choose between alternative approaches, and by publishing guidance regarding the settlement process following the occurrence of a Credit Event.

In some instances, the disputes have involved assertions that one of the parties breached fiduciary duties owed to its counterparty, the risks associated with the transaction were not adequately disclosed or the transaction was not suitable for the counterparty. Market participants — particularly dealers — should be sensitive to the potential legal, regulatory and reputational risks associated with credit derivative transactions, particularly when dealing with less sophisticated counterparties.

20. Guiding Principle, Category I & II

Industry participants should continue to identify potential areas of confusion or misunderstanding and seek to develop or refine market practices or conventions, and the accompanying documentation, to eliminate or mitigate such areas of confusion or misunderstanding.

(f) Operational Risk

Credit derivatives can give rise to significant operational risk due to their complexity. As noted elsewhere in this Report, it is important for market participants to promptly and accurately confirm the terms of their transactions, including assignments.

As noted earlier, the volume of credit derivative transactions has been growing at exponential rates over the past few years and there is no reason to believe that this growth will diminish in the near term. In fact, the introduction of standardized credit indices and baskets suggests that with respect to certain Reference Entities, the volume of outstanding transactions will continue to grow rapidly. As a result, upon the occurrence of a Credit Event with respect to one of these Reference Entities, market participants (primarily dealers) would need to bilaterally settle thousands of transactions. Whether credit derivative transactions provide for cash or physical settlement, the settlement process is largely manual and operationally very resource intensive for market participants and is not readily scalable. Individual exercise notices must be prepared and delivered and either separate cash settlement auctions conducted or separate physical settlements executed. Thus far, the industry has had very limited experience with settling large numbers of transactions following a Credit Event, and such occurrences have generally not involved the settlement of more than a few hundred transactions for any single market participant. However, in the case of a recent Credit Event with respect to a Reference Entity included in several highly traded credit indices, some market participants needed to settle several thousand transactions. As the number of outstanding transactions continues to grow, the occurrence of a Credit Event with respect to a popular Reference Entity could put a material strain on the ability of market participants to settle transactions in a timely and efficient manner.

Settlement issues could also arise in situations in which the volume of credit derivative transactions materially exceeds the supply of bonds or loans that qualify as deliverable obligations under the credit derivative transaction. Moreover, to the extent that there are multiple qualifying deliverable obligations, it may be more advantageous to receive or deliver certain obligations. As a result, market participants should be aware of the possibility

that qualifying deliverable obligations may be difficult to locate following a Credit Event.

21. Recommendation, Category II

CRMPG II recommends that industry participants build on the experience gained through recent ad hoc multilateral initiatives and work to develop a standardized multilateral process for the exercise and settlement of both outstanding and future credit derivative transactions on a simultaneous net basis. The development of such a process should consider the use of electronic platforms to reduce the strain manual settlements place on the back-office resources of market participants and to further transition the market toward straight through processing.

(g) Trade Assignments

The ability of market participants, particularly end-users, to assign over-the-counter derivative trades has long been an important source of liquidity in the market. Nonetheless, the ability of market participants to establish negotiated credit terms to manage counterparty credit risk and to otherwise manage their trading relationships is also important to the integrity of the market. Consequently, most industry standard over-the-counter derivatives documentation provides that a party must generally obtain the prior written consent of their counterparty before assigning a transaction to a third party. Along with the dramatic increase in the volume of credit default swap trading, many market participants have increasingly relied on trade assignments for both liquidity and price discovery. This practice is particularly prevalent with respect to credit default swaps where trade assignments may account for as much as 40% of current trade volumes. In the current credit default swap market, assignments routinely occur without the prior written consent of the original trade counterparty. Additionally, the original counterparty to the trade may not receive timely notice of the assignment, and it is also often difficult for any of the three parties to an assignment to obtain executed assignment documentation. This lack of consent to a trade assignment may introduce uncertainty as to the status of the transaction. The lack of notice may also introduce uncertainty as to the identity of the trade counterparty, undermine counterparty credit and market risk metrics and impede back-office trade reconciliations leading to a higher incident of settlement fails and collateral breaks. The increase in unconfirmed transactions (also noted in connection with Recommendation 12), combined with the frequency with which credit default swaps are traded, has resulted in some assignments occurring prior to the confirmation of the trade by the original parties, thereby increasing the risk of potential disputes with respect to the status and the terms of a transaction. The market is keenly aware of the issues associated with the lack of consent to trade assignments and market participants, together with industry groups, are actively taking steps to address the situation.

22. Recommendation, Category II

Trade assignments require the same rigorous controls and discipline as new transactions. It is critical that market participants know their counterparty, and therefore, prior consent to assignments must be obtained. Specifically, CRMPG II recommends that market participants should not assign or accept assignments of transactions without the consent of all three parties. All market participants should initiate and take part in industry initiatives designed to facilitate compliance with the prior consent requirement. Industry efforts in this regard should include the use of electronic platforms to further the transition of the market toward straight through processing of assignments. With respect to existing assignments, CRMPG II urges market participants to dedicate substantial resources to ensure that these assignments are properly identified and properly documented.

CRMPG II recognizes that the prospective practices described above will require a transitional period and that it would be unreasonable to expect full implementation immediately. Nonetheless, these goals should be achieved in the near term and, in the interim, market participants should keep senior management apprised of the progress being made in identifying and documenting assignments.

2. Potential Influence of Credit Derivatives on Underlying Cash Markets

Market participants should be aware of the potential impact of credit derivatives on the underlying cash instruments, particularly when the Reference Entity is in financial distress. For example, creditors of a financially distressed Reference Entity may be asked to agree to grant waivers of various types of defaults or to amend the terms of the Reference Entity's indebtedness. To the extent that such creditors have entered into credit derivative transactions with respect to the Reference Entity, the creditors' decisions with respect to such waiver or amendment requests may be influenced by the creditors' cash and derivative exposures to the Reference Entity. In some cases, it may be possible to structure a waiver or amendment such that it either will or will not constitute a "Credit Event" under market standard definitions. As a result, market participants should be aware of the potential interplay between the terms of a proposed waiver or amendment request and credit derivatives.

The existence of credit hedges may also have a significant impact on workout situations. To the extent that a creditor has hedged a substantial portion of its credit exposure to a Reference Entity that is in financial distress, the creditor's actual credit exposure to the Reference Entity may be significantly different than its cash position in obligations of the Reference Entity. Moreover, the seller of credit protection may have substantially greater credit exposure to the Reference Entity than its cash positions. Accordingly, market participants should be sensitive to the potential impact that credit derivative transactions may have on apparent and actual credit exposure of a Reference Entity's creditors.

E. Implementation and Progress

Documentation standards are qualitative rather than quantitative, and it is therefore difficult to measure progress in the reduction of documentation basis risk. Nonetheless, since 1999, steps have been taken to address documentation basis risk by institutions active in the OTC markets. Improvements include better documentation practices through greater awareness of documentation basis risk and documentation content, and the adoption of formal and informal documentation policies; the expansion of staffing in documentation units to include individuals with a high degree of documentation expertise; and the implementation of new systems and tools to track documentation status and measure exposures. These enhancements,

along with greater emphasis on straight through processing, have reduced or mitigated the risks associated both with documentation basis risk and explosive trade volumes.

The Recommendations made and Guiding Principles established in this Report represent another large step forward in strengthening the global financial infrastructure and thus contributing to the goal of financial stability. As with the 1999 recommendations, most of the 2005 Recommendations and Guiding Principles will require closer coordination between individual institutions, industry trade associations and official institutions.

SECTION V: COMPLEX FINANCIAL PRODUCTS — RISK MANAGEMENT, RISK DISTRIBUTION AND TRANSPARENCY

A. Overview

Over the relatively short period since the publication of the CRMPG I report, there has been a further explosion of financial innovation. As detailed in Appendices A and B, this process has been driven by a number of forces, including the "search for yield" and the rapid further evolution of risk mitigation techniques. One result of the process has been a surge in the creation of new and ever more complex financial instruments. These new products, which include credit and equity derivatives and structured transactions, have introduced greater complexity to the operational, risk measurement and risk management practices of financial intermediaries and their counterparties in the wholesale marketplace. The new products also have added complexity to the financial statements of both end-users and financial intermediaries, thereby creating challenges for understanding the nature and distribution of financial risks.

This section makes observations about the impact of product innovation since the late 1990s on firms' operations, risk disciplines and transparency, and provides a set of Guiding Principles designed to more fully address those issues. It is directed at the wholesale institutional marketplace and encompasses bilateral responsibilities between counterparties transacting in such products. Section VI: Emerging Issues of this Report provides additional guidance related to the sale of complex products to retail investors either directly or indirectly.

The Policy Group has analyzed developments in three product classes in order to gain insight into the impact that product innovation since the CRMPG I report has had on the operational and risk management issues raised in that report. The three classes reviewed are: credit derivatives, structured credit products and equity derivatives. The Policy Group chose these classes because of their rapid growth over the last several years and their relative complexity, and because they provide valuable illustrations of how different market segments are interconnected. In choosing these three instruments, the Policy Group recognizes that a number of other relatively new instruments present similar features, including exotic interest

rate swaps, commodities derivatives and derivatives related to commercial mortgages. Thus, while the Policy Group chose for practical reasons to focus only on the three instrument classes discussed in Appendix A, the observations below could be applied to a broader family of products as well. Appendix A, which should be read as an essential part of this Report, reviews each class along the following dimensions:

- Instrument description and market developments
- Forces driving market activity
- Long and short users of the instruments
- Risk management issues

To varying degrees, these new products tend to incorporate leverage. Credit characteristics, duration and optionality are among the factors that will influence the extent of leverage associated with these products and therefore the potential for non-linear changes in their value in response to shocks. Accordingly, Appendix A begins with a summary of the CRMPG I analysis of leverage and provides an introduction to leverage as it relates to the instrument reviews. Appendix A also includes a series of charts for sample structured credit and equity derivative products that illustrate the sensitivity of their prices to key input variables. The Policy Group also commends the *Joint Forum Report on Credit Risk Transfer* of October 2004 (Joint Forum Report), which provides valuable explanations of the mechanics of credit derivatives and certain structured credit products, examples of how the value of the products might change in response to changes in key parameters and discussion of the risk management implications.

Each instrument review is highly informative in its own right, providing detail on how instruments work, the motivations for their use and the attendant risks. The Policy Group has determined that its analysis of these new products leads to four overriding conclusions as follows:

1. **First, recent product innovation tends to add complication to firms' operating environments and can potentially raise issues related to reputational risk as well as financial risk.**

   The operating environment associated with the life cycle of complex financial products is complicated for many reasons, but at least two main reasons stand

out. First, certain transactions can be hard to understand in terms of their cash flows or payout features, making the assessment of their current and potential values difficult. In structured credit transactions, for example, an investor can gain exposure to the performance of a single asset or pool of assets by investing in contracts with payout terms linked to the performance of the underlying assets or in tranches which prioritize the returns on reference assets across different classes of investors. The payout terms in these investments are analogous in some cases to the sale of options with the attendant risk features of those instruments. CDOs of CDOs (known as CDO-squared) are examples of a highly complex product referenced in Appendix A that can expose an investor to a quick accumulation of losses, depending on where they are in the subordination of the structure. In a Target Annual Review Note (TARN), an equity derivative product explained in Appendix A, the price return on any stock in the basket will affect not only the coupon received but might also affect the maturity of the investment.

The potential issues for intermediaries and their counterparties in understanding certain new products pose challenges for intermediaries in managing their relationships with those counterparties. Should the transaction's performance diverge from a counterparty's understanding or expectations, a financial intermediary could be exposed to a greater degree of reputational risk. This in turn has implications for how financial intermediaries review transactions for client suitability and reputational risk, document the transactions and communicate with counterparties. These considerations are addressed in those Guiding Principles in Section B below that relate to pre-trade activity, trade execution and post-trade processes.

Second, recent product innovation can raise challenges for the systems and technology infrastructure supporting front office, back office, finance and risk operations. As illustrated in the instrument reviews in Appendix A, financial intermediaries engaged in complex credit transactions, for example, may have to be able to track the performance of and modify the composition of different asset pools; manage the payouts associated with multiple tranche structures; and incorporate transactions accurately in their market risk, credit risk, accounting and internal and regulatory capital measurement systems. A major challenge in this regard is ensuring that the relevant systems can both help the firm understand the ongoing economics of any one transaction as a whole, including hedges and any risk mitigants such as collateral, while also properly capturing

the underlying risk factors for possible aggregation with risks emanating from other transactions. These challenges can be exacerbated when transactions have multiple legs (e.g., back-to-back swaps or swaps combined with guarantees) or involve multiple legal entities.

The challenges to firms' operational readiness for complex products place particular importance on the robustness of governance arrangements associated with the management and monitoring of such transactions. The Guiding Principles on governance in Section B below are intended to help firms ensure that they are prepared for the operational intensity associated with this activity.

2. **Second, the risks associated with certain new products can be highly complex, posing challenges for risk measurement and pricing.**

The underlying variables and structures associated with recent product innovation introduce complexity in risk measurement and pricing. Common features of complex credit products, for example, illustrate this point. Among other factors, estimates of default probabilities, credit spread paths, correlation[4] assumptions, the impact of collateral and recovery rate uncertainty contribute to a high degree of complexity in modeling the current and potential future value of these instruments. The risk of sudden jumps in credit quality (including to jumps to default) is present in virtually all traded credit products and is difficult to capture in risk modeling. Complex credit products are particularly sensitive to default correlation, and although a number of modeling approaches can be used to address this, an industry standard has not yet emerged.

Measuring the risk of innovative equity derivatives instruments also can be complex in light of the key variables in the trades. For example, in variance swaps, volatility[5] itself is the key variable driving the return and risk. Investors trade the spread between index and single stock return variance, a spread that is closely linked to the correlation of stock returns. As discussed above, this has led in turn to the development of correlation swaps, which allow investors to trade the correlation of equity returns. Another example, described in Appendix A, is

[4] Correlation measures the tendency for two variables to move together. It shows how the variability in one quantity is related to the variability in another. Positive correlation implies that an increase in one variable will typically be associated with an increase in the other variable. Negative correlation implies the opposite.

[5] Volatility measures the extent to which a variable tends to change in value. In statistical terms, it is the standard deviation of a variable as a percentage of the mean.

the Constant Proportion Portfolio Insurance (CPPI), in which the amount invested in a risky asset (e.g., equities) depends on its performance.

Other considerations contribute to the complexity of risk measurement. For example, proxies are often used where direct prices are not available, potentially creating basis risks for the firm that may be hard to capture. Risk management paradigms, including pricing and risk measurement models, routinely presume markets are liquid such that transactions can be hedged or unwound without drastically changing market prices. As discussed elsewhere in this Report, assumptions about asset liquidity do not always hold, exacerbating price movements and potentially raising significant issues related to a firm's funding liquidity.

To the extent complicated risk modeling is required for these types of instruments, pricing and valuation will be more opaque and harder to understand. The complexity associated with measuring financial risk demands that firms routinely challenge core assumptions. Complexity in risk measurement also should raise questions for financial intermediaries and investors about whether they are being adequately compensated for the risks they are incurring. If market participants have difficulty measuring the risks then it is possible that they also will have difficulty making sensible risk/return decisions. Potential uncertainty regarding risk/return tradeoffs as represented through modeling techniques necessitates the overlay of seasoned judgment as discussed in the over-riding Guiding Principle in Section B below. Such uncertainty also indicates opportunities for improving modeling and stress testing practices, which are addressed in the Guiding Principles and Recommendations on risk management and monitoring.

3. **Third, managing the risks of many instruments can be more difficult in light of the underlying assets, structures and the vagaries of complex models used in the design and valuation of these instruments.**

   Even if issuers of these products have robust risk measurement capabilities, the management of the associated risks can be difficult. As the equity derivatives instrument review points out, an important reason is that some key risks are not easily recycled in the financial markets. Examples of these risks include the following:

- Short correlation in equity due to the systematic sale of index options as hedges of long single stock options.
- Structural sensitivity to gapping risk in hedge fund price returns.
- Impairment of hedging strategies in hedge fund linked structures due to constraints on the purchase and sale of hedge fund shares.

Financial intermediaries in the complex credit market also face risk management challenges, including:

- Residual risks (including gamma and correlation) of capital structures that are not fully distributed.
- Substitution risk of defaulted or withdrawn assets.
- Ratings triggers which can result in forced selling by investors.

The dynamic hedging required of single-tranche CDOs, created in a case where the full capital structure cannot be distributed, provides a useful illustration of some of these challenges. These products require intermediaries to sell protection on the names in the reference portfolio in an amount that offsets spread movements in those names. As market credit spreads change, intermediaries must adjust how much protection they sell. This is a continuous process that requires careful attention to the correlation of spreads.

As a general matter, correlation adds a new, difficult dimension to risk management of structured credit products. To manage this risk an intermediary could, for example, complete the capital structure or hedge with more standard tranches. These approaches pose challenges, however, because they might embed a variety of mismatches (e.g., maturity, bespoke versus standard). As a result, the intermediary may be exposed to higher order risks.

The prospect of investors facing similar risk exposures is central to the analytical framework for leverage in CRMPG I. Given that structured credit remains largely a long-only market, investors are likely to have very similar risk exposures. Overlap in the composition of assets is an issue for all CDOs, especially CDO-squared, and can be as high as 50 – 70%. To the extent leveraged investors are in a "crowded trade," they may be compelled to try to liquidate or immunize positions at or about the same time in the event of a firm-specific or adverse

market event, exacerbating price movements, which can in turn magnify the impact of the event with potentially destabilizing effects. The probability that an investor in a synthetic or structured product will feel compelled to liquidate or immunize a position will be partly a function of the investor's subordination position. Equity investors will be focused particularly on idiosyncratic events while investors in senior tranches will be driven by systematic or correlated events.

Against this background, focus on the judgmental aspects of risk management and continuous efforts to measure risk as thoroughly as possible are essential. The Guiding Principles in Section B below that relate to the importance of judgment and model risk were developed with this in mind.

4. **Fourth, the risk profiles of financial intermediaries and end-users are less transparent in light of the observations above, making investment analysis, counterparty risk assessment and crisis management more difficult.**

The complexity of financial risks intrinsic to recent product innovations has made it more difficult to understand the risk profiles of firms and therefore of the financial system as a whole. This is due in large part to the multifarious interactions of key variables that affect the value of firms' trading and investment portfolios. Risk measures that are commonly shared or disclosed today are very useful but have well-known limitations. Value-at-Risk (VaR) measures, for example, have known limitations because they tend to show the potential for loss under normal market conditions over short-term horizons. Moreover, VaR measures are often shared or disclosed at a relatively high level of aggregation, making it hard to understand a firm's sensitivity to major shifts in underlying risk factors. The utility of such measures in public filings is further limited because they tend to be stale given the time lag between dates on which they are calculated and the actual date of publication. While time series data for individual firms provide useful perspectives on risk appetite over time, the fact remains that VaR-type measures do not capture so-called "tail events" and can change very rapidly over short periods of time.

CRMPG I highlighted three levels of information transparency that are important to the smooth functioning of financial markets: bilateral sharing of information between counterparties, disclosure of information in public filings and reporting by firms to their regulators and rating agencies. The Policy Group still believes

— as it did in CRMPG I in 1999 — that the area where the most progress can and should be made is in the sharing of bilateral information between counterparties. Accordingly, Section III of this Report is focused on enhancements to the 1999 recommendations in CRMPG I in this area. The Policy Group also believes there are opportunities at hand whereby financial intermediaries — especially large and complex intermediaries — can take steps to foster the timely and periodic review of information with their primary regulators. Finally, the Policy Group believes there are only limited opportunities to make improvements in quantitative public disclosures because the financial statements and public filings of financial intermediaries are already compound and complex. However, the Policy Group also believes there are opportunities to further upgrade and broaden qualitative disclosures as discussed in the Guiding Principles.

B. Guiding Principles and Recommendations

In the context of the four areas of analysis discussed above as they relate to today's complex financial environment, the Policy Group has framed a series of Guiding Principles and Recommendations which it believes will materially enhance risk management and risk mitigation efforts of both financial intermediaries and users of complex financial instruments. In considering such Guiding Principles, the Policy Group urges that such Principles be seen as an integrated package of initiatives in that the effectiveness of any one such Principle or Recommendation is tightly linked to the collective effectiveness of the Principles and Recommendations as a group. With that in mind, the Guiding Principles and Recommendations are presented in the following groupings.

1. Governance
2. Financial Intermediary/Client Relationship
3. Risk Management and Monitoring
4. Enhanced Transparency

Before presenting these Guiding Principles and Recommendations, the Policy Group strongly believes that there is a single over-riding Guiding Principle which must be at the very center of efforts to better manage financial and reputational risk in the current and prospective environment, as follows:

23. Over-Riding Guiding Principle (Category I):

Senior management and business managers at financial intermediaries must rely first and foremost on sound judgment based on experience and the fundamentals of managing risk.

It is a core belief of Policy Group members that this Guiding Principle provides the foundation for strong risk management practices. In this regard, senior management and all relevant business managers at firms engaging in complex transactions should ensure that they: (1) understand the essential risk elements of the instruments their firms are buying and selling; (2) implement a well-developed process to ensure that reputational risks are adequately addressed and fit into the relationship framework being sought between firms and their clients; (3) understand the nature of the risk associated with the positions their businesses have taken; (4) understand the limitations of the pricing and risk models applicable to the instruments; (5) adjust risks tolerances and associated limits based on those limitations; (6) receive information that allows them to determine whether the risk positions are within agreed upon limits; and (7) hold business line personnel accountable for the financial, risk and operational performance of the activity.

1. Governance Related Guiding Principles

24. Guiding Principle (Category I)

New products and major variants of existing products should be subject to a systematic review and approval process by a senior level committee or similar group. The new product approval process should, at a minimum, have the following features:

- Effective internal communication as to the classes of activity that are subject to the review process.
- The involvement of independent control personnel.
- Reasonable expectations that the necessary operational and related infrastructure to support the new product are in place.
    - To the extent that such expectations are not being realized, management should be prepared to limit or curtail such business until the support infrastructure is well established.

- Adequate training of sales and related personnel.
- Rigorous documentation.

25. Guiding Principle (Category I)

Individual transactions that entail unique reputational issues should also be subject to an appropriate framework of escalation to senior management or committee review particularly when they entail questions regarding accounting, tax, regulatory or business intent or purpose on the part of the client. The transaction review process should, at a minimum, have the following features:

- Effective internal communication as to the classes of activity that are subject to the review process.
- The involvement of independent control personnel.
- Adequate training of sales and related personnel.
- Rigorous documentation.

26. Guiding Principle (Category I)

While new product and select individual transactions approval processes must involve both business and independent control personnel, it is an inherent responsibility of senior management to ensure that the independent control personnel are truly independent.

27. Guiding Principle (Category I)

At least annually, the effectiveness of the new product and unique transactional approval process should be reviewed by the highest level of management.

2. Intermediary/Client Relationship

Complex over-the-counter transactions in the wholesale market between a financial intermediary and an end-user require clarity with respect to the nature of the relationship between the parties and the attendant obligations each party may owe the other in connection with these transactions. Since these complex transactions will often remain outstanding for a significant period of time, it is in the interests of both parties to have a firm and clear understanding of the

principles that should guide the parties over the course of their relationship. The following principles should be considered in the context of each trading relationship in the wholesale market involving complex over-the-counter transactions between a financial intermediary and a sophisticated counterparty. These principles are intended to promote high standards of customer service and reputational as well as financial risk management. They are not intended to alter the arm's-length nature of the parties' relationship or to articulate legal standards. Of course, these principles are intended to complement, and not substitute for, compliance by financial intermediaries with their express contractual undertakings and with applicable legal and regulatory requirements relating to the offer or sale of such products.

(a) Pre-Trade

28. Guiding Principle (Category I)

- Assess Client Sophistication and Experience – The financial intermediary should make reasonable efforts to determine the level of experience and sophistication a potential counterparty has in trading complex products to enable the financial intermediary to tailor its communications regarding the terms of, and the risks and opportunities associated with, a proposed transaction. As part of the financial intermediary's review of the potential counterparty's sophistication and experience, the financial intermediary should give careful consideration to whether the potential counterparty understands the arm's-length nature of the relationship and should take reasonable steps to reduce the risk of misunderstanding by clarifying the arm's-length nature of the relationship in written or other communication with the potential counterparty.

    - *Role of Financial Intermediary:* The financial intermediary is not, unless otherwise expressly agreed, the potential counterparty's advisor and the financial intermediary will execute a complex transaction strictly on an arm's-length basis. If the potential counterparty expects the financial intermediary to undertake any heightened responsibilities, it is the counterparty's responsibility to ensure that those expectations are clearly communicated and agreed in the transactional documentation.

- *Non-Reliance:* Because each party must independently evaluate whether the risks and benefits of a complex transaction are appropriate for it, the potential counterparty has the obligation to ensure that it has obtained any information or clarification it deems necessary to evaluate the appropriateness of the transaction in light of its own circumstances and objectives.

29. Guiding Principle (Category I)

- Term Sheets: Although it is standard market practice to reflect the terms of a complex transaction in a written confirmation exchanged by the parties following execution of the transaction, financial intermediaries have different practices with respect to furnishing potential counterparties with term sheets or other documentation describing transaction terms, including any early termination provisions, prior to execution of the transaction. This is particularly important with complex products. Financial intermediaries should provide such documentation in all situations where the particular complexities of the transaction create a risk of misunderstanding regarding the operative terms of the transaction.

30. Guiding Principle (Category I)

- Disclosure: The financial intermediary should ensure that any written materials supplied to the potential counterparty relating to the risks of a proposed complex transaction fairly present the material risks to the potential counterparty. The form of disclosure, which may consist of scenario-based analysis or other appropriate text or metric descriptive of the risk, should be clear and accurate.

  - *Identifying Material Risks*: Both the financial intermediary and the counterparty should consider the material risks associated with each complex transaction and the financial intermediary should disclose the material risks to the counterparty upon counterparty request or if the financial intermediary believes the potential counterparty may not understand these risks. For example, a financial intermediary may conclude, under appropriate circumstances, that it should discuss the potential adverse impact of the financial intermediary's ordinary course hedging, market-making and proprietary activities on a

complex transaction's value, or the exercise by the financial intermediary of early termination rights.

- *Maintenance of Position*: Both parties to a complex transaction should consider and, as appropriate, discuss at the start of their relationship any significant issues relating to the maintenance of open positions, such as, how a complex transaction will be recorded, valued and margined. The financial intermediary should consider whether potential counterparties understand that valuation of a complex transaction is a function of the inputs and the proprietary financial models used by financial intermediaries and, consequently, that valuations determined by one financial intermediary may not be consistent with those of another or, to the extent capable of being modeled by the potential counterparty, those of the potential counterparty.

(b) Trade Execution

31. Guiding Principle (Category I)

- Trade Review: The financial intermediary should review with the potential counterparty the material terms of a complex transaction immediately prior to execution. The financial intermediary may satisfy this obligation either through explicit recitation of the key transaction terms, or by referring to a transaction summary or other document (describing the material terms of the transaction) previously provided to the counterparty and obtaining affirmation of the material terms from the potential counterparty.

32. Guiding Principle (Category I)

- Confirmation: Both financial intermediary and counterparty must make reasonable efforts to confirm the execution of a complex transaction in a timely manner, in accordance with Recommendation 12 in Section IV of this Report.

  - *Notice of Delay:* If the financial intermediary anticipates delay in the creation of an appropriate confirmation reflecting the terms of a complex trade, the counterparty should be promptly notified of the expected delay.

- *Trade Recaps:* Parties frequently exchange evidence of their agreement (for example, signed term sheets or electronic messages) prior to the execution of a confirmation. If the financial intermediary intends that this information will not serve as a binding confirmation of the transaction terms, the financial intermediary should disclose this fact to the counterparty before or at the time this information is provided. Even though this information may not constitute a binding confirmation and may have been provided by the financial intermediary only for informational purposes, each party should take reasonable steps to review the information for accuracy and completeness and should promptly notify the other party of any error or discrepancy it identifies.

(c) Post-Trade

33. Guiding Principle (Category I)

- Valuations: If the counterparty requests a valuation of a complex transaction executed with the financial intermediary, the financial intermediary should have a clear understanding of the counterparty's intended use of the valuation so provided.

  - *Market Levels and Inputs*: It is acceptable market practice for a financial intermediary's sales and trading personnel to provide their sophisticated counterparties with general market levels or "indications," including inputs and variables that may be used by the counterparty to calculate a value for a complex transaction. Additionally, if a counterparty requests a price or level for purposes of unwinding a specific complex transaction, and the financial intermediary is willing to provide such price or level, it is appropriate for the financial intermediary's sales and trading personnel to furnish this information.

  - *Requests for Valuation*: If the counterparty wants to receive a valuation of a specific complex transaction from a financial intermediary, it should clearly communicate to the financial intermediary that it is requesting a specific transaction valuation and not other more general market information. A financial intermediary should have formal procedures and controls in place for processing

and responding to all valuation requests and, in addition, should have a unit independent of the financial intermediary's sales division prepare the valuation and provide it to the client in order to minimize any risk of conflict or appearance of impropriety.

- *Form of Valuation*: A valuation provided by a financial intermediary, whether based on market prices or financial models, should be in writing. Furthermore, the written valuation should clearly state the basis upon which the valuation is being provided.

34. Guiding Principle (Category I)

- Client Communication: Following execution of a complex transaction, the financial intermediary will often maintain communication with the counterparty in the interest of maintaining good client relations. As part of this communication, the financial intermediary, although under no legal obligation to do so, may wish to alert its counterparty to any observed market change that it determines may challenge the underlying assumptions or principal drivers that motivated the counterparty to establish the original position.

3. Risk Management and Monitoring

Guiding Principle 4 in Section III of this Report highlights independent model review and stress testing as important components of strong risk management practice. The financial instruments discussed in this section are highly dependent on models for pricing and risk measurement. As a result, the integrity of model construction and parameterization are critical to the risk/return profiles of firms using them. Model integrity also is central to mutual confidence between counterparties, particularly where models are used to derive client valuations. Therefore, for firms that actively use complex products, the robustness of model review and stress testing practices takes on even greater importance.

35. Recommendation (Category I)

CRMPG II recommends that financial intermediaries have a dedicated and fully independent group of professionals who are fully responsible for all aspects of model verification including final approval of all changes in model design and specification. The model verification group should determine:

- The scope and frequency of all model reviews.
- Standards for review of model assumptions and methodology.
- Model testing and release requirements.
- Documentation and inventory standards, including user guides, technical documentation, testing notes and source code.

36. Guiding Principle (Category I)

Firms should continue to invest in their risk measurement capabilities with a particular view towards making advances in areas of model uncertainty associated with new and complex products.

There are at least three areas where the Policy Group believes further enhancements may be warranted:

- Multi-period models for multi-name credit structures
- Treatment of implied correlation
- Treatment of long-dated cross-currency options

Firms at the leading edge of market practice regularly conduct scenario analyses and stress tests of their portfolios to gain insight into the impact of changes in market variables. In this regard, it is important to note that these analyses themselves have limitations that must be understood. These limitations include the following:

- Specific scenarios, such as historical ones, might not reflect changes to key parameters that will most adversely impact the value of the portfolio.
- Stress tests are often conducted at a high level of aggregation, potentially blunting the impact of changes to key assumptions.
- Infrastructure and data limitations can limit the ability to alter multiple parameters simultaneously, which can result in a misestimate of the potential risks.

In addition, Policy Group members have observed that scenario analyses or stress tests do not provide value to senior management or business

managers unless they are plausible. Moreover, they do not necessarily facilitate decision-making unless they incorporate a probabilistic assessment of the stress condition occurring. This is especially true when management might be trying to make decisions based on a comparison of different businesses' stress tests.

37. Recommendation (Category I)

CRMPG II recommends that to gain insight into the potential for value changes in their portfolios, firms should conduct stress tests that alter key input variables of the models they rely on for pricing and risk measurement of new and complex products. Such tests should be both plausible and meaningful for the relevant portfolios. Firms should understand the limitations of such tests and conduct specialized tests, as appropriate.

To improve the value of stress testing exercises, firms should consider the following:

- Asking business managers and senior management to clearly express loss tolerance levels.
- Identifying a range of scenarios that could produce losses for portfolios or businesses.
- Ranking the scenarios by level of potential adverse impact.
- Assessing relative probabilities for the scenarios.
- Based on this probabilistic assessment, comparing potential loss estimates to expressed tolerance levels.

38. Guiding Principle (Category I)

Once a financial intermediary has accumulated a material position in a complex product, it should require its desk to trade a portion of the risk in the market. Such a practice is a promising way to promote price discovery and to narrow the potential for divergence between theoretical, model-derived prices and market prices, particularly if firms have accumulated similar risk positions.

4. Enhanced Transparency

CRMPG I and Section III of this Report focus on the exchange of bilateral information as a means of enhancing transparency, which, in turn, will improve counterparty risk management practices. The Policy Group strongly believes that the suggested further measures to foster greater bilateral exchanges of information are central ingredients in improving information flow in the financial marketplace.

The Policy Group also believes there are clear opportunities to improve the effectiveness and timeliness of informal confidential exchanges of information between financial intermediaries — especially large and complex integrated intermediaries — and their primary regulators as outlined in Guiding Principle 39 below.

39. Guiding Principle (Categories I & III)

Where it is not already the practice, large and complex financial intermediaries should provide their primary supervisors with timely quantitative and qualitative risk-related information on a regular basis and be prepared to provide such information on an ad hoc basis when circumstances warrant.

- Such information should be provided on an informal and confidential basis so as to facilitate the flow of otherwise proprietary and trade-specific information, as needed.

- The responsibility for such informal exchanges of information should be vested with an appropriately senior official — typically the chief risk officer or his or her equivalent.

- Supervisory bodies should make every reasonable effort to accommodate this process by ensuring that appropriately senior supervisory personnel will be available to participate in such regular discussions of risk-related matters.

With regard to public disclosure, the Policy Group observes that it will be difficult to design additional quantitative measures specifically around more complex products that are (1) readily understandable to a cross-section of readers, (2) respectful of proprietary boundaries and comparable across firms

and (3) appropriately consistent with the extraordinary complexities and detail associated with hedging and other risk mitigation activities. While opportunities for enhanced quantitative disclosures will surely emerge over time, the Policy Group believes there are important opportunities to enhance qualitative disclosures in the short run as outlined in Guiding Principle 40 below.

40. Guiding Principle (Category I)

Consistent with the Policy Group's core principle concerning the importance of the judgmental aspects of risk management, firms should strive to enhance qualitative public disclosures around complex products.

Specifically, the Policy Group strongly urges that intermediaries take steps to incorporate the following in their public disclosures:

- Description of the roles the firm plays (e.g., market maker, structurer, distributor and investor).
- Discussion of how complex products are addressed in the firm's risk management framework, including:
  - The governance associated with complex transactions.
  - The nature of the limits associated with the transactions.
  - The extent to which the products are captured in reported measures of credit, market and liquidity risk, and related capital measures.
  - How the firm addresses the potential for losses in portfolio values associated with stressed market conditions.
  - Any special considerations in the areas of documentation and risk mitigation related to collateral practices and hedging.
  - How the products are valued for financial statement purposes.

In identifying these potential areas for qualitative public disclosure, the Policy Group recognizes that it would be a matter of firm preference whether to incorporate references to such products in the overall risk management discussion section or whether to develop a dedicated section.

SECTION VI: EMERGING ISSUES

Since the publication of the CRMPG I report in 1999, a number of issues indirectly related to the scope of that report have come into sharper focus that are important to the functions of financial intermediaries and the well-being of financial markets. Given the very ambitious schedule established earlier this year for the publication of the CRMPG II Report, it was not possible to cover all of them or even to cover the more important of these emerging issues in the detail that might otherwise be desirable. Nevertheless, the Policy Group determined that there were five such issues that were of sufficient importance that they should not be ignored. Those issues are:

- Sale of complex productions to retail investors
- Managing conflicts of interest
- Risk management for fiduciaries
- Official oversight of hedge funds
- Supervisory challenges

A. Sale of Complex Products to Retail Investors

It is now fairly common for financial intermediaries to design complex structured products for sale to a range of retail investors. Complex structured products incorporate features not found in traditional asset classes and can therefore assist investors in achieving a broad range of investment objectives. Equally, these products may also present new or heightened investment risks. Often such structured products provide assurances of full (or partial) principal repayment at maturity. However, even when full repayment of principal at maturity is assured, redemption prior to maturity may result in realization of less than the full principal amount. Further, the fees and expenses associated with the sale of such instruments to retail investors — and the manner in which such fees and expenses impact the value of such instruments at or near the time of purchase — may not always be transparent.

To further complicate matters, regulatory standards governing the sale of such products to retail investors — in particular, suitability requirements — vary considerably from country to country. Thus, it would be impractical, if not impossible, to craft a universal set of standards governing the sale of such structured products to retail investors. Nevertheless, the Policy Group concluded that it was desirable to frame a statement of Guiding Principles that relate to suitability standards and disclosure practices as applied to the sale of such structured products to retail investors. Of course, these Guiding Principles are intended to complement, and not substitute for, compliance by financial intermediaries with applicable legal and regulatory requirements relating to the offer or sale of such products. Additionally, while appropriate disclosure and related sales practices such as those outlined in these Guiding Principles are important, they should not be seen as absolving even retail investors from their responsibility to ensure that they understand and carefully consider their investment alternatives.

For purposes of these Guiding Principles, retail investors are individual investors who are not investment professionals and who act for their own account. Complex financial transactions entered into by financial intermediaries with institutional or otherwise sophisticated counterparties are discussed in Section V of this Report.

A.1. Suitability and Disclosure for Structured Products Sold to Retail Investors

41. Guiding Principle (Category I)

Financial intermediaries should reevaluate their internal new product controls to ensure that they adequately manage the heightened reputational and related risks associated with the issuance of complex structured securities sold to retail investors. Enhanced practices that financial intermediaries should consider are as follows.

41a. Financial intermediaries should ensure that as part of the new product approval process, an internal product description is prepared. The internal product description should cover, at an appropriate level of detail, the product's characteristics, potential conflicts of interest, targeted investors, fees, third party involvement and similar elements, so as to ensure that appropriate consideration is given to these factors by management and control personnel involved in product approval process.

41b. Where the financial intermediary is directly involved in the issuance, distribution or marketing of the product to retail investors, the approval process should designate responsibility for review and approval of disclosure documents and marketing material(s), whether for internal or external use, by personnel who have the requisite expertise in complex products and personnel who are independent of the proposing business unit or desk. Final product approval should incorporate or be subject to subsequent approval of proposed disclosure and marketing materials by designated personnel.

41c. Financial intermediaries should consider whether disclosure might be enhanced by quantitative or graphical presentations of a product's potential values at maturity in relation to specific market factors to which the value of the product at maturity is related, together with historical data for such market factors.

41d. Financial intermediaries should consider whether disclosure appropriately describes, where applicable, factors that would cause the secondary market value of the product, prior to maturity, to be materially lower than the value the product would have at maturity under identical market conditions, including, in particular, products that have a principal protection feature.

41e. Financial intermediaries should consider whether disclosure appropriately conveys the fact that the secondary market value of the product, at or near issuance, will be less than the issue price as a result of embedded pricing factors that reflect anticipated costs and revenues to the selling institutions.

41f. Product approval should delineate any appropriate limitations, in addition to asset or net worth based tests, on the eligible investors to whom the product may be marketed or sold. Product approval should also identify cases where the complexity of the product warrants the qualification of eligible investors by internal supervisory personnel on a case-by-case basis.

41g. Financial intermediaries should conduct ongoing training for marketing personnel to ensure that such personnel are familiar with, understand

and can communicate effectively the performance and risk characteristics of the products offered for sale by the financial intermediary, and are able to perform required suitability evaluations. As part of the product approval process, consideration should be given to the need for additional specific training of marketing personnel, in light of any novel issues that may be presented by the product under consideration, as a condition to product approval.

41h. Senior management should conduct periodic reviews of the financial intermediary's internal controls for the sale of complex products to retail investors.

A.2. Reputational Risks Associated with Third Party Conduct

42. Guiding Principle (Category I)

Where third parties are involved in the distribution or marketing of a complex product in which a firm has either a disclosed or undisclosed role, the financial intermediary may confront reputational and related risks despite the absence of legal responsibility for the conduct of such parties. A financial intermediary should take appropriate steps to evaluate those risks, familiarize itself with the other transacting parties and ensure that it is comfortable under the circumstances that it has effectively managed or addressed such risks, or otherwise determined that the relevant risks are acceptable to it based on its evaluation of the relevant circumstances. In connection with that evaluation financial intermediaries should consider, where appropriate, Guiding Principles 41a through 41h, above.

B. Managing Conflicts of Interest

In the wake of the bursting of the high-tech bubble of the late 1990s and the various financial scandals of the past few years, the subject of potential conflicts of interest in the activities of financial institutions has been thrust into the limelight. The existence of potential conflicts of interest involving the activities of financial institutions — and especially large integrated financial intermediaries — is not new. Indeed, in the United States concerns about potential conflicts of interest involving financial institutions can be traced to the earliest days of the Republic. Over time, the pendulum of public and political concern about such conflicts has swung in both more liberal and more conservative directions. For example, while still subject to

debate on the part of economic and financial historians, the belief in many quarters that conflicts had a major role in the stock market crash of 1929 and the subsequent depression clearly played a significant role in shaping the financial reform agenda of the 1930s. More generally, it has been recognized that the potential conflicts associated with financial intermediation cannot be eliminated while still preserving the significant societal benefits generated by the banking and financial system. Thus, the central tendency of public policy in virtually all countries has, over time, centered on how to effectively manage conflicts in part through regulation, but also by means of effective conflict management practices by individual institutions. The issue, therefore, is not whether such inherent conflicts can be eliminated, but rather how effectively financial institutions manage potential conflicts in the day-to-day conduct of their activities.

Unfortunately, in recent years there have been instances in which there have been obvious breakdowns in the rigor and effectiveness with which individual financial institutions have managed conflicts of interest. These failures have prompted greatly increased regulatory scrutiny and aggressive managerial initiatives at financial institutions aimed at systematic efforts to strengthen conflict management practices. In light of these developments, the Policy Group determined that it would be desirable to address conflict management.

Broadly speaking, the conflict management process at financial intermediaries is a well-established element of corporate governance in that typically there are senior level committees or similar groups that review classes of transactions, or sometimes individual transactions, to ensure that potential conflicts are well understood, effectively managed and, where appropriate, that adequate steps have been taken to mitigate potential conflicts. While the organizational and governance vehicles used to manage conflicts can vary substantially from one intermediary to the next, the increased size and complexity of many larger integrated financial intermediaries and the substantially more complex financial market environment in which these institutions operate present new challenges for conflict management.

In the changed business and regulatory environment, financial intermediaries have taken steps to augment and strengthen their conflict management policies and procedures. Often, these efforts are focused on the development of a more forward-looking process whereby individual business units, in consultation with legal and compliance personnel, identify broad categories of potential conflicts that might arise

in the day-to-day activities of the business units. The term "categories" as used above is directed at generic situations faced by financial intermediaries that have the potential to raise conflict issues. By way of illustration, an intermediary could face a potential conflict if it is advising one client on a prospective merger and it receives word from another client that it too has an interest in the same target company. As another example, there are many situations in which an intermediary has access to non-public information that could be used to the intermediary's benefit, thus giving rise to a potential conflict of interest.

Because the Policy Group believes that the conflict management process should be more forward-looking and because the Policy Group knows that conflict management situations seldom involve straightforward and easy solutions, the Policy Group has identified the following Guiding Principles that are designed to further strengthen the conflict management process.

Guiding Principles: Conflict Management

43. Guiding Principle (Category I)

Business Review Process: Financial intermediaries should have in place a Business Review Process to help identify generic categories of conflicts and to strengthen conflict management policies and procedures, consistent with the following Guiding Principles:

43a. The Business Review Process should identify categories of potential conflicts, which might, for example, include such categories as situations involving access to non-public information, situations in which the firm has multiple roles or situations in which the firm acts as both agent and principal.

43b. The Business Review Process should take account of all relevant laws and regulations.

43c. The Business Review Process should consider the level of reputational and financial risks associated with various categories of potential conflicts.

43d. The Business Review Process should consider potential conflict questions that might arise in connection with the introduction of new products or differing regulatory requirements in various jurisdictions.

43e. The Business Review Process should identify and catalogue various measures that are designed to mitigate the financial and reputational risks associated with particular classes of potential conflicts. Financial intermediaries should consider, among other things, an assessment of the adequacy of risk mitigants such as (i) policies and procedures, (ii) disclosure practices, (iii) suitability standards and (iv) employee training programs.

43f. The Business Review Process should be documented with particular emphasis on the maintenance of a framework that permits ex-post review.

43g. The Business Review Process should include an annual assessment of the effectiveness of the conflict management process by a senior-level management committee.

C. Risk Management for Fiduciaries

Reflecting in part increased complexity and the growing importance of so-called "alternative investments," the risk management challenges faced by institutional fiduciaries such as pension funds have undergone profoundly important changes in recent years. In the face of these changes, the Policy Group commissioned a Working Paper that summarizes these changes and is contained in Appendix D of this Report. Reflecting the importance of these changes relative to the inherent fiduciary responsibilities of these institutions, a number of the Recommendations and Guiding Principles in Sections III and IV of the Report were framed taking account of the risk management challenges facing such fiduciaries. These Recommendations are summarized in Attachment I to Appendix D. In addition, a number of further Guiding Principles designed to assist such fiduciaries in their risk management practices are outlined below.

Recommendations and Guiding Principles: Risk Management for Institutional Fiduciaries

These Recommendations and Guiding Principles are framed to take account of the fact that many fiduciaries may not be capable of or lack the full complement of human resources needed to manage complex risks and must rely in varying degrees on "institutional solutions" to aid them in their risk management activities.

44. Recommendation (Category I & II)

44a. CRMPG II recommends that fiduciaries taking on the new and/or additional risks associated with "alternative" investments and complex products continue to conduct and, as applicable, enhance the due diligence and monitoring practices relating to their investments and investment managers. Fiduciaries should have the ability to: (a) monitor indirect investments, including derivative positions and/or risk characteristics, on a timely basis to ensure their investment managers are not taking risks beyond represented levels in terms of allowable investment exposures, leverage, etc.; (b) aggregate risk across their entire pool of assets in order to understand portfolio level implications; and (c) determine whether their investment managers are adhering to a stated investment strategy or style.

44b. It is further recommended that investment managers and fiduciaries work together along with industry groups to form a consensus on generally accepted techniques for supplying risk characteristics on a bilateral basis to provide "sufficient information to allow an independent analysis of credit and market risk being undertaken by" institutional investors, as required by ERISA. The result of such efforts should be to enable fiduciary investors to measure and monitor aggregate risk exposures in a manner that is consistent with their responsibilities as fiduciaries.

45. Guiding Principle (Category I & II)

Market participants should take the following actions to further the goals of transparency, risk management, market discipline and financial stability:

45a. Encourage the clear disclosure in public financial statements of the use of "short cut" accounting treatment for hedging, including principles-based qualitative descriptions of the methods used to determine hedge effectiveness.

45b. Encourage the adoption by financial intermediaries and associated internal control organizations for the purpose of best practices, as applicable, of the recommendations of the *Final Report of the Multidisciplinary Working Group on Enhanced Disclosure* published in

April 2001; *Enhancing Public Confidence in Financial Reporting* published in 2004 by the Group of Thirty; and relevant related Recommendations and Guiding Principles in Sections III, IV and V of this Report.

45c. Encourage the adoption by hedge fund managers, for the purpose of best practices, of the *2005 Sound Practices for Hedge Fund Managers* report published by the Managed Funds Association and relevant related Recommendations and Guiding Principles in Sections III, IV and V of this Report.

45d. Enhance the accounting and risk management discussion, including counterparty exposures, in the Management Discussion and Analysis sections of 10K or equivalent reporting and annual report filings in order to improve qualitative and quantitative reporting for stronger credit and overall risk management evaluation.

45e. Enhance the overall market transparency of derivatives transactions and/or risk characteristics. The goal would be assisted by:

- Encouraging industry and trade groups (e.g., Managed Funds Association, Alternative Investment Management Association) to issue surveys (on derivative uses, exposures/levels, counterparty types, etc.) to augment the information published by regulatory agencies;
- Encouraging more frequent and comprehensive surveys and derivative reporting from organizations currently issuing related information such as the reporting produced by the International Swaps and Derivatives Association, the Bank for International Settlements, the US Office of the Comptroller of the Currency and the British Banker's Association; and
- Encouraging financial intermediaries to be receptive to informal discussions with fiduciary investors regarding their risk profiles and risk management practices, particularly as they apply to prime brokerage operations.

45f. Encourage OTC market participants to take steps, including the broadening and deepening of the use of bilateral facilities, to increase the efficiency of the settlement, clearing and collateralization processes, especially for high volume and "vanilla" products (see Section IV of this Report for related recommendations and guiding principles).

45g. Encourage financial intermediaries and institutional fiduciaries (and their trade groups) to create a central clearinghouse with a dedicated website, to catalogue and make available at a single resource all reports and surveys regarding risk management practices and related statistics that might be helpful to risk management practices for fiduciaries.

D. Official Oversight of Hedge Funds

The subject of whether, and to what extent, hedge funds should be subject to direct supervision and regulation is not new. Indeed, in the aftermath of the LTCM episode it was a lively topic of discussion. At that time, the subject of hedge fund regulation was discussed by CRMPG I but the Policy Group did not take a public position on the subject. The thinking of Policy Group I in 1999 was driven by two primary considerations:

- First, there were expressed concerns about the "moral hazard" issues that would inevitably arise by virtue of direct regulation of hedge funds; and
- Second, the 1999 Policy Group strongly believed that many of the benefits of direct regulation could be achieved through indirect regulation.

Specifically, the 1999 Policy Group concluded that supervisors and regulators of already regulated institutions could — by working with those regulated institutions — achieve much of what could be achieved by direct regulation of hedge funds. CRMPG I made several proposals as to how indirect regulation might work in practice, including a proposed large-exposure regulatory reporting framework. For a variety of reasons, the proposed regulatory reporting framework was not implemented.

As discussed throughout this Report, a great deal has changed since 1999 with regard to the number, aggregate size and complexity of hedge funds. In these

circumstances, the subject of hedge fund regulation has arisen with fresh momentum in a number of countries including the US, the UK and Germany. Some of the issues that have driven this renewed interest in hedge fund regulation relate to concerns such as investor suitability, the potential for market abuse and anti-money laundering. However, in many circles, the current debate about hedge fund regulation is also linked to financial stability issues.

More specifically, both the SEC in the US and the FSA in the UK have recently taken steps that, in effect, mean that direct regulation of hedge funds is at hand. Nevertheless, in both the US and the UK there are many open questions as to the details of such regulations over time. As an example, the FSA's discussion paper entitled "Hedge Funds: A Discussion of Risk and Regulatory Engagement" is carefully crafted so as to invite public comment on a wide range of regulatory options for the future.

In contemplating these developments regarding the hedge fund sector, CRMPG II brings to the table much of the philosophy of CRMPG I. Specifically, the Policy Group continues to believe that moral hazard issues as they relate to hedge fund regulation are quite real. However, the Policy Group continues to believe that indirect regulation has considerable merit. Therefore, the Policy Group believes that a deliberate approach to hedge fund regulation is appropriate. Consistent with that deliberate approach, the Policy Group believes that its Report and the 2005 report on "Sound Practices" prepared by the Managed Funds Association provide a broad menu of steps that hedge funds should adopt on a voluntary basis to strengthen their business practices and further enhance their risk management capabilities. Accordingly:

46. Recommendation (Category I)

> CRMPG II recommends that hedge funds, on a voluntary basis, adopt the relevant Recommendations and Guiding Principles contained in this Report as well as the relevant Sound Practices contained in the 2005 report of the MFA. Consistent with that, senior managers of hedge funds should systematically monitor the progress being made relative to these standards.

The Policy Group has also considered again the question of whether some form of a large-exposure regulatory reporting system directed at regulated financial institutions might play a constructive role in helping to better anticipate and mitigate systemic

risks. As practitioners, the members of the Policy Group are keenly aware of the formidable and practical challenges associated with designing and implementing an efficient and effective framework of large-exposure reporting requirements. However, while recognizing all of the problems, the Policy Group also believes that if an effective system of large-exposure reporting could be created, the potential benefits of such a system could be significant. Thus, devoting at least some resources to further consideration of such a framework seems well worth the effort. Accordingly:

47. Recommendation (Category II & III)

CRMPG II recommends that the private sector, in close collaboration with the official sector, convene a high level discussion group to further consider the feasibility, costs and desirability of creating an effective framework of large-exposure reporting at regulated financial intermediaries that would extend — directly or indirectly — to hedge funds. Using the indirect method, regulators would collect and aggregate large exposure data from traditionally regulated institutions and, through those institutions, collect data on hedge fund activity. Under the direct approach, hedge funds would, on a voluntary basis, provide large exposure data directly to the appropriate regulator.

E. Supervisory Challenges

For centuries, financial institutions have been — appropriately — subject to a higher degree of official supervision and regulation than is the case for most classes of private enterprise. In recent years, the challenges faced by supervisory and regulatory bodies (including bodies that set standards for accounting practices) have been significantly shaped by two powerful forces:

- First, the systemic risk implications of the enormous increase in the complexity, speed and linkages that characterize the global financial system; and
- Second, the apparent weaknesses in business practices on the part of financial institutions, as evidenced by the various scandals of recent years.

In light of these circumstances, the Policy Group commissioned a Working Paper to examine and summarize major regulatory developments since the publication of CRMPG I in 1999. That summary Working Paper is contained in Appendix C of this

Report. Drawing on that Working Paper and the experience and expertise of its members, the Policy Group has identified what it believes to be the four highest level challenges facing supervisory and regulatory policy in the period ahead. These challenges are framed with a view toward helping both the public and private sectors to work together in a cooperative spirit in order to better and more fully ensure that the public interest goals associated with the workings of the financial system are achieved to the maximum extent possible.

1. Supervisory Challenges

(a) Principles versus Rules

Virtually all areas of supervisory, regulatory and accounting policy are drifting into an environment in which rules are gradually displacing principles — a trend which will be very difficult to reverse. The Basel II capital regime, accounting standards, prescriptive compliance related regulations and the acute information overload problem associated with public disclosure requirements are all illustrations of situations in which basic principles are being displaced in the name of rules. Of particular concern are situations where new standards are effectively first imposed through enforcement actions. In some situations, this creates a situation where financial intermediaries must operate for a period of time without the necessary level of regulatory guidance regarding the specific contours of the new standard.

More generally, the trend toward detailed rule-making reflects a tension that is seen in both the public and private sectors, whereby the perceived need on the part of accountants, lawyers and regulators to anticipate virtually all contingencies produces so much detail as to make it difficult for managers to manage and supervisors to supervise. Even worse, the focus on detail inevitably can create incentives for practitioners to arbitrage the system, thereby producing the need for still more detail.

One area in which this trend can be checked relates to the prudential supervision of so-called large and complex financial institutions where greater reliance on the application of Basel II, Pillar Two in a risk sensitive manner holds promise of a return to a more principles-based approach. In fact, in this area movement in the desired direction is already occurring. Also, greater progress in a principles-based supervisory approach in this area could point

to other areas in regulatory and/or accounting policy where principles might play a larger role.

(b) Division of Responsibilities between Intermediaries and their Clients

In the aftermath of corporate and financial scandals, there has been a tendency to prescribe in some detail the responsibilities of financial intermediaries regarding structured products sold to their clients even when the client is unambiguously a sophisticated institutional client. Few would dispute that it is critical for financial intermediaries to maintain high standards of internal control and discipline relating to client/counterparty relationships. Moreover, virtually no observer would dispute the assertion that we have seen examples in recent years where financial institutions were not as rigorous as they should have been in managing client relationships.

Financial intermediaries have taken steps to strengthen their policies and practices in this area. The larger question, however, is the danger — however small — that efforts to articulate detailed new responsibilities for financial intermediaries could undermine the historic and delicate balance of responsibilities between intermediaries and their clients. Clearly, there is a point where sophisticated clients in particular must take responsibility for their own actions. This balancing of responsibilities and obligations between financial institutions and their institutional clients has been one of the great strengths of the financial system for centuries.

Nothing said above should be seen as suggesting that financial intermediaries should not have clear and high standards in managing their relationships with both retail and institutional clients. Indeed, Sections V and VI of this Report contains meaningful guidance as to heightened standards that should better and more rigorously guide the relationship between intermediaries and both their retail and institutional clients while at the same time assisting all parties to financial transactions in meeting their underlying economic objectives.

(c) Harmonization of Accounting Standards and Risk Management

There is a clear need to accelerate the national and international harmonization of accounting, regulatory and disclosure requirements and to ensure their alignment with proper risk management incentives. The

differences between the bases on which financial firms measure financial instruments for risk management purposes, for regulatory capital purposes and for reporting to shareholders under GAAP can produce unintended and perverse risk management incentives, and also contribute to costly and confusing financial statements. Thus, accounting authorities must continue and intensify their efforts to harmonize international standards and work with regulators with the ultimate aim of reducing the differences between accounting and regulatory capital treatment of the same product. Consideration should be given to the establishment of a single, common forum at which such issues could be promoted. Needless to say, such efforts must also strive to resolve the long standing disputes about the application of fair value accounting to financial instruments.

(d) Regulatory Coordination and Convergence

The financial system as a whole would benefit from more coordination and convergence among regulators in different jurisdictions on key issues (e.g., Basel II, home/host issues, etc.). Successful implementation of global standards depends importantly on the degree of coordination among national authorities and regulated institutions. Without such greater coordination, there is an increased risk of uneven application of standards that could lead to issues of competitive inequality or arbitrage opportunities as regulators exercise different interpretations of standards. The need for regulatory coordination and convergence also extends to the inherent tensions that can exist between so-called umbrella (or consolidated) supervisors and functional supervisors.

The financial services industry welcomes and encourages strong cooperation among the regulators, including the state securities regulators in the US. To the extent practicable, the goal should be the development of one set of standards concerning a particular functional regulatory area that would apply across national boundaries. In brief, the challenge is to develop a more holistic approach to regulation so that firms can follow global principles of conduct and develop procedural protocols to fulfill global regulatory requirements. This, in turn, will enhance global regulatory oversight of firms and contribute to the goal of financial stability.

APPENDIX A

Complex Financial Products

This appendix provides background information on three classes of instruments: credit derivatives, structured credit and equity derivatives. Each instrument review has four components: instrument description and market developments, forces driving market activity, long and short users of the instruments and risk management issues. To place the discussion in perspective, the analysis begins with background material regarding leverage which is drawn primarily from the 1999 CRMPG I report.

A. Background on Leverage

To varying degrees, the instruments that are the subject of the reviews below — as well as other instruments spawned by recent innovation — incorporate leverage. CRMPG I explained that leverage exists whenever an entity is exposed to changes in the value of an asset over time without having first disbursed cash equal to the value of that asset at the beginning of the period. A major contribution of the report was that it demonstrated why the impact of leverage can only be understood by relating the underlying risk in a portfolio to the economic and funding structure of the portfolio as a whole. The report provided an analytical framework for understanding how leverage affects market risk, funding risk and asset liquidity risk.

The starting point for analysis in CRMPG I was that financial institutions can fail in at least two ways. The first is through capital insolvency, meaning their liabilities exceed assets. Simple measures of leverage relate a notional or gross exposure to book equity but do not shed light on the probability of change occurring or the likely magnitude of change in portfolio value. The report defined risk measures which attempt to estimate the potential for capital insolvency as measures of leverage. Under such measures, two portfolios of like size can show quite different risk profiles. For example, a leveraged portfolio of low-risk assets may have less aggregate risk than an unleveraged portfolio of high-risk assets.

The second way firms can fail is through liquidity insolvency, meaning they run out of cash and are unable to raise new funds. The report defined measures which attempt to estimate the potential for a firm to run out of cash as measures of funding liquidity.

A key observation here was that a firm will have a higher degree of funding liquidity risk if it must meet additional margin calls to cover losses on assets used to secure funding and if it has a large portfolio relative to its funding sources. In other words, funding could be depleted faster for a given change in asset values. The report went on to point out that, generally, funding sources scale with capital, so increased leverage amplifies funding liquidity risk.

Asset liquidity risk in CRMPG I referred to the risk that the liquidation value of assets may differ significantly from their current mark-to-market values. This risk is of particular concern for highly leveraged portfolios because such portfolios may accumulate larger positions for a given level of capital. In the event of an adverse market environment, the likelihood that such a liquidation might occur is greater for such a portfolio as is the potential market impact. The report highlighted the dangers of assuming that all positions could be liquidated in the same time period and recommended adjusting risk measures for varied liquidation horizons.

Ultimately, CRMPG I enhanced understanding of how the confluence of leverage, funding liquidity risk and asset liquidity risk for an individual firm can give rise to systemic concerns in adverse market environments.

When considering the leverage features of the instruments reviewed below it is helpful to distinguish the more commonly thought of financial sources of leverage from the various other ways the instruments can amplify the volatility of returns. Traditional sources of financial leverage include, for example:

- Borrowing — investing one dollar and borrowing two dollars for a total investment of three dollars.
- Initial Margin — by putting up a small amount of initial margin the investor can obtain exposure to a large number of contracts, e.g., futures.
- No Initial Margin — gaining exposure to the change in value of reference variable or asset without necessarily posting money upfront, e.g., derivatives.

The instruments associated with recent product innovation can incorporate leverage in a variety of ways, including through credit, duration and optionality embedded in the instruments. Leverage in certain transactions emanates from the fact that the investor can gain exposure to the performance of a single asset or pool of assets by investing in contracts with payout terms linked to the performance of the underlying

assets or in tranches which prioritize the returns on reference assets across different classes of investors. An investor could leverage himself or herself financially to potentially amplify returns or invest in something that itself embeds leverage, or do a combination of both.[6] For example, an investor could buy $3 million of bonds across several issuers or the investor could buy the $3 million equity tranche of a CDO, thereby gaining exposure to the riskiest part of a $100 million portfolio of bonds that includes the same issuers. With the latter investment, the investor assumes the risk of faster loss accumulation but is presumably being compensated for the risk by gaining access to the returns of a much larger portfolio.

B. Credit Derivatives

1. Instrument Description and Market Developments

A credit derivative is a financial contract that allows a market participant to take or reduce default exposure, generally on bonds or loans, to a sovereign or corporate entity. The contract is between two parties and does not directly involve the issuer itself.

Credit derivatives are primarily used to:

- Reduce risk arising from ownership of bonds or loans;
- Take exposure to an entity, as one would do by buying a bond or loan;
- Express a positive or negative credit view on a single entity or a group of entities, independent of any other exposures to the entity one might have.

Since its introduction in the mid-1990s, the growth of the credit derivative market has been dramatic:

- The notional amount of credit derivative contracts outstanding at the end of 2003 stood at $3.5 trillion, up 82% from 2002.[7] At the end of 2004, outstanding contracts were estimated to be $5 trillion.

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[6] Leverage can be increased when there is a combination of financial leverage and leverage embedded in an instrument. For example, some levered investments such as equity tranches of synthetic transactions are also being done in swap form in which collateral posting is less than the notional.

[7] British Bankers' Association estimates.

- The tremendous growth in the credit derivatives market has been driven by the diversification of participants, the standardization of documentation and the growth of product applications.

- Credit derivatives have become mainstream and are integrated with credit trading and risk management at many firms.

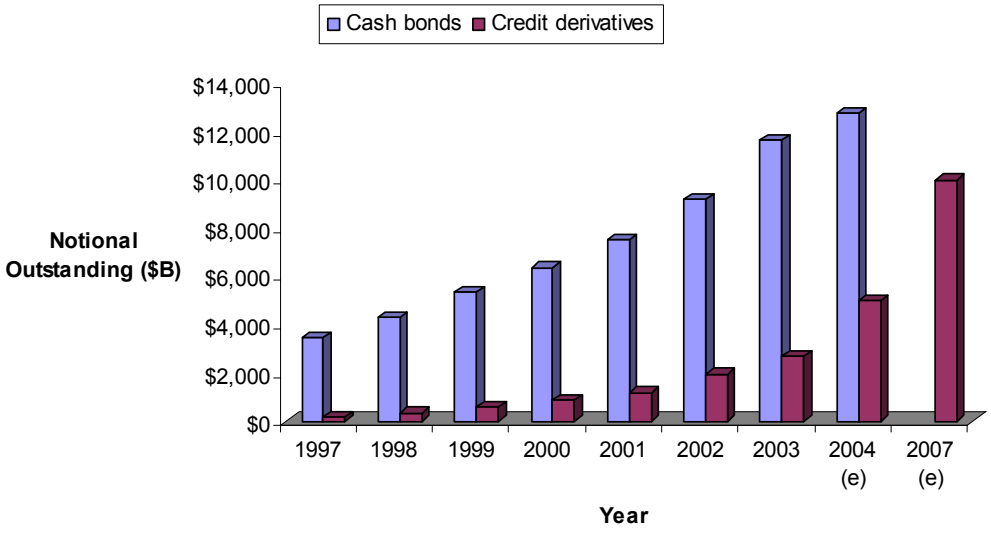
- ISDA's standard contract has generally proven effective, including in significant credit market events. When WorldCom filed for bankruptcy in July 2002, there were 600 CDS contracts outstanding in the marketplace, accounting for over $7 billion in notional terms. When Parmalat SPA defaulted in December 2003, there were approximately 4,000 CDS contracts and $10 billion outstanding in the marketplace. Additionally, Parmalat was a component of the original Trac-x Series 1 credit index. In December 2003, trading volumes in Trac-x increased three to four times after the Parmalat default, and over 550 Trac-x contracts settled. In these situations, contracts were settled without settlement problems, disputes or litigation. Legal and operational issues have been experienced in this market, however. These issues are discussed in Section IV of the main CRMPG II Report and in Section B.4 below.

- With the movement toward electronic settlement of CDS trades using DTCC (similar to the practice in the bond market), the logistics of trading credit derivatives is simplified. It is important to note, however, that the DTCC service is new and the associated volumes still relatively small.

- One large financial intermediary estimates that single-name credit default swaps represent about 60% of the total volume of credit derivatives traded, while credit derivative index products represent about 25%. Options, first-to-default baskets, synthetic CDOs and tranched credit products account for the remaining 15% of the credit derivatives market. (See Section C below for additional information on these market segments.)

- The variety of products is growing along with the sophistication of users. Recent additions to the credit derivatives product suite allow for the trading of spread volatility, correlation and spread curves, as well as specific components of credit risk such as recovery rates.

Chart 1
Credit Derivatives Volumes Continue to Grow Rapidly and Are an Increasing Portion of Total Debt Outstanding



Sources: British Bankers' Association, Bank for International Settlements

The credit default swap (CDS) is the cornerstone of the credit derivatives market. A credit default swap is an agreement between two parties to exchange the credit risk of an issuer (reference entity). The buyer of the credit default swap is said to buy protection. The buyer usually pays a periodic fee and profits if the reference entity has a credit event, or if the credit worsens while the swap is outstanding. A credit event includes bankruptcy, failing to pay outstanding debt obligations or, in some CDS contracts, a restructuring of a bond or loan. Buying protection has a similar credit risk position to selling a bond short, or "going short risk."

The seller of the credit default swap is said to sell protection. The seller collects the periodic fee and profits if the credit of the reference entity remains stable or improves while the swap is outstanding. Selling protection has a similar credit risk position to owning a bond or loan, or "going long risk."

Other noteworthy aspects of the credit default swap market include:

- The most commonly traded and therefore the most liquid tenors for credit default swap contracts are five and ten years. Historically, volumes are concentrated in the five-year maturity. One large financial intermediary

estimates that 70% of the CDS volume is in this tenor, with 20% in longer maturities and 10% in shorter maturities. Liquidity across the maturity curve continues to develop, however, demonstrated by CDX indices, which are quoted in the 1, 2, 3, 4, 5, 7, and 10 year tenors.

- Standard trading sizes vary depending on the reference entity. For example, in the US, $10 million – $20 million notional is typical for investment grade credits, and $2 million – $5 million notional is typical for high yield credits. In Europe, €10 million notional is typical for investment grade credits, and €2 million – €5 million notional is typical for high yield credits.

Credit default swap indices provide investors with a single, liquid vehicle through which to take diversified long or short exposure to a specific credit market or market segment. The first index product was the High Yield Debt Index (HYDI), created by JPMorgan in 2001. Like the S&P 500 and other market benchmarks, the credit default indices reflect the performance of a basket of credits, namely a basket of single-name credit default swaps (credit default swaps on individual credits). CDS indices exist for the US investment-grade and high-yield markets, the European investment-grade and high-yield markets, the Asian markets and global emerging markets.

Unlike a perpetual index like the S&P 500, CDS indices have a fixed composition and fixed maturities. New indices with an updated basket of underlying credits are launched periodically, at least twice a year. New indices are launched in order to reflect changes in the credit market and to give the index more consistent duration and liquidity. When a new index is launched (dubbed the "on-the-run index"), the existing indices continue to trade (as "off-the-run") and will continue to trade until maturity. The on-the-run indices tend to be more liquid than the off-the-run indices.

Probably the most important event in the CDS market in 2004 was the establishment of one credit derivative index family. The establishment of the Dow Jones CDX index family in the US and the Dow Jones iTraxx index family in Europe and Asia in the second quarter has led to increased liquidity in index products and the growth of other products (volatility, correlation) that require a standard, liquid underlying market. In DJ CDX Investment Grade and High Yield,

bid/offer spreads have halved due to the liquidity benefit of having one single index family, and transaction volumes have increased.

2. Forces Driving Market Activity

Credit derivatives have been widely adopted by credit market participants as a tool for managing exposure to, or investing in, credit. The rapid growth of this market is largely attributable to the following features of credit derivatives:

(a) Credit derivatives allow the disaggregation of credit risk from other risks inherent in traditional credit instruments

A corporate bond represents a bundle of risks including interest rate, currency (potentially) and credit risk (constituting both the risk of default and the risk of volatility in credit spreads). Before the advent of credit default swaps, the primary way for a bond investor to adjust his credit risk position was to buy or sell that bond, consequently affecting his positions across the entire bundle of risks. Credit derivatives provide the ability to independently manage default risk.

(b) Credit derivatives provide an efficient way to short a credit

While it can be difficult to borrow corporate bonds on a term basis or enter into a short sale of a bank loan, a short position can be easily achieved by purchasing credit protection. Consequently, risk managers can short specific credits or a broad index of credits, either as a hedge of existing exposures or to profit from a negative credit view.

(c) Credit derivatives create a market for "pure" credit risk that allows the market to transfer credit risk to the most efficient holder of risk

Credit default swaps represent the cost to assume "pure" credit risk. Bond, loan, equity and equity-linked market participants may transact in the credit default swap market. Because of this central position, the credit default swap market will often react faster than the bond or loan markets to news affecting credit prices. For example, investors buying newly issued convertible debt are exposed to the credit risk in the bond component of the convertible instrument, and may seek to hedge this risk using credit default swaps. As buyers of the convertible bond purchase protection, spreads in the CDS

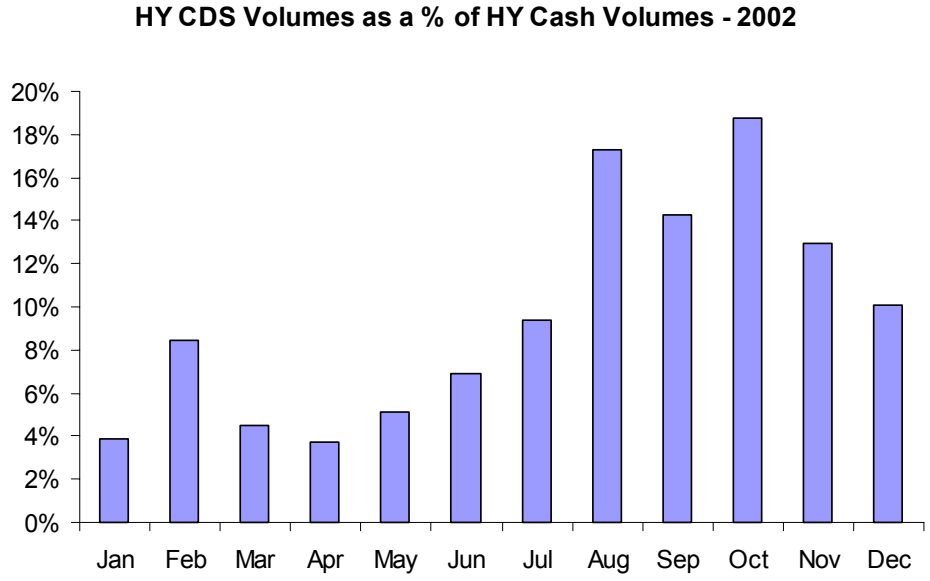
market widen. This spread change may occur before the pricing implications of the convertible debt are reflected in bond market spreads. However, the change in CDS spreads may cause bond spreads to widen as investors seek to maintain the value relationship between bonds and CDS. Thus, the CDS market can serve as a link between structurally separate markets. This has led to more awareness of and participation from different types of investors.

(d) Credit derivatives can provide additional liquidity in times of turbulence in the credit markets

The credit derivative market can provide additional liquidity during periods of market distress (high default rates). Before the credit default swap market, a holder of a distressed or defaulted bond often had difficulty selling the bond, even at reduced prices. This is because cash bond desks are typically long risk as they own an inventory of bonds. As a result, they are often unwilling to purchase bonds and assume more risk in times of market stress. In contrast, credit derivative desks typically hold an inventory of protection (short risk), having bought protection through credit default swaps. In distressed markets, investors may be able to reduce long risk positions by purchasing protection from credit derivative desks, which may be better positioned to sell protection (long risk) and change their inventory position from short risk to neutral. Furthermore, the CDS market creates natural buyers of defaulted bonds, as protection holders (short risk) buy bonds to deliver to the protection sellers (long risk). CDS markets, therefore, have tended to increase liquidity across many credit market segments.

As the chart below illustrates, CDS volumes as a percentage of cash volumes increased steadily during the distressed spring and summer of 2002 in the face of credit-spread volatility and corporate defaults.

Chart 2
The CDS Market Remained Liquid During the Turbulent Second Half of 2002



Source: JPMorgan

(e) Credit derivatives provide ways to tailor credit investments and hedges

Credit derivatives provide users with various options to customize their risk profiles. Through the CDS market, investors may assume exposure to credits that do not actively trade in the cash market, customize tenor or currency exposure or benefit from relative value transactions between credit derivatives and other asset classes. With credit derivatives, investors have access to a variety of structures, such as baskets and tranches, that can be used to tailor investments to suit the investor's desired risk/return profile. As an example, investors who purchase risk through synthetic baskets of credits may attempt to hedge this risk by purchasing single-name credit default swaps. This can be a significant driver of single-name CDS volumes.

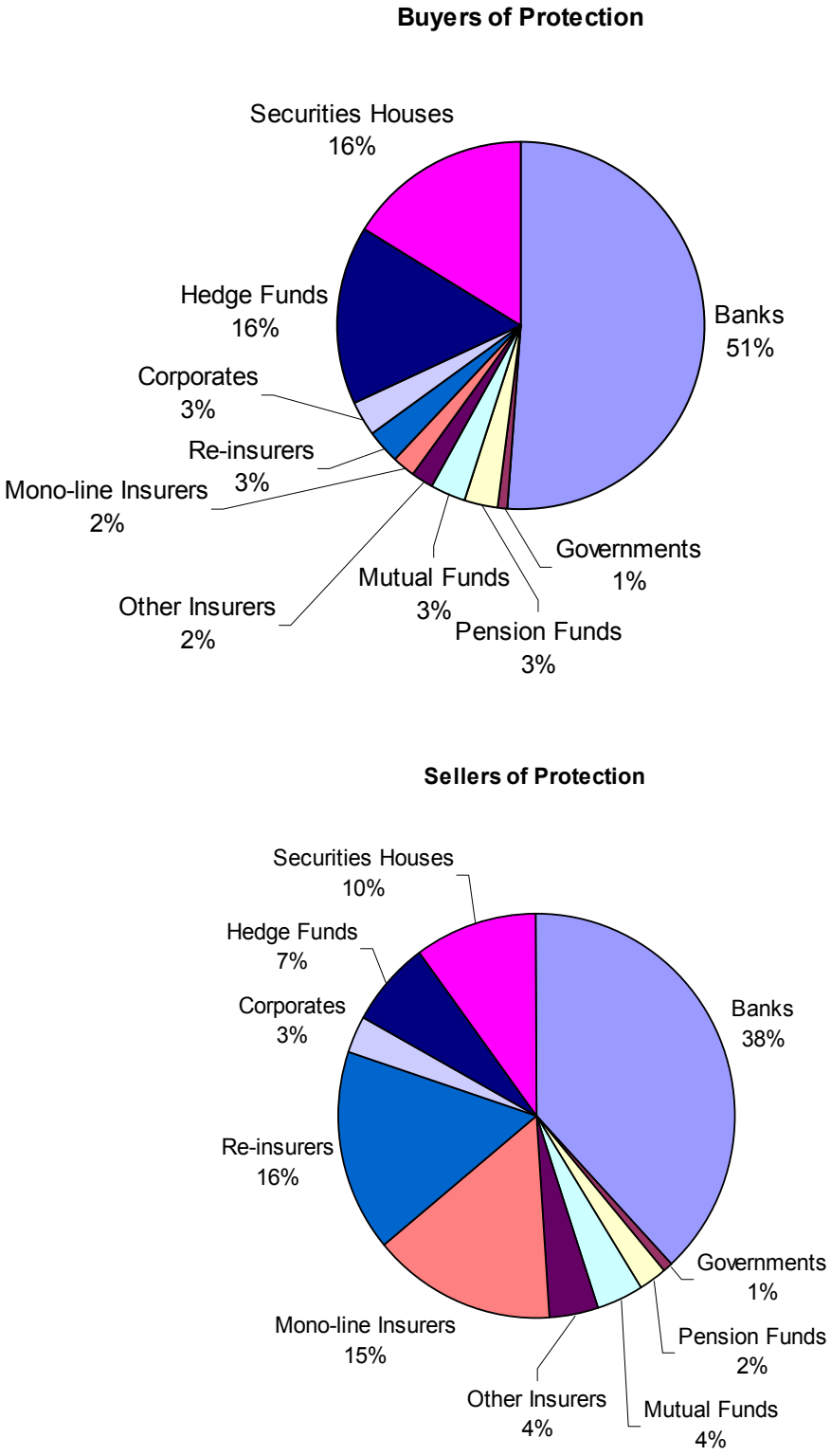
(f) Credit derivative transactions are confidential

As with the trading of a bond in the secondary market, the reference entity whose credit risk is being transferred is neither a party to a credit derivative transaction nor is even aware of it. This confidentiality enables risk managers

to isolate and transfer credit risk discreetly, without affecting business relationships. In contrast, a loan assignment through the secondary loan market may require borrower notification and may require the participating bank to assume as much credit risk to the selling bank as to the borrower itself. Because the reference entity is not a party to the negotiation, the terms of the credit derivative transaction (tenor, seniority and compensation structure) can be customized to meet the needs of the buyer and seller, rather than the particular liquidity or term needs of a borrower.

Over the last few years, participants' profiles have evolved and diversified along with the credit derivatives market itself. While banks remain important players in the credit derivatives market, asset managers are increasingly a source of growth in activity.

Chart 3
CDS Market Participants



Source: British Banker's Association Credit Derivatives Report 2003/2004

3. Long and Short Users

The following is a brief summary of strategies employed by the key players in the credit derivatives market:

(a) Banks and loan portfolio managers

Banks were once the primary players in the credit derivatives market. They developed the CDS market in order to reduce their risk exposure to companies to whom they lent money, thereby reducing the amount of capital needed to satisfy regulatory requirements. Banks continue to use credit derivatives for hedging both single-name and broad market credit exposure.

(b) Market makers

In the past, market markers in the credit markets were constrained in their ability to provide liquidity because of limits on the amount of credit exposure they could have on one company or sector. The use of more efficient hedging strategies, including credit derivatives, has helped market makers trade more efficiently while employing less capital. Credit derivatives allow market makers to hold their inventory of bonds during a downturn in the credit cycle while remaining neutral in terms of credit risk. To this end, a number of dealers have integrated their CDS trading and cash trading businesses.

(c) Hedge funds

Since their early participation in the credit derivatives market, hedge funds have continued to increase their presence and have helped to increase the variety of trading strategies in the market. While hedge fund activity was once primarily driven by convertible bond arbitrage, many funds now use credit default swaps as the most efficient method to buy and sell credit risk. Additionally, hedge funds have been the primary users of relative value trading opportunities and new products that facilitate the trading of credit spread volatility, correlation and recovery rates.

(d) Asset managers

Asset managers have significantly increased their participation in the credit derivatives market in recent years. Asset managers are typically end users of risk that use the CDS market as a relative value tool, or to provide a structural

feature they cannot find in the bond market, such as a particular maturity. Also, the ability to use the CDS market to express a bearish view is an attractive proposition for many asset managers. Prior to the availability of CDS, an asset manager would generally be flat or underweight in a credit they did not like, as most were unable to short bonds in their portfolios. Now, many asset managers may also buy credit protection as a way to take a short-term neutral stance on a credit while taking a bullish longer term view. For example, an asset manager might purchase three-year protection to hedge a ten-year bond position on an entity where the credit is under stress but is expected to perform well if it survives the next three years. Finally, the emergence of a liquid CDS index market has provided asset managers with a vehicle to efficiently express macro views on the credit markets.

(e) Insurance companies

The participation of insurance companies in the credit default swap market can be separated into two distinct groups: (1) life insurance and property & casualty (P&C) companies and (2) monolines and reinsurers. Life insurance and P&C companies typically use credit default swaps to sell protection to enhance the return on their asset portfolio either through Replication (Synthetic Asset) Transactions ("RSATs" or the regulatory framework that allows some insurance companies to enter into credit default swaps) or credit-linked notes. Monolines and reinsurers often sell protection as a source of additional premium and to diversify their portfolios to include credit risk.

(f) Corporations

Corporations are recent entrants to the credit derivatives market and promise to be an area of growth. Most corporations focus on the use of credit derivatives for risk management purposes, though some invest in CDS indices and structured credit products as a way to increase returns on pension assets or balance sheet cash positions.

Recent default experiences have made corporate risk managers more aware of the amount of credit exposure they have to third parties and have caused many to explore alternatives for managing this risk. Many corporate treasury and credit officers find the use of CDS appealing as an alternative to credit

insurance or factoring arrangements due to the greater liquidity, transparency of pricing and structural flexibility afforded by the CDS market. Corporations are also focused on managing funding costs; to this end, many corporate treasurers monitor their own CDS spreads as a benchmark for pricing new bank and bond deals and are exploring how the CDS market can be used to hedge future issuance.

4. Risk Management Issues

The risk profile of a credit default swap is essentially equivalent to the credit risk profile of a bond or loan, with some additional risks, namely counterparty risk, basis risk, legal risk and operational risk.

(a) Counterparty risk

Recall that in a credit event, the buyer of protection (short risk) delivers bonds of the defaulted reference entity, or other eligible assets, and receives par from the seller (long risk). Therefore, an additional risk to the protection buyer is that the protection seller may not be able to pay the full par amount upon default. This risk, referred to as counterparty credit risk, is a maximum of par less the recovery rate, in the event that both the reference entity and the counterparty default. While the likelihood of suffering this loss is remote, the magnitude of the loss given default can be material. Counterparties typically mitigate this risk through the posting of collateral (as defined in a credit support annex (CSA) to the ISDA Master Agreement) rather than through the adjustment of the price of protection.

(b) Basis risk

Basis refers to the difference, in basis points, between a credit default swap spread and a bond's par equivalent CDS spread with the same maturity dates. Basis is either zero, positive or negative.

If the basis is negative, then the credit default swap spread is lower than the bond's spread. This occurs when there is excess protection selling (investors looking to go long risk and receive periodic payments), reducing the CDS coupon. Excess protection selling may come from structured credit issuers (or CDO issuers), for example, who sell protection in order to fund coupon payments to the buyers of structured credit products. Protection selling may

also come from investors who lend at rates above Libor. For these investors, it may be more economical to sell protection and invest at spreads above Libor rather than borrow money and purchase a bond.

If the basis is positive, then the credit default spread is greater than the bond's spread. Positive basis occurs for technical and fundamental reasons. The technical reasons are primarily due to imperfections in the repo market for borrowing bonds. Specifically, if cash bonds could be borrowed for extended periods of time at fixed costs, then there would not be a reason for bonds to trade "expensive" relative to credit default swaps. If a positive basis situation arises, investors would borrow the bonds and sell them short, eliminating the spread discrepancy. In practice, there are significant costs and uncertainties in borrowing bonds. Therefore, if the market becomes more bearish on a credit, rather than selling bonds short, investors may buy default protection. This may cause credit default swap spreads to widen compared with bond spreads.

Another technical factor that causes positive basis is that there is, to some degree, a segmented market between bonds and credit default swaps. Regulatory, legal and other factors prevent some holders of bonds from switching between the bond and credit default swap markets. These investors are unable to sell a bond and then sell protection when the credit default swap market offers better value. Along this vein of segmented markets, sometimes there are market participants, particularly coming from the convertible bond market, who wish to short a credit (buy default swap protection) because it makes another transaction profitable. These investors may pay more for the protection than investors who are comparing the bonds and credit default swap markets. This is another manifestation of the undeveloped repo market.

A fundamental factor that creates positive basis is the cheapest-to-deliver option. A short CDS position (long risk) is short the cheapest-to-deliver option. If there is a credit event, the protection buyer (short risk) is contractually allowed to choose which bond to deliver in exchange for the notional amount. This investor will generally deliver the cheapest bond in the market. When there is a credit event, bonds at the same level of the capital structure generally trade at the same price (except for potential differences in

accrued interest) as they will be treated similarly in a restructuring. Still, there is the potential for price disparity. Thus, protection sellers may expect to receive additional spread compared to bonds for bearing this risk. This would lead to CDS spreads trading wider than bond spreads and therefore contribute to positive basis. Thus, when investors invest in credit default swaps, they risk entering into a position that is relatively expensive as compared to entering into a similar risk position with bonds or loans.

(c) Legal risk

Credit default swaps investors may face legal risk if there is a credit event and the legality of the CDS contract is challenged. Although not without specific disputes, as previously stated, ISDA's standard contract has generally proven effective in the face of significant credit market stress. The large majority of contracts have tended to settle without disputes or litigation. As discussed in Section IV of the main CRMPG II Report, legal issues can and do arise in this market from time to time. Most of these disputes have involved contractual claims related to whether there was a credit event under the terms of the contract, the identity of the reference entity, the timeliness of notices delivered under the contract, the nature of the assets deliverable into the contract and the timeliness of the delivery of assets for settlement purposes.

(d) Operational risk

With limited straight through processing, confirmation backlogs, and a clearing service in relatively early stages of operation, back offices have tended to feel the strain of handling a rapidly growing volume of activity. The recent credit event in which gross positions in the reference entity exceeded the available deliverable assets highlighted the potential difficulty for market participants in settling transactions in a timely and efficient manner. Section IV of the main CRMPG II Report addresses these issues more fully.

Other risk considerations:

- Credit default swaps are leveraged transactions. Unlike a transaction related to floating rate notes or corporate bonds with a similar amount of credit risk, principal amount is not exchanged upfront in a CDS. As noted above, large and/or sophisticated counterparties typically

mitigate the risk of non-performance by the daily updating of collateral accounts reflecting gains or losses on positions.

- Credit default swaps are over-the-counter transactions between two parties and it is difficult to estimate the amount of default swaps which are outstanding. While the net amount of all credit default swaps is zero, as the amount of long protection positions must be equal to the short protection position, there may be market participants who are very long or short exposure to specific credits.

- In marking the value of an open credit default swap to market, investors must estimate a recovery rate. If investors deviate from industry standard recovery rates, they can calculate different values for their open contracts.

This section should provide a helpful foundation for understanding the issues around the second product review: structured credit.

C. Structured Credit

1. Instrument Description and Market Developments

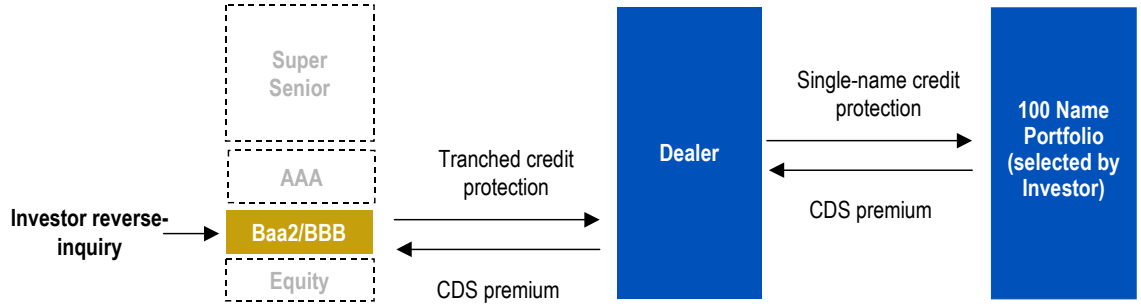
The structured credit market has existed since 1988, and issuance began in earnest in 1997. The last two years, however, has seen the transformation of the market from a niche sector to a core asset class within fixed income. In some ways, this transformation can be attributed to a maturing market with improved liquidity and transparency, established analytic platforms, increased standardization, increased acceptance of credit derivatives technology and a growing track record. But what has truly pushed structured credit into the mainstream is a growing understanding by investors motivated to increase yields in the current low-spread environment. Structured credit still offers a spread pick-up versus nearly all other like-rated credit products, although that premium is diminishing.

The structured credit market can be broadly separated into synthetic and cash instruments.

- **Synthetics:** Each vehicle sources exposure to a pool of pure credit risk using credit default swaps (CDS) on 100 or more single-names. Risk is

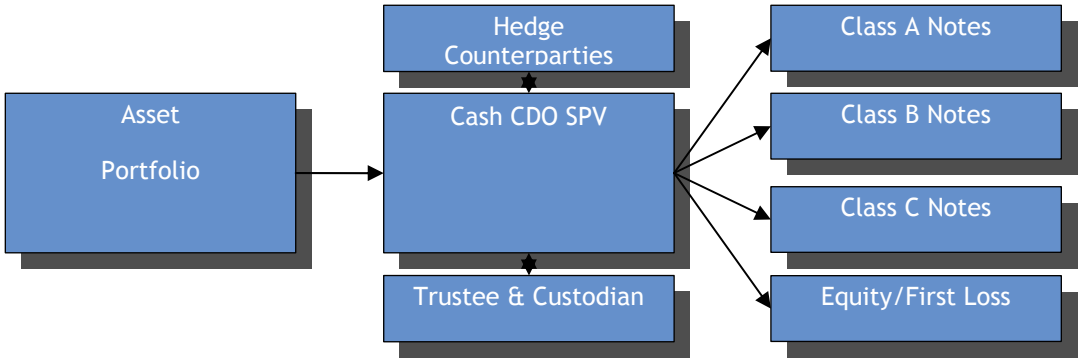
tranched into distinct attachment and detachment points, meaning that investors can customize any number of loss exposures. Most pools are referenced to single-A/BBB corporate credits, although asset-backed securities (ABS) may also be referenced. Equity leverage is typically 20-30x, and deals generally have maturities of five to ten years, depending on the maturity of the underlying CDS. In most synthetics, like the one depicted in Chart 4 below, the motivation for issuance has shifted from issuer balance sheet risk management (early deals) to investor desire to take on a customized risk profile (current deals).

Chart 4
Indicative Synthetic CDO (Baa2/BBB Tranche)



- **Cash:** Cash CDOs gain exposure to credit risk via a bankruptcy remote special purpose vehicle that purchases a diversified pool of cash assets (100+ names). The portfolio is generally managed by a third party but may be static in some cases. Risk is tranched into various loss exposures with customized structures. Each structure contains extensive rules that restrict asset exposures and triggers that that help protect the notes if the collateral deteriorates. Weighted average lives are typically 7 to 12 years.

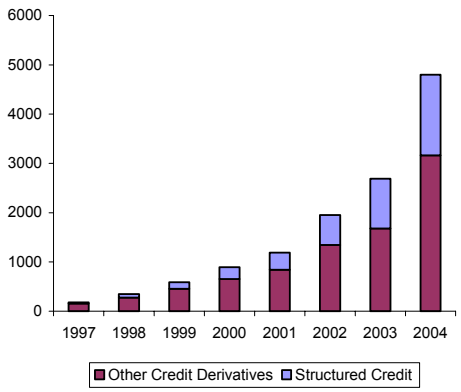
Chart 5
Indicative Cash CDO



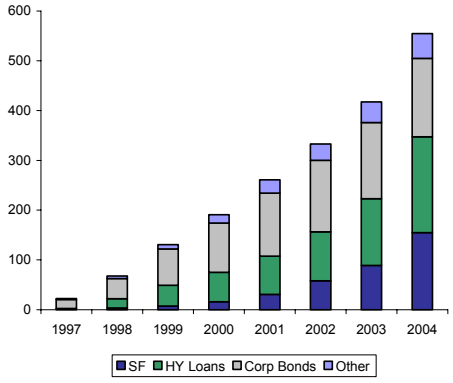
Synthetic issuance can be measured either by the amount of risk actually distributed to investors (approximately $700 billion globally), or the amount of single-name CDS sold to support this issuance (approximately $1.6 trillion globally). The latter number is more often cited in the market and can be thought of as the delta equivalent of the former, thereby illustrating the leverage in the transactions. In the cash market, outstanding risk is approximately $550 billion globally.

Chart 6

Total Outstanding Global Credit Derivatives Volume ($bn)



Total Outstanding Global Cash CDOs by Sector ($bn)



Source: JPMorgan

The synthetic market is composed of several types of transactions.

- **Tranched Index Trades:** One of the most standardized and easy to understand products in the structured credit market, the portfolio is linked

to an index such as DJ TRAC-X. It references a static portfolio with standardized attachment points. Market inception was 2003.

- **Bespoke:** The portfolio is chosen by the investor, and is generally static but may have limited substitution rights. There may be customized or standardized attachment points. Market inception was 2002.

- **First to Default Swaps:** These tend to be based on smaller portfolios than other structured credit trades (five names). The investor receives periodic spread until the first credit event occurs. Market inception was 2003.

- **Managed:** These transactions are somewhat more complex than other synthetics due to additional portfolio tests, triggers and limitations. The portfolio is selected and managed by a third-party asset manager. The structure is based on rating agency requirements and investor demand. In older deals, risk was generally fully distributed, but since 2004 most deals have hedged part of the risk on financial intermediaries' balance sheets. Market inception was 1997, but volume grew significantly in 2000.

- **CDO-squared:** CDO-squared or CDO-of-CDOs are probably the most complex transactions in the structured credit market. They are effectively a synthetic CDO tranche referencing other CDO tranches. Subordination in "inner CDOs" protects against initial corporate credit events, and subordination in the "master CDO" protects against credit events in the inner CDOs to a threshold, beyond which losses accumulate quickly. There has been huge growth in the last year due to tight spreads in other credit markets.

- **EDS:** Equity default swaps may be used as collateral for CDOs, but only a few deals have referenced EDS exclusively. More often, there is a 10 – 15% bucket for EDS in a CDO that mostly references CDS (although many investors have been wary of even including a bucket this size).

The cash market is composed of several types of transactions. Most outstanding deals are "Cashflow" CDOs, where cash flows sequentially through the interest and principal waterfall to equity unless certain triggers are violated. These triggers deteriorate only when the par value of collateral decreases due to

defaults or trading losses (i.e., cash flows are largely independent of collateral market value fluctuations).

- **Cashflow HY CLOs:** Collateral is typically BB/B leveraged loans (8x – 12x levered). Market inception was 1996 with steady growth since (35% of outstanding issuance).

- **Cashflow SF CDOs:** Collateral is usually either AAA/AA ABS (100x levered) or BBB ABS (20x levered). Current deals have high home equity loan exposure. Market inception was 1998 with rapid growth in 2003 – 2004 (27% of outstanding issuance).

- **Cashflow HY CBOs:** Collateral is typically BB/B high yield bonds (8x – 12x levered). Market inception was 1990 with little issuance after 2001 due to problems in older deals (14% of outstanding issuance).

- **Cashflow Other:** Collateral may include emerging markets, trust preferred securities, municipals, project finance or other assets (5% of outstanding issuance.)

The remaining deals are "Market Value" CDOs, where de-leveraging can be triggered by market value changes. Collateral sometimes includes hedge funds and private equity, which must be liquidated to make coupon payments (3x – 5x levered). Collateral may also include liquid securities. Interest in these deals has increased in 2005 (5% of outstanding issuance).

2. Forces Driving Market Activity (both cash and synthetic)

(a) Balance sheet

Early "Balance Sheet" CDOs were initiated by holders of securitizable assets, such as commercial banks, which desired to sell assets or transfer the risk of assets. The motivation of these deals was typically to shrink the balance sheet, or reduce required regulatory or economic capital. Today, fewer Balance Sheet CDOs exist, although they are still common in Asia.

(b) Arbitrage

The motivation for most CDOs is arbitrage. These deals are inspired by asset managers, dealers and equity tranche investors, who use the CDO

structure to fund collateral purchases. Asset managers gain stable management fees, grow assets under management and often achieve upside through incentive fees and retained equity risk. Financial intermediaries gain underwriting fees. Equity tranche investors hope to achieve a leveraged return between the yield on the assets and the financing cost of the debt. This potential spread is the "arbitrage" of the arbitrage CDO.

(c) Spread pick up

For rated debt investors, the key motivation is a spread pick-up versus like-rated investments in the corporate or ABS market. In addition, CDOs are a means to customize exposures that cannot be achieved any other way, gain access to a diversified pool of assets and gain access to markets such as leveraged loans.

3. Long and Short Users

Cash CDOs are sold to institutional investors and are registered as 144A or RegS securities. Cash CDOs are overwhelmingly a long-only market. Shorts are more common in the synthetic space, although approximately 75% that market is still long only. Approximately 70% of cash transactions are originated out of the United States with US assets, although the investor base for these transactions is global. Thus far, more synthetic risk is distributed in Europe versus the United States due primarily to MTM issues for US investors.

(a) CDO equity

The arbitrage CDO market originated as a way for CDO equity investors to obtain non-recourse leverage as an alternative to repo financing. CDO equity coupons are targeted to have internal rates of return in the 10 – 20% area, and are seen as an attractive addition to alternative asset allocations, a bucket that may also include private equity and hedge funds. Unlike private equity, CDO equity coupons tend to be front-loaded (later in the deal life defaults or de-leveraging typically cause cashflows to decline). Coupons are sensitive to defaults/recoveries/prepayments, but have limited exposure to market prices.

Insurers and reinsurers (largely buy-and-hold investors located in Europe) were the earliest participants in the CDO equity market and are still large

participants today. More recently, hedge funds and other total return investors have also become involved. Other buyers include pension plans and endowments, who can often avoid mark-to-market requirements that other investors face. Banks are also involved, especially in Asia. Banks often desire CDO equity in the form of combination notes, where equity is combined with another bond from the CDO structure or a treasury strip to achieve a desired rating, principal-protection or some form or regulatory arbitrage. Some CDO equity has been sold to asset managers running CDO equity funds, and to private clients in Europe via brokers and investment consultants. The fact that asset mangers often hold 20 – 30% of the equity in deals that they manage is seen by many as a positive.

(b) CDO debt

Investors in rated notes desire yield enhancement versus like-rated credits in the ABS or corporate market. In addition, investors are choosing systematic risk over idiosyncratic. For example, strategies such as long mezzanine tranches can decrease event risk by cushioning against initial losses in a pool. Mezzanine investors include hedge funds, banks, insurance companies and asset managers. Long senior strategies provide constant return with catastrophic-only risk. Banks are key investors, as are reinsurers, monolines and insurance companies. Today, most cash senior tranches are sold as part of negative basis trades, where a bank goes long the senior tranche and simultaneously buys protection from a monoline on the same tranche. Older AAA risk often has a monoline guarantee.

CDO-squared have historically been buyers of cash CDO mezzanine tranches, which are then re-securitized into CDO-squared vehicles. More recently synthetic CDO-squared have been creating synthetic mezzanine CDO tranches for inclusion in CDO-squared, or Senior CDO tranches as a 20% bucket in a High Grade SF CDOs.

(c) Short positions

Most short positions are synthetic, as there is no shorting of cash bonds other than with total return swaps, which are limited in use. Synthetic short positions have been increasing, especially in more liquid index trades, but they are still a small portion of the overall market. Shorts may be used by

investors with assets on balance sheet to hedge at a reduced cost versus hedging an entire portfolio (short mezzanine), or to hedge idiosyncratic risk (short equity). However, shorts are more often used by total return investors as part of carry trades (e.g., long equity, short mezzanine), or long correlation trades (e.g., sell equity protection with delta hedges).

4. Risk Management Issues

Participants in the structured credit market are subject to a number of risks, including exposure to market moves, counterparty risk, model risk, valuation and liquidity issues, legal risk and operational risk.

(a) Exposure to market moves

The chart below provides a synopsis of the key risks faced by different structured credit products. A more detailed discussion on related issues follows below.

Chart 7

Risks	Instruments			
	CDS	*Cash CDO*	*Synth CDO*	*CDO-Squared*
Credit Spreads	✓	✓	✓	✓
Recovery Rates	✓	✓	✓	✓
Correction		✓	✓	✓
Overlap (within a single deal)				✓
Serial Dependence				✓
Warehousing		✓		

(i) Credit spreads

A position's sensitivity to credit spreads depends on its seniority in the structure (degree of leverage). Equity tranches or first loss pieces, for example, can be highly sensitive to credit spread moves, as illustrated in Chart 8 below.

(ii) Recovery rates

There are potentially low or zero recoveries on junior tranches, especially if risk is systemic and tranches are thin. The downside to single-name

risk is the recovery rate, and the downside on a tranche is zero. Depending on tranche width, CDO-squared starts to look like being short a digital option.

(iii) Correlation

The value of a tranche within a structure is determined in part by assumptions regarding correlation. The relationship of the tranche value to the correlation assumptions is not always intuitive. As illustrated in Chart 10 below, first loss tranches increase in value under high correlation assumptions while senior tranches decrease in value under such assumptions.

(iv) Overlap

Risk is increased to the extent that a limited investment universe for reference pools leads to high overlap across pools. CDO-squared often have the same names in multiple portfolios. These issues may be exacerbated by the fact that structured credit remains largely long only, which means that investors have similar risk exposure.

Although CDO-squared get the most attention, overlap is an issue for all CDOs. One large financial intermediary has estimated that the overlap between two CLOs from the same manager can be 50 – 70%. CLOs from different managers still have name overlap in the neighborhood of 25%.

(v) Serial dependence

For CDO-squared, risk is serial dependent (i.e., the exact sequence of credit events matters).

(vi) Warehouse risk

The ramp-up period for new cash deals can be over six months, leaving dealers and asset managers exposed to market moves during this period if the deal cannot close. This is less of a risk for synthetics, which can ramp up quickly.

(b) Counterparty risk

(i) Exposure measurement

Properly measuring the exposure of these transactions can be challenging due to, among other things, the large number of underlying risk factors, the non-linearity associated with a potential change in value of positions and the relatedness of reference entities in multi-name structures.

(ii) Risk mitigation

As much of this activity is in derivative form, counterparty risk is usually mitigated by upfront payments for risky tranches, minimum counterparty ratings for more senior tranches and collateral arrangements. Treating collateral consistently with the supporting agreements is yet another challenge for counterparty exposure measurement.

(c) Model risk

(i) Dealer hedging

Dealers run a balanced rather than perfectly hedged book. The entire capital structure is not always distributed and residual risk (delta, gamma, recovery rate, correlation) must be hedged.

(ii) Ratings arbitrage

Many CDO investors buy tranches based on ratings, with the implied assumption that CDO performance should at least approximate other like-rated fixed income securities. To the extent that CDO defaults or recoveries are worse than the rating indicates, investors may have more risk than they realize (some CDO sectors have clearly performed worse than single-name CDS with equivalent rating/risk). Other investors buy CDO tranches as a form of ratings arbitrage, which could lead to less required economic and regulatory capital than would otherwise be the case.

(d) Valuation and liquidity

(i) Mark-to-market

Derivatives accounting rules result in high MTM sensitivity for synthetic tranches, which may lead to forced selling in a downturn, especially given a "youthful" market. Europe has been moving more to MTM accounting, and it may be a challenge for banks to buy as this progresses. Although cash CDOs have less MTM sensitivity than synthetics, buyers are not immune to this risk and may also have to sell based on ratings triggers.

(ii) Valuation and liquidity

Valuation for Cash CDOs and managed synthetics is generally market based with daily pricing on Bloomberg for recent large synthetic deals. Market liquidity has improved greatly in the last two years. Cash CLOs and widely distributed managed synthetics are the most liquid, with the best liquidity at the top of the capital structure (largest and easiest to analyze tranches). SF CDOs (complex underlying ABS) and CDO equity (sensitive cash flows) are less liquid.

Valuation for non-managed trades is generally model based, with strongest liquidity for index tranches, including pricing for standardized tranches on Bloomberg. Model risk (valuations, risk represented to investors, hedging) is highly relevant for synthetics. There have been examples where investors/asset managers have experienced serious valuation issues where fraud may have been involved.

(e) Legal risk

(i) Understanding transactions

Recent lawsuits including HSH vs. Barclays and Banca Popolare vs. BofA have sought damages for securities allegedly mis-sold (higher risk than declared), mismanaged (substitutions not in best interest of investors) and misreported (inaccurate price evaluations). Issues of whether investors understand the risk are especially relevant for complex structures such as CDO-squared. Ultimately, these disputes suggest that the intermediaries may have thought that they have sold risk when, in fact, they have not.

(ii) CDS legal risk

As many structured credit transactions involve CDS, they will tend to be exposed to the other legal risk discussed in Section B: Credit Derivatives above.

(f) Operational risk

(i) Confirmations

Faced with the complexity of transactions and technology platforms that are often incompatible, firms can experience delays in confirming transaction details.

(ii) Performance tracking

The complexity of transactions also puts strain on back office operations due to the potential need to track and modify the composition of asset pools, monitor tranche performance and book multiple legs of transactions in the appropriate finance and risk systems.

The charts below illustrate the sensitivities of a sample structured credit position to key input variables.

5. CDX and Tranched CDX Sensitivities

The charts below outline the sensitivity of the CDX and Tranched CDX to spreads, correlation and number of defaults from a long-protection perspective. It is assumed that the long-protection positions were taken on April 6, 2005.

Below is a brief description of the terminology used throughout this section:

- **CDX:** 5 yr CDX .NA.IG.4. Throughout this section, it will also be called "plain-vanilla CDX." As of 04/06/05, the 5yr CDX.NA.IG.4 spread was 47 bps.

- **Tranched CDX:** Synthetic CDO with the same portfolio of reference entities as that defined for the 5yr CDX.NA.IG.4. The collateral is split into tranches, where each tranche bears losses at a different level of subordination. The most junior tranche may experience the first 3% of losses. The next tranche will bear any loss over 3% up to 7%, and so on.

0 – 3%	➔	Equity Tranche or First loss Tranche
3 – 7%	➔	Mezzanine Tranche
7 – 10%		
10 – 15%		
15 – 30%		
30 – 100%	➔	Senior Tranche
0 – 100%	➔	CDX (plain-vanilla CDX)

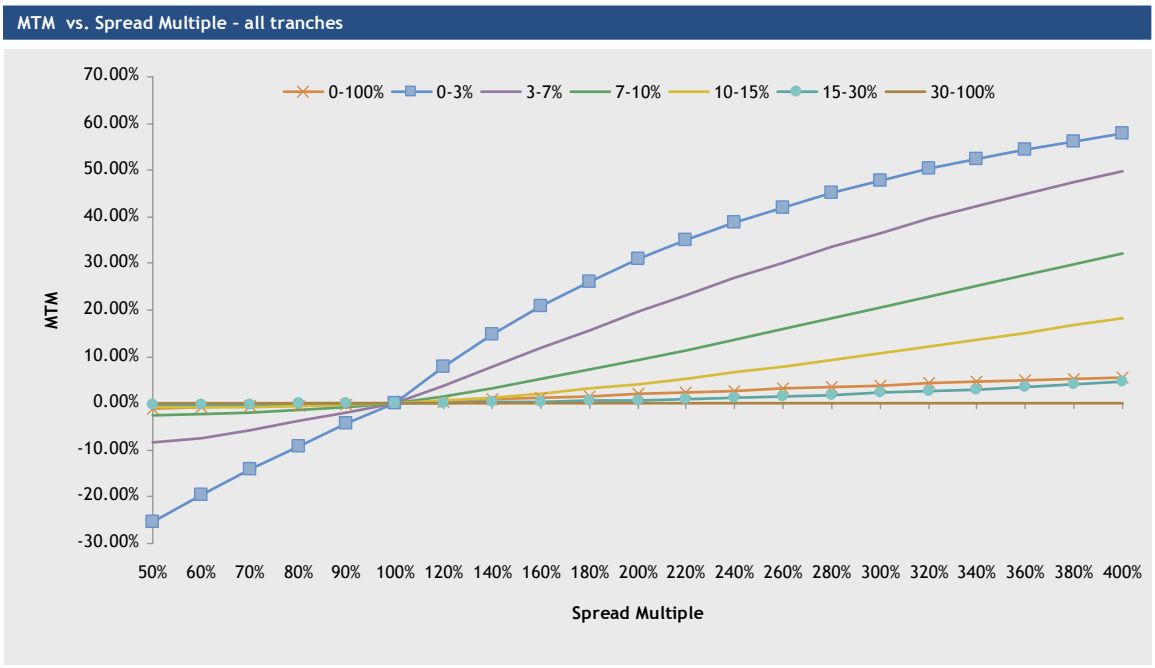
- **MTM:** Expressed as % of tranche notional.
- **Spread Multiple:** Makes reference to multiples of the index spread. 100% refers to the index spread as of 04/06/05 (47bps). 50% refers to a spread of 23.5bps.
- **Correlation:** Refers to the correlation of probabilities of default. It tells us how likely the portfolio is to experience its expected loss.
  - Low Correlation:
    - Defaults occur independently.
    - Most likely outcome is a few number of names defaulting.
    - Expected loss is likely to be reached (as of 04/06/05, the CDX expected loss was 2.43%).
  - High Correlation:
    - Defaults occur in groups.
    - Most likely outcome is many defaults at the same time. In a hypothetical extreme case (correlation = 100%) either 0 names default or 100% of the names default.
    - Expected loss is not likely to be reached.

(a) Chart 8: Sensitivity to Spreads

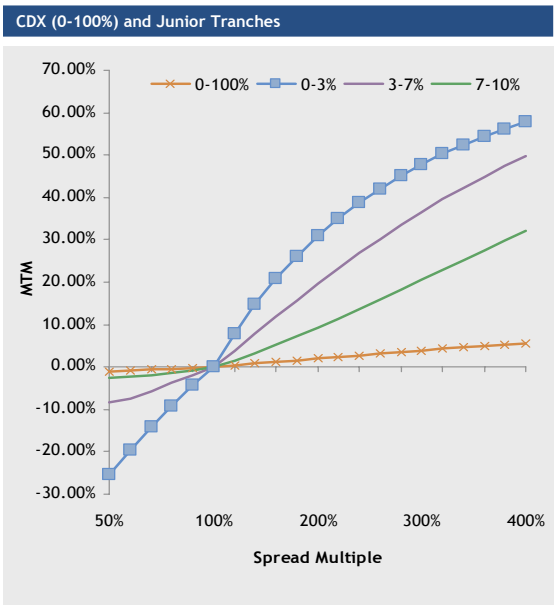
The chart below describes the sensitivity of the CDX (0 – 100%) and the CDX tranches to changes in the CDX Index Spread (in this example, a spread multiple of 100% makes reference to 47bps). The positive slope of both the plain-vanilla CDX and the CDX tranches confirms that a spread widening increases the value of a long protection position. Intuitively, if an investor bought protection and then spreads widen, the value of that trade increases.

The sensitivity is larger in the junior tranches than in both the plain-vanilla CDX and the senior tranches because the most junior tranches (in particular 0 – 3%) are those affected for sure with the first defaults. The likelihood of names defaulting increases as spreads widen.

Chart 8



Note: 0 – 3% assumes no upfront



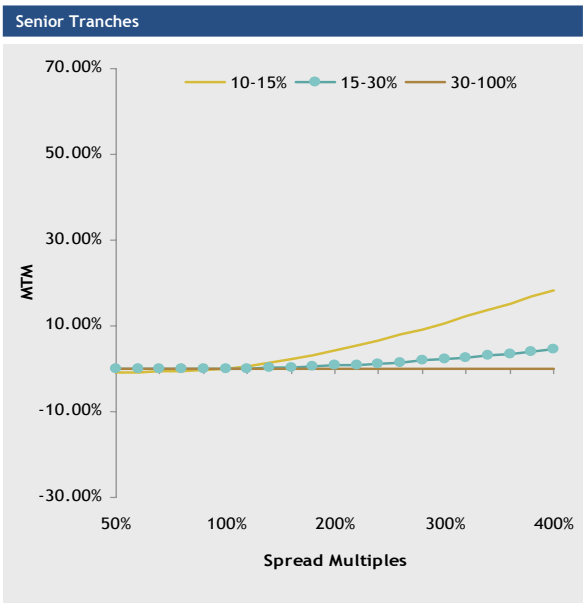


Chart 9 below quantifies the impact that a 100% widening in the index spread (from 47 bps to 94 bps) will have on the MTM of a protection buyer with contracts of $1 million on each tranche.

Chart 9

The MTMs in this table make reference to a Spread Multiple of 200% in the previous graphs (equivalent to an Index Spread of 94bps= 200% x 47bps)

Tranche	MTM	IF the CDX index spread goes up to 94bps AND a protection buyer has a $1mm contract on….
0-100%	2.02%	…the gain will be 2.02% x $1MM = $20K
0-3%	30.84%	… the gain will be 30.84% x $1MM = $308K
3-7%	19.58%	… the gain will be 19.58% x $1MM = $196K
7-10%	9.27%	… the gain will be 9.27% x $1MM = $93K
10-15%	4.22%	… the gain will be 4.22% x $1MM = $42K
15-30%	0.74%	… the gain will be 0.74% x $1MM = $7K
30-100%	0.00%	… the gain will be 0.00% x $1MM = $0K

Were the investor a protection seller, the MTM would be negative, and the investor would report losses equivalent to the gains in the table with the sign inverted.

(b) Chart 10: Sensitivity to Correlation

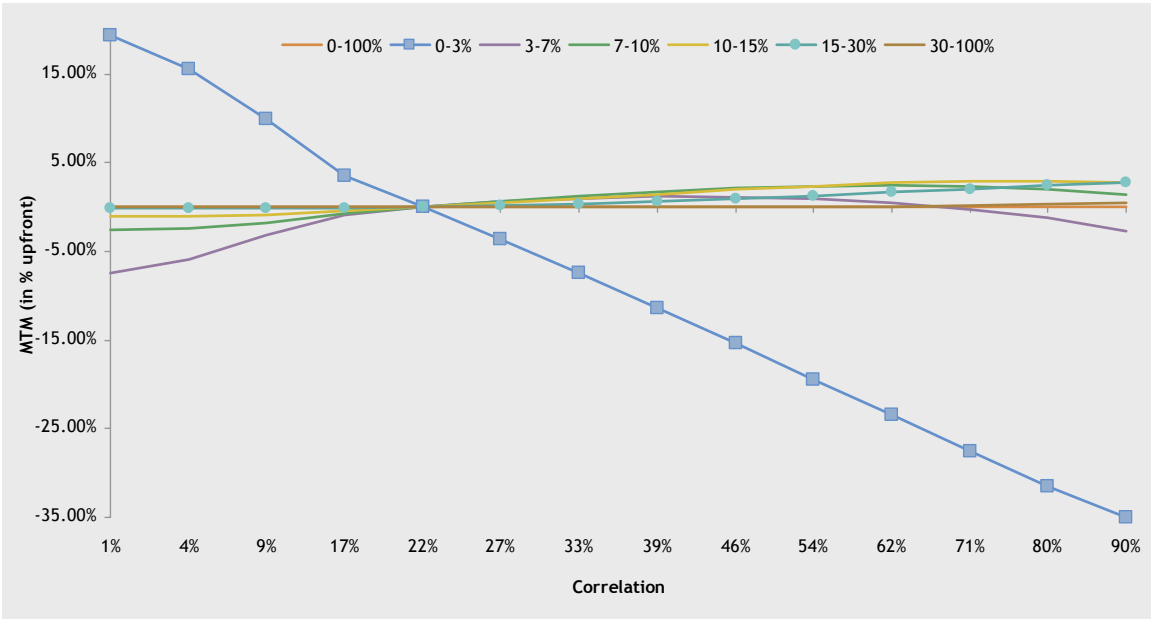
Chart 10 below describes the MTM sensitivity of the CDX (0 – 100%) and the CDX tranches to changes in correlation. Correlation is only relevant to the tranches because the impact of defaults over a specific tranche will depend on the level of tranche subordination. Few defaults (low correlation) will only affect junior tranches whereas many defaults at the same time (high correlation) will impact the more senior tranches as well. The MTM of the plain-vanilla CDX (0 – 100%) is not sensitive to different levels of correlation because any number of defaults (few or many) will affect it anyway.

When correlation is low (extreme hypothetical case: 0%), few defaults are expected and therefore the expected loss (2.43%) is likely to be reached. Being long, the equity tranche (0 – 3%) becomes riskier and as a result being long protection on equity gains value. This explains the negative slope of the first loss tranche.

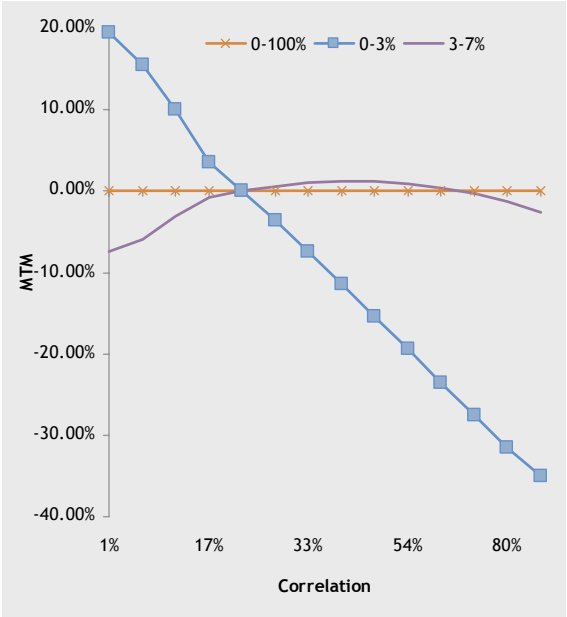
When correlation is high (extreme hypothetical case: 100%), either 0% or 100% defaults are expected, and therefore the expected loss (2.43%) is not likely to be reached. Being long senior tranches becomes riskier than when correlation was low and therefore being long protection on senior tranches gains value. This explains the positive slope in the non-equity tranches.

Chart 10

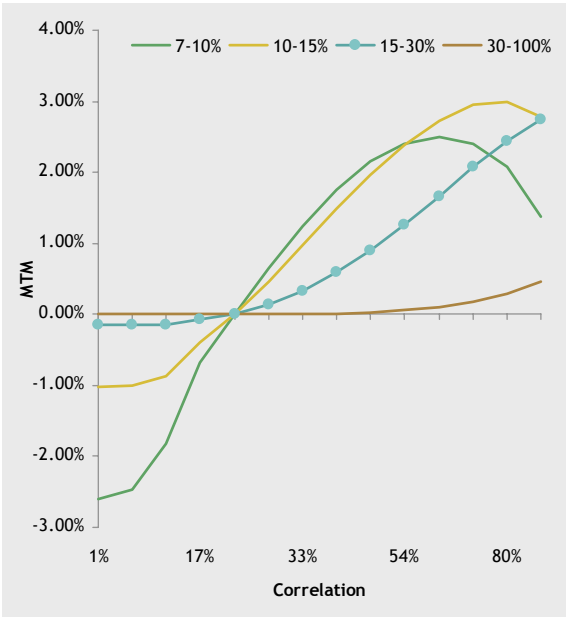
MTM (y axis) vs. Correlation (x axis)



CDX (0-100%) and Junior Tranches



Senior Tranches



(c) Chart 11: Sensitivity to Number of Defaults

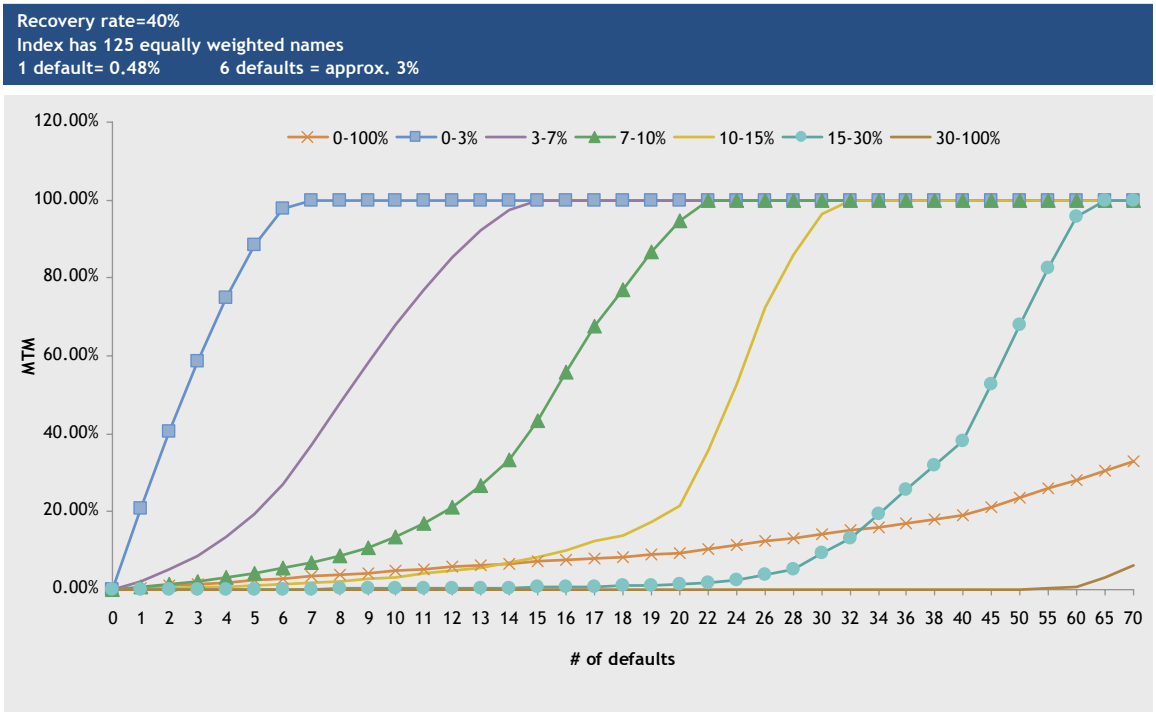
Chart 11 below describes the sensitivity of the CDX (0 – 100%) and the CDX tranches to the number of defaults. The recovery rate assumption used is 40%. Since the index has 125 equally weighted names, one default will generate a loss of 0.48% of the portfolio (1 /125 * 0.6). In the same fashion, six defaults will generate a loss of approximately 3% of the portfolio (6 / 125 * 0.6).

The positive slope of both the plain-vanilla CDX and the CDX tranches confirms that defaults increase the value of a long-protection position. Intuitively, if an investor bought protection and then credits default, the value of that trade increases.

Notice that each tranche reaches 100% of its notional at the number of defaults that produce a loss equivalent to the upper bound of the tranche. For instance, the equity tranche reaches a MTM of 100% at six defaults, which is equivalent to a loss of 3% of the portfolio. Also notice that the slope of each non-equity tranche becomes steeper exactly at the max level of defaults that the immediate junior tranche can bare. For example the 3 – 7% tranche becomes steeper at six defaults.

Defaults impact each tranche very differently. The impact over the plain-vanilla CDX is linear because the index is equally weighted. The impact over the 0 – 3% tranche is the largest (the curve is the steepest) because all the burden of the first defaults will only impact this tranche.

Chart 11


Recovery rate=40%
Index has 125 equally weighted names
1 default= 0.48%
6 defaults = approx. 3%
0-100%
0-3%
3-7%
7-10%
10-15%
15-30%
30-100%
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
MTM
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 22 24 26 28 30 32 34 36 38 40 45 50 55 60 65 70
# of defaults

D. Equity Derivatives

This section looks at some of the more recent developments in the Equity Derivatives market that have, or have the potential to have, embedded leverage. We highlight three types of instruments that have grown rapidly during the last five years, fuelled in part by a demand for yield from a broad range of investors, including retail and institutional investors as well as hedge funds.

One key theme is that investor demand for specific derivative products can create an imbalance of longs and shorts, giving many derivatives providers similar risk exposures. To the extent that risk providers (investment banks) are unable to repackage risk into other products or markets, aggregate risk — for example, to correlation, dividend growth or gapping risk to a new asset class such as hedge funds — can grow rapidly.

Derivatives based on hedge funds themselves have also seen increased demand from institutional and retail investors. Successful hedging of these products can mean leveraged exposure to funds which are themselves leveraged. Furthermore, hedging option based products on hedge funds critically depends on the funds providing continuous investment access for hedging and low volatility in returns without gapping.

1. Instrument Description and Market Developments

Demand for derivatives has continued to grow strongly over the last five years, fuelled by the growth of leveraged investors such as hedge funds, increased demand (and understanding) from traditional asset managers, increased demand from retail investors and increased activity by corporates.

On the supply side, the ability of intermediaries to price, hedge and warehouse risk has grown accordingly. Banks have also moved to consolidate their management of hybrid desks to improve their cross asset-class pricing and risk-management abilities.

Below we highlight product development in three areas that have shown particular growth in the last few years — synthetic investments, hedge-fund based products and volatility and correlation swaps.

(a) Synthetic investments

Includes Structured Products, e.g., EMTNs, Certificates, Warrants, Managed Fund based products and OTC derivatives.

Synthetic investments have continued to gain market share, with developments in underlying securities, payoff functions and a broadening of the user base. For example, private banks, regional banks and retail brokerages regularly sell structured products to retail investors. Developments in modeling and pricing give originators a broader offering of payoffs on a broader array of underlying instruments, spanning multiple asset-classes, including open-end investment funds and hedge funds.

Synthetic investments may or may not be risky instruments for the end-user. For example, many offer some form of capital protection or lock-in features which give the investor less downside risk. The flip side of course is that issuing institutions have the opposite risk to manage, usually on a mark-to-market basis.

The Target Annual Review Note is representative of a class of products which have been very popular with investors and which many banks have issued over the last few years.

- **Example of a Target Annual Review Note on a Basket of Stocks (e.g., 5 blue-chips)**
  - *Invest 100 today.*
  - *Capital is 100% protected. The investor receives at least 100 at maturity/redemption.*
  - *10 year maturity, subject to early redemption if total coupon payments reach a pre-determined target (e.g., 25%). Redemption amount is capital plus target.*
  - *Annual coupon based on return of the worst performing stock in the basket (floored at 0%).*
  - *Early redemption if the sum of all coupons should reach the target (e.g., 25%).*

Note that early redemption can be good for the investor, who then receives the target return early. If stocks in the basket are uncorrelated, there is more likely to be a stock that performs poorly and therefore for the coupon to be low. In this sense, investors are long correlation, and issuing banks are short stock correlation. Similarly, investors are short volatility, and issuing banks are long volatility.

Early redemption also contributes to embedded leverage. If the underlying stocks rally, not only does the coupon increase, but early redemption becomes more likely. As the sum of the coupons approach the target, it is possible for the delta equivalent positions in individual elements of the basket to exceed 100% of the notional value of the note. This occurs due to the fact that the price return of any element not only drives the coupon return of the note, but due to the varying redemption, will also drive the maturity of the note. The combined impact can be quite high with the result that the cash equivalent sensitivity in the underlying basked element can be large.

The charts at the end of this section illustrate the sensitivity of the TARN product to key input variables.

(b) Hedge-fund based products — Constant Proportion Portfolio Insurance (CPPI), option-based and leveraged exposure

There has been strong demand for products that provide access to hedge funds that are principal protected and leveraged. Several examples of these are the TARN structure and Constant Proportion Portfolio Insurance (CPPI) products.

- **Example of TARN on Fund of Hedge Funds**
  - *Invest 100 today.*
  - *Capital is 100% protected. The investor receives at least 100 at maturity/redemption.*
  - *Maximum maturity of 10 years, subject to early redemption.*
  - *Regular income through annual coupons.*
  - *Coupon size is linked to the performance of a Fund of Hedge Funds.*
  - *Early redemption if the sum of all coupons should reach the target (e.g., 20%).*

- **Constant Proportion Portfolio Insurance (CPPI) on Hedge Funds**

  Although CPPI-based strategies have been well known for many years, one area of growth has been in CPPI-based strategies which use new assets including hedge funds as the underlying risky asset. Such investments are popular in the retail market either as an investment fund or as a structured product, with gap risk underwritten by a bank or insurers, or repackaged and sold as yield enhancement products. CPPI allows for leveraged investment in a risky asset, typically capped at 200%.

  - *The CPPI strategy varies the amount invested in a risky asset (e.g., equities), depending on its performance. The strategy increases the risky investment when the asset gains value and decreases the risky investment when the asset loses value. Monies not invested in the risky asset are typically invested in low-risk instruments such as government bonds.*
  - *CPPI-based strategies seek to preserve a minimum return by switching more and more investment into the low-risk asset if the risky asset loses value. This strategy means that risky assets are bought after a rally and sold after a sell-off, a classic option replication strategy; buying high and selling low is the price paid for an option-like return of limited downside and unlimited upside. Gap risk is incurred.*

The derivatives market has helped to grow and develop the demand for such investments by packaging them into synthetic products which give the payoff of a CPPI strategy and allow a risky asset to be leveraged above 100% if it increases enough in value. As with many synthetic investments, additional features such as lock-ins and guaranteed minimum exposures are common, together with the inclusion of (hedge) funds as underlying assets.

(c) Variance and correlation swaps

A variance swap is an OTC derivative with a pay-out dependent on the variance of returns of an underlying asset such as an equity or equity index. Variance is the square of volatility. Variance swaps allow investors to buy or sell volatility, almost as an asset in its own right. Leverage is limited only by internal or counterparty risk limits.

The variance swap market has grown enormously in the last five years, initially based on equity indices and, over the last few years, on single equities. In turn, this allows investors to trade the spread between index and single stock return variance, a spread which is a closely related to the correlation of stock returns. This has spurred the growth of the correlation swap market, which allows investors to directly go long or short the correlation of equity returns.

Growth in the variance and correlation swap market has been driven in part by investor demand to trade volatility and correlation in a direct manner as a diversifying asset class. However, leveraged investors such as hedge funds have been the main users as they seek to capitalize on market mispricings which have themselves been driven by imbalances in the supply and demand of other derivative products. As such, variance and correlation swaps are a useful way for banks to re-package risk to investors, although as discussed below, selling risk on to other players does not necessarily diminish the overall risk in the marketplace.

(d) Market size

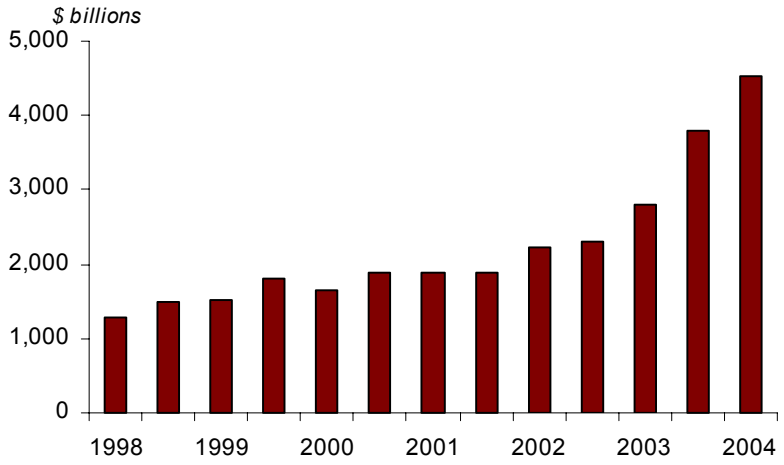
Equity derivatives trade in the OTC market, the listed market and in the structured product market (notes, certificates, etc.). All markets have seen strong growth in the last five years.

In the OTC market, the notional outstanding of equity-linked derivatives was $4.5 trillion as at June 2004, having tripled in size over the previously five years (source: BIS).

The listed options market has also shown strong growth. For example, in 2004 the combined open interest of equity index options contracts on was around $3 trillion notional, double that of 1999. Turnover, at $200 billion notional per day in 2004, was triple that of 1999 (source: BIS).

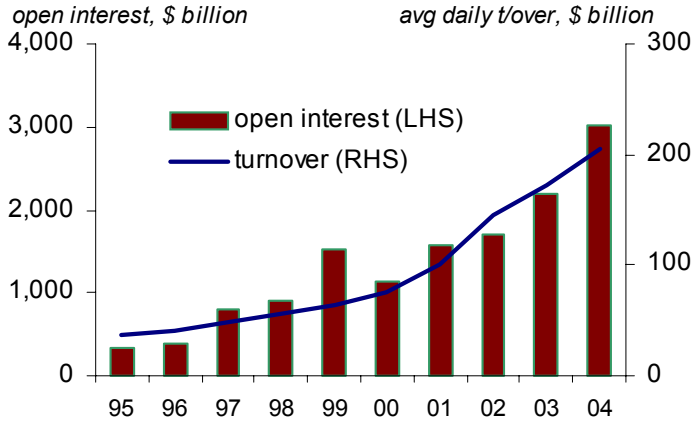
Data for the retail structured product markets is less comprehensive. Estimated issuance in Europe was around €100 billion in 2004. Around half of the issuance was in Italy, Spain and the UK (the other major European markets are France, Germany and Switzerland). On this basis, the market has doubled in size since 2000 (Chart 14).

Chart 12
Amount outstanding of OTC equity-linked derivatives



Source: Bank for International Settlements

Chart 13
Listed index option open interest and turnover



Source: Bank for International Settlements

Chart 14
Retail structured product issuance volumes, € millions

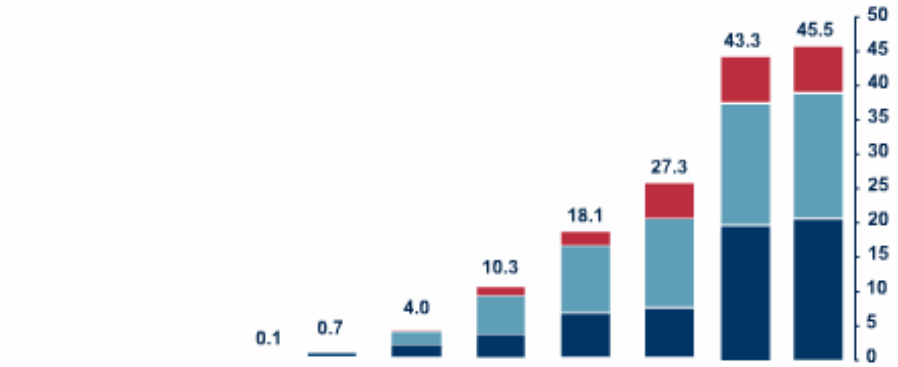
	Italy	Spain	UK	Total
2000	15,700	7,300	2,500	25,400
2001	15,200	9,000	5,500	29,700
2002	23,500	13,600	6,300	43,400
2003	23,100	20,100	5,600	48,800
2004	25,800	19,300	6,100	51,200

Source: Arete consulting (retailstructuredproducts.com)

Hedge funds have grown enormously over the last few years, and reflecting this growth the derivatives market has witnessed much demand for hedge-fund linked products. Hedge fund assets under management were estimated at $973 billion at the end of 2004, having doubled during the previous five years (HFR Year-End 2004 Industry Report).

There is little data on the size of the hedge fund derivative market. Anecdotal evidence suggests strong growth over the last five years. For example Lyxor, the fund-management arm of the Societe Generale Group and one of the largest providers of structured investments, has seen retail assets under structured management (which we take to be hedge-fund based structured investments) grew ten fold in the last five years, from €2 billion in 2000 to €20 billion in 2004 (see Chart 15 below).

Chart 15
Lyxor AM assets under management (€ billion)



	1998	1999	2000	2001	2002	2003	2004	2005
Index Tracking			0.2	1.2	2.1	3.5	6.6	6.7
Structured Funds	0.1	0.5	1.9	5.6	9.7	13.2	17.2	18
Structured Alternative Investments		0.2	1.9	3.5	6.3	10.6	19.5	20.8

Source: retail.lyxor.com

The variance and correlation swap market is largely OTC-based. One large dealer estimates turnover in Europe, measured in options notional equivalent, to be around €20 billion per year.

2. Forces Driving Market Activity

Derivatives can offer payoffs and risk-return profiles that are difficult for an investor to achieve with the underlying instruments alone. Also, they can provide easy access to less liquid or less accessible investments such as hedge funds.

In addition, exposure to derivatives can diversify investor returns via their exposure to volatility or correlation.

The growth of the specific products highlighted above has been driven by some of the classic drivers of derivative product development. Yield enhancement has driven development of synthetic investments. Correlation and variance swap markets developed not only due to demand from hedge funds to trade these "asset classes," but also because they allow investment banks to recycle the risks implicit in synthetic investments. Demand for access to new asset classes has fuelled demand for hedge-fund linked products.

(a) Yield enhancement

The search for yield and an increased focus on absolute returns means that investors have been attracted to yield-enhancing derivative products. Yield enhancement includes basic strategies such as covered-call writing, as well as structured investments such as TARN notes discussed above.

TARN type products leave risk providers long single stock volatility and short correlation. Liquidity constraints can mean that stock volatility is hedged with short index volatility, again creating short correlation exposure.

(b) Recycling risk

Financial intermediaries' risk books accumulate risk positions through structured products (for example, long volatility and short correlation). Clearly banks do not have unlimited appetite for such risk so it is repackaged in various ways. Among the most popular are variance and correlation swaps which are traded with hedge funds and proprietary trading desks in order to mitigate exposures. There also is a significant amount of cross or proxy hedging which gives rise to basis risks.

(c) Access products

The growth in hedge fund linked derivatives has been largely fueled by investor demand to have access to hedge fund exposure, and derivatives provide a useful access vehicle to as well as being able to offer features such as capital protection. Structured investments provide easy access and an ability to diversify returns.

In addition to the development of specific products, the equity derivatives marketplace in general continues to grow strongly, as detailed above. Attractions include leverage, diversification and enhancement of returns, tax efficiency and the ability to structure required exposure with precision. Furthermore, capital protected products are attractive for investors who wish to switch back into equities in a cautious way. Finally, derivatives continue to generate attractive margins for financial intermediaries — and these returns may appear to exceed the margins of conventional products such as mutual funds or secondary market securities commissions.

3. Long and Short Users

Demand for synthetic investments comes from institutional and retail investors. Private banks, brokerages and financial advisors, savings banks and other retail orientated financial institutions are selling these products aggressively as the margins are good and end client appetite seems to be large. Supply comes from investment banks' structured product desks, dependant as ever on their ability to price and manage risk.

Demand for hedge fund linked products again comes from retail and institutional investors. Investment banks will hedge exposures by dynamic investment in the underlying funds.

Investment banks buy stock volatility and sell correlation through synthetic investments, and this risk is partially recycled within the professional market through vehicles such as options and variance and correlation swaps. Counterparties include hedge funds, investment banks and proprietary trading desks. There are some products that allow investment banks to sell volatility to real-money investors though they tend to be index based.

4. Risk Management Issues

(a) Suitability

Embedded leverage is a characteristic common to many derivative products. The examples discussed above are relatively new products in the equity derivative markets and, as such, they offer investors unique opportunities but may pose new and complex risks to providers.

As discussed, for end-users, some of the incentives to purchase these products are:

- The opportunity to obtain premium yields on principal protected debt in a low yield environment; and
- Obtaining access to hedge fund returns with principal protection.

Premium yields, however, are obtained through the sale of options embedded in the coupon structure of debt. In this case the debt investor (which has expanded to include retail) has now become an option writer with the contingent liabilities associated with short option positions. For providers of this product, this creates the obligation of assuring the products are suitable for these investors and that they are provided with adequate disclosure.

(b) Dividends

Risks vary from the extremely simple "delta one" to the very complex. One common feature is that many products are long the price return (as opposed to total return) of an underlying equity or equity index. Dividends are a key determinant of pricing forward contracts in equities, and hedging exposure to changes in dividends is sometimes difficult to obtain. Some of this risk is managed by trading forwards and dividend swaps with other banks and hedge funds, although aggregate market risk is not reduced. Changes in accounting regulations or tax rules that systematically reduced company dividends would therefore impact the market.

(c) Correlation

As described above, many of the popular synthetic products are long correlation for the investor. Again, banks buy correlation back from each other and from hedge funds. Systemically, however, the professional community is short. This is compounded by hedging long stock vega with short index positions. The risk is that correlation trends upwards due to demand/supply and/or enforced liquidation. In addition, crashes are generally highly correlated events.

(d) Hedging

Hedge funds tend to follow similar opportunities (*Have Hedge Funds Eroded Market Opportunities*, JPMorgan, October 2004). We have seen in the past (e.g., LTCM) that hitherto uncorrelated positions suddenly become very much related when the marginal cost of risk capital suddenly widens. Hence, for derivative providers, underlying assets (hedge funds) may be prone to gaps and correlated gaps at that. In addition, the ability of synthetic product providers to hedge is limited to daily at best, and monthly or quarterly is more common. This time delay in executing hedges in hedge funds may impair the effectiveness of the hedging strategy for option based products — and compounds the sensitivity to gapping in price returns.

As mentioned above, some of the risks associated with synthetic products on hedge funds are sometimes laid off with hedge funds. This creates a question as to the effectiveness of the hedging trade should there be a systemic issue with the hedge fund industry. For example, can the provider of synthetic products rely upon insurance purchased on hedge fund gapping returns if the insurance was purchased from a hedge fund?

Variance swaps have existed for a while but their usage has increased a great deal over the last five years, and they are now being traded on single stocks and other products. One risk management problem that can occur is analogous to the problem of outperformance options where a stock price appears in the denominator. Statistically, it is impossible for a stock to go to zero (in a conventional log-normal world) but in reality it is quite possible. In some jurisdictions, quasi-bust stocks can keep trading for a very long time. In these circumstances the stock volatility can be immense (and open to manipulation). One approach to this problem is to place far out-of-the-money caps on a variance swap payoff so such an outcome would be expensive but not crippling for the variance swap payer (the short).

While the returns of these products to providers can be high, the risk management challenges are non-trivial as some key risks are not easily recycled in the dealer community:

- Short correlation in equity due to systematic sale of index options as hedges of long single stock options;

- Long dividend risk on stocks due to the long term forward risk arising from synthetic structures;
- Structural sensitivity to gapping risk in hedge fund price returns; and
- Impairment of hedging strategies in hedge fund linked structured product due to the constraints on the purchase and sale of hedge fund shares.

The emergence of such structural risks is common to the creation of new financial products. It is important that they be recognized, measured and controlled. Furthermore, profitability of the products must be assessed with regards to the risk capital required to support the concurrent risks as they may exist over the term to maturity of the deals. Lastly, as a catalyst to product evolution, there must be a continued and focused effort on developing a recurring liquid market for recycling these risks.

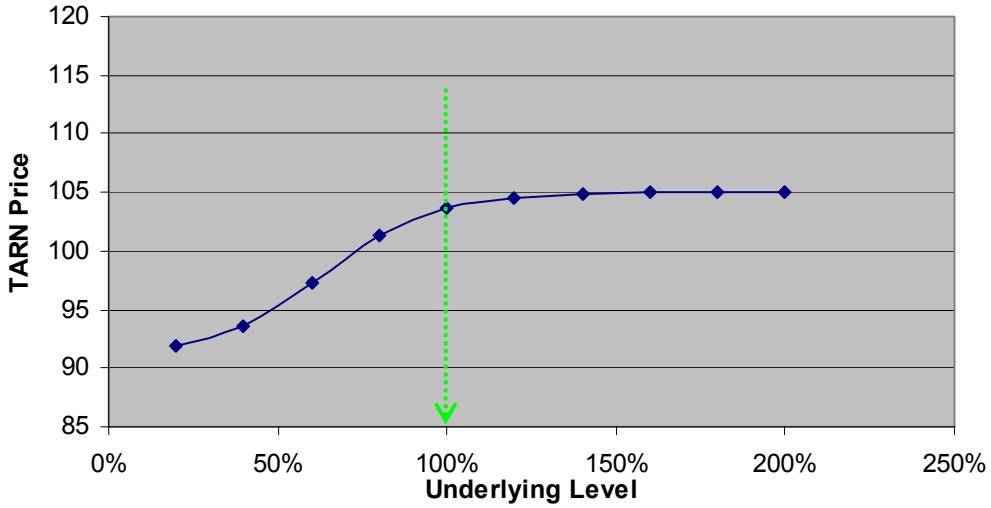
5. Price Sensitivity of TARN to Input Variables

- Instrument: 100% Capital Protected Target Redemption Note.
- Initial Coupon in Year 1 = 10%.
- Coupon Years 2 through 10 = Max[((minimum return of any one of five reference assets) + 15%), 0], where the return is computed from the initial issuance date to the coupon payment date.
- Maturity: Redeems in 10 years or earlier if the sum of all coupon payments reach a target level of 25%.
- Interest rates: 2%.
- Implied volatilities: 20% (no skew) for all underlyings, except in Chart 17 where Underlying 1 is assumed to have a 5% implied volatility.

(a) Chart 16

Chart of the TARN price versus the value of the basket of the five reference assets (assuming all assets move together).

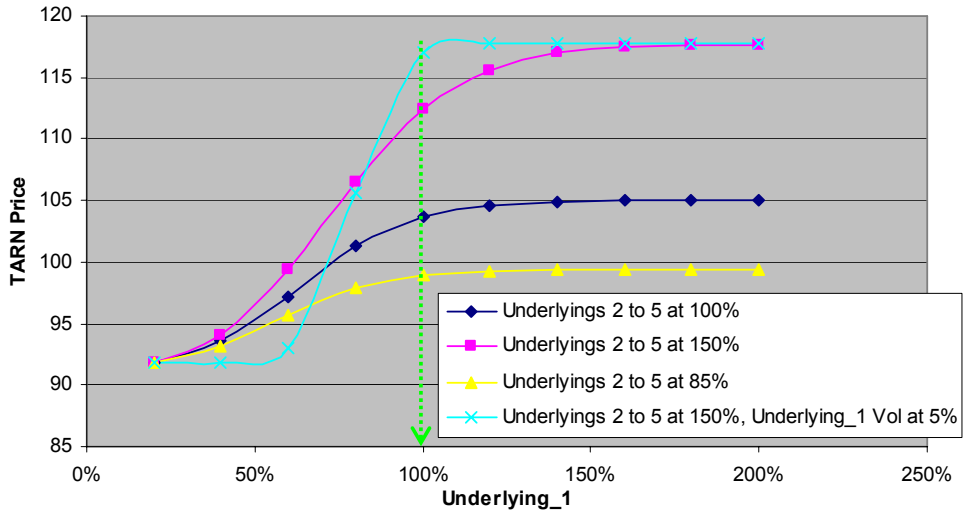
Chart 16
TARN Price vs. Underlying Level



(b) Chart 17

Chart of the TARN price versus the level of one of the five underlying assets while the other four are held static at their initial value (100%), higher value (150% of initial) and lower value (85% of initial). Note that the rate of change in the TARN value differs depending on the level of the other assets and the volatility of the single asset.

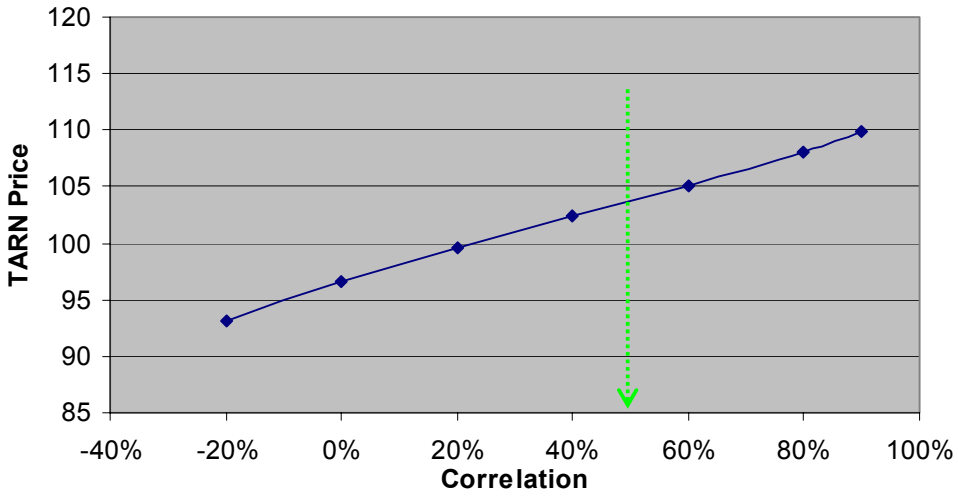
Chart 17
TARN Price vs. Underlying_1



(c) Chart 18

Chart of the TARN price versus the basket average correlation (assuming all pair-wise correlations move together). The buyer of a TARN is long correlation. As the correlation increases, the underlyings move closely together and there is less chance of any one stock lagging behind and extending the life of the trade. On the other hand, lower correlation will result in a more dispersed distribution of the underlying returns and there is more likelihood that the worst performer is substantially below the initial level.

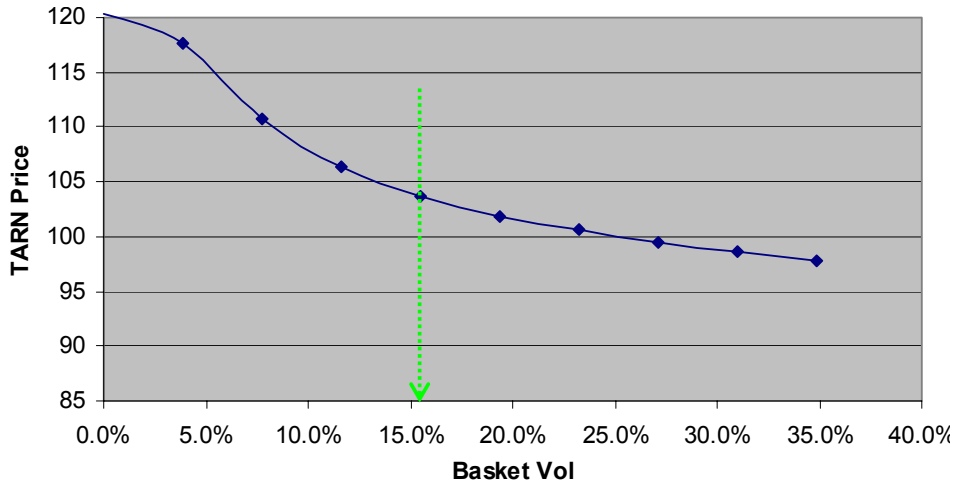
Chart 18
TARN Price vs. Correction



(d) Chart 19

Chart of the TARN price versus the basket volatility (assuming all underlying assets volatilities move together). As the volatilities go to zero, the coupon is guaranteed to hit the target (all the underlyings are above the 85% strike), and the price converges to the present value of the initial coupon in Year 1 plus the target coupon and notional at Year 2. As the volatilities go up, the price decreases as the probability of at least one underlying having a large negative move increases.

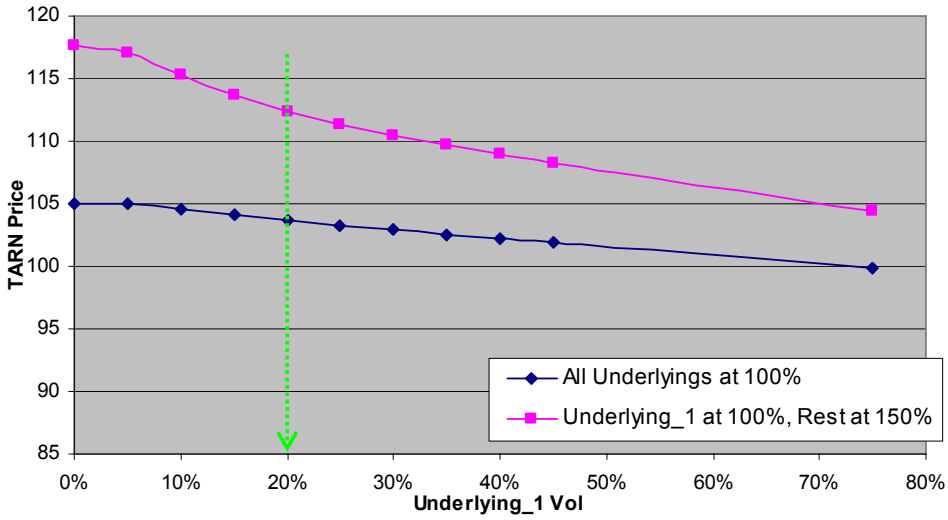
Chart 19
TARN Price vs. Basket Vol



(e) Chart 20

Chart of the TARN price versus the volume of one of the five underlying assets. The buyer of the TARN is short volatility to each of the underlyings at inception. Increased volatility increases the chances of the worst performer having a large negative move and hence increasing the life of the trade. Note that the sensitivity to the volume of one underlying depends on the level of the other underlyings. For example, if all the other underlyings are well above the strike, then the TARN price will be more sensitive to the volume level of the worst performer, as shown in the chart.

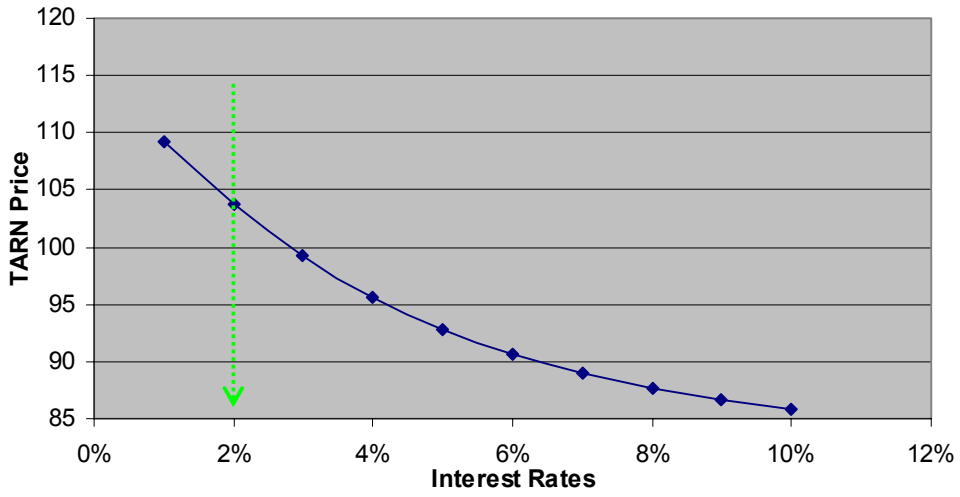
Chart 20
TARN Price vs. Underlying Vol



(f) Chart 21

Chart of the TARN price versus interest rates. The buyer of the TARN is long interest rates. As the interest rates increase, the present value of the coupons plus the notional due at maturity decreases, reducing the price of the structure.

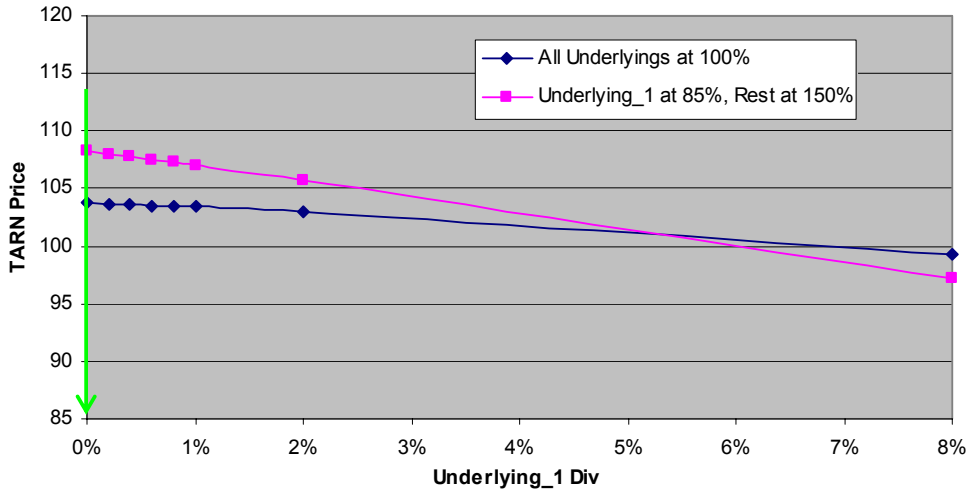
Chart 21
TARN Price vs. Interest Rate



(g) Chart 22

Chart of the TARN price versus the dividend yield of one underlying. The buyer of the TARN structure is short dividend sensitivity, but the magnitude of this sensitivity is relatively small. As the dividend increases, it has the effect of reducing the forward of the given underlying, and this has the effect of increasing the effective life of the TARN (chances of paying an early coupon are reduced). Note that the sensitivity to the dividends of one underlying depends on the level of the other underlyings. For example, if all the other underlyings are well above the strike, then the TARN Price will be more sensitive to the dividend level of the worst performer, as shown in the chart.

Chart 22
TARN Price vs. Underlying_1 Div



APPENDIX B

Financial Market Developments, 1999-2005

A. Introduction and Executive Summary

At the outset of the CRMPG II initiative, it was determined that a broad, survey-based paper tracing major changes in financial markets since 1999 would enhance the work of the Policy Group. The central objectives of this paper are: first, to provide a comprehensive overview of the powerful structural, innovational and market-driven changes in financial-market practices in recent years; and second, to assess the implications of these changes, especially for the stability of the global financial system.

The central conclusion from the survey is that, on balance, recent developments in financial markets have reduced the already low probability of systemic financial shocks. However, the survey also points to a number of areas in which these developments create new and more complex risks that require increased vigilance as well as more care and diligence in risk management.

Several related factors support the view that the risk of systemic financial shocks has fallen:

1. In the post-1999 period, the financial system has demonstrated remarkable resilience in absorbing a number of major financial disturbances, in circumstances in which systemic concerns were not an issue.

2. The financial strength of financial institutions at the core of the financial system has improved, as indicated by solid profitability and strong capital positions.

3. Risk management practices have been substantially enhanced, and prudential supervisory practices have been strengthened.

4. Innovations, including the development of new financial products, have helped to diversify both market and credit risk throughout the financial system

and beyond. Of particular note is the trading of credit risk, which enables creditors and investors to diversify and redistribute this risk.

5. Hedge funds and private equity funds have provided fresh sources of liquidity to markets. Further, survey information suggests that, as a group, hedge funds have made important gains in their risk management capabilities.

6. All major markets have seen significant improvements in financial infrastructure, and major further enhancements are in progress.

While these trends are working to reduce the risk of a systemic financial shock, others may increase the damage from such a shock were it to occur. Those developments, which require careful and continuous vigilance by all market participants, include the following.

1. Innovation and new products have helped to diversify and distribute risk, but they have not eliminated it. Moreover, even for the most sophisticated firms and risk managers, these instruments often pose major challenges in risk management and monitoring. There is also the nagging question of whether ultimate risk holders always fully grasp the nature of their exposures — especially to credit risk.

2. Reflecting mergers and acquisitions among major financial institutions in recent years, there is now a relatively small number of very large and complex institutions at the core of the global financial system. Collectively, these institutions are dominant participants in many segments of financial markets, including the OTC derivatives markets. Clearly, life-threatening financial problems at any one of these institutions would create a major challenge to financial markets in general.

3. The sharp rise in the scale and importance of relatively new classes of financial institutions, including hedge funds and private equity and real estate funds, also raises new challenges. The potential fluctuations in many hedge funds' asset bases, combined with risk/return profiles, are risk factors which require close attention. In addition, for many hedge funds, risk management can be especially demanding since their targeted returns may imply high levels of risk taking. The fact that severe financial problems at a single hedge fund today are unlikely to menace financial markets generally, as was the case in 1998, does not mean that vigilance isn't necessary; a disturbance that

threatens a group of funds could achieve a critical mass that engenders broad dangers for financial markets.

4. While fundamentals have been supportive, the so-called "search for yield" has driven risk spreads and implied volatility in many markets to multiyear lows. This has raised concerns about the mispricing of risk in global financial markets, with potentially systemic consequences should the benign market environment suddenly turn more negative. Lately there is some evidence of market prices not always providing adequate compensation for risk. In an environment of rising interest rates — especially if accompanied by spread widening — pressures in financial markets and on some classes of institutions could increase.

5. The changing ownership of credit risk implied by these trends likely will have important implications for workouts — especially so-called "macro" workouts — of problem credits. Some sophisticated investors may be opting to use the new credit transfer instruments to sell problem credits at marked-down prices rather than go through the prolonged and time-consuming workout process in circumstances in which the newer holders of such credit risk may have little experience or interest in participating in complex workouts.

6. Recent developments in the housing market and the residential mortgage markets deserve particular attention because of the potential risks that they can generate. Indeed, a significant rise in the interest rate environment or a deterioration in economic conditions could result in pressures on borrowers, lenders and the mortgage markets generally. There is some potential that such pressures could be aggravated by the significant increase in the use of non-traditional mortgages and by the difficulties in hedging interest rate risk on the part of market participants including the two very large housing related GSEs.

Finally, as detailed in the Introduction and Executive Summary of this Report, it is impossible to anticipate the specific triggers and timing of financial disturbances that morph into systemic financial shocks.

The following analysis first considers factors that have reduced the risk of systemic shocks and then evaluates those requiring heightened vigilance.

B. Factors Suggesting That Systemic Risk Has Declined

1. *In the post-1999 period, the financial system has demonstrated remarkable resilience in absorbing a number of major financial disturbances, in circumstances in which systemic concerns were not even an issue.*

Neither traditional macro-financial disturbances nor other sources of potential trouble have nurtured systemic risk. The former include the major exchange-rate devaluation in Brazil, financial crises in Turkey, the bursting of the large equity market and technology bubble, US recession, September 11th, the wars in Afghanistan and Iraq and record high oil prices. The financial system has also shown extraordinary strength in the face of the Argentine sovereign default, a series of major corporate governance scandals and related mega-corporate collapses and defaults.

In none of these events — not even 9/11, which, in addition to the tragic loss of life, caused significant physical damage to the US financial infrastructure — was systemic risk a significant problem. In part, the ability of the financial system to absorb these disturbances was related to the generally favorable monetary and fiscal policy environment which characterized this period. Low inflation has contributed to a very favorable interest rate environment, while fiscal policy has been expansionary in many key countries, further supporting growth and underpinning economic stability. The move toward flexible exchange rates in emerging markets may also have helped by alleviating one of the major sources of macro-financial shocks. However, the health and underlying strength of the financial sector also has been a key factor in contributing to the stability of the financial system.

2. *The financial strength of financial institutions at the core of the financial system has improved, as indicated by solid profitability and strong capital positions.*

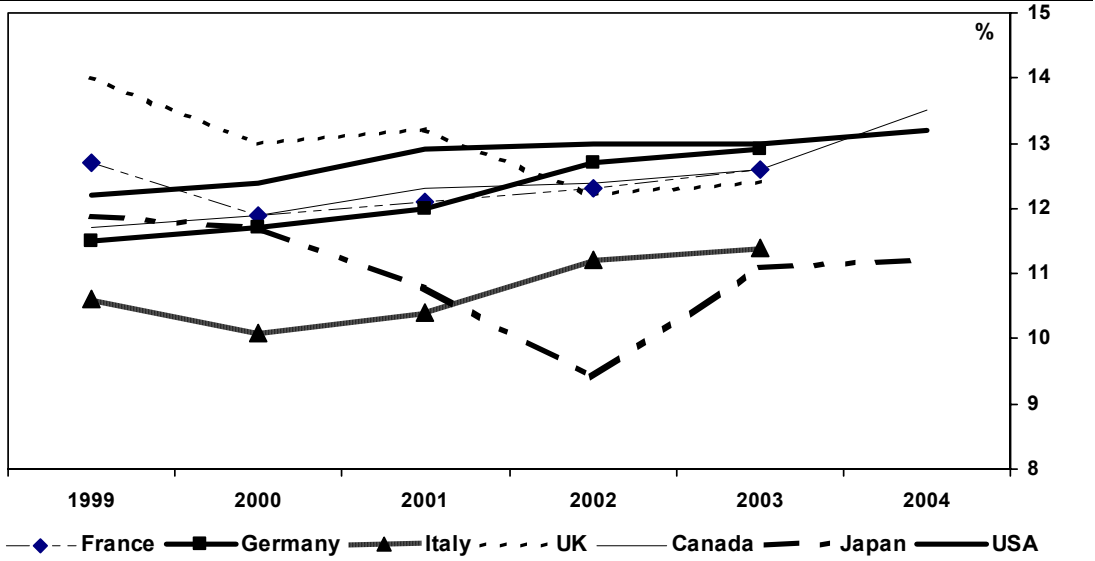
There has been a general improvement in capital ratios in the last five years, with the three major US large and complex financial institutions (LCFIs) all showing Tier 1 capital ratios rising from 2000 to 2004, and all above 8% — well above the 6% capital adequacy requirement. The OCC confirms that the underlying profitability of

US commercial banks remains strong, and that nonperforming assets have fallen to pre-recession levels.[8]

US investment banks are also in strong financial health. Their capital and equity have grown strongly in recent years, helped by high returns on equity. For example, over the past five years, their leverage ratios (average assets/average equity) have declined from about 35% to 23%, and average trading VAR has declined in relation to equity.

In Europe, profitability and solvency of the banking system has improved substantially over recent years. For the top-50 EU banks, after-tax return on equity (RoE) rose from 7.99% in 2002 to over 13% by mid-2004. Tier-1 ratios increased from 6.65% to 7.14% in the same period.[9] These improvements reflect several factors: the recovery of financial markets and the economy; better and more active risk management, including increasing use of credit risk transfer instruments; and industry consolidation.

Chart 1
Bank Regulatory Capital to Risk-Weighted Assets in G7 Countries



Sources: IMF Global Financial Stability Report, April 2005.

For 2004 as a whole, a smaller sub-sample of large EU banks displayed another year of record results, in many cases their best ever. After-tax profits and earnings

[8] OCC (2004): "Condition and Performance of Commercial Banks," *Quarterly Journal*, Vol. 23/4, (December).

[9] ECB (2004): *EU Banking Sector Stability*, p. 48.

rose sharply and several banks achieved returns on equity (after tax) in excess of 20%. The record profits further bolster the banks' ability to withstand possible future shocks. According to IMF data,[10] capital ratios have risen in essentially all EU member states (with the exception of Greece and the UK) between 2000 and 2003 — in spite of substantial share buy-back programs by some banks.

In Japan, the period has been characterized by a gradual but steady improvement in the condition of the major banking institutions. Indeed, after a decade or more in which Japanese banks surfaced from very high levels of non-performing loans, it now appears that reform programs are paying dividends as NPLs have declined significantly and rates of profitability are returning to more normal levels.

3. Risk management practices have been substantially enhanced, and prudential supervisory practices have been strengthened.

The turbulence that swept through financial markets in the fall of 1998 revealed that risk-management practices and supervisory and regulatory frameworks did not fully take into account the changing nature of private financial risk-taking, market dynamics and systemic risk.[11] Since then, significant efforts have been made to improve risk management both in the financial system and in the global economy — notably in emerging markets. Efforts led by CRMPG I, the International Monetary Fund, the Bank for International Settlements, national regulators and others have contributed to significant improvements in risk management. These efforts continue, as regulators and central banks cooperate to ensure that best practices in risk management continue to spread and develop.[12] Key developments include:

- New regulatory requirements such as Basel II have spurred advances in risk modeling and management, while improved databases and technology have also contributed significantly. The ability to separately quantify and model credit, interest rate and other risks has built on the theoretical and empirical advances of the past two decades, and the recent plunge in the cost of data

[10] IMF (2005): *Global Financial Stability Report*, April, p.192.

[11] Schinasi, G., et al (1999), "Managing Global Finance and Risk," *Finance & Development*, Vol. 36/4, (December). IMF.

[12] See, e.g., http://www.bis.org/cgfs/cgfsconf2005.pdf for a 2005 joint central bank conference on risk management.

and computing power has accelerated and broadened the use of new risk management tools.

- Greater awareness of potential sources of systemic risk has also led to substantial advances in risk monitoring techniques, including new metrics and methods that further the use of aggressive scenario analysis and stress testing. At the same time, the reach and effectiveness of traditional risk mitigants such as margin, collateral and netting have been materially enhanced. Moreover, the benefits of these enhancements in risk monitoring and mitigation extend to all major classes of institutions, including hedge funds.

- Operational risk management has progressed through the discipline of Basel II and Sarbanes-Oxley. While much remains to be done in the area of modeling and measuring operational risk, the field has advanced significantly since 1999, and the momentum appears substantial.

- Innovation has helped improve risk management by providing new ways to segment, hedge and manage risk, as discussed below.

- The increased foreign participation in emerging market financial systems has helped spread best practices in risk management more broadly.[13]

> *4. Innovations, including the development of new financial products, have helped to diversify both market and credit risk throughout the financial system and beyond. Of particular note is the trading of credit risk, which enables creditors and investors to diversify and redistribute this risk.*

The continuing surge in financial innovation has multiple causes and consequences. For example, the pace of financial innovation could not be sustained were it not for the continued advances in and falling costs of computing power and telecommunications. However, advances in technology, by themselves, are a necessary but by no means sufficient condition for financial innovation. The forces that drive the application of high technology to the arena of finance are complex. Clearly, the desire to enhance returns — especially in a low interest rate environment

[13] Hawking, J. & Mihaljek, D. (2001), "The Banking Industry in the Emerging Market Economies: Competition, Consolidation and Systemic Stability — an Overview", *BIS Papers*, No.4 (August).

— induces behavior that relies on high level technology and rapid information processing of vast amounts of data. Ironically perhaps, the reach for enhanced returns also contributes to the environment of high tech finance in that it requires continued rapid advances in both new instrument and new risk management techniques. As an example, one counterparty to a credit default swap is reducing credit risk while the other is taking on that same credit risk in order to enhance returns. Indeed, while we have seen many forms of financial innovation in recent years, none have been more dramatic than the application of the technology which has permitted the separation of and active trading of credit risk. This subject is covered in considerable detail below and in Section V and in Appendix A of this Report.

The analysis and trading of credit separate from other characteristics of cash flows has enabled investors and lenders to diversify their single-name exposures. These developments have nurtured a more liquid secondary market in credit, which in turn promotes the creation of more derivative products based on credit instruments. Among them: credit default swaps (CDS), in which counterparties who want to assume credit risk agree to receive regular cash flows in exchange for the obligation to buy an asset if it defaults; collateralized debt obligations (CDOs), which package and slice into credit tranches a portfolio of corporate bonds; and synthetic CDOs, which package and "tranche" a portfolio of CDS. Both CDOs and their synthetic cousins provide the flexibility to customize financial transactions to match the risk appetites of investors, but in so doing, may lack the liquidity of more standardized securities.

The market for credit risk transfer mechanisms has mushroomed recently. According to ISDA, the notional value of credit default swaps outstanding jumped to $8.4 trillion at the end of 2004, a nine-fold increase in just three years. BIS data put the notional amount at $6.3 trillion. By comparison, the gross market value of contacts outstanding — according to the BIS, "a better measure of the amount of financial risk transfer in derivatives markets" — stood at $134 billion.[14]

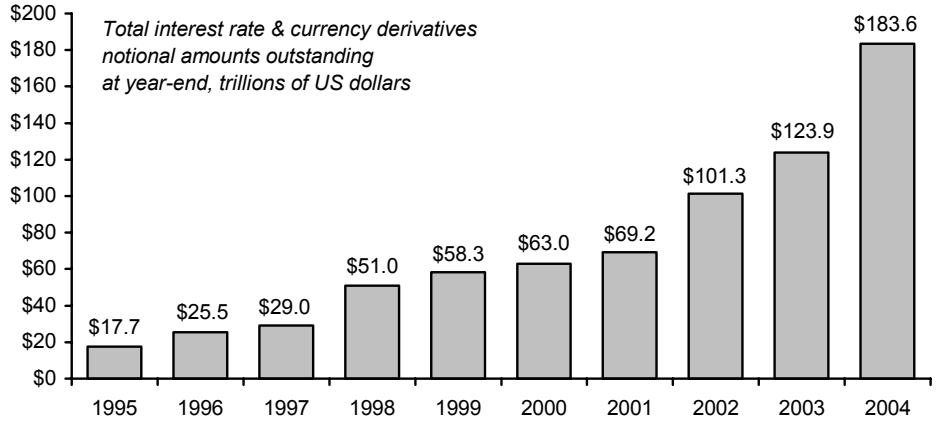
[14] Bank for International Settlements, *OTC Derivatives Market Activity in the Second Half of 2004*, May 2005.

Another major trend that has been made possible by technology has been the trading of physical assets in financial form as witnessed by the explosive growth of the asset-backed securities market.

The narrowly defined asset-backed securities market alone has more than doubled in the past five years, to $650 – $700 billion, while the already booming residential mortgage market stands at more than $3 trillion. Finally, the growth of securitized markets has provided access to credit for subprime borrowers who in the past would not have obtained it.

Meanwhile, the growth of more traditional derivatives and asset-backed securities — two well-developed trends — has continued at a rapid pace. The notional value of all interest rate and currency swaps and options outstanding more than tripled over the past five years to $183.6 trillion, according to the International Swaps and Derivatives Association (ISDA).

Chart 2



These developments have nurtured both the commoditization and complexity of financial products. In ever-deeper and more liquid markets, risk-transfer products become commoditized as their use spreads, which in turn spurs further innovation. Interest rate and currency swaps and options are good examples. In addition, innovation has fostered increased complexity of financial products with trades structured to meet the needs of originators of risks and investors. Both have also diffused risk from banking institutions to investors and the broader financial system.

Legal developments have also been important for the growth of these complex financial instruments. Standardized documentation for credit default swaps and

synthetic CDOs, as well as favorable legal opinions supporting the enforceability of these contracts, has provided increased liquidity and depth to the market. Likewise, resolving tax, accounting and legal issues has helped to structure asset-backed securities. To obtain favorable "off-balance-sheet" accounting and regulatory treatment, issuers want to securitize for sale without recourse rather than on a pledged basis.

> *5. Hedge funds and private equity funds have provided fresh sources of liquidity to markets. Further, survey information suggests that, as a group, hedge funds have made important gains in their risk management capabilities.*

Between 1999 and 2004, the hedge fund industry approximately doubled in size, with assets under management (AUM) growing from an estimated $456 billion to $973 billion and the total number of funds (including funds of funds) increasing from 3,617 to 7,436. Net asset flows to the industry between 2000 and 2004 were $313 billion. Hedge funds engage in a wide variety of strategies, of which the largest in terms of assets under management are equity hedge strategies (29% of total AUM), event-driven (13%), relative value arbitrage (13%) and macro (11%).[15]

The growth of the hedge fund industry can have a positive effect on market functioning and efficiency as hedge funds contribute to market liquidity, help in market price discovery and contribute to the elimination of market inefficiencies.[16]

Hedge fund activity continues to expand into new areas such as a growing role in the credit-risk transfer market. Initially, their activity focused heavily on two-way trading in CDS, for example to exploit opportunities relative to bonds and other fixed income instruments. While this activity remains prominent, hedge funds have also been cited as playing a greater role in holding equity tranches of CDOs and participating in correlation-related trading more generally. In addition, some hedge funds sell credit protection, thereby accepting credit risk from credit originators.

In other signs of their expanding range of activities, hedge funds have started writing reinsurance coverage.[17] They are playing a major role in the foreign exchange

[15] HFR (2005): *Year-End 2004 Industry Report*.

[16] ECB (2005): *Financial Stability Review,* (June).

[17] Crombie, R. (2005), “Hedge Funds Hog the Spotlight”, www.riskandinsurance.com.

markets: the non-bank professional trading community now accounts for more than one-third of the $621 billion traded daily in the spot currency markets.[18] Hedge funds have also attracted much publicity by competing for private equity deals.[19] [20]

> *6. All major markets have seen significant improvements in financial infrastructure, and major further enhancements are in progress.*

Section IV of this Report provides a detailed discussion of improvements in financial infrastructure, documentation and related policies and practices.

[18] Hughes, J. (2005), "EBS Trial Supports Hedge Fund Trading Role," *Financial Times* (March 14).

[19] Lynn, M. (2005), "Hedge Funds, Buyout Firms Converge on Same Turf," *Bloomberg* (March 2).

[20] Smith, P. (2005), "Deals Highlight New Takeover Hierarchy," *Financial Times* (March 14).

C. Issues Requiring Continued Vigilance

1. *Innovation and new products have helped to diversify and distribute risk, but they have not eliminated it. Moreover, even for the most sophisticated firms and risk managers, these instruments often pose major challenges in risk management and monitoring. There is also the nagging question of whether ultimate risk holders always fully grasp the nature of their exposures — especially to credit risk.*

By design, such products segment and price a variety of risks so that those who wish can sell or transfer risk to those who are willing to accept it. For this market to function, however, both parties should be capable of absorbing any consequent losses. In turn, that requires a deep understanding of the underlying risks involved. Not surprisingly, therefore, large institutions and private investors such as hedge funds dominate these markets; their ability to invest in sophisticated analytical modeling tools is an essential ingredient for success.

However, models used without judgment can also lead risk managers astray. Models are based on historical performance and on assumptions about correlations and covariances among financial instruments. But these instruments are relatively new, continue to evolve and can be illiquid. Hence pricing may be quite volatile, and history may be a poor guide to future performance, even in normal times. Moreover, correlations and covariances in normal, liquid markets may be quite different from those in periods of market stress. The embedded optionality in these instruments thus exposes counterparties to risks that the models may not anticipate.

Fed Chairman Greenspan recently noted that "the rapid proliferation of derivatives products inevitably means that some will not have been adequately tested by market stress."[21] He warned that "a sudden widening of credit spreads could result in unanticipated losses to investors in some of the newer, more complex structured credit products." An especially difficult issue is the assessment of default correlation across different reference entities. For example, the valuation of CDO tranches is model dependent, and market participants need to carefully evaluate the models that they use and the model parameter assumptions that they make, notably the assumptions regarding default correlations.

[21] "Risk Transfer and Financial Stability," *Remarks at the Federal Reserve Bank of Chicago's Forty-First Annual Conference on Bank Structure*, May 5, 2005.

Recent market developments have made it clear to all participants that the evaluation of default correlations across the credit tranches of collateralized debt obligations (CDOs) depends on models, and that correlations can change significantly. For example, prior to the GM-Ford downgrades, Morgan Stanley calculates that implied correlation among on-the-run CDX equity tranches had been running at 19 – 20%, but following those events it plunged to 9%. More important, while the CDO market is not new, these vehicles for risk transfer are being used in ways — for example, long single-name credit (junior tranche) exposure and short-market (senior tranche) exposure — which magnify the leverage of buyers of credit risk, and are untested over a credit cycle, so that even the best judgment of all participants may not always be adequate to manage risks. Moreover, the more structured the products, the less liquid their markets will be in times of stress.

Thus, investing in experienced personnel who can combine models and judgment to price and manage risks across the enterprise is also critical for successfully using these new financial products. Moreover, best practices for any risk management framework should include a regular model review program. It should include frequent testing and validation of data and results and assurance that models are geared appropriately to specific products and the nature of the risks at an institution.

2. *Reflecting mergers and acquisitions among major financial institutions in recent years, there is now a relatively small number of very large and complex institutions at the core of the global financial system. Collectively, these institutions are dominant participants in many segments of financial markets, including the OTC derivatives markets. Clearly, life-threatening financial problems at any one of these institutions would create a major challenge to financial markets in general.*

Consolidation among banks and conglomeration between banks and non-banks has led to the creation of a relatively small number of very large and complex financial institutions at the core of the global financial system. In the US, the Gramm-Leach-Bliley (GLB) Act of 1999 provided new opportunities for the creation of large and complex financial institutions (LCFIs) by allowing banks, securities firms and insurance companies to affiliate under a financial holding company structure. The 1998 merger that created Citigroup has been followed by a wave of other mergers and acquisitions, notably the 2004 Bank of America purchase of FleetBoston, and

the 2000 merger between JP Morgan and Chase Bank, which was followed in 2004 by the merger of JP Morgan Chase with Bank One.

Leading US and European LCFIs dominate many segments of financial markets including OTC derivative markets, but especially the CDS market. Metrics that characterize concentration can be misleading, however. Many cite notional outstandings, but from a risk management perspective the fair value of outstandings is probably a better measure. Looked at in that way, the concentration of outstandings in a few hands is most pronounced in interest-rate and FX products.

There has been much discussion about the implications of these recent trends for market functioning. One frequently expressed concern is that consolidation, combined with recent trends toward market-sensitive risk management, could increase "herding" and destabilize markets.[22] However, recent empirical analysis has not found supporting evidence.[23]

Some empirical studies have concluded that increased concentration has tended to be associated with increased systemic risk.[24] However, in its April 2005 Global Financial Stability Report, the IMF's detailed review of empirical work on systemic risk concluded that at present it would be difficult to draw significant conclusions on the impact of LCFIs on overall financial stability, either positive or negative. In the event of a systemic crisis, however, the larger size of some of the key players could increase the magnitude of the potential impact. Cross-border acquisitions, which have given some international financial companies sizeable market shares in the banking systems in many major emerging markets, could also widen the impact of a systemic problem.

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[22] Persaud, Avinash (2000), *World Economics* (Vol. 1, No. 4 — October-December 2000).

[23] Jorion, Philippe (2005), "Bank Trading and Systemic Risk"; forthcoming in *The Risks of Financial Institutions*, NBER.

[24] See, for example, IMF (2004): "United States: Selected Issues," Chapter VI (July); and Hartmann, et. al. (2004), "Banking System Stability: A Cross-Atlantic Perspective" (October).

> 3. *The sharp rise in the scale and importance of relatively new classes of financial institutions, including hedge funds and private equity and real estate funds, also raises new challenges. The potential fluctuations in many hedge funds' asset bases, combined with risk/return profiles, are risk factors which require close attention. In addition, for many hedge funds, risk management can be especially demanding since their targeted returns may imply high levels of risk taking. The fact that severe financial problems at a single hedge fund today are unlikely to menace financial markets generally, as was the case in 1998, does not mean that vigilance isn't necessary; a disturbance that threatens a group of funds could achieve a critical mass that engenders broad dangers for financial markets.*

The rapid growth of hedge funds has aroused concerns about their role in financial stability.[25] Indeed, while hedge funds, as noted in Section B.5 above, provide fresh sources of liquidity to markets and new channels for risk diversification, the potential fluctuations in hedge funds' asset bases, combined with risk/return profiles, are risk factors which require close attention. A 4Q 2004 survey found that although less than 4% of funds require only a week's notice for redemptions, 46% allow redemptions with a month's notice.

For some hedge funds, risk management can be quite demanding since their targeted returns may require high levels of risk taking. Having said that, it is also true that risk management capabilities in the hedge fund community have improved and leverage, as conventionally defined, is nothing like what was witnessed in the LTCM episode of 1998. Yet the fact that severe financial problems at a single hedge fund today are unlikely to menace financial markets generally does not mean that vigilance is not needed. A disturbance that threatens a group of smaller funds having similar investment strategies could achieve a critical mass that engenders broad-based market dangers. Although they often follow a diverse range of strategies, there is evidence that some trades in some markets have become increasingly "crowded," leaving some hedge funds vulnerable to adverse market dynamics.[26]

Because hedge funds are now such important counterparties to banks and investment banks (including prime broker services), the linkages between hedge funds and major institutions at the core of the financial system may now be tighter.

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[25] See, for example, Financial Services Authority, "Hedge Funds: A Discussion of Risk and Regulatory Engagement," June 23, 2005

[26] ECB (2005): *Financial Stability Review*, (June).

This possibility forcefully underscores the risk management, risk monitoring and due diligence recommended in Section III of this Report. Indeed, given the rapid rate of growth in new classes of financial institutions, combined with the increasing use of complex financial products that can make the detection of leverage and risk difficult, counterparties and investors must conduct thorough due diligence to ensure they fully understand the risk appetite and profile of their counterparty.

> 4. *While fundamentals have been supportive, the so-called "search for yield" has driven risk spreads and implied volatility in many markets to multiyear lows. This has raised concerns about the mispricing of risk in global financial markets, with potentially systemic consequences should the benign market environment suddenly turn more negative. Lately there is some evidence of market prices not always providing adequate compensation for risk. In an environment of rising interest rates — especially if accompanied by spread widening — pressures in financial markets and on some classes of institutions could increase.*

The last several years have witnessed the rather extraordinary phenomenon of historically low nominal interest rates on such instruments as credit risk free US government securities. Indeed, yields on 10-year Treasury notes today remain near 4%, notwithstanding the steady rise in the Federal Funds rate since June 2004. While there are a number of compelling theories and explanations for this phenomenon, even Chairman Greenspan has described this circumstance as a "conundrum" and "virtually without precedent." While the debate on the causes of the seemingly low long-term interest rates goes on, an important question arises as to whether such low, credit-risk-free fixed income returns have contributed to the "search for yield" phenomenon which, in turn, has depressed credit spreads in higher risk instruments.

Indeed, the same could be said about market volatility. While the decline in option-implied volatility seems to be consistent with fundamental drivers, technical factors and the search for yield may have at least partially contributed as well. In particular, the low yield environment likely encouraged option selling to shore up overall returns through premium income and the increased supply of options as a result may have depressed prices, i.e., volatility.

In other words, have seemingly low returns on benchmark government bonds caused investors to raise their appetite for lower credit quality instruments including

non-investment grade bonds, junior slices of CDOs and bonds issued by non-investment grade sovereigns, such that the spreads on such instruments are artificially depressed? And has this search for yield compressed volatility to levels that are out of line with fundamentals?

To be sure, implied and realized volatility are closely aligned, with the somewhat higher implied volatility suggesting that option sellers have not thrown caution entirely to the winds. Nonetheless, they could be facing losses if actual volatility were to spike, which may be a particular concern for market participants that do not mark their positions to market, since hidden losses could quickly escalate. Knock-on effects could also spread to the CDO market, as such exposure may be hedged with equity options. To the extent that is the case, a significant rise in long-term interest rates could also give rise to an even more rapid rise in credit spreads — or more generally, to a precipitous decline in the prices of risky assets with embedded options.

There are, of course, factors and fundamentals that help explain credit market developments including the rapid growth of instruments that permit the trading of credit risk discussion earlier. In addition, with some notable exceptions, including airlines and automobile manufacturers, corporate balance sheets, especially in the US, have strengthened materially, thus lowering default risk. Similarly, the economic and financial fundamentals in many emerging market countries have also improved. Finally, and as noted throughout this Report, credit risk has been much more widely distributed throughout the financial system and beyond than in the past.

While these favorable fundamentals are encouraging, there is at least a question as to whether returns in some market segments are proper compensation for the credit and market risks being carried by investors. Intense competition in the financial marketplace, coupled with the search for yield (and cross-selling opportunities) among financial intermediaries to meet ambitious revenue targets, may have intensified margin erosion. While the easing of credit standards and margin pressure may indicate growing risk to intermediaries' balance sheets, this is not necessarily the case, as such institutions may have increasingly hedged or securitized their credit exposures. However, the possibility of mis-pricing credit risk cannot be excluded.

Institutional and retail investors alike have shown increased risk tolerance and a willingness to explore alternative asset classes such as hedge funds, private equity

and commercial real estate paper to gain higher yields. Unexpected economic developments or political shocks could trigger the attempted simultaneous unwinding of "crowded" positions, possibly leading to spikes in volatility or even strains on market liquidity. To compensate for declining returns, some investors appear to have been increasing their involvement in less liquid and less transparent markets, where mis-pricing may conceivably be more likely.

While fundamentals in emerging markets have certainly improved, investor interest in the asset class has been propelled by the search for yield in an environment of low international interest rates. As spreads declined, some investors have turned increasingly to more "exotic" names, where investor due diligence is more difficult. The risk is a sharp and quick sell off in such securities should global interest rates or risk aversion pick up. While contagion risk within emerging markets has declined dramatically since the Asian and Russian crises, such contagion effects remain a threat, especially among lesser known and lower credit quality countries.

5. *The changing ownership of credit risk implied by these trends likely will have important implications for workouts — especially so-called "macro" workouts — of problem credits. Some sophisticated investors may be opting to use new credit transfer instruments to sell problem credits at a marked-down prices rather than go through the prolonged and time-consuming workout process in circumstances in which the newer holders of such credit risk may have little experience or interest in participating in complex workouts.*

Over the years one of the great strengths of the financial intermediation process has been the capacity of the system to re-structure or otherwise work out debt problems of troubled companies and countries seen to be financially viable over time. What helped to produce successful restructurings was the fact that the number of creditor institutions — most of which were banks — was relatively small and experience in executing restructurings was great, in a setting in which the fundamental economic interests of creditors and debtors were broadly similar.

Looking ahead, however, the composition of parties involved and their incentives to participate in workouts may change. While the major creditors in workouts in the past were typically banks, new types of creditors, including hedge funds, have emerged both as direct lenders and participants in the CDS market. Recent

workouts have already shown that the involvement of a larger number of less experienced investors tend to make debt resolution more problematic.

In case of sovereign default, lack of creditor coordination and the role of the IMF have naturally been viewed differently by the different market participants. In particular, the Sovereign Debt Restructuring Mechanism (SDRM) proposed by the IMF a few years ago met with strong resistance from the private sector. In the meantime, the widespread introduction of collective action clauses (CACs) in emerging market bond contracts and the sanctioning of the "Principles for Stable Capital Flows and Fair Debt Restructuring in Emerging Markets" in 2004 have been steps in the right direction and have enjoyed relatively broad agreement in the financial community. Nevertheless, the recent Argentine unilateral default on more than $100 billion has dealt a serious blow to the traditional cooperative and voluntary sovereign debt restructuring process.

It is impossible to foresee exactly how well the vitally important credit workout process will function in the future. Yet, it seems prudent to assume that with changing players and changing motives, the re-structuring process will be more difficult. Obviously, there are circumstances in which such an outcome could add to pressures in financial markets.

6. *Recent developments in the housing market and residential mortgage market deserve particular attention because of the potential risks that they can generate. Indeed, a significant rise in the interest rate environment or a deterioration in economic conditions could result in pressures on borrowers, lenders and the mortgage markets generally. There is some potential that such pressures could be aggravated by the significant increase in the use of non-traditional mortgages and by the difficulties in hedging interest rate risk on the part of market participants including the two very large housing related GSEs.*

These developments include:

- The increasingly greater reliance on quantitative measures of borrower and collateral credit worthiness;
- The growing proportion of non-traditional/higher-leverage mortgage products;
- The absolute size of the government sponsored agencies and the inherent problems of these institutions in managing and mitigating interest rate risk;

- The very sharp rise in home prices in a number of locations across the US.

Mortgage origination today is largely based on quantitative measures of credit worthiness, such as FICO scores, DTI ratios, etc. This approach leaves little room for the "old fashioned" banker's qualitative assessment of the borrower's creditworthiness. This impersonal way of linking the borrower to the provider of credit has greatly increased the speed and volume of transactions. However, the separation of lender and borrower via the disintermediation offered by the securitization process has blurred that relationship. In the days of Frank Capra's *It's a Wonderful Life*, the lender's forbearance could often ensure a restructuring of the mortgage debt in case of adverse events affecting the borrower's ability to pay. In the current environment of securitized mortgage debt, collateral repossession and liquidation can occur much more quickly. Should such event occur in large scale, the process could generate a spiraling decline in collateral value, as more liquidations are effected. The liability of the borrower remains effectively limited to the (possibly declining) value of the home.

A troubling aspect of recent originations is the growth in interest-only (IO) loans and MTA (12-Month Moving Average Treasury index) ARMs with a negative amortization feature.[27] In an IO mortgage, the borrower pays no principal for the first few years. The negative amortization (or "neg-am") loans are an extreme form of an IO loan where the principal owed by the borrower can actually increase over time. The primary attraction of these products is that the starting monthly payments can be significantly lower than regular or level pay mortgages where the borrower pays both principal and interest. This is quite troubling if one considers that some borrowers are not only exposed to payment shocks from rising rates but also from expiry of IO/neg-am features. For example, a 5/1 IO hybrid mortgage borrower will be exposed to rate reset as well as increase in monthly payments as the IO term expires and the loan is recast to amortize the principal balance over the remaining term of the mortgage.

Three governmental or quasi-governmental agencies provide funding to the home mortgage market: Ginnie Mae or the Government National Mortgage Association (GNMA), Freddie Mac or the Federal Home Loan Mortgage Corporation (FHLMC) and Fannie Mae or the Federal National Mortgage Association (FNMA). GNMA is a

[27] This section draws on Modukuri, Srinivas (2005), "The Changing Landscape of the Mortgage Market" (Lehman Brothers).

US government owned agency whose obligations are guaranteed by the full faith and credit of the United States government. FHLMC and FNMA are government-chartered private corporations whose stock is publicly traded on the New York Stock Exchange. The obligations of Freddie and Fannie are plainly not guaranteed by the US government. However, reflecting in part the fact that both agencies have access to a small credit facility at the US Treasury, many observers believe that as a practical matter both agencies are the benefit of an implicit government guarantee. This issue is a part of a larger issue regarding the future size, role, supervision and governance of the housing-related GSEs that is currently under consideration in Washington.

APPENDIX C

Major Legislative and Regulatory Developments

A. Introduction and Summary

A central ingredient contributing to the context and perspective for the CRMPG II project relates to the changing supervisory and regulatory environment within which financial intermediaries conduct their business. Accordingly, as a part of the background material assembled for the project, a broad and high level survey of major supervisory and regulatory developments over the period since the publication of CRMPG I was conducted.

The survey covered major developments in the following areas: (1) Structural Developments, (2) Prudential Developments, (3) Compliance and Control Developments, and (4) Accounting Developments. In each of these areas, there have been profoundly important changes in both philosophy and policy. While the direction of these changes in policy are both understandable and broadly appropriate, the sheer magnitude and complexity associated with the cumulative weight of so many changes in such a short period of time constitutes a major challenge for both the official and private sectors. Several of those challenges are highlighted below.

1. Principles versus Rules

Virtually all areas of supervisory, regulatory and accounting policy are drifting into an environment in which rules are gradually displacing principles — a trend which will be very difficult to reverse. The Basel II capital regime, accounting standards, prescriptive compliance related regulations and the acute information overload problem associated with public disclosure requirements are all illustrations of situations in which basic principles are being displaced in the name of rules. Of particular concern are situations where new standards are effectively first imposed through enforcement actions. In some situations, this creates a situation where financial intermediaries must operate for a period of time without the necessary level of regulatory guidance regarding the specific contours of the new standard.

More generally, the trend toward detailed rule-making reflects a tension that is seen in both the public and private sectors, whereby the perceived need on the part of accountants, lawyers and regulators to anticipate virtually all contingencies produces so much detail as to make it difficult for managers to manage and supervisors to supervise. Even worse, the focus on detail inevitably can create incentives for practitioners to arbitrage the system, thereby producing the need for still more detail.

One area in which this trend can be checked relates to the prudential supervision of so-called large and complex financial institutions where greater reliance on the application of Basel II, Pillar Two in a risk sensitive manner holds promise of a return to a more principles-based approach. In fact, in this area movement in the desired direction is already occurring. Also, greater progress in a principles-based supervisory approach in this area could point to other areas in regulatory and/or accounting policy where principles might play a larger role.

2. Division of Responsibilities between Intermediaries and their Clients

In the aftermath of corporate and financial scandals, there has been a tendency to prescribe in some detail the responsibilities of financial intermediaries regarding structured products sold to their clients even when the client is unambiguously a sophisticated institutional client. Few would dispute that it is critical for financial intermediaries to maintain high standards of internal control and discipline relating to client/counterparty relationships. Moreover, virtually no observer would dispute the assertion that we have seen examples in recent years where financial institutions were not as rigorous as they should have been in managing client relationships.

Financial intermediaries have taken steps to strengthen their policies and practices in this area. The larger question, however, is the danger — however small — that efforts to spell out in detail the responsibilities of the intermediary could undermine the historic and delicate balance of responsibilities between intermediaries and their clients. Clearly, there is a point where sophisticated clients in particular must take responsibility for their own actions. This balancing of responsibilities and obligations between financial institutions and their institutional clients has been one of the great strengths of the financial system for centuries.

Nothing said above should be seen as suggesting that financial intermediaries should not have clear and high standards of responsibilities in managing their relationships with both retail and institutional clients. Indeed, Sections V and VI of this Report contains meaningful guidance as to heightened standards that should better and more rigorously guide the relationship between intermediaries and both their retail and institutional clients while at the same time assisting all parties to financial transactions toward meeting their underlying economic objectives.

3. Harmonization of Accounting Standards and Risk Management

There is a clear need to accelerate the national and international harmonization of accounting, regulatory and disclosure requirements and to ensure their alignment with proper risk management incentives. The differences between the bases on which financial firms measure financial instruments for risk management purposes, for regulatory capital purposes and for reporting to shareholders under GAAP can produce unintended and perverse risk management incentives, and also contribute to costly and confusing financial statements. Thus, accounting authorities must continue and intensify their efforts to harmonize international standards and work with regulators with the ultimate aim of reducing the differences between accounting and regulatory capital treatment of the same product. Consideration should be given to the establishment of a single, common forum at which such issues could be promoted. Needless to say, such efforts must also strive to resolve the long standing disputes about the application of fair value accounting to financial instruments.

4. Regulatory Coordination and Convergence

The financial system as a whole would benefit from more coordination and convergence among regulators in different jurisdictions on key issues (e.g., Basel II, home/host issues, etc.). Successful implementation of global standards depends importantly on the degree of coordination among national authorities and regulated institutions. Without such greater coordination, there is an increased risk of differing application of standards which could lead to issues of competitive inequality or arbitrage opportunities as regulators exercise different interpretations of standards. The need for regulatory coordination and

convergence also extends to the inherent tensions that can exist between so-called umbrella (or consolidated) supervisors and functional supervisors.

The financial services industry welcomes and encourages strong cooperation among the regulators, including the state securities regulators in the US. To the extent practicable, the goal should be the development of one set of standards concerning a particular functional regulatory area that would apply across national boundaries. In brief, the challenge is to develop a more holistic approach to regulation so that firms can follow global principles of conduct and develop procedural protocols to fulfill global regulatory requirements. This, in turn, will enhance global regulatory oversight of firms and contribute to the goal of financial stability.

B. Survey

1. Structural Developments

Since 1999, the financial industry has seen an increase in globalization and consolidation. As the lines between traditional bank and securities activities have become increasingly blurred, institutions are engaging in a wider range of services, offering more similar products and competing in the same markets. Some laws, such as the US Gramm-Leach-Bliley Act of 1999 (GLBA) and the EU Financial Services Action Plan (FSAP) have facilitated this trend, while others, such as the EU Financial Conglomerates Directive (FCD), have been enacted largely to respond to the rise of these so-called large and complex financial services institutions.

GLBA repealed the provisions of the Bank Holding Company Act and the Glass-Steagall Act that prevented affiliations among banks, securities firms and insurance companies, allowing US financial firms to engage in the same range of financial services that European regulation already permitted. To regulate these conglomerates, GLBA introduced the concept of a financial holding company (FHC) and placed the Federal Reserve (Fed) in charge of consolidated supervision of such holding companies. Underneath the holding company, the Fed is to rely on the existing functional regulators, such as the Securities and Exchange Commission (SEC), for information about securities affiliates and insurance regulators for insurance activities.

In the six years since its enactment, banks have been the primary entities electing FHC status; to date, there have been only a handful of non-bank institutions that have opted for FHC status, none of which are the major US investment banks. While bank holding companies (BHCs) were already subject to Fed supervision, securities firms would have to apply to become a BHC and FHC simultaneously. This would entail complying with Fed regulations as well as activity limits that investment banks are not subject to currently. However, as discussed below, these large investment banks are in the process of adapting to a framework of consolidated supervision.

The FCD, which came into effect for firms' financial years beginning January 1, 2005, has advanced the concept of consolidated supervision by introducing new capital and supervisory requirements for financial conglomerates operating in the EU. The purposes of the FCD are to enhance the prudential soundness of large financial groups operating across financial sectors and across borders, and to prevent an excess concentration of risk within a conglomerate through greater monitoring of intra-group capital and funding flows.

The FCD requires conglomerates whose head office is outside the EU to apply Basel capital standards and to be subject to "equivalent" home country consolidated supervision at the holding company level. Absent a determination of equivalence, the FCD calls for: (1) an EU regulator to assume the role of consolidated supervisor, extending European requirements to the worldwide group; or (2) other approaches designed to achieve similar oversight, such as mandating the formation of an EU sub-holding company to ring-fence operations and to limit intra-group exposures between EU and non-EU entities.

In response to the FCD, since US securities holding companies were not subject to consolidated supervision, the SEC put forth a rule whereby investment banks can apply to become a "consolidated supervised entity" (CSE). The voluntary CSE rule, adopted by the SEC in June 2004, is designed to permit certain broker-dealers to utilize an alternative method of computing capital. As a condition to using this alternative method, a broker-dealer's ultimate holding company must consent to group-wide SEC supervision, including examination of any affiliate that does not have a principal functional regulator. Once approved, the holding company must perform a Basel-like capital calculation. Any of these options entails the final approval of the primary or lead EU regulator, who makes

an equivalency determination on a firm-by-firm basis. To date, two US securities firms have applied for, and have been granted, CSE status and several additional firms have applications pending.

In 1999, the European Commission embarked upon the FSAP, an extensive work program of proposals designed to complete a single European financial services market. The FSAP identified a number of key strategic objectives including: (1) the creation of a single wholesale market, (2) open and secure retail markets, and (3) state-of-the-art prudential rules and supervision (e.g., the FCD).

For wholesale markets, the FSAP has sought to create a single EU market by:

- Establishing a common legal framework for integrated securities and derivatives markets, effectively allowing cross-border provision of investment services.
- Removing outstanding barriers to raising capital on an EU-wide basis (i.e., national rules that hinder offering securities in other Member States).
- Establishing a single set of reporting requirements for listed companies (i.e., International Financial Reporting Standards or IFRS) so that companies can raise capital throughout the EU using one set of financial statements.
- Creating a secure and transparent environment for cross-border mergers, including directives intended to organize corporate legal structures more rationally in the single market.

Of the 42 original FSAP measures identified, 39 have been adopted. The determination of whether the FSAP has achieved its stated objectives depends on the implementation and enforcement of all measures.

In Japan, the concept of a financial holding company was introduced in March 1998, enabling a commercial bank, a securities company and an insurance firm to operate as a financial group with certain transactional and information flow constraints due to firewall regulations. In the same year, under the Prime Minister's office, the Japan FSA was created to supervise private-sector financial institutions and to provide surveillance of securities activities. In 2000, the Japan FSA also assumed the responsibilities for policy making, which was transferred

from the Ministry of Finance. Accordingly, the Japan FSA now has a full range of regulatory authority over the financial industry — from policy making to supervision and inspection.

In 2004, the Japan FSA announced the "Program for Further Financial Reform." As one of the program agenda items, the Japan FSA is studying the "Investment Service Law," which is designed to be a comprehensive regulation applicable to investment products across the financial services industry segments (commercial banks, securities firms, insurance companies) from the perspective of private investor protection. The basic outline of the law is still under discussion and is expected to be enacted sometime in 2006.

The Japan FSA is also studying how regulations should be changed to deal with financial conglomerates. As an initial step of this initiative, guidelines for the supervision of financial conglomerates are expected to be implemented in July 2005. There will be further discussions about this subject over the next year and more regulatory or legislative measures are anticipated to be formulated in 2007. These initiatives may have a significant impact on the regulatory framework and may promote integration and conglomeration of financial institutions in Japan.

In December 2004, the Japan FSA also revised the Trust Business Laws. Major changes include: (1) the removal of a restriction that a trust company must be a bank, thus allowing non-financial institutions to be registered with the Japan FSA as a trust company; and (2) the introduction of an agency branch system for a trust business to facilitate investor access to trust products.

Currently, the Securities and Exchange Surveillance Commission (SESC) has inspection power over a securities company with respect to the fairness of sales and trading, while the Japan FSA has authority over the inspection of financial soundness and risk management. From July 2005, the audit function of the Japan FSA with regard to its financial soundness and risk control is expected to be transferred to the SESC, and the SESC will become a unified inspector for a securities company.

2. Prudential Developments

The most groundbreaking prudential development in the past six years has been the advancement of capital standards through the Basel Committee on Banking Supervision's revised capital adequacy guidelines. *International Convergence of*

Capital Measurement and Capital Standards: a Revised Framework (or Basel II) was published in June 2004, five years after efforts to update the original 1988 Basel Accord (Basel I) began, indicating the difficulty of the task.

The 1988 Accord focused primarily on credit risk. A capital charge for market risk was subsequently added to Basel I through the implementation of the 1996 Market Risk Amendment (MRA), which paved the way for adopting VAR as the primary basis for market risk capital requirements.

Basel II is based upon three pillars: (1) minimum capital requirements (measures of credit risk, market risk and a new operational risk charge); (2) supervisory review; and (3) enhanced market discipline by means of substantial additions to public disclosure requirements. The goal of Basel II is to align regulatory capital with economic capital by developing a risk-sensitive framework that is reflective of how institutions run their businesses. Under Basel I, credit risk capital charges generally do not differ by degree of economic risk. Among Basel II's most innovative aspects are the internal ratings-based (IRB) approaches to credit risk where, for the first time, institutions will be allowed to use their internal credit systems to quantify key measures of a borrower's creditworthiness including: the probability that an obligor will default, the firm's exposure at default and the loss rate in the event of a default. Thus changes in a firm's assessment of a borrower's credit quality will be reflected in its capital requirements. As firms refine their risk assessment capabilities, they will be able to more closely align these measures of risk with their economic capital allocation. As noted above, Basel II capital requirements will prospectively apply to US securities firms that are granted "consolidated supervised entity" status by the SEC.

While the process leading to the implementation of Basel I has been underway for a number of years, there still is some uncertainty about some of its details and the final implementation time schedule. Indeed, only recently the US bank regulatory agencies indicated that they will further delay the formal Notice of Proposed Rulemaking for Basel II due to concerns that arose in connection with firms' estimates of Basel II capital charges that surfaced in the agencies' fourth quantitative study of the impact of the new capital standards.

More broadly, while most observers fully accept the view that Basel I was badly outdated and that a more risk-sensitive approach to setting capital requirements was needed, there remain a few concerns about the overall Basel II framework.

One such concern relates to the complexity (and cost) of Basel II, including the risk that such complexity may lead to behavioral changes by banks that are difficult to anticipate as institutions seek to economize on capital charges. There is also the concern that the cyclical behavior of both internal and external credit ratings might introduce a pro-cyclical bias into capital charges that might exaggerate credit cycles. Additionally, among different classes of institutions — both nationally and internationally — there are questions about the competitive impact of Basel II, especially since national banking supervisors may have greater flexibility in applying the rules than is the case with Basel I.

Finally, the significant difference in the capital treatment of the same asset depending on its classification as either trading or "available for sale" has been a matter of some concern. Basel II was designed by bank regulators to address the capital requirements for assets held principally for purposes other than trading, since the treatment of trading assets was addressed in the 1996 MRA. Securities firms have advocated revisiting the MRA to ensure that capital treatment under Basel II is risk-reflective and not a function of where an asset lies on the balance sheet. A joint working group comprised of the Basel Committee and the International Organization of Securities Commissions (IOSCO) is working on this issue. The working group published a proposal for industry comment in April 2005 addressing a number of issues, such as the management of counterparty credit risk for OTC derivatives and repo-style transactions, double default, specific risk and cross-product netting. The working group intends to publish the final rules in mid-July 2005 so that they can be incorporated into, and adopted along with, the rest of the Basel II framework.

Notwithstanding these open questions about Basel II, the overwhelming majority of financial practitioners believe that the quality and effectiveness of prudential supervision has improved and will improve further under Basel II. Indeed, the continuing shift to more risk sensitivity and greater emphasis on the quality of risk management, control, credit-related and internal audit systems are widely seen as positive steps that encourage a more far-reaching and constructive dialogue between individual institutions and their regulators.

On the other hand, the extent of supervisory coordination remains a concern. Although the Basel Committee created the Accord Implementation Group (AIG) to identify different implementation approaches and to try to clarify the role of

home and host country supervisors, it remains to be seen the extent to which supervisors will work with one another to minimize duplicative validation work. In Europe, the Committee of European Banking Supervisors (CEBS) has a mandate similar to that of the AIG, with the distinction that it has legal authority. As such, at least in Europe, the CEBS may have a better chance of generating a degree of commonality in implementation among EU supervisors. These issues associated with coordination between so-called "umbrella" supervisors and functional supervisors, as well as those between home and host country supervisors, are seen as a major challenge for the future.

3. Compliance and Control Developments

In the US in particular, but in other jurisdictions as well, we have witnessed over the last several years a surge of new compliance and control related legislation, administrative rule-making, enforcement actions and civil and criminal proceedings that are perhaps without precedent in the post-war period. This surge of activity is an understandable response to headline-creating corporate scandals, abuse and alleged fraud that has surfaced in a relatively small — but still alarming — number of institutions, including a few of the most prominent corporate names. Moreover, whether it is reasonable or not, many of these unfortunate situations are seen by the public as having their roots, at least in part, on "Wall Street." Indeed, whether it was the so-called Global Research Settlement, problems at mutual funds and insurance companies, apparent failures on the part of large integrated financial intermediaries in managing potential conflicts of interest or the apparent need for more effective management in respect of complex and highly structured financial products, financial institutions are seen by many observers as being at or near the center of scandal-driven financial storms of recent years.

At the risk of great oversimplification, the major compliance and control related initiatives of the past few years fall into several broad categories as follows: (1) changes in governance standards, most notably the various requirements of the Sarbanes-Oxley Act of 2002; (2) increased regulatory focus on management of potential conflicts of interest; (3) broadened responsibilities on the part of financial intermediaries regarding the design of complex structured products sold to their clients, even when the client is unquestionably a sophisticated institution; (4) enhanced disclosure requirements; (5) the "know your customer" and related

requirements of the USA Patriot Act; and (6) the effort to extend official oversight to hedge funds.

The details associated with the initiatives listed above are well-known and need not be repeated here. More broadly, few, if any, leaders of the corporate community in general and leaders of financial institutions in particular would take exception with the view that the abuses of the recent past demanded reform. As in all endeavors, however, the reform process must strike a reasonable balance that helps to guard against future problems while also preserving and protecting those traits of the financial system which are the source of its creative and competitive genius.

As an example, financial institutions should, and are, engaging in significant efforts to enhance their global compliance and operational risk management programs so as to protect against reputational risk. This is an important endeavor from both a compliance and prudent business management perspective. However, any reform process should, to the extent practicable, take into account the desirability of harmonizing global functional regulation. Particularly as a result of the compliance and control related developments over the past several years, divergence in functional regulation is more evident. This can present significant challenges for global financial services firms doing business in today's markets with today's products that often cut across jurisdictional boundaries. Divergence in functional regulation is reflected in a myriad of different ways. We can observe multiple functional regulators around the globe with somewhat differing approaches to solving regulatory problems, such as rules-based versus principles-based regulation and supervisory versus enforcement approaches. By way of example, the EU regulators, the US regulators and the Japanese regulators approach similar issues, but do so pursuant to a number of different institutional settings, legal constructs and styles. As underscored in the summary, convergence in functional regulation will enhance global regulatory oversight of firms and contribute to the goal of financial stability.

As another example, financial institutions should, and are, improving the care and diligence with which they enter into complex structured products with their clients. However, there is a danger — however small — that regulatory developments might alter the balance of responsibilities between clients and

financial services firms. This potential concern was highlighted by the proposed statement regarding sound practices regarding complex structured finance activities issued on May 13, 2004 by various federal agencies including the Fed and the SEC. A joint industry association comment letter dated July 19, 2004 on the proposed statement raised a number of key concerns regarding the inter-agency public comment proposal. At the heart of those concerns was the issue of whether the proposals went too far in defining the responsibilities of financial intermediaries in regard to such transactions when counterparties also have inherent responsibilities for their own care and diligence.

4. Accounting Developments

In the past few years, progress has been made in harmonizing international and US standards. In October 2002, the International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board (FASB) signed a Memorandum of Understanding committing to efforts to make financial reporting standards compatible. Besides offering international firms prospective relief from the burden of reconciling their financial statements to local standards, convergence would increase consistency and transparency, enabling market participants to evaluate companies based on the same standards. In practice, this agreement requires the two groups to align their agendas and to revise existing standards in tandem, with the objective of progressively reducing the differences. A major conceptual difficulty in pursing this objective is that US GAAP is a rules-based regime, whereby IFRS attempts to be principles-based.

Although IASB and FASB are working to reduce differences, the benefits of harmonization are substantially diminished if multiple GAAP presentations and reconciliations are still required. In April 2005, the SEC stated that it may remove the requirement for listed foreign companies using IFRS to reconcile their financial statement to US GAAP by 2007. The Committee of European Securities Regulators (CESR) made a similar recommendation for companies using US, Canadian or Japanese standards, but called for additional disclosures in some areas. Even if these steps toward harmonization occur as contemplated, however, vast differences in accounting regimes will remain both in philosophy and substance within and across countries in a setting in which the incidence of apparent abuse increases pressures for still more rules. At the

same time, the sometimes bitter debate over fair value versus historic cost accounting for financial instruments has yet to be resolved.

In recent years there has been much debate surrounding the application of fair value to financial instruments. In a so-called mixed model accounting framework, instruments are valued either on an historical cost less impairment basis (banking book) or on a fair value basis (trading book). A 2003 report by the Group of Thirty, *Enhancing Public Confidence in Financial Reporting*, crystallized three different viewpoints on the application of fair value:[28]

> *"First, the view broadly associated with banks and many bank regulators is that some financial instruments, particularly the book of loans carried by banks (especially loans to consumers and small businesses) are not suited to fair valuation and the traditional approach — historical cost less provision for incurred impairment — should be maintained. The Basel Committee and the Fed have cautioned against a move to comprehensive fair valuation without resolving significant implementation issues or providing rigorous guidance on valuation of such financial instruments. This view opposing fair value accounting for bank loans is based on three assertions: first, the relevance of historical cost valuations to the lend-and-hold to maturity philosophy that has characterized bank lending for decades; second, the practical difficulty of valuing loans when most do not have readily observable prices; and third, potentially perverse incentives, especially a short-term orientation to risk taking, that could result from fear of greater volatility in reported profits. It is argued that this last factor could have important systemic implications for the functioning of banking systems and economic performance more generally.*
>
> *Second, the view broadly associated with large US securities firms is that fair value accounting should be the standard for most financial instruments. This view is based on the belief that fair valuation is significantly more relevant than historical cost for financial instruments and is sufficiently reliable if appropriate policies, governance, controls and disclosure are in place. Further and importantly, fair value has been standard practice among US securities firms for many years, without adverse consequences,*

[28] Group of Thirty, *Enhancing Public Confidence in Financial Reporting*, p2-3. For a full discussion of these topics, see the Overview: http://www.group30.org/docs/G30=Overview.pdf.

> *and those firms believe that its use has encouraged a disciplined approach to risk management that, if more broadly applied, could engender greater market discipline and greater financial stability.*
>
> *Third, the view of FASB that fair value is the most relevant measure for financial instruments and the only relevant measure for derivatives. However, FASB (and IASB), as well as the community of regulators recognize that there are difficult issues associated with the application of fair value accounting, with an important issue being reliability, particularly with respect to instruments for which there is little or no direct price visibility."*

In discussing the issues raised above surrounding fair value, the Group did not reach a consensus on the use of fair value, but recommended that dialogue should focus on the questions of: (1) the definition of fair value — whether it is simply measured as price times quantity or whether some adjustments should be made that would reflect concentrations or less liquid instruments; and (2) the scope of its application — to which financial instruments fair value should apply.

The debate essentially raises the question of accounting measurement. One option is to recognize either the business model in which the asset is held or management's intent regarding that asset. A second option is to simply reflect the attributes of each transaction and show subsequent re-measurements identically. Interestingly, outside the financial sector, consideration of business model and management intent is core to accounting measurement principles. In fact, management intent governs accounting for most of the costs held on the balance sheet.

It may be overly simplistic to believe that the objectivity achieved by measuring all assets and liabilities identically adds reliability to financial reporting. Although financial reporting purports to contribute to the measurement of business performance, doing so without regard to management's business objectives may result in: (1) denying shareholders management's view of performance; (2) either business practices being changed or complex, technical structures developed to achieve accounting results; or (3) distancing management from accounting matters because the accounting performance presented bears little resemblance to the underlying business or economic performance of the position.

One such example of circumstances where economic activity can be misrepresented by virtue of accounting rules is the case whereby derivatives,

which are marked to market, are hedging assets or liabilities measured at cost less impairment. Precise and extraordinarily complex rules govern when so-called hedge accounting can be applied. In the US, FAS 133 "Accounting for Derivative Instruments and Hedging Activities" came into effect in 2001. IAS 39 "Financial Instruments: Recognition and Measurement" was first issued in 1999, was subsequently revised and re-issued in 2003, and is currently being revised again to refine the availability of a "fair value option." These standards were developed not only in response to innovations in global financial markets, but also sought to address instances where companies were using derivative structures to engineer accounting results that did not reflect underlying economic activity.

FAS 133 requires all derivatives to be recognized as assets or liabilities on the balance sheet and to be measured at fair value. How changes in a derivative's fair value are accounted for depends on the intended use of the derivative — whether or not it is designated as a hedging exposure and what it is hedging. The issues in applying FAS 133 and IAS 39 have been enormous. Under both FAS 133 and IAS 39, firms must comply with highly prescriptive documentation requirements and must demonstrate a hedge's effectiveness. In addition, issues such as the practical difficulties in applying strict hedge accounting rules to economic hedging strategies have discouraged some firms from applying hedge accounting for transactions where they are economically well-matched. Thus, the complexity of financial instruments is creating a situation whereby firms may have no choice other than to follow an accounting standard's detailed requirements that yield an accounting result that may have little relevance to the economics of a transaction or an entity's risk profile.

Moreover, emerging governance requirements and regulatory changes such as Basel II are adding financial and risk disclosures which are not always consistent with GAAP disclosures. Not only does this make reconciling two sets of disclosures extremely complex for users, but it also makes it expensive for firms to make these disclosures. The goal of increased transparency and market discipline through greater understanding and comparability of firms' performance and risk profiles cannot be achieved without improved coordination between accounting practice, risk management practice and regulatory practice.

APPENDIX D

Risk Management Challenges Facing Institutional Fiduciaries

A. Introduction

The largest single class of "buy side" institutional investors consists of the thousands of institutions that have fiduciary responsibilities for investing other people's money. These institutional investors take many forms, including insurance companies, defined benefit and defined contribution corporate and public pension plans, endowments and foundations. While many of these institutions are large and well known, there are thousands of smaller such institutions, all of which manage investment portfolios either directly or through chosen agents.

Regardless of whether they choose to manage their assets directly or to select agents to perform that task, all of these institutions are fiduciaries and must conduct their affairs, including risk management activities, accordingly. With a significant increased use of derivatives-based strategies, exercising required due diligence by fiduciaries has been made more complex, but oversight responsibilities have not been lessened. Reinforcing these standards to certain fiduciaries in 1996, the US Department of Labor issued its view on pension plan fiduciaries investing in derivatives, stating that as fiduciaries they are required to "undertake the same type of analysis that they would in making any other investment decision" and secure "sufficient information to allow an independent analysis of the credit risk and market risk being undertaken by the plan in making the investment in the particular derivative." The US Department of Labor also communicated that the fiduciaries of plans that invest in pooled funds should obtain sufficient information to determine the pooled fund's investment strategies with regard to the use of derivatives and assess the appropriateness of such funds for the plans in light of that information.

As a result of the growing acceptance and use of more complex derivative-based strategies and in part driven by the reach-for-return-phenomenon, the investment strategies and portfolio practices of many of these institutions — large and small — have changed substantially in recent years. Common practices have evolved from an environment where market risks were easily identified and measured, based on direct exposures to various asset classes, to an environment involving new asset

classes and more complex derivative overlays that are more difficult to explicitly measure and manage. Fiduciaries have been dedicating ever larger proportions of assets to investments that are alternatives to the traditional "stocks" and "bonds" asset classes. This includes greater allocations to hedge funds, commodities, absolute return funds, private equity, and complex products, such as collateralized debt obligations (CDOs), synthetic CDOs and credit default swaps (CDS). While these alternative strategies provide fiduciaries with added flexibility, increased diversification and the potential for higher returns, they also alter in a very fundamental manner the risk management burden associated with their oversight responsibilities as fiduciaries.

While the following discussion focuses primarily on the changing investment practices of large fiduciaries, it should be recognized that even relatively small institutions commonly allocate a material percentage of their assets to various classes of alternative investments in addition to having direct or indirect exposure to complex instruments.

B. Changing Investment Strategies

Hedge funds, proprietary trading desks and speculators have long used derivatives to manage their portfolios cheaply, quickly and discreetly. Institutional fiduciaries are now increasingly putting derivatives (e.g., interest rate, currency, equities, credit and inflation related) to use in their portfolios as they endeavor to increase the opportunity set to generate higher risk-adjusted returns.

It has become almost routine for large fiduciaries to make at least some of their asset allocation changes through the futures markets by "going long" to increase exposure to an asset class, and "going short" to reduce such exposure. It is increasingly common to use "portable alpha" strategies that maximize the returns available through security selection while also achieving an asset allocation (beta or market exposure) that meets desired return and risk goals through use of derivative overlays.

Some of the larger fiduciaries are also using derivatives to gain direct and indirect exposure to the credit markets through the use of credit derivatives such as single-name, index-based and correlation credit default swap products. These instruments are growing in use and pose unique risks in terms of valuation and risk aggregation as was clearly evident in the recent idiosyncratic credit spread widening.

Additionally, the use of inflation linked-swaps has increased many fold, and with the emphasis on matching real liabilities with real assets increasing globally, the potential for further growth of these instruments is substantial.

More recently, pension funds and insurance companies have begun to incorporate explicit liability hedging strategies in their risk management arsenal to manage the duration and higher order asset-liability gap risk. For example, pension funds and insurance companies, in managing an asset-liability mismatch, will create duration sensitivity in their asset portfolios to match that of their liabilities by entering into various interest rate swaps and swaption contracts. While this active asset-liability gap management reduces the duration mismatch between assets and liabilities, it also results in market exposures which may vary significantly from the exposures implied by the physical asset holdings alone. As managing the funded or economic surplus status becomes an increasingly important objective for many of these institutional investors, the use of derivatives overlays is expected to become more common.

C. New Risks and Risk Management Demands

Today's derivatives activities integrally link the world of equities, debt, loans, credit, commodities, interest rate and currencies. Some derivatives are traded on regulated futures and options exchanges while others are traded in over-the-counter ("OTC") markets that are almost entirely unregulated. A major concern of fiduciaries in this evolving investment paradigm is the ability of the derivatives markets to allow investors, banks or other intermediaries to substantially leverage risk-taking relative to its capital. This condition can lead to systemic risks, especially in the largely unregulated OTC markets where strong linkages exist between derivatives and the underlying financial and commodity markets.

A good example of changing risk management demands is the increasing indirect exposure that many fiduciary investors now have to a narrow group of prime brokers. In the traditional pension fund model, the physical assets are held by a bank custodian, frequently a trustee for the pension fund. These assets are held in a trust governed by a trust agreement typically negotiated between the bank and the pension plan sponsor. However, in a hedge fund arrangement (such as the increasingly prevalent long/short funds) no such protection exists. Fund agreements, including financing, lending, margining and custodial arrangements, are negotiated

between the prime broker and the hedge fund manager who, in many cases, is not a fiduciary to the plan.

As pension funds increase their investments in long/short hedge funds, which in turn hold fund assets with one or more prime brokers, the pension fund assumes numerous additional risks. These additional risks are not easily reflected in typical stress/scenario testing and make the "roll-up" of market exposures at the pension plan level extremely difficult, if not impossible, to analyze.

This growing use and popularity of derivatives and long/short strategies, hedge funds and absolute return funds suggests that risk management demands related to these new strategies may be growing more rapidly than the risk management capabilities of many institutional fiduciaries. In addition, while these investors may be focusing on controlling their diversified market exposures, they may be taking on more concentrated counterparty exposure. As a result, the risk management requirements of both large and small fiduciaries have evolved from a primary focus on market risks to one requiring the management of a host of related exposures which include market, operational, valuation, liquidity, credit/counterparty, fiduciary and compliance risks.

CRMPG II recommends that fiduciaries taking on the new and/or additional risks associated with "alternative" investments and complex products continue to conduct and, as applicable, enhance the due diligence and monitoring practices relating to their investments and investment managers. Fiduciaries should have the ability to: (a) monitor indirect investments, including derivative positions and/or risk characteristics, on a timely basis to ensure their investment managers are not taking risks beyond represented levels in terms of allowable investment exposures, leverage, etc.; (b) aggregate risk across their entire pool of assets in order to understand portfolio level implications; and (c) determine whether their investment managers are adhering to a stated investment strategy or style.

It is further recommended that investment managers and fiduciaries work together along with industry groups to form a consensus on generally accepted techniques for supplying risk characteristics on a bilateral basis to provide "sufficient information to allow an independent analysis of credit and market risk being undertaken by" institutional investors, as required by ERISA. The result of such efforts should be to enable fiduciary investors to measure and monitor aggregate risk exposures in a manner that is consistent with their responsibilities as fiduciaries.

D. Risk Management Practices: Institutional Solutions for Fiduciaries

Given the growing acceptance of derivative products in general, coupled with the significant market size of OTC derivative products and their limited market transparency, large and small fiduciaries will increasingly need and will look to rely on "institutional solutions" to assist them in meeting their risk management requirements. By "institutional solutions," we mean regulatory guidelines and policies, public disclosures, accounting disclosures, self-imposed industry standards and widely accepted best practices that collectively enhance market discipline and standards that assist these fiduciaries in meeting their responsibilities.

More specifically, such "institutional solutions" can take the form of: (a) new or amended public regulatory or accounting pronouncements and disclosures; (b) consistent and routine application and incorporation of existing best practices and standards for financial intermediaries and end-users, such as hedge funds; (c) expanded market and credit transparency from financial intermediaries (including prime broker operations), hedge funds and other market participants; and (d) new and/or expanded reporting of market and credit exposures from industry/trade groups. Fiduciaries of all sizes, but especially smaller entities, rely on these institutional solutions to provide transparency, protections and market restraints as they may not be capable of or have sufficient resources to exercise the in-depth due diligence to independently assess these new and complex risks.

There is a growing sentiment among institutional fiduciaries that "creative collaboration" on "institutional solutions" among financial intermediaries, hedge funds and public regulatory authorities is the best and fastest course for providing institutional investors with the more comprehensive due diligence and monitoring capabilities they need in today's institutional marketplace. Of particular concern to fiduciaries is their capacity to understand the array of overall market and counterparty exposures linked to direct and indirect derivatives activity as well as that of complex products and their ability to judge the creditworthiness of major banks, broker-dealers and market intermediaries, particularly the banks and broker-dealers that house the prime brokers that generate this direct and indirect credit exposure for these fiduciaries.

As discussed in Section III of this Report, one of the most formidable barriers standing in the way of the ability of fiduciaries and other market participants to better understand the risk profile of their direct and indirect derivative exposures, including

that of its counterparties, arises from concerns on both sides associated with the disclosure of proprietary information associated with particular trades and portfolios. For obvious reasons, this concern on the part of market participants is very real. Having said that, there are a number of Recommendations and suggested best practices contained elsewhere in this Report (see Attachment I, which proposes institutional solutions that should be viewed favorably by fiduciary investors.)

In addition, there are other actions which should be taken by financial market participants and others to further the cause of transparency, risk management, market discipline and financial stability. These additional actions in the form of guiding principles include the following:

- Encourage the clear disclosure in public financial statements of the use of "short cut" accounting treatment for hedging, including principles-based qualitative descriptions of the methods used to determine hedge effectiveness.
- Encourage the adoption by financial intermediaries and associated internal control organizations for the purpose of best practices, as applicable, the recommendations of the *Final Report of the Multidisciplinary Working Group on Enhanced Disclosure* published in April 2001; *Enhancing Public Confidence in Financial Reporting* published in 2004 by the Group of Thirty; and relevant related Recommendations and Guiding Principles in Sections III, IV and V of this Report.
- Encourage the adoption by hedge fund managers for the purpose of best practices the *2003 Sound Practices for Hedge Fund Managers* report published by the Managed Funds Association and relevant related Recommendations and Guiding Principles in Sections III, IV and V of this Report.
- Enhance the accounting and risk management discussion, including counterparty exposures, in the Management Discussion and Analysis sections of 10K or equivalent reporting and annual report filings in order to improve qualitative and quantitative reporting for stronger credit and overall risk management evaluation.
- Enhance the overall market transparency of derivatives transactions and/or risk characteristics. The goal would be assisted by:

  - Encouraging industry and trade groups (e.g., Managed Funds Association, Alternative Investment Management Association) to issue surveys (on derivative uses, exposures/levels, counterparty types, etc.) to augment the information published by regulatory agencies;
  - Encouraging more frequent and comprehensive surveys and derivative reporting from organizations currently issuing related information such as the reporting produced by the International Swaps and Derivatives Association, the Bank for International Settlements, the US Office of the Comptroller of the Currency and the British Banker's Association; and
  - Encouraging financial intermediaries to be receptive to informal discussions with fiduciary investors regarding their risk profiles and risk management practices, particularly as they apply to prime brokerage operations.

- Encourage OTC market participants to take steps, including the broadening and deepening of the use of bi-lateral facilities, to increase the efficiency of the settlement, clearing and collaterization processes, especially for high volume products. (See Section IV of this Report for related Recommendations and Guiding Principles).
- Encourage financial intermediaries and institutional fiduciaries (and their trade groups) to create a central clearance house with a dedicated website, to catalogue and make available at a single resource all reports and surveys regarding risk management practices and related statistics that might be helpful to risk management practices for fiduciaries.

In addition to the above guiding principles, both large and small fiduciary investors are strongly encouraged to adopt the best practices described in the *Risk Standards for Institutional Investment Managers and Institutional Investors* developed by the Risk Standards Working Group in 1996. These risk standards provides comprehensive guidelines which are applicable to a wide range of market participants. This 1996 document continues to be a baseline for good risk measurement and risk management practices; however, efforts should be undertaken by industry groups to update these standards to reflect the evolution of market developments since its issuance.

Attachment I

Report Section	Category
Risk Management and Risk-Related Disclosure Practices	
2005 Recommendation # 1	Information Sharing
2005 Recommendation # 2	
2005 Recommendation # 3	Managing Credit and Market Risk
2005 Guiding Principle # 4	
2005 Recommendation # 5a	
2005 Recommendation # 5b	
2005 Recommendation # 5c	
2005 Recommendation # 6	
2005 Guiding Principle # 7	
2005 Guiding Principle # 8	
2005 Recommendation # 9	Prime Brokerage
Financial Infrastructure: Documentation and Related Policies and Practices	
2005 Guiding Principle # 10	Documentation Policy and Procedures
2005 Recommendation # 11	
2005 Recommendation # 12	Operational Efficiency and Integrity
2005 Guiding Principle # 13	
2005 Guiding Principle # 14	
2005 Recommendation # 15	
2005 Guiding Principle # 16a	Netting, Close-out and Related Issues
2005 Guiding Principle # 16b	
2005 Guiding Principle # 16c	
2005 Guiding Principle # 16d	
2005 Guiding Principle # 16e	
2005 Guiding Principle # 16f	
2005 Guiding Principle # 16g	
2005 Guiding Principle # 17	
2005 Guiding Principle # 18	
2005 Recommendation # 19	Credit Derivatives
2005 Guiding Principle # 20	
2005 Recommendation # 21	
2005 Recommendation # 22	

Report Section	Category
Complex Financial Products: Risk Management, Risk Distribution and Transparency	
2005 Guiding Principle # 23	Over-riding Guiding Principle
2005 Guiding Principle # 24	Governance-Related Guiding Principles
2005 Guiding Principle # 25	
2005 Guiding Principle # 26	
2005 Guiding Principle # 27	
2005 Guiding Principle # 28	Intermediary/Client Relationship
2005 Guiding Principle # 29	
2005 Guiding Principle # 30	
2005 Guiding Principle # 31	
2005 Guiding Principle # 32	
2005 Guiding Principle # 33	
2005 Guiding Principle # 34	
2005 Recommendation # 35	Risk Management and Monitoring
2005 Recommendation # 36	
2005 Guiding Principle # 37	
2005 Guiding Principle # 38	
2005 Guiding Principle # 39	Enhanced Transparency
2005 Guiding Principle # 40	
Emerging Issues	
2005 Guiding Principle # 43a	Conflict Management
2005 Guiding Principle # 43b	
2005 Guiding Principle # 43c	
2005 Guiding Principle # 43d	
2005 Guiding Principle # 43e	
2005 Guiding Principle # 43f	
2005 Guiding Principle # 43g	