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CONTAINING SYSTEMIC RISK:  
THE ROAD TO REFORM

THE REPORT OF THE  
CRMPG III

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AUGUST 6, 2008



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The Road to Reform**

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CRMPG III**

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## **TABLE OF CONTENTS**

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<i>Transmittal Letter</i> .....	<i>iii</i>
<i>CRMPG III Members</i> .....	<i>vii</i>
<i>CRMPG III Working Groups</i> .....	<i>viii</i>
Section I: Introduction .....	1
Executive Summary .....	17
Section II: Standards for Accounting Consolidation.....	38
Section III: High-Risk Complex Financial Instruments .....	53
Section IV: Risk Monitoring and Risk Management .....	70
Section V: Enhanced Credit Market Resiliency.....	102
Section VI: Emerging Issues .....	131
Appendix A: Term Sheets for High-Risk Complex Financial Instruments .....	A-1
Appendix B: CDO Risk Characteristic (Excerpted from CRMPG II).....	B-1



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## CRMPG III

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August 6, 2008

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The Honorable Mario Draghi  
Governor, Bank of Italy, and  
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Dear Secretary Paulson and Governor Draghi:

On behalf of CRMPG III we are pleased to convey to you our Report entitled "Containing Systemic Risk: The Road to Reform." As the title of the Report suggests, the Policy Group considers the financial crisis of 2007 and 2008 to be the most severe we have experienced in the post-war period. While this turn of events had multiple causes and contributing factors, the root cause of financial market excesses on both the upside and the downside of the cycle is collective human behavior – unbridled optimism on the upside and fear – bordering on panic – on the downside. As history tells us in unmistakable terms, it is virtually impossible to anticipate when optimism gives rise to fear or fear gives rise to optimism. The last twelve months have been no exception to this sobering reality.

It is this sobering reality that, for centuries, has given rise to the universal recognition that finance and financial institutions must be subject to a higher degree of official oversight than is necessary for virtually all other forms of commercial enterprise. However, official supervision is not a substitute for effective management of financial

institutions which is –and should remain – a private function. Yet, here too, there is a dilemma; namely, in a highly competitive marketplace it is very difficult for one or a few institutions to hold the line on best practices or to stand on the sidelines in the face of booming markets. What is needed, therefore, is a form of private initiative that will complement official oversight by insisting on industry practices that will help mitigate systemic risk. The “core precepts” and recommendations in this Report have been framed with that objective in mind.

The Policy Group places particular importance on the five core precepts for containing systemic risk that are discussed in Section I. The subsequent four sections of the Report include the following: Section II which covers a reconsideration of the standards for consolidation under US GAAP that contemplates a significant shift of currently off-balance sheet status entities to on-balance sheet status; Section III which is directed at measures to better understand and manage high-risk complex financial instruments with particular emphasis on (1) the establishment of standards of sophistication that would apply to all participants in the market for high-risk complex financial instruments; (2) enhanced disclosures; (3) improved sales and marketing practices; and (4) strengthened issuer and loan diligence; Section IV which focuses on substantial enhancements to risk monitoring and management with particular emphasis on sound corporate governance, risk monitoring, and fostering a single integrated discipline for managing capital adequacy and liquidity and funding; and Section V which outlines a series of truly sweeping measures to enhance the resiliency of financial markets generally and the credit markets in particular with special emphasis on the OTC derivatives market and the credit default swap market. The recommendations in Section V – including the call for the prompt creation of a clearing corporation that would begin clearing credit default swaps in the fourth quarter of 2008 – are extremely ambitious.

The final section of the Report discusses a number of important “emerging issues”. While this section, by its design, does not have recommendations, it does point, in very concrete terms, to subject matter that will require close attention during the period ahead on the part of policy members and practitioners alike.

Achieving the sweeping enhancement and reform set forth in the Report will require collective and concerted industry-wide initiatives, supported by progressive and enlightened prudential supervision conducted in the spirit of the March 6, 2008 Report of



the Senior Supervisors Group. In the private sector, greater financial discipline at individual institutions must be reinforced by a renewed commitment to collective discipline in the spirit of elevated “financial statesmanship” that recognizes that there are circumstances in which individual institutions must be prepared to put aside specific interests in the name of the common interest.

Such a commitment may require market participants to (1) make costly investments in infrastructure (human capital and technology) and (2) change business processes, and accept changes to market practices, that in the past have generated sizeable revenues but at the cost of weakening the underlying foundation of the markets. Costly as these reforms will be, those costs will be minuscule compared to the hundreds of billions of dollars of write downs experienced by financial institutions in recent months to say nothing of the economic dislocations and distortions triggered by the crisis.

In an effort to ensure implementation of these enhancements, the Policy Group strongly urges that all major financial institutions should analyze their internal policies, procedures and practices against the recommendations and reforms outlined in this Report. Senior management at these institutions should ensure ongoing monitoring of progress in relation to these reforms.

In closing, we wish to express our gratitude to the Policy Group members and their respective Working Groups for their extraordinary contributions to this Report. We also want to acknowledge that in our work, we have benefited enormously from the earlier efforts of the President’s Working Group on Financial Markets and the Financial Stability Forum.

Sincerely,



E. Gerald Corrigan



Douglas J. Flint



## Exhibit I

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### CRMPG III

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## **SECTION I: INTRODUCTION**

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On April 8, 2008 E. Gerald Corrigan, Managing Director, Goldman Sachs, and Douglas Flint, Group Finance Director, HSBC Holdings Plc, announced the formation of the Counterparty Risk Management Policy Group III (CRMPG III or the Policy Group). This initiative, triggered in part by the guidance of the President's Working Group on Financial Markets, was undertaken in order to provide a private sector response to the credit market crisis of 2007 and 2008 in a manner that complements the published work of a number of official bodies, including the President's Working Group on Financial Markets, the Senior Supervisors Group and the Financial Stability Forum, as well as the efforts of the private-sector based Institute for International Finance.

The scope of the CRMPG III initiative was designed to focus its primary attention on the steps that must be taken by the private sector to reduce the frequency and/or severity of future financial shocks while recognizing that such future shocks are inevitable, in part because it is literally impossible to anticipate the specific timing and triggers of such events.

The CRMPG III effort has focused its attention on four closely related and forward-looking aspects of financial reform and rehabilitation, including: (1) a reconsideration of the standards for consolidation under US GAAP that contemplates a significant shift of currently off-balance sheet entities to on-balance sheet status; (2) measures to better understand and manage complex financial instruments with particular emphasis on their distribution and how their risk sensitivities are disclosed; (3) risk monitoring and risk management with particular emphasis on the role of sound corporate governance and the relationship between liquidity, leverage and capital adequacy; and (4) a series of sweeping measures to enhance the resiliency of credit markets in particular and financial markets more generally with particular attention to strengthening the safeguards associated with the OTC derivatives markets with emphasis on credit default swaps (CDS). Among other things, this section of the Report urges swift industry action to create a clearinghouse for OTC derivatives, starting with CDS.

The Policy Group chose to focus on these four areas in the belief that these are the ones in which it could add the greatest value. In making that judgment, the Policy Group was

mindful that there are other vital areas of inquiry that will not be covered in this Report. Examples of such areas include the need to improve the loan origination and oversight process and the equally obvious need to improve the working of the credit ratings process. In these and other areas, the Policy Group concluded that ample attention is being devoted to these issues by others who are well positioned to identify and implement needed reforms.

The background to this effort is, of course, the chain of events that is now properly labeled the credit market crisis of 2007 and 2008. In retrospect, these events clearly stand out as the most severe financial shock we have witnessed in decades with visible damage not only to the financial sector but extending to the real economy as well. Indeed, the cost of the credit market crisis in economic, financial and human terms has already reached staggering proportions and, even after 12 months, substantial vulnerabilities remain.

The write-downs experienced by large integrated financial intermediaries – especially in the United States and Europe – are also of staggering proportions. It is probably fair to say that, as late as the summer of 2007, virtually none of us would have imagined that, as of July of 2008, financial sector write-offs and loss provisions would approach \$500 billion, even as the write-off meter is still running. Fortunately, the starting capital positions of the affected institutions were relatively strong and, even more fortunately, most of these institutions have been able to raise very large amounts of additional capital in recent months.

Even with the benefit of hindsight, there exists a large and troubling question as to the manner in which events unfolded beginning in the July to August interval of 2007. Namely, why were so many, in both the official and private sectors, so slow in recognizing that we were on the cusp of a financial crisis of the magnitude we have experienced? The list of possible explanations is long. For example, it could be that the underlying complexity and risk characteristics of certain financial instruments were so opaque that even some of the most sophisticated financial institutions in the world and their supervisors were simply caught off guard. A much more plausible explanation lies in the fact that the preceding eight to ten years had witnessed multiple financial disturbances with multiple causes – all of which resolved themselves with limited damage and negligible contagion. These experiences undoubtedly gave rise to a false sense of



security that the emerging problems of the summer of 2007 would also resolve themselves with little or no systemic damage.

Much has been written and said about the underlying causes of this systematic failure in financial discipline. For that reason, the Policy Group does not wish to repeat that litany in any detail, but it does see some value in briefly highlighting what it considers the most critical of these underlying causes of the credit market crisis:

First: for several years running, global financial markets had been awash with liquidity. This condition reflected in part the recycling of (1) excess savings from Asia in general and China in particular and (2) excess cash from energy producing countries. It may also have reflected the phenomenon of an extended earlier period of very low interest rates, especially in the United States. These factors are also related to global economic and financial macroeconomic imbalances that have long been recognized as potential sources of instability.

There can be no doubt that ample financial market liquidity and relatively low interest rates were an important driving force behind the pervasive “reach for yield” phenomenon of recent years and that the “reach for yield” phenomenon was, in turn, an important factor in driving the surge in demand for and supply of highly complex structured credit products.

Second: reflecting in part the forces discussed above and the intensity of competitive factors in the financial marketplace, it is clear that credit risk had been mispriced for some time. The evidence of this is clear in the terms and conditions of credit extensions in the subprime mortgage market, in the leveraged finance sector, and in the willingness of market participants to acquire highly leveraged structured credit products whose attractiveness relied on a continuation of benign credit conditions for an extended period of time. More generally, the extraordinary tightness of credit spreads across virtually all classes of credit products was widely seen as unsustainable. In these circumstances, it was recognized that, sooner or later, credit spreads and credit terms would inevitably adjust. However, it was all too easy for many, if not most, market participants to conclude that when the

correction took place it would be gradual and orderly. Obviously, that conclusion was wrong.

Third: for a variety of reasons – some structural, some technological and some behavioral – contemporary finance has become incredibly complex. We see this in the speed and complexity of capital flows, we see it in the complexity of many classes of financial instruments (some of which contain significant embedded leverage), and we see it in the extraordinary complexity faced by individual financial institutions in their day-to-day risk management activities and in their policies and practices related to valuation and price verification for some classes of financial instruments. Needless to say, the complexity factor is an issue as it pertains to the capacity of the international community of supervisors and regulators to discharge their responsibilities.

The key issue here is not complexity *per se* but rather the extent to which complexity feeds on itself thereby helping to create or magnify contagion risk “hot spots” that may have systematic implications. Thus, we are faced with the pressing need to find better ways to manage and mitigate the risk associated with complexity, a subject that will continue to challenge the best and the brightest among us.

Fourth: reflecting in part the forces described above, the current crisis has witnessed patterns of contagion the speed and reach of which are different in degree, if not kind, from that which we have witnessed in earlier periods of financial instability. The list is long: asset-backed commercial paper, conduits, structured investment vehicles (SIVs), collateralized debt obligations (CDOs), quantitative funds, auction rate securities, monolines, and hedge funds. To a considerable extent, the “hot spots” where contagion forces have emerged share at least three common denominators: (1) the contraction in market liquidity, which has been largely driven by a huge shift from risk taking to risk aversion, was itself driven by the fear of the unknown and a limited ability to anticipate with confidence the sensitivity to loss in many financial instruments; (2) greater leverage in balance sheet terms and in the use of off-balance sheet vehicles and the presence of embedded leverage in certain classes of financial instruments; and (3) risk

mitigation cushions which were either too thin or were at least partially neutralized by basis risk developments.

Fifth: it is likely that flaws in the design and workings of the systems of incentives within the financial sector have inadvertently produced patterns of behavior and allocations of resources that are not always consistent with the basic goal of financial stability. Often, when the issue of incentives is discussed, the focus is on compensation and, especially, executive compensation. Consistent with the priorities of this Report noted earlier, the Policy Group has chosen not go into the subject of executive compensation in any detail. Having said that, the Policy Group recognizes that more can be done to ensure that incentives associated with compensation are better aligned with risk taking and risk tolerance across broad classes of senior and executive management. Accordingly, and respecting the role and responsibilities of the board of directors in matters relating to executive compensation, the Policy Group believes that compensation practices as they apply to senior and executive management should be (1) based heavily on the performance of the firm as a whole and (2) heavily stock-based with such stock-based compensation vesting over an extended period of time. The long vesting period is particularly important for high risk, high volatility lines of business where short run surges in revenues and profits can be offset if not reversed in the longer term. In broad terms, the Policy Group recognizes that this philosophy of compensation is hardly new, but its importance looms especially large given the events of the past twelve months.

While the linkage between incentives and compensation is obvious for large integrated financial intermediaries, the incentive question has much broader – and no less important – implications. For example, the framework of incentives at the level of individual firms should help to balance business imperatives by ensuring that the resource base and the recognition/reward system for the support and control functions are such that critical tasks, such as risk monitoring and price verification, are performed in a manner that protects the financial integrity and professional reputation of the institution.

While the Policy Group believes that the five factors cited above were the primary underlying forces driving the credit market crisis, there were, of course, many contributing factors. Some observers cite that what they see as the unintended consequences of applying fair value accounting as a contributing factor, particularly as it applies to complex financial instruments that, in periods of stress, tend to be relatively illiquid and difficult to value reliably. Others see fair value accounting as a powerful source of discipline on the risk-taking process. As discussed later, in the “Emerging Issues” section of this Report, there are many facets of the fair value question, not the least of which is framing an alternative to fair value which does not further undermine the already damaged credibility of the financial sector.

Alongside the fair value question, there is an even larger question that the events of the past twelve months have raised. Namely, have changes in the workings of the financial system, such as the ability to “short credit” or the greater importance of the “originate to distribute” model of financial intermediation, made the financial system more accident prone or unstable? This is not an academic question particularly since the period from 1980 has witnessed four or five serious financial shocks that resulted in some form of extraordinary official intervention.

In looking at the post-1980 period (and in looking at the broad sweep of financial history), it is difficult to conclude that the cause of systemic financial shocks can be attributed to particular financial instruments (e.g., the credit default swap) or particular classes of activity (e.g., securitization), even if it can be argued that such factors may have amplified the credit market crisis. Indeed, one of the most striking observations about financial shocks is the fact that each episode tends to have its own unique triggers and dynamics. While the triggers and dynamics are unique, there is evidence of certain common denominators across all the post-1980 financial crises. There are at least four common denominators, with one possible “wild card” looming in the background: (1) credit concentrations, (2) broad-based maturity mismatches, (3) excessive leverage, and (4) the illusion of market liquidity – or the belief that such liquidity will always be present so that the individual instruments or classes of instruments can be bought or sold in an environment of narrow bid-ask spreads. The wild card is periodic macroeconomic imbalances, including such forces as inflation, recession, budget deficits, and large external imbalances. Directly or indirectly, such macroeconomic forces have played a role

in contributing to the ebbs and flows of opinion and expectations regarding the outlook for financial market behavior, thus contributing to the tendency for financial markets to overshoot in both directions.

At the end of the day, however, the root cause of financial market excesses on both the upside and the downside of the cycle is collective human behavior: unbridled optimism on the upside and fear on the downside, all in a setting in which it is literally impossible to anticipate when optimism gives rise to fear or fear gives rise to optimism.

The fact that financial excesses fundamentally grow out of human behavior is a sobering reality, especially in an environment of intense competition between large integrated financial intermediaries which, on the upside of the cycle, fosters risk taking and on the downside, fosters risk aversion. It is this sobering reality that has, for centuries, given rise to universal recognition that finance and financial institutions must be subject to a higher degree of official oversight and regulation than is deemed necessary for virtually all other forms of commercial enterprise. However, official oversight is not a substitute for the effective management of financial institutions, which is, and should remain, a private-sector function. Yet here too there is a dilemma; namely, in a competitive marketplace it is very difficult for one or a few institutions to hold the line on best practices, much less for one or a few institutions to stand on the sidelines in the face of booming markets.

What is needed, therefore, is a form of private initiative that will complement official oversight in encouraging industry-wide practices that will help mitigate systemic risk. The recommendations in this Report have been framed with that objective in mind. However, the Policy Group believes there is considerable merit to overlaying these detailed recommendations with five “core precepts” of behavior that all large integrated financial intermediaries should follow in the interest of helping to contain systemic risk factors and promote greater stability.

### ***Mitigating Systemic Risk: Core Precepts for Large Integrated Financial Intermediaries***

The complexities of the control and risk management tasks facing large integrated financial intermediaries are extremely difficult to appreciate and understand even for

highly sophisticated observers. Indeed, recent experience suggests that senior management of such institutions may not always fully grasp the scale and complexity of these control and risk management challenges. In these circumstances, it is not at all surprising that recent weeks and months have witnessed the publication of thousands of pages of text flowing from dozens of individuals and organizations all devoted to the credit market crisis in general and more specifically to explaining what happened, why it happened and what steps can be taken in the future to reduce the incidence of systemic financial shocks or at least limit or contain the damage associated with such events when they occur.

While there are many good ideas about the future that are now on the table for discussion, the Policy Group is strongly of the view that the focus on the complexity of the subject matter tends to blur the fact that in this world of financial complexity there are certain relatively simple, readily understandable, and forward-looking core precepts upon which the management and supervision of large integrated financial intermediaries must rest. These precepts are relatively easy to communicate to employees, to boards of directors, to investors and to supervisors. Moreover, they lend themselves to relatively straightforward evaluation exercises on the part of boards of directors and supervisory bodies. These precepts are in no way a substitute for the front-line “blocking and tackling” imperatives that are at the center of all control and risk management systems. If anything, they provide the intellectual and policy framework which helps to ensure that the working level, control-related policies and procedures are both robust and flexible over business and credit cycles.

While the Policy Group has developed these core precepts with an eye to their application to large integrated financial intermediaries, systemic risk concerns may arise from institutions that may not seem to fit this description. Thus, while the Policy Group’s emphasis is on large integrated financial intermediaries, these core precepts have broader applications.

At the risk of considerable oversimplification and with the recommendations contained in the balance of this Report in mind, the Policy Group believes that these core precepts can be reduced to five categories as discussed below.

Precept I: The Basics of Corporate Governance

Corporate governance is a subject that is often taken largely for granted. However, as described in the March 6, 2008 Report of the Senior Supervisors Group, the culture of corporate governance at individual financial institutions can have a very large bearing on how well or how poorly individual institutions respond to periods of large-scale instability if not outright crisis. For example, risk monitoring and risk management cannot be left to quantitative risk metrics, which by their nature are backward looking. Rather, and particularly in times of stress, risk management must rely heavily on judgment, communication and coordination, spanning the organization and reaching to the highest levels of management. Among other things, this culture of governance will help to break down the silo mentality that can all too easily be associated with individual business units. More broadly, this culture of governance can go a long way to help ensure that critical information on risk profiles, institution-wide exposure and potential channels of contagion are matters of rigorous and continuous attention, not only at the level of risk managers, but also at the highest levels of management.

Of equal importance, the culture of corporate governance must ensure that critical control personnel in such areas as risk monitoring, credit, operations, internal audit, compliance and controllers (with special emphasis on the professionals responsible for position valuations and price verification) are truly independent from front-line business unit personnel, not only in a reporting context but also in a decision-making context. Similarly, corporate governance must ensure that support and control functions have the status and the resources to appropriately sustain the control environment across all risk-taking business units. As an extension of this principle, large integrated financial intermediaries should aggressively seek out opportunities to rotate high-potential individuals between income-producing functions and support/control functions. Finally, the culture of corporate governance must also ensure that incentives – including, but by no means limited to, compensation – are properly aligned so as to foster commercial success over time and discourage short-run excesses in risk taking.

There is no single blueprint for achieving a sound framework of corporate governance, much less a common organizational framework to ensure that result. Many variables – ranging from the business model to the leadership style of top management – enter into the equation for success. However, at the end of the day, corporate governance reduces to behavior and incentives, not the vagaries of organizational charts. Accordingly, the Policy Group recommends that, from time to time, all large integrated financial intermediaries must examine their framework of corporate governance in order to ensure that it is fostering the incentives that will properly balance commercial success and disciplined behavior over the cycle while ensuring the true decision-making independence of key control personnel from business unit personnel.

#### Precept II: The Basics of Risk Monitoring

The most sophisticated risk management models and metrics are only as good as the ability of individual institutions to monitor all positions and risk exposures on a timely basis. For example, large integrated financial intermediaries should have in place the systems to compile, within a matter of hours, estimates of comprehensive counterparty exposure information on a given day based on the prior day's close of business. Timely access to such information helps to ensure that risk metrics are providing the proper signals, but of greater importance, such timely information facilitates meaningful insights into concentrated positions and crowded trades. Such insights help to make better and more informed judgments about contagion and systemic threats and how to better manage counterparty risk in times of stress when models and metrics are most prone to providing false signals. Accordingly, the Policy Group recommends that all large integrated financial intermediaries must have, or be developing, the capacity (1) to monitor risk concentrations to asset classes as well as estimated exposures, both gross and net, to all institutional counterparties in a matter of hours and (2) to provide effective and coherent reports to senior management regarding such exposures to high-risk counterparties.



Precept III: The Basics of Estimating Risk Appetite

Estimating risk appetite and finding an adequate risk-reward balance must be a dynamic process that is built on a blend of qualitative and quantitative factors. Because judgments about risk appetite and risk-reward must take account of both quantitative and qualitative factors, the determination of risk appetite and risk-reward at a given point in time cannot be estimated by reliance on even a family of highly sophisticated stress tests.

Stress tests and other quantitative tools are necessary, but by no means sufficient, tools for making judgments about risk appetite. In point of fact, stress tests, when combined with carefully constructed scenario analyses, can be helpful, but even under the best of circumstances, stress tests can never anticipate how future events will unfold unless such tests are so extreme as to postulate outcomes that no level of capital or liquidity will provide protections against potential failure. Finally, because risk appetite must also take account of inherently judgmental factors such as compensation systems and the quality of the control environment, excessive reliance on quantitative tools may produce results that lack credibility with top management and boards of directors and are insufficient, if not misleading, as a basis for prudential supervision.

In other words, estimating acceptable thresholds of risk appetite is more an art than a science. Of necessity, the process must rely on multiple classes of quantitative inputs, including a family of scenario analyses and stress tests. At best, however, the quantitative inputs can provide insights into a range of potential loss estimates that help to guide judgments about risk appetite. The more difficult task for senior management, boards of directors and prudential supervisors is how to build into the risk appetite exercise the necessary judgments as to factors such as incentives, the quality of the control environment, the point in the business cycle and other qualitative inputs that should temper the quantitative factors either to a higher or lower appetite for risk. Accordingly, the Policy Group recommends that all large integrated financial intermediaries must periodically conduct comprehensive exercises aimed at estimating risk appetite. The results of such

exercises should be shared with the highest level of management, the board of directors and the institution's primary supervisor.

#### Precept IV: Focusing on Contagion

Contagion or the channels and linkages through which local financial disturbances can take on systemic characteristics are by their nature largely unpredictable. However, the basic forces that give rise to contagion are reasonably well known and recognized. That is, in looking at the long history of financial crises, several common denominators are evident, even if the precise triggers that unleash these contagion forces tend to be unique to each individual financial shock. As noted earlier, those common denominators almost always involve most, if not all, of the following: (1) credit concentrations; (2) broad-based maturity mismatches; (3) excessive leverage either in balance sheet terms or in the form of leverage that is embedded in individual classes of financial instruments; and (4) the illusion of market liquidity or the belief that such liquidity will always be present such that individual instruments or classes of instruments can readily be bought or sold in an environment of narrow bid-ask spreads.

While we are unable to anticipate the precise triggers that will unleash contagion forces in future crises, we should be able to do a much better job of building into risk management frameworks ongoing analysis and brainstorming about contagion risks, especially on the upside of the cycle when slippages in financial discipline typically take hold. Clearly, the last twelve months or so have put the spotlight on certain practices that, with the benefit of hindsight, bring into sharp focus the role that the common denominators of contagion played in the credit market crisis.

Looking to the future, the Policy Group recommends that all large integrated financial intermediaries must engage in a periodic process of systemic "brainstorming" aimed at identifying potential contagion "hot spots" and analyzing how such "hot spots" might play out in the future. The point of the exercise, of course, is that even if the "hot spots" do not materialize or even if unanticipated "hot spots" do materialize, the insights gained in the brainstorming exercise will be of considerable value in managing future sources of contagion risk.

### Precept V: Enhanced Oversight

Large integrated financial intermediaries are subject to oversight by their boards of directors and by official supervisory bodies. While the nature of the oversight functions of boards and supervisors are quite different, the discharge of their respective responsibilities are complementary since both groups share the common goal of seeking to ensure the commercial viability and stability of large integrated financial intermediaries.

The primary responsibility of boards of directors of any public company is to act on behalf of the shareholders. A board must provide an appropriate degree of oversight of the company consistent with the goal of maximizing shareholder value over time. The exercise of these oversight responsibilities in today's business environment is a demanding and time-consuming process, especially for boards of large integrated financial intermediaries. Aside from their oversight duties, boards have certain explicit responsibilities including the authority to hire or to fire the CEO and other executive officers and to approve compensation arrangements for such executive officers. As a part of their responsibility for determining compensation arrangements, boards also need to ensure that compensation-related incentives are properly aligned with the best long-term interests of the company and its shareholders.

The challenges facing directors of large integrated financial intermediaries are formidable since there are limits as to the extent to which outside independent directors can be expected to fully grasp all of the risks associated with the day-to-day activities of such institutions. What they can do, and what management can help them do, is to ask the right questions and insist that they have the information – properly presented – that allows them to exercise their oversight responsibilities.

Prudential supervisors also have oversight responsibilities for financial institutions. However, the authority vested in most supervisory authorities is very broad in that they may prescribe very specific standards of behavior. In addition, in extreme conditions, supervisory authorities typically have the power to, in effect, replace

management, require institutions to raise capital, sell assets or take virtually any necessary steps to preserve the viability of such individual institutions.

As noted above, the oversight roles of boards of directors and supervisors are, in many respects, complementary. That being said, the Policy Group believes that there is a relatively simple way to reinforce the effectiveness of these oversight responsibilities. Specifically, the Policy Group recommends arrangements whereby the highest-level officials from primary supervisory bodies should meet at least annually with the boards of directors of large integrated financial intermediaries. The purpose of the meeting would be for the supervisory authorities to share with the board of directors and the highest levels of management their views of the condition of the institution with emphasis on high-level commentary bearing on the underlying stability of the institution and its capacity to absorb periods of adversity. The details of examination and inspection reports should not be discussed except to the extent that such reports relate in a material way to underlying stability issues. Obviously, this format would help to stimulate an exchange of views between the supervisors and the boards, which in turn should help each to better discharge their respective oversight duties. If these arrangements – which already exist in some jurisdictions – are to achieve their objective, it is essential that the spokesperson from the supervisory body be a true policy level executive or, preferably, a principal of the supervisory body. Finally, these high level exchanges of views should minimize the use of quantitative metrics and maximize the use of discussion and informed judgment.

These general recommendations may have to be adapted to the legal and cultural context of the nations and jurisdictions where they apply. Notably, the precise role of the board of directors, on the one hand, and supervisory bodies, on the other, differs somewhat according to country laws and by jurisdiction. The main variation relates to the management responsibility that is borne exclusively by the executive management in countries where the board of directors is a pure oversight body. In such jurisdictions, it may be more appropriate for the supervisory authorities to communicate their conclusions to the full supervisory board through a written assessment and to meet, along with executive management, with the committee of

the board best equipped to participate knowledgeably in a discussion of the underlying stability of the institution.

## **Summary**

The core precepts and the recommendations contained in the following sections of this Report are a “package deal”. That is, success in achieving any one of the core precepts and recommendations is dependent on achieving success in the others. Moreover, partly because of competitive realities and partly because of practical realities, no one institution can, by itself, accomplish all that needs to be done in restoring the credibility of the industry, much less provide some reasonable assurance that we can better limit or contain the damage associated with future financial shocks.

What is needed to achieve that result, therefore, are collective and concerted industry-wide initiatives supported by progressive and enlightened prudential supervision conducted in the spirit of the March 6, 2008 Report of the Senior Supervisors Group. In the private sector, greater financial discipline at individual institutions must be reinforced by a renewed commitment to collective discipline in the spirit of “financial statesmanship” that recognizes that there are circumstances in which individual institutions must be prepared to put aside specific institutional interests in the name of the common good.

The reforms contemplated by this Report (and other similar reports) will not be easy, and they surely will not be inexpensive to implement, especially in the current environment with its extraordinary pressures on the bottom line. However, costly as these reforms will be, those costs will be minuscule compared to the hundreds of billions of dollars in write-downs experienced by financial institutions in recent months, to say nothing of the economic dislocations and distortions triggered by the credit market crisis.

All of this requires leadership which starts with the highest levels of management. There will be occasions when such leaders must be prepared to instruct their subordinates to find “ways to get things done” rather than finding ways to stifle needed change and reform. Nowhere, perhaps, is this imperative more essential than it is regarding the material covered in Section V of this Report regarding financial infrastructure and the need to enhance market resilience.

Finally, financial institutions and their supervisors must avoid the mistakes that were made following the publication of CRMPG II almost three years ago to the day. In some areas, the follow-up and implementation of recommendations in CRMPG II were good. In other areas, the follow-up by individual firms and their supervisors was poor and certainly was not sustained. In some of the areas covered by this Report (notably the material in Section V on Enhanced Credit Market Resiliency), there is a built-in framework for follow-up in the form of ongoing coordination and cooperation between the dealer community, on the one hand, and the Federal Reserve Bank of New York and other official groups, on the other hand.

In an effort to ensure implementation of these enhancements, the Policy Group strongly urges that all major financial institutions should analyze their internal policies, procedures and practices against the recommendations and reforms outlined in this Report. Senior management at these institutions should ensure ongoing monitoring of progress in relation to these reforms.

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## **Executive Summary**

This Executive Summary contains a series of excerpts from different parts of this Report, including (1) the five core precepts for mitigating systemic risk discussed in Section I, (2) the specific recommendations of the Policy Group contained in Sections II through V and (3) some highlights of the emerging issues discussion in Section VI of this Report.

With regard to implementation of the core precepts and recommendations, the Policy Group expects that substantial progress will be made over the balance of 2008. However, in some instances, especially the recommendations in Section V relating to Enhanced Credit Market Resiliency, the implementation timetable will stretch out through 2009.

### **Part I: Mitigating Systemic Risk: Core Precepts for Large Integrated Financial Intermediaries**

#### Precept I: The Basics of Corporate Governance

The Policy Group recommends that, from time-to-time, all large integrated financial intermediaries must examine their framework of corporate governance in order to ensure that it is fostering the incentives that will properly balance commercial success and disciplined behavior over the cycle while ensuring the true decision making independence of key control personnel from business unit personnel.

#### Precept II: The Basics of Risk Monitoring

The Policy Group recommends that all large integrated financial intermediaries must have, or be developing, the capacity (1) to monitor risk concentrations to asset classes as well as estimated exposures, both gross and net, to all counterparties in a matter of hours and (2) to provide effective and coherent reports to institutional senior management regarding such exposures to high-risk counterparties.

#### Precept III: The Basics of Estimating Risk Appetite

The Policy Group recommends that all large integrated financial intermediaries must periodically conduct comprehensive exercises aimed at estimating risk appetite. The results of such exercises should be shared with the highest level of management, the board of directors and the institution's primary supervisor.

#### Precept IV: Focusing on Contagion

Looking to the future, the Policy Group recommends that all large integrated financial intermediaries must engage in a periodic process of systemic “brainstorming” aimed at identifying potential contagion “hot spots” and analyzing how such “hot spots” might play out in the future. The point of the exercise, of course, is that even if the “hot spots” do not materialize or even if unanticipated “hot spots” do materialize, the insights gained in the brainstorming exercise will be of considerable value in managing future sources of contagion risk.

#### Precept V: Enhanced Oversight

The Policy Group recommends arrangements whereby the highest level officials from primary supervisory bodies should meet at least annually with the boards of directors of large integrated financial intermediaries. The purpose of the meeting would be for the supervisory authorities to share with the board of directors and the highest levels of management their views of the condition of the institution with emphasis on high-level commentary bearing on the underlying stability of the institution and its capacity to absorb periods of adversity. This recommendation may have to be adapted to accommodate local legal and cultural considerations.

## **Part II: Recommendations**

### Section II: Standards for Accounting Consolidation

- II-1. The Policy Group endorses, in principle, the direction of the changes to the US GAAP consolidation rules provided that the changes are (1) principles-based, (2) convergent with International Financial Reporting Standards, and (3) accompanied by suitable disclosure and transition rules regarding regulatory capital which will provide flexibility in the implementation of these rules over a reasonable period of time.
- II-2. The Policy Group recommends adoption of a single, principles-based global consolidation framework that is based on control and the ability to benefit from that control. The analysis of whether an entity (the investor) has a controlling interest in another entity (the investee) should be based on:
- the investor’s power over the investee, including the ability to make decisions that determine the success of the investee;
  - the degree of investor exposure to the risks and rewards of the investee, including through guarantees, commitments and all other explicit and implicit arrangements between the two entities; and



- the design and sponsorship of the investee, including the degree to which the activities of the investee expose the investor to commercial, legal, regulatory and reputational risks.
- II-3. The Policy Group further recommends that the new consolidation framework require a reassessment of the consolidation analysis each reporting period based on changes in the control indicators specified in the preceding recommendation.
- II-4. The Policy Group encourages standard setters and industry participants to work together toward achieving the goals discussed in this section on a global basis as soon as possible.
- II-5. The Policy Group recommends that standard setters and industry participants consider a holistic and principles-based approach to disclosure of off-balance sheet activities similar to that found in international standards. The disclosure framework should be fully integrated with enterprise-wide disclosures across the full spectrum of risks: market, credit, liquidity, capital, operational, and reputational.
- Enterprise-wide disclosure should be supplemented with detailed information that links to enterprise-wide disclosures and that changes in response to changing risks and uncertainties; for example, in the current environment, disclosures about residential and commercial real estate and leveraged loan exposures.
- II-6. The Policy Group recommends that firms provide tabular disclosures about the effects of restrictions on the use of consolidated assets, non-recourse liabilities, and minority interests.

### Section III: High-Risk Complex Instruments

The Policy Group strongly recommends that high-risk complex financial instruments should be sold only to sophisticated investors.

- III-1. The Policy Group recommends establishing standards of sophistication for all market participants in high-risk complex financial instruments. In recommending specific characteristics and practices for participants, it is guided by the overriding principle that all participants should be capable of assessing and managing the risk of their positions in a manner consistent with

their needs and objectives. All participants in the market for high-risk complex financial instruments should ensure that they possess the following characteristics and make reasonable efforts to determine that their counterparties possess them as well:

- the capability to understand the risk and return characteristics of the specific type of financial instrument under consideration;
- the capability, or access to the capability, to price and run stress tests on the instrument;
- the governance procedures, technology, and internal controls necessary for trading and managing the risk of the instrument;
- the financial resources sufficient to withstand potential losses associated with the instrument; and
- authorization to invest in high-risk complex financial instruments from the highest level of management or, where relevant, from authorizing bodies for the particular counterparty.

Large integrated financial intermediaries should adopt policies and procedures to identify when it would be appropriate to seek written confirmation that the counterparty possesses the aforementioned characteristics.

The Policy Group believes that there are opportunities to enhance and strengthen the documentation and disclosures provided to prospective investors in high-risk complex financial instruments, while being mindful that documentation and disclosure practices will (and should) vary somewhat from instrument to instrument and will also vary over time. With that qualification in mind, the Policy Group recommends the following as a matter of industry best practice.

III-2a. The documentation of all high-risk complex financial instruments in cash or derivative form should include a term sheet: a concise summary highlighting deal terms and, where appropriate, collateral manager capabilities, and portfolio and deal payment structure. The term sheets for all high-risk complex financial instruments, the full scope of which is outlined in Appendix A, must, among other factors, include the following:

- a clear explanation of the economics of the instrument including a discussion of the key assumptions that give rise to the expected returns; and
- rigorous scenario analyses and stress tests that prominently illustrate how the instrument will perform in extreme scenarios, in addition to more probable scenarios.

III-2b. The documentation associated with asset-backed high-risk complex financial instruments should include:

- A Preliminary and Final Offering Memorandum: The offering memorandum should include prominently within its first several pages the nature of the economic interest of the underwriter or placement agent (and its affiliates) in the transaction, including a clear statement of the roles to be undertaken and services to be provided by the underwriter or placement agent (or its affiliates) to the transaction, as well as any interests in the transaction (if any) that the underwriter or placement agent (or its affiliates) are required or expected to retain.
- A Marketing Book: The marketing book should include an in-depth description of the materials contained in the term sheet. It should especially focus on the collateral manager (in the case of a managed portfolio) and deal structure.
- Portfolio Stratifications: This documentation should be in the form of spreadsheets containing bond level information (sector, rating, par balance, etc.), where known, and weighted average loan level information (FICO, service, LTV, % fixed, occupancy, geographic distribution, 2nd liens, etc.).
- Cash Flow/Stress Scenarios: This documentation should be in the form of spreadsheets and cash flow model outputs. Standard runs should be provided for each tranche offered. The output will typically be in the form of tranche cash flows and default/loss percentages for the tranches and collateral.

III-2c. In addition to the documentation standards covered above, the Policy Group further recommends that term sheets and offering memoranda for all financial instruments having one or more of the key characteristics associated with high-risk complex financial instruments as discussed on pages 54, 56 must have a “financial health” warning prominently displayed in bold print indicating that the presence of these characteristics gives rise to the potential for significant loss over the life of the instrument. The “health warning” should also refer to all risk factors in the offering documents.

The Policy Group further recommends that complex bilateral transactions that are privately negotiated between sophisticated market participants are not subject to Recommendations IV-2b and 2c but are subject to Recommendation IV-2a regarding terms sheets. In certain circumstances, however, and by mutual written consent, the term sheet requirement may be waived for bilateral transactions between highly sophisticated market participants or in the context of a repeated pattern of transactions of a particular type.

The Policy Group recommends strengthening the relationship between intermediaries and counterparties in sales, marketing, and ongoing communications associated with high-risk complex financial instruments. While its first recommendation calls for establishment of a

common standard of sophistication for all market participants in high-risk complex financial instruments, the Policy Group believes there is a responsibility on the part of large integrated financial intermediaries to provide clients with timely and relevant information about a transaction beyond the disclosures discussed in its Recommendation III-2 above.

- III-3a. The intermediary and counterparty should review with each other the material terms of a complex transaction prior to execution.
- III-3b. Both the intermediary and counterparty must make reasonable efforts to confirm the execution of a complex transaction in a timely manner.
- The counterparty should be promptly notified of any expected delay in the creation of a confirmation.
  - The intermediary should disclose whether evidence of agreement, such as a signed term sheet, is binding as to transaction terms. Each party should review the terms and promptly notify the other of any error.
- III-3c. When a counterparty requests a valuation of a high-risk complex financial instrument, the intermediary should respond in a manner appropriate to the purpose of the valuation. The intermediary's sales and trading personnel may provide a counterparty with actionable quotes or indicative unwind levels. Only groups independent of sales and trading should provide indicative valuations and only in writing. Where relevant, such indicative valuations should include information describing the basis upon which the valuation is being provided.
- III-3d. As a part of the relationship between intermediaries and their counterparties following trade execution, the intermediary should make reasonable efforts on a case-by-case basis to keep the counterparty informed of material developments regarding the performance of key positions.

With respect to high-risk complex asset-backed securitizations, underwriters and placement agents should have in place an ongoing framework for evaluating the performance and reputation of issuers as well as effective and clearly articulated procedures for evaluating the quality of assets. The Policy Group strongly urges that underwriters and placement agents redouble efforts to adhere fully to the letter and spirit of existing diligence standards, and seek opportunities to standardize and enhance such standards. These enhancements include the following recommendations:

- III-4a. Requiring all firms to follow statistically valid sampling techniques in assessing the quality of assets in a securitization; and
- III-4b. Encouraging disclosure to investors of due diligence results, including making the AUP letter publicly available.

Section IV: Risk Monitoring and Risk Management

- IV-1a. The Policy Group recommends that risk management and other critical control functions be positioned within all large integrated financial intermediaries in a way that ensures that their actions and decisions are appropriately independent of the income producing business units and includes joint approval of key products and transactions. This would generally mean having a Chief Risk Officer (CRO) with a direct line of responsibility to the Chief Executive Officer (CEO) and having the CEO and the board take a highly active role in ensuring that the culture of the organization as a whole recognizes and embraces the independence of its critical control functions. Even without the direct reporting, the CRO should have a clear line of communication to the board.
- IV-1b. The Policy Group further recommends that institutions ensure that their risk management functions are staffed appropriately for both the upside and the downside and are able to understand and properly size risks in tranquil markets as well as during periods of market stress. The risk management functions must also have the capacity to function effectively in periods of spikes in processing volumes and under various disaster recovery scenarios.
- IV-2a. The Policy Group recommends that all large integrated financial intermediaries evaluate the manner in which information relating to risk taking, risk monitoring, and risk management is shared with senior management and the board of directors and make necessary improvements to ensure that such information flows are timely, understandable, and properly presented. As a part of this effort, senior management should actively encourage ongoing discussion with board members in order to improve the quality, coverage and utility of information made available to the board. Each institution should evaluate how effective its information flows are as they relate to the intersection of credit, market, operational and liquidity risk.
- IV-2b. The Policy Group recommends that each institution ensure that the risk tolerance of the firm is established or approved by the highest levels of management and shared with the board. The Policy Group further recommends that each institution ensure that periodic exercises aimed at estimation of risk tolerance should be shared with the highest levels of management, the board of directors and the institution's primary supervisor in line with Core Precept III, as discussed on pages 11, 12.
- IV- 2c. The Policy Group further recommends that large integrated financial intermediaries ensure that their treasury and risk management functions work with each other and with business units to manage balance sheet size and composition in a manner that ensures that the established risk tolerance is consistent with funding capabilities and ongoing efforts to manage liquidity risk.
- IV-2d. The Policy Group further recommends that each institution review its internal systems of both formal and informal communication across business units and control functions to ensure that such communication systems encourage the

prompt and coherent flow of risk-related information within and across business units and, as needed, the prompt escalation of quality information to top management.

- IV-3a. The Policy Group recommends that, when schedules permit, the CEO and the second ranking officers of all large integrated financial intermediaries should frequently attend and participate in meetings of risk management-related committees.
- IV-3b. The Policy Group further recommends that the highest levels of management periodically review the functioning of the committee structure to ensure, among other things, that such committees are appropriately chaired and staffed and there is an appropriate overlap of key business leaders, support leaders, and enterprise executives across committees to help foster firm-wide cooperation and communication.
- IV-3c. The Policy Group further recommends that for certain classes of firm-wide committees, such as those responsible for the approval of new products – especially new products having high financial, operational or reputational risks – the committee oversight process should include a systematic post-approval review process. This post-approval review process would assess the extent to which new products have, in commercial terms, performed as expected. Equally important, the process would assess whether the risk characteristics of the new product have been consistent with expectations, including the burden of the new products on technology and operating systems. Further, it is particularly appropriate to review at the earliest opportunity outsized profitability and market share gains to ensure that this does not reflect a problem with the original pricing or risk assessment of the product.
- IV- 4a. The Policy Group recommends that sustained investment in risk management systems and processes, and the careful calibration of such investment to business opportunities being pursued, be a key area of focus for a firm's senior management team.
- IV-4b. The Policy Group further recommends that each firm's CRO commission a periodic review and assessment of the firm's investments in risk management for presentation to its senior management and the audit committee of its board.
- IV-5a. The Policy Group recommends that all market participants implement a paradigm shift in credit terms, establishing arrangements that create more stable trading relationships, are less pro-cyclical, and thus reduce systemic risk.
- IV-5b. The Policy Group further recommends that each firm's senior management commission a periodic review of credit terms extended over a cycle, together

with an assessment of the stability of such terms, for discussion with the firm's senior management.

- IV-6a. The Policy Group recommends that large integrated financial intermediaries ensure that their credit systems are adequate to compile detailed exposures to each of their institutional counterparties on an end-of-day basis by the opening of business the subsequent morning. In addition, the Policy Group recommends that large integrated financial intermediaries ensure their credit systems are capable of compiling, on an *ad hoc* basis and within a matter of hours, detailed and accurate estimates of market and credit risk exposure data across all counterparties and the risk parameters set out below. Within a slightly longer timeframe this information should be expandable to include: (1) the directionality of the portfolio and of individual trades; (2) the incorporation of additional risk types, including contingent exposures and second and third order exposures (for example, Structured Investment Vehicles (SIVs), Asset-Backed Securities (ABS), *etc.*); and (3) such other information as would be required to optimally manage risk exposures to a troubled counterparty. Large integrated financial intermediaries should be able to use exposure aggregation data both prospectively to avoid undue concentrations and, if necessary, in real time to react to unanticipated counterparty credit events.
- IV-6b. To demonstrate their compliance with the aforementioned standards, the Policy Group recommends that firms conduct periodic exercises for both individual and multiple institutional counterparties, and, to the extent that deficiencies are observed, develop remediation plans as a matter of urgency.
- IV-7a. The Policy Group recommends that large integrated financial intermediaries' risk analytics incorporate sufficient granularity to reveal less obvious risks that can occur infrequently but that may potentially have a significant impact (for example, basis risks between single name underliers and index hedges). However, risk management professionals and senior management must recognize the limitations of mathematical models, and that the tendency to overly formalize arcane aspects of an analysis can often detract from an understanding of the bigger picture implications of the total risk position. Incremental analytical detail must not be allowed to overwhelm users of the data. The salient risk points must be drawn out and made apparent, especially to senior management. Adequate time and attention by senior management must also be allotted to socializing the implications of the risk data.
- IV-7b. The Policy Group recommends that large integrated financial intermediaries ensure that assumptions underlying portfolio analyses are clearly articulated and are subject to frequent, comprehensive review. Alternative measures should be presented to demonstrate the sensitivity of the calculated metrics to changes in underlying assumptions.
- IV-7c. The Policy Group recommends that credit risks be viewed in aggregate across exposures, giving full consideration to the effects of correlations between

exposures. Further, counterparty credit risks, including correlations and directionality, should be evaluated based not only on positions within a large integrated financial intermediary, but also considering available data regarding the size and direction of positions the counterparty has at other firms.

- IV-7d. The Policy Group further recommends that large integrated financial intermediaries work to supplement VaR as the dominant risk measure of market risk and current exposure as the dominant risk measure for credit risk, both for public reporting and for risk discussion purposes. Supplemental measures should include statistical information intended to display the most likely ways a large integrated financial intermediary or a managed portfolio could sustain significant losses, as well as an indication of the potential size of those losses.
- IV-8a. The Policy Group recommends that firms think creatively about how stress tests can be conducted to maximize their value to the firm including the idea of a reverse stress test where the emphasis is on the contagion that could cause a significant stress event to the firm.
- IV-8b. The Policy Group further recommends that firms incorporate the expanded suite of stress tests into a formalized production schedule, against which trends and developments in key risk factors and exposure amounts can be tracked.
- IV-9a. The Policy Group recommends that large integrated financial intermediaries adjust quantitative measures of potential credit risk with margined counterparties to take into account exceptionally large positions, as well as position concentrations in less liquid instruments. The adjustment should anticipate potentially protracted unwind periods and the risk of price gapping during unwinds.
- IV-9b. The Policy Group further recommends that consideration be given to collecting higher initial margin and higher haircuts from counterparties with outsized positions relative to market liquidity. Large integrated financial intermediaries should also evaluate the need to adjust internal pricing for large positions.
- IV-10a. The Policy Group recommends that large integrated financial intermediaries ensure that they employ robust, consistent pricing policies and procedures, incorporating disciplined price verification for both proprietary and counterparty risk trades. Special attention should be given to bespoke trades, structured products, illiquid products, and other difficult to price assets. A robust monitoring process should be employed to track stale prices and elevate unresolved issues.



- IV-10b. The Policy Group further recommends that firms and industry groups promote standardized and strengthened dispute resolution mechanisms and encourage the application of higher levels of resources to position pricing. Firms should also promote enhanced understanding of the need for cooperative behavior among firms (for example, when requested to provide indicative bids).
- IV-10c. The Policy Group further recommends that increased emphasis be given to using, wherever possible, transparent and liquid instruments rather than bespoke products. To incentivize this conduct, large integrated financial intermediaries should consider imposing internal charges against the P & L of hard to value and illiquid transactions, or other methods, such as higher capital charges, higher haircuts to collateralized borrowers, and the imposition of limits on allowed trade volumes. The recommendations incorporated in the section on High-Risk Complex Financial Instruments regarding documents and disclosure are of particular relevance to bespoke products.
- IV-11a. The Policy Group recommends that large integrated financial intermediaries ensure, in the absence of exceptional circumstances, that when the same instrument is held by different business units, such instrument is marked at the same price in each unit. Large integrated financial intermediaries should restrict those personnel and groups that are authorized to provide marks to internal and external audiences. Any differentials in pricing across applications or units should be carefully considered and the rationale for such differences should be fully documented. Notwithstanding the above, it is recognized that for large integrated financial intermediaries, there are communication walls that are designed to fulfill regulatory requirements for the restriction of information flows. In these instances, it is understood that legitimate differences in pricing may occur.
- IV-12a. The Policy Group recommends that large integrated financial intermediaries ensure that a review of the systemic risk implications of incentives and consequent remedial actions is an integral component of each firm's risk management practices. Regulators should encourage this proactive review and assessment on a regular periodic basis. Regulators should identify practices that have the potential to destabilize markets during periods of stress and communicate their concerns aggressively.
- IV-12b. The Policy Group further recommends that, when considering new trade structures, strategies, or other opportunities, systemic risk implications be evaluated by the senior management of large integrated financial intermediaries. Trades or structures which materially add to systemic risk should be subject to particular scrutiny.
- IV-13a. The Policy Group recommends that all large integrated financial intermediaries should, on a regular basis, conduct liquidity stress tests to measure their

Maximum Liquidity Outflow (MLO). Stress tests should be based on scenarios that consider how normal sources of liquidity, both secured and unsecured, could be disrupted for the firm, the markets, or both. The stress test scenarios should focus on potential liquidity outflows, taking into account a firm's particular vulnerabilities.

IV-13b. The Policy Group further recommends that, in addition, at a minimum, firms monitor their MLO within the first 30 days and for additional intervals within this timeframe (for example, overnight, one week, two weeks). The MLO is defined as the net loss of liquidity under the firm's most severe scenario from the time of the calculation for the tenors prescribed.

IV-13c. The Policy Group recommends that stress scenarios, both for purposes of stress testing and calculation of MLO, should:

- Include both firm-specific and systemic events and their overlapping nature.
- Consider extreme shocks as well as progressive events.
- Take into account implicit as well as explicit risks and potential damage of a firm's actions to its franchise.
- Review the potential for loss of key sources of secured and unsecured funding, including deposits, commercial paper, and other short- and long-term debt. Firms should also consider the impact of funding illiquidity on asset-backed commercial paper conduits and on the ability to securitize pools of assets.
- Analyze the potential outflows related to customer activity, including prime brokerage.
- Examine the impact of on- and off-balance sheet exposures, including the potential outflows related to derivative transactions, liquidity commitments and special purpose vehicles.
- Consider the impact of intra-day liquidity exposures, including the heightened interest of counterparties to accelerate trades and settlements in times of stress and other time-related mismatches in the flow of funds.
- Consider other large cash payments including salaries, taxes and lease payments.
- As with all liquidity practices, evaluate the impact on both individual legal entities, as well as the consolidated firm.
- Consider the availability of central bank facilities. Generally speaking, extraordinary central bank facilities, such as the Federal Reserve System's Primary Dealer Credit Facility, should not be considered an element of an effective liquidity plan.

These stress tests, and their results, would be internally classified, confidential documents that would be shared with senior management, boards of directors and primary supervisors on a periodic basis. The information provided by the stress tests should be used to identify funding gaps and assess where gaps are incompatible with the firm's risk appetite. Since the stress test information provided to supervisors would be confidential supervisory information, it would and should be protected from public disclosure.

IV-14. The Policy Group recommends that all large integrated financial intermediaries maintain, on an ongoing basis, an unencumbered liquidity reserve of cash and the highest grade and most liquid securities. The liquidity reserve should be sized in relation to the firm's stress tests and MLO and should explicitly reflect the firm's liquidity risk tolerance and desired survival periods.

IV-15. The Policy Group recommends that all large integrated financial intermediaries maintain long-term structural liquidity in excess of their illiquid assets. In making this assessment, large integrated financial intermediaries should analyze the term structure of their long-term liabilities, the long-term stable portion of their deposits (where applicable), as well as equity capital. Illiquid assets should include those assets that cannot be converted to cash within a specified horizon and potential growth of those assets, as well as the haircuts necessary to convert generally liquid assets to cash through sale, securitization, or secured financing.

The baseline assessment of whether a large integrated financial intermediary has long-term structural liquidity in excess of its illiquid assets should reflect current business conditions. However, the amount of this excess ("the cushion") should reflect an evaluation of the assets and liabilities under stressed conditions. This cushion should be replenished with structured long-term liabilities, with tenors appropriate to market conditions, business strategy, and existing debt maturities.

IV-16. The Policy Group recommends that a firm's liquidity plan and any stress tests mentioned above include, in all instances, the full set of on- and off-balance sheet obligations. In addition, they must reflect a clear view of how the firm will address non-contractual obligations that have significant franchise implications. While some non-contractual obligations may not lend themselves to incorporation into the core stress scenarios, an evaluation of how such exposures will play out in different market environments should be an overlay to the core stress scenarios. In addition, a clear assessment of how practices in relevant markets (for example, SIVs and auction rate securities) will affect an individual firm's conduct should be directly factored into liquidity planning. The above liquidity exposures should be fully priced under the firm's transfer pricing policies (see Recommendation V-17).

- IV-17. The Policy Group recommends that all large integrated financial intermediaries incorporate appropriate pricing-based incentives for the full spectrum of their funding activities. This includes a funds transfer pricing policy that assigns the cost of funding to businesses that use funding and credits the benefits of funding to businesses that provide it. This must encompass both on- and off-balance sheet activities (for example, contingent funding), as well as potential funding needs related to actions that might be taken to preserve the institution's reputation. The funds transfer pricing process should be informed by stress testing efforts that identify potential vulnerabilities and assign the related costs to the businesses that create them. The methodology should provide direct economic incentives factoring in the related liquidity value of assets and behavioral patterns of liabilities. The costs and benefits identified should be assigned to specific businesses and, under all circumstances, used in evaluating the businesses' performance.
- IV-18. The Policy Group recommends that to manage, monitor, and control funding liquidity risk, treasury officials in particular need to be included in an enterprise-wide risk management process with appropriate channels of communication. The evaluation of the interconnected elements of these risks requires seamless communication across all risk disciplines, as well as between risk management functions, treasury and the underlying businesses. All integrated financial services firms should hold regularly scheduled meetings of an oversight committee represented by the above disciplines to monitor the firm's liquidity positions.
- IV-19. The Policy Group recommends that firms explicitly coordinate across their liquidity and capital planning processes and, at a minimum, ensure that critical information flows between the two processes. Executive management must have the capacity to evaluate and incorporate the highly integrated nature of the two disciplines into its planning activities.
- IV-20a. The Policy Group re-affirms its recommendation that for large integrated banks and investment banks, Basel II should remain the primary capital standard that such institutions, their primary supervisors, and the marketplace generally look to in making judgments about capital adequacy.
- IV-20b. The Policy Group recommends, at least for the present, that the existing Basel II standards for minimum capital and well-capitalized institutions be maintained. In taking that position, the Policy Group recognizes that the experience of the credit market crisis provides a sobering reminder to individual institutions, their senior management and their supervisors that future judgments about capital adequacy should be more sensitive to downside risks than perhaps has been the case in the past.

- IV-20c. The Policy Group further recommends that supervisory judgments about capital adequacy for all large integrated banks and investment banks give primary weight to case-by-case evaluations based on the range of criteria contained in Basel II, Pillar II, and, when necessary, such judgments should be promptly shared with individual institutions.
- V-20d. The Policy Group strongly recommends that every reasonable effort be made by the international community of supervisory authorities to (1) seek to stabilize, at least for a reasonable period of time, the methodology associated with Basel II, (2) move toward a common implementation date across major jurisdictions, and (3) insure a competitive and supervisory level playing field in the application of Basel II across classes of institutions and across national boundaries.
- IV-21a. The Policy Group recommends that where the use of leverage ratios is compulsory, supervisors monitor such leverage ratios using the Basel II, Pillar II techniques and intervene regarding the adequacy of such leverage ratios only on a case-by-case basis.
- IV-21b. The Policy Group recommends that efforts be directed at either (1) framing more meaningful leverage ratios where they exist or (2) phasing out their use and implementing alternative risk measures that more effectively fulfill their intended objectives.

#### Section V: Enhanced Credit Market Resiliency

- V-1. The Policy Group recommends trade date (T+0) matching for electronically eligible transactions.  
Goal: End 2009.
- V-2. The Policy Group recommends the linkage of confirmation and settlements.  
Goal: Dealers early 2009.
- V-3. The Policy Group recommends a tiered approach to market participation and incentive structure.  
Goal: Ongoing.

- V-4. The Policy Group recommends incentives to buy-side participants.

Goal: Ongoing.

It is important to recognize that buy-side market participants will operate at different volumes. Moderate to large volume participants (more than four trades per month) will be expected to adhere to the same standards as dealer-side firms with respect to transmission standards, trade date confirmation, settlement, and mark-to-market comparisons. As with adoption of the Novation Protocol, dealers should consider limiting trading activity with firms that do not adhere to industry standards. Adherence to industry standards should be part of a routine dealer operational due diligence (side-by-side with the normal credit due diligence).

- V-5. The Policy Group recommends that market participants should seek to streamline their methods for trade execution and confirmation/affirmation, which should facilitate an end-to-end process flow consistent with same-day matching and legal confirmation.

- V-6. The Policy Group recommends that senior leaders of trading support functions should clearly articulate to senior management the resource requirements necessary to achieve the same-day standards. Recognizing the expense management imperatives driven by recent market conditions, senior management should make every effort to help support functions achieve these standards for the overarching benefit of enhancing market resilience.

Goal: Ongoing.

- V-7. The Policy Group strongly urges that major market participants should deploy a combination of utility and vendor-supplied solutions and should, at a minimum, ensure interoperability of those solutions.

Goal: End of 2009.

- V-8. The Policy Group recommends that major market participants on both the sell- and buy-sides should make every reasonable effort to speed up the adoption of electronic platform usage. This should entail revisiting the priorities in development and testing schedules.

Goal: End of 2009.

V-9. Consistent with Recommendation V-7 above, the Policy Group further recommends that major market participants on both the sell- and buy-sides should hasten their adoption of tools that facilitate standardization in the marketplace. This will in turn facilitate the achievement of the next generation goals for the timeliness and integrity of transaction details.

Goal: End of 2009.

V-10. The Policy Group further recommends frequent portfolio reconciliations and mark-to-market comparisons, including on collateralized instruments.

Goal: Weekly end 2008, moving to daily for electronically eligible trades mid 2009.

V-11. ISDA Credit Support Annex documents spell out the bilateral terms of the margin process. While the process is generally standardized, the Policy Group recommends that the industry needs to find an effective means to resolve valuations disputes, particularly for illiquid products. Doing so is likely to be a difficult and demanding matter and therefore an industry-wide approach may have to be considered.

Goal: End of 2009.

V-12. The Policy Group recommends that, as mark-to-market disputes inevitably surface through the collateral portfolio reconciliation process, the information should be passed to the executing trading desks on a real-time basis to allow for research and resolution. This should, of course, be done with appropriate anonymity of the counterparty's identity, positions, and broader portfolio. A close alignment of the collateral team with trading desks – without violating the fire walls and controls that are critically important to the integrity of the financial system – would facilitate such information sharing. As necessary, significant and large value collateral disputes should promptly be escalated to the appropriate senior officers.

Goal: Immediate.

V-13. The Policy Group recommends that dealers, investors and the clearing banks agree on “Best Practices” to govern the tri-party repo market. Components of such Best Practices should include the following:

- tri-party repo program size;
- margin;

- collateral eligibility; and
  - collateral valuation.
- V-14. The Policy Group recommends that market participants actively engage in single name and index CDS trade compression. ISDA has agreed on a mechanism to facilitate single name trade compression with Creditex and Mark-it Partners. Established vendor platforms exist for termination of offsetting index trades, and we urge major market participants to aggressively pursue their use.
- V-15. Based on the considerations above, the Policy Group recommends that the industry, under the auspices of the current ISDA Portfolio Compression Working Group, commit immediately and with all due speed to achieve consistency of the current product, including potentially:
- utilizing industry preferred Reference Obligations or elimination of Reference Obligations;
  - eliminating Restructuring Basis distinctions, recognizing that this needs to be considered in a broader global perspective taking into account regional and national differences; and
  - standardizing fee calculations based on a single, common model analytic.
- V-16. The Policy Group recommends that ISDA should update its Credit Derivative Definitions to incorporate the auction mechanism so that counterparties to new credit default swap trades commit to utilize the auction mechanism in connection with future credit events.
- V-17. The Policy Group recommends that ISDA should run a protocol (a so-called “big bang” protocol) to provide market participants with an operationally efficient means to amend their existing credit default swap trades to utilize the auction mechanism in connection with future credit events. This protocol should not effect any other changes to the bilateral agreements in effect between adopting counterparties.
- V-18. The Policy Group recommends that all large integrated financial intermediaries (e.g., the major dealers) should promptly adopt the Close-out Amount approach for early termination upon default in their counterparty relationships



with each other. We note that this can be agreed and suitably documented without making any other changes to the ISDA Master. The Policy Group expects that these arrangements will be in place in the very near term.

- V-19. The Policy Group recommends that a working group should be formed under the auspices of ISDA, with representatives of both dealer and buy-side firms, to review the methodology for counterparty terminations in order to (1) produce a set of best practices and suggested bilateral templates for the transparency of valuation methodologies and parameters, as noted above, for use by all market participants, (2) consider how contractual provisions could reflect prior reconciliation of valuation parameters and (3) seek to reconcile the differing views on what is necessary to evidence agreement that market inputs will be used unless commercially unreasonable. The Policy Group hopes that the working group will be able to report a recommended approach by December 31, 2008.
- V-20. The Policy Group recommends that all major market participants should periodically conduct hypothetical simulations of close-out situations, including a comprehensive review of key documentation, identification of legal risks and issues, establishing the speed and accuracy with which comprehensive counterparty exposure data and net cash outflows can be compiled, and ascertaining the sequencing of critical tasks and decision-making responsibilities associated with events leading up to and including the execution of a close-out event.
- V-21. The Policy Group recommends that all market participants should both promptly and periodically review their existing documentation covering counterparty terminations and ensure that they have in place appropriate and current agreements including the definition of events of default and the termination methodology that will be used. Where such documents are not current, market participants should take immediate steps to update them. Moreover, each market participant should make explicit judgments about the risks of trading with counterparties who are unwilling or unable to maintain appropriate and current documentation and procedures.
- V-22. The Policy Group recommends that the industry should consider the formation of a “default management group”, composed of senior business representatives of major market participants (from the buy-side as well as the sell-side) to work with the regulatory authorities on an ongoing basis to consider and anticipate issues likely to arise in the event of a default of a major market counterparty.

- V-23. Recognizing the benefits of a counterparty clearing arrangement (CCP) as discussed above, the Policy Group strongly recommends that the industry develop a CCP for the credit derivatives market to become operational as soon as possible and that its operations adhere to the BIS Recommendations.

### **Part III: Emerging Issues Highlights**

#### **A. Valuation and Price Verification**

“The Policy Group is strongly of the view that under any and all standards of accounting and under any and all market conditions, individual financial institutions must ensure that wholly adequate resources insulated by failsafe independent decision-making authority are at the center of the valuation and price verification process. While the details of approaches and the family of techniques used for these purposes may – and will – differ from time to time and from institution to institution, these efforts should always pass the two common sense tests of (1) reasonableness and (2) consistency, both of which apply equally to positions or instruments that have gains and positions or instruments that have losses.”

#### **B. Asset Price Bubbles**

“This subject matter is highly complex and is one where miscalculation or misjudgment can have serious adverse consequences. Finally, and most importantly, there is no substitute for sustained discipline in both public policy and private action, which remains the best recipe to limit the severity of asset price bubbles and contain their damage when inevitably they occur.”

#### **C. Near Banks**

“In the current circumstances, some attention has been given to a modified form of direct, but standby supervision. Under this approach, the authorities (*i.e.*, the Federal Reserve in the United States) would step in when problems at one or more hedge funds raise systemic concerns. While such an approach will no doubt be debated in public and official circles, CRMPG III believes that this approach too raises moral hazard questions. Moreover, as a practical matter it would be very difficult to administer such an approach, in part because of the danger that the standby authority might be triggered when it is already too late, or because the triggering of such authority might aggravate the very problem it is seeking to mitigate.”

D. Regulatory Structure

“CRMPG III believes that the issue of the role of the central bank in the arena of prudential supervision and financial market oversight requires expedited consideration and resolution.”

“In weighing and balancing these factors, the Policy Group would note the following: (1) if the supervisory reach of the Federal Reserve, for example, is to be extended, it must have the direct and ongoing authority to discharge those responsibilities and (2) legitimate moral hazard concerns notwithstanding, there will always be extreme circumstances in which extraordinary interventions by central banks or governments are necessary. However, as witnessed in recent months, extraordinary intervention by the authorities clearly does not mean that financial institutions and their shareholders will be protected from substantial losses.”

E. Supervisory Policy and Practice

“The Policy Group believes that the case for devoting greater resources to the supervisory effort is clear and compelling.”

“In the arena of supervisory policy one particular subject that is in need of further progress is implementing Basel II capital adequacy standards.”

“The Policy Group is under no illusion that there is a quick and easy solution to any of these issues regarding Basel II. Having said that, the Policy Group wishes to urge all deliberate speed on the part of the international community of supervisory authorities in (1) seeking to stabilize, at least for a reasonable period of time, the methodology associated with Basel II, (2) moving toward a common implementation date across major jurisdictions and (3) insuring a competitive and supervisory level playing field in the application of the Basel II across classes of institutions and across national boundaries.”

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## **SECTION II: STANDARDS FOR ACCOUNTING CONSOLIDATION**

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### ***A. Introduction***

It is widely recognized that a major contributing factor to the credit market crisis was the manner and extent to which risks associated with certain classes of off-balance sheet activities at many financial institutions may not have been adequately encompassed within firms' risk monitoring and risk mitigation frameworks. Thus, when contingent risks arising from such off-balance sheet activities were triggered, this gave rise to elevated contagion risk and large write-downs at many financial institutions.

To a very considerable extent, both the demand for and the supply of the structured credit products that were often housed in off-balance sheet special purpose vehicles were driven by the "reach for yield" investment phenomenon, which characterized the three to four year period leading up to the credit market crisis. In some cases (for example, securitizations), regulatory arbitrage was a factor since Basel I (the prevailing capital standard when the build-up of these activities occurred) called for little or no explicit capital charges for certain arrangements with off-balance sheet vehicles.

A similar phenomenon existed for loan commitments. In the cases of conduits and SIVs, substantial maturity mismatches were common as long-term assets were being financed by short-term asset-backed commercial paper, encouraged by the implicit belief that ready access to such financing would always be there. And, in the case of many bank-sponsored conduits there were explicit arrangements whereby the sponsoring bank was committed to provide back-up financing in the event that commercial paper financing was not available. In other cases, these arrangements were regarded by market participants as implicit and based on the belief that reputational risks were such that sponsors would provide back-up financing even in the absence of an explicit arrangement.

Clearly, an important contributing factor was the idiosyncratic consolidation rules under U.S. Generally Accepted Accounting Principles (US GAAP). There are various relevant accounting standards under US GAAP which determine whether an entity is on or off the balance sheet. These rules are extraordinarily complex and their interpretation can only

be mastered by highly skilled and experienced professionals. The discussions on pages 41, 47 of this Report provide several examples of the workings of US GAAP consolidation rules. These examples are designed to provide insight into the application of these rules for readers who are not experts in this field.

For the purpose of this introduction, it is sufficient to note that securitization vehicles considered to be “Qualifying Special Purpose Entities” (QSPEs) receive off-balance sheet treatment even if the sponsoring entity provides credit enhancements by retaining a significant residual interest in the securitization trust (*i.e.*, the sponsor is expected to absorb the majority of the risks and rewards). The rationale for off-balance sheet treatment is that the vehicle is passive and therefore the sponsor does not control it.

Currently, the Financial Accounting Standards Board (FASB) is in the very advanced stages of preparing to issue for public comment further revisions to the current consolidation rules. It is widely expected that the proposed revisions will substantially modify the existing rules in ways that will require many vehicles that currently qualify for off-balance sheet treatment under current US GAAP to come onto the balance sheet of sponsoring institutions.

As an extension of this discussion, it should be noted that for banks and other financial institutions that operate under International Financial Reporting Standards (IFRS), the International Accounting Standards Board (IASB) is also re-examining its consolidation standards. The Policy Group encourages the FASB and the IASB to work together on cross-border convergence of accounting standards with a more principles-based orientation in this area.

Obviously, the new US GAAP consolidation rules – assuming they take the general form that is expected – will have profoundly important implications for many institutions in terms of balance sheet size and may have a material impact on regulatory capital requirements for certain institutions. However, the consolidation of off-balance sheet vehicles will not, in most circumstances, have a major impact on regulatory capital requirements for institutions using risk-based capital standards such as Basel II. This is because the risk absorbed by the sponsors, for example via their retention of the residual interests in a

securitization trust, is already appropriately captured in explicit capital charges under Basel II.

For affected institutions, the accounting changes will have an impact on reported leverage ratios which will, in many cases, rise appreciably. This will be consequential to institutions that are subject to regulatory leverage constraints, notwithstanding the fact that risks carried by these institutions may already be subject to capital charges. This result is peculiar since, by definition, changes in accounting conventions are not economic and therefore should not generally have economic consequences. This is still another example of the fact that leverage ratios tell us a lot about arithmetic but little about financial and economic reality.

The Policy Group is mindful of the profoundly important and demanding implications of the likely revisions to the US GAAP consolidation rules. Nevertheless, the Policy Group endorses, in principle, the direction of these changes provided they are (1) principles-based, (2) convergent with IFRS, and (3) accompanied by suitable disclosure and transition rules regarding regulatory capital which will provide flexibility in the implementation of these rules over a reasonable period of time.

\* \* \* \* \*

The following is a technical discussion on accounting consolidation, its effects on financial reporting, and the Policy Group's recommendations for improvements to consolidation accounting and disclosure. In formulating its recommendations on accounting consolidation, and as discussed in other parts of this Report, the Policy Group elected not to address the issue of fair value accounting.

## ***B. Basics of Consolidation***

Consolidation is the process by which the financial statements of a parent are combined with those of its subsidiaries, as if they were a single economic entity. Consolidated results are considered more useful in the decision-making process of users of financial statements, such as investors and creditors. For example, consolidation of a traditional operating subsidiary provides more accurate information on the revenues and expenses

of the parent so that users have a better understanding of how net earnings were achieved. Consolidation of a securitization vehicle provides information on the use of leverage in financing a securitization. Because consolidation policies determine when an enterprise's involvement with another entity gives rise to a parent-subsidary relationship, consolidation principles become vitally important to financial statement reporting.

Consolidation can, however, obscure those assets and liabilities that are truly impacting the economic performance and financial position of the consolidated enterprise. For example, the assets and liabilities, revenues and expenses, and cash flows of a subsidiary are typically reported in the financial statements of the parent, as if the parent is at risk for the entire change in value of those assets and liabilities, even though this may not be true as an economic matter. Additionally, assets financed via non-recourse debt are often aggregated with assets for which the enterprise is fully exposed to risk. Moreover, as consolidation increases the size of the balance sheet, the aggregation of similar items can obscure individual amounts. Consequently, transparent display, reporting, and footnote disclosures in the financial statements are crucial to providing a clear picture of the consolidated enterprise.

### **C. US GAAP Consolidation Rules**

Under US GAAP, there currently are three consolidation models for determining when a parent-subsidary relationship is present, each based on the type of entity an enterprise is involved with. The three types of entities are: (1) voting entities, (2) variable interest entities (such as special purpose entities (SPEs)), and (3) QSPEs.

#### **1. Voting Entities**

Consolidation policy under US GAAP for voting entities was codified in 1959 with the issuance of a standard that requires an enterprise to consolidate an entity it unilaterally controls through majority voting interests. If no investor has the ability to control a voting entity, no one consolidates.

To illustrate the consolidation analysis under US GAAP for a voting entity, consider the following example:

***Example 1 – Traditional Business***

**Facts:**

An entity is a business with employees, assets and activities that produce revenues and expenses.

The entity is sufficiently capitalized with equity and its owners have the ability to make decisions in proportion to their ownership interests.

The owners are exposed to first loss and have the rights to receive any residual returns.

**Analysis:**

Under US GAAP, this entity is analyzed for consolidation under a control model as described above. An owner having majority control (typically, through ownership of voting common stock) would consolidate in this example.

The standard for voting entities was written for traditional businesses, long before the advent of structured finance and special-purpose entities. Therefore, no guidance existed for consolidation of structured finance or special purpose entities for which voting power was not meaningful in determining control. Over time, practice developed and certain bright-line rules were enacted that related to specific fact patterns involving SPEs.<sup>1</sup> In practice, these brightlines were analogized to many different situations, and sometimes

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<sup>1</sup> A common example of a bright-line rule created during this period relates to off-balance sheet leasing transactions where a minimum of 3% of third party equity was determined to be substantive for purposes of analyzing whether an SPE should be consolidated. Enterprises would transfer real property to an SPE, obtain third party financing, and obtain 3% equity from a third-party investor. The resulting accounting analysis would enable the enterprise to report the real property and financing as an operating lease, that is, off-balance sheet rather than an on-balance sheet financing.



inappropriately used by enterprises to structure entities to avoid consolidation. This created the need for specific rules governing SPEs or, as they later became known, “variable interest entities”.

## **2. Variable Interest Entities**

The concept of a variable interest entity was introduced in 2003, in the wake of Enron. At the time, regulators were pressing for updated accounting guidance that would address the abuses observed in the accounting for SPEs. In response, the FASB issued an interpretation of the 1959 standard, which effectively created a new model for consolidation. The model identified the characteristics of what the FASB termed a “variable interest entity” (VIE), an entity consolidated based on risks and rewards, to differentiate it from a “voting entity” – an entity that would continue to be evaluated for consolidation based on “voting control”.

A VIE is a separate legal entity that has any of the following characteristics: (1) insufficient US GAAP equity to absorb “expected” losses, that is, not “actual” losses, (2) owners are shielded from losses or returns are capped, or (3) an inability by owners to make substantive decisions that drive the success of the entity.

A variable interest holder has an interest in a VIE that absorbs some or all of the expected losses or gains of the entity. Examples of variable interests include common and preferred shares, partnership interests, subordinated debt, guarantees, and certain derivative instruments. A variable interest holder absorbing the majority of expected losses or gains of a VIE consolidates the entity. The determination of expected losses or gains is based on a formula<sup>2</sup> and requires scenario analysis of projected cash flows or changes in fair value. The analysis can be performed on a qualitative basis when the

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<sup>2</sup> To illustrate the formula for calculating expected losses with a simple example, consider an investment of \$100 with only two expected outcomes: the investment can return \$200 or zero. Each outcome has a 50% probability. The expected (probability-weighted) cash flows from the investment are therefore \$100 [(\$200 x 50%) + (\$0 x 50%)]. The expected loss and gain from the investment (probability-weighted variance around the mean) is negative \$50 [(\$0 - \$100) x 50%] and positive \$50 [(\$200 - \$100) x 50%], respectively. If the fair value of US GAAP equity is less than \$50, then the equity of the entity would be “insufficient” and the entity would be deemed a VIE. A variable interest holder absorbing the majority of the \$50 of expected losses would consolidate the VIE. If no variable interest holder absorbs the majority of the \$50 of expected losses or gains, no one consolidates the VIE.

facts are clear and conclusive. However, in other cases (for example, multi-seller Asset-Backed Commercial Paper conduits (ABCP Conduits)) the analysis can require calculations involving complex models that generate thousands of scenarios.

The VIE analysis is performed at the date of initial involvement with an entity and reconsidered only upon certain events. Actual losses in excess of expected losses are not a “reconsideration event,” even if losses significantly reduce the value of equity. Examples of reconsideration events include additional investments into the entity, refinancing of existing debt, and significant changes to governing documents or business activities. CDOs, SIVs, and ABCP Conduits are examples of entities that are typically structured as VIEs.

To illustrate the consolidation analysis under US GAAP for a VIE, consider the following example:

***Example 2 – Asset-Backed Commercial Paper Conduit (“ABCP Conduit”)***

**Facts:**

A company sells receivables to an ABCP Conduit managed by a sponsoring bank.

The ABCP Conduit issues commercial paper (CP) to investors to finance the acquisition of the receivables. Repayment of the CP is dependent on receivable collections and the issuance of new CP upon maturity.

The sponsoring bank’s responsibilities can include serving as the ABCP Conduit’s administrative agent, CP placement agent, program-wide credit support provider (for example, a guarantee or letter of credit) and, importantly, as the CP backstop liquidity provider.

The sponsoring bank arranges the sale of “first loss notes” to third party investors. These notes are insignificant in size (generally 10 basis points) and are structured to absorb a majority of the ABCP Conduit’s expected losses. These notes would not be recognized as US GAAP equity.

**Analysis:**

Under US GAAP, the ABCP Conduit would be considered a VIE because it lacks sufficient US GAAP equity. Initially, the sponsoring bank would not consolidate the ABCP Conduit because it does not have a majority of the expected losses and gains as a result of the sale of the first loss notes to third parties. The sponsoring bank's power to control the ABCP Conduit would not be considered in the analysis because the VIE model is based solely on an analysis of risk and rewards. Because of the revolving nature of the CP issuance, the sponsoring bank may be required to reconsider, on at least a quarterly basis, whether it holds a majority of the expected losses and gains through its program-wide credit support and backstop liquidity facilities.

The VIE model contains several scope exceptions, none more significant than the exception for QSPEs.

### **3. Qualifying Special Purpose Entities**

SPEs are generally used in securitizations to achieve legal isolation in the event of bankruptcy. These entities are generally created with a single purpose and have very limited operational duties and discretionary powers, that is, they generally are passive in nature. The operations of SPEs are generally limited to collections of principal and interest on passive assets and distributions of the cash flows to the beneficial interest holders in the entity based on a predefined formula.

In connection with an accounting standard issued in 1996, the FASB decided that transfers of financial assets to SPEs that meet the above description and certain other "qualifying" criteria, would receive off-balance sheet or "sale accounting" treatment. Although QSPEs generally have several characteristics of VIEs, QSPEs were specifically excluded from the VIE consolidation model, given their passive nature. As a result, no party consolidates a QSPE. In practice, securitization vehicles that hold credit card receivables, automobile loans, residential mortgages and commercial mortgages are generally structured as QSPEs so as to benefit from the off-balance sheet treatment.

To illustrate the consolidation analysis under US GAAP for a QSPE, consider the following example:

***Example 3 – Residential Mortgage Securitization***

**Facts:**

A sponsoring bank sells a pool of residential mortgage loans to a bankruptcy remote securitization trust (Trust).

The sponsoring bank provides credit enhancement through the retention of a residual interest in the Trust.

The residual interest is expected to absorb the majority of the risks and rewards of the mortgage loans. The sponsoring bank also retains the right to service the mortgage loans, but the entity is otherwise passive.

The Trust issues tranching debt securities to finance the purchase of the mortgage loans. There is no substantive equity issuance.

Principal and interest collections on the mortgage loans are distributed to holders based on a predetermined formula designed to achieve specified credit risk profiles for each tranche.

**Analysis:**

US GAAP currently states that no party consolidates a QSPE. If the Trust is a QSPE (as is typically the case for residential mortgage securitizations), the sponsoring bank would receive off-balance sheet treatment, irrespective of its ability to service the assets and its holding of the residual interest. If the Trust is not deemed a QSPE, the Trust would be deemed a VIE, and the sponsoring bank generally would consolidate the Trust because, as the holder of the residual interest, the sponsoring bank has a majority of the risks and rewards of the Trust.

A significant issue raised in the development of the QSPE model was the level of discretion required to service the assets held by a QSPE. The issue of servicer discretion was highlighted during the current subprime residential mortgage crisis as assets defaulted at higher than expected rates and greater discretion was required to service what were previously deemed “passive” assets. The possibility of heightened servicer discretion has called into question the QSPE model.

#### ***D. US GAAP Disclosure Rules***

There currently is no single framework for disclosure of off-balance sheet activities in US GAAP. Rather, disclosure rules are promulgated on a standard by standard basis, usually in response to a perceived weakness highlighted by an event in the marketplace. Current disclosure requirements, although numerous and complex, are heavily prescriptive and generally rules-based. Therefore, disclosures are generally not applied by analogy to situations that do not have a specific “rule” for disclosure. Disclosure requirements also tend to overlap in certain areas (generally, where more accounting guidance was provided by standard setters), and gap in other areas. This creates unnecessary complexity and is not conducive to providing clear and transparent disclosures.

Consider the following example of the limitations associated with current disclosure rules under US GAAP:

##### ***Example 4 – Disclosure of Retained Interests in Securitizations***

###### **Disclosure Requirement:**

The disclosure requirements for retained interests from securitization activities include disclosure of the fair value of such retained interests at the reporting date, the weighted average maturities and sensitivities to changes in key valuation assumptions, disaggregated by type of instrument (for example, mortgages vs. corporate debt).

###### **Disclosure Limitations:**

This disclosure does not provide a comprehensive view of enterprise-wide risk. Particularly, the scope focuses only on retained interests and does not consider an

enterprise's purchased interests. Retained interests are generally a small subset of total assets for a financial institution. Further, the scope specifically excludes related hedges, and fair value sensitivities do not account for simultaneous changes in inputs.

Similar limitations exist in various other standards that require specific disclosures about financial instruments and related risks, such as, but not limited to, disclosure regarding VIEs and derivative guarantees.

### ***E. Current Developments in US GAAP Consolidation and Disclosure Rules***

The FASB is in the process of amending its consolidation standard for VIEs and QSPEs, with a goal of issuing final standards with an effective date in 2010. Additionally, disclosure requirements will be enhanced with an effective date as soon as possible.

The FASB is proposing to eliminate the concept of QSPEs. Moreover, the consolidation model for VIEs is expected to become more qualitative in nature, specifically related to the assessment of whether a variable interest holder has control over a VIE, either through substantive decision-making power or exposure to a majority of the risk and rewards. This assessment will no longer be limited to inception and specific reconsideration events but will be analyzed each reporting period. The amended US GAAP consolidation model is expected to generally align with the current IFRS model,<sup>3</sup> that is, an assessment of control and risk and rewards.

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<sup>3</sup> IFRS has a single model for consolidation: the control model. The IFRS control model has two parts, both of which must be met in order to conclude that one entity controls another. A controlling entity must have the power to govern the financial and operating policies of an entity, so as to obtain benefits from its activities. IFRS provides additional control indicators to consider when determining whether control over an SPE exists. These indicators include the concept of control described above as well as a consideration of which party absorbs a majority of the risks or rewards. The indicators are considered in the context of all relevant factors. Judgment is used to conclude which party in substance has control over the SPE. Acknowledging current events in the financial markets, the IASB is also in the process of updating its standard on consolidation. The changes are expected to endorse and clarify the current stated principles and focus on application guidance to improve comparability.

The result of these changes is expected to significantly increase the recognized balance sheets of financial institutions that sponsor and underwrite securitizations. This will be primarily due to the elimination of the QSPE model. The increase in balance sheet size will highlight the need for adequate financial statement presentation and disclosures to disaggregate and explain the consolidated balance sheet, for example, linking consolidated assets with related consolidated liabilities.

There also will be income statement effects, as consolidation will increase reported revenues and expenses. Consolidation could also impact reported earnings if it results in the elimination of previously recognizable profits or losses, which would now be viewed as intercompany in nature and therefore not recognizable under US GAAP. Additionally, these changes are expected to have broad implications for many other areas outside of financial reporting such as regulatory capital ratios, debt covenants, and other contractual obligations.

## ***F. Recommendations for Consolidation and Related Disclosure Principles***

The current consolidation rules under US GAAP have not been wholly effective at providing decision-useful information to the capital markets. Moreover, the current financial statement disclosure rules have been inadequate in bridging the gap between the consolidated financial statement and an enterprise's economic exposure to risks.

The current US GAAP consolidation rules lack a single principles-based model for consolidation. Rather, an enterprise is required to first assess which consolidation model is applicable to its interest in an entity and then determine whether an entity should be consolidated based on the rules within the applicable model. The rules for consolidation across those models are not symmetrical: one model is based solely on control, one model is based solely on risk and rewards, and the third is a scope exception for passive SPEs. It is understandable, therefore, that users of US GAAP consolidated financial statements are confused about the meaning of reported amounts in consolidated financial statements.

Additionally, the framework for each of the models is rules-based and at times focuses less on the substance of an enterprise's involvement with an entity and more on its form. A clear example of this would be the rule for calculating expected losses under the VIE model, where a quantitative outcome determines control without any further qualitative analysis of other known control factors. Moreover, the VIE model does not require reconsideration of the consolidation analysis at each reporting period. Therefore, a VIE remains off-balance sheet under an initial consolidation conclusion, even if the assumptions initially applied were not predictive of actual results.

US GAAP has prescriptive disclosure requirements on exposure to VIEs, retained interests in QSPEs, and derivative instruments. However, each rule does not build on a principle that requires a holistic look at the reporting enterprise. Therefore, these rules have not been entirely successful in providing users of the consolidated financial statements with a complete picture of a financial institution's exposure to risks. Looking ahead, the developing changes to the consolidation rules are expected to result in a significant increase to the balance sheets of financial institutions. As a result, robust and holistic disclosures will be required to enable users to dissect the information reported in the consolidated financial statements.

Recognizing the pressing need for changes to the US GAAP consolidation and disclosure rules, the Policy Group recommends as follows:

### ***Recognition Framework Recommendations***

- II-1.* The Policy Group endorses, in principle, the direction of the changes to the US GAAP consolidation rules provided that the changes are (1) principles-based, (2) convergent with IFRS, and (3) accompanied by suitable disclosure and transition rules regarding regulatory capital which will provide flexibility in the implementation of these rules over a reasonable period of time.
  
- II-2.* The Policy Group recommends adoption of a single, principles-based global consolidation framework that is based on control and the ability to benefit from that control. The analysis of whether an entity (the



investor) has a controlling interest in another entity (the investee) should be based on:

- the investor's power over the investee, including the ability to make decisions that determine the success of the investee;
- the degree of investor exposure to the risks and rewards of the investee, including through guarantees, commitments and all other explicit and implicit arrangements between the two entities; and
- the design and sponsorship of the investee, including the degree to which the activities of the investee expose the investor to commercial, legal, regulatory, and reputational risks.

*II-3.* The Policy Group further recommends that the new consolidation framework require a reassessment of the consolidation analysis each reporting period based on changes in the control indicators specified in the preceding recommendation.

*II-4.* The Policy Group encourages standard setters and industry participants to work together toward achieving the goals discussed in this section on a global basis as soon as possible.

### ***Disclosure Framework Recommendations***

*II-5.* The Policy Group recommends that standard setters and industry participants consider a holistic and principles-based approach to disclosure of off-balance sheet activities similar to that found in international standards. The disclosure framework should be fully integrated with enterprise-wide disclosures across the full spectrum of risks: market, credit, liquidity, capital, operational, and reputational.

Enterprise-wide disclosure should be supplemented with detailed information that links to enterprise-wide disclosures and that changes in response to changing risks and uncertainties; for example, in the current environment, disclosures about residential and commercial real estate and leveraged loan exposures.

- II-6.* The Policy Group recommends that firms provide tabular disclosures about the effects of restrictions on the use of consolidated assets, non-recourse liabilities, and minority interests.

The following are some examples of consolidated assets and liabilities for which additional disclosure may be necessary in order to bridge the gap between the amounts reported in the consolidated financial statements and an enterprise's economic exposure to risk:

- risk exposure to consolidated assets absorbed by minority investors;
- linking of consolidated assets to non-recourse financings on a disaggregated basis; and
- hedges and other risk management tools used to limit or participate in exposure to consolidated assets or liabilities.

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## **SECTION III: HIGH-RISK COMPLEX FINANCIAL INSTRUMENTS**

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### ***A. Introduction***

As discussed elsewhere in this Report, throughout the credit market crisis, the behavioral characteristics of several classes of structured credit instruments have accounted for a significant fraction of the write-downs and losses incurred by large integrated financial intermediaries, hedge funds, specialized financial institutions and other market participants. Moreover, there is almost universal agreement that, even with optimal disclosure in the underlying documentation, the characteristics of these instruments and the risk of loss associated with them were not fully understood by many market participants. This lack of comprehension was even more pronounced when applied to CDOs, CDOs squared,<sup>4</sup> and related instruments, reflecting a complex array of factors, including a lack of understanding of the inherent limitations of valuation models and the risks of short-run historical data sets. As a consequence, these instruments displayed price depreciation and volatility far in excess of levels previously associated with comparably rated securities, causing both a collapse of confidence in a very broad range of structured product ratings and a collapse in liquidity for such products.

In light of these circumstances, the Policy Group has devoted considerable emphasis and resources to the subject of complex financial instruments and has developed specific recommendations designed to reform and improve market practices in response to the credit market crisis. The Policy Group has not addressed the activities of rating agencies in the credit market crisis, nor has it made recommendations concerning their role going forward. Instead, the Policy Group believes that it is vital for every market participant to understand risk and make independent credit judgments even when ratings are available. As such, the Policy Group's analysis focuses on the instruments, the participants, the practices, and the flow of information in the markets for high-risk complex financial instruments.

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<sup>4</sup> The risk characteristics of CDOs were spelled out in great detail in the CRMPG II Report. That analysis is appended as Appendix B to this Report.

A natural starting point for this analysis centers on the attributes of high-risk complex financial instruments recognizing that not all complex financial instruments are necessarily high-risk. The definition of a high-risk complex financial instrument is itself a complex subject. For example, while it is easy enough to say that subprime CDOs are a high-risk complex financial instrument, it is impossible to solve the definitional issue by compiling a list of such high-risk instruments, if for no other reason than any such list would be almost immediately out of date.

Additionally, the Policy Group's focus has not been limited to discussing the characteristics and practices associated with specific instruments in the credit market crisis. Its aim, instead, is to provide recommendations that may be applied in a forward-looking manner to transactions in high-risk complex financial instruments – including both cash and derivatives – in all markets. Thus, the effort to cope with the definitional challenge is better framed by identifying the key characteristics of classes of high-risk complex financial instruments that warrant special treatment in terms of sales and marketing practices, disclosure practices, diligence standards, and, more broadly, the level of sophistication required for all market participants, including issuers and investors.

The first and perhaps the most important characteristic of high-risk complex financial instruments is leverage. However, recognizing the role of leverage is one thing, while understanding that leverage can take several forms is quite another matter. Leverage may refer to borrowing money to finance the purchase of securities or other financial instruments. It may also refer to so-called embedded leverage often associated with derivatives and asset tranching. An example of this is an investment in subordinated tranches of asset-backed or corporate credit derivative contracts. In the case of these instruments, the market exposure is magnified relative to an investment in the underlying instrument and gains and losses are experienced more quickly, sometimes much more quickly, than in an un-leveraged investment. Unlike leverage generally associated with borrowing, losses associated with embedded leverage are generally limited to the size of the initial investment; however, the risk of loss to which investors found themselves exposed far exceeded most, if not virtually all, stress scenario modeling they had performed.

The multiplier effect of embedded leverage may also be compounded. For example, mezzanine tranches of mortgage securitizations (which, themselves, have embedded leverage) were often purchased by CDOs, which, in turn, issued senior and subordinated tranches, creating embedded leverage on leverage in the subordinated pieces. Some of these CDOs in turn found their way into CDOs squared, compounding the leverage even further. Exposures to rising delinquency rates were, as a result, greatly magnified for investors in these instruments. On certain occasions, these highly leveraged CDO-related instruments were acquired by various forms of investment vehicles that were themselves highly leveraged.

The magnitude of this embedded leverage was in itself often model-derived value which depended, for example, on projections of mortgage delinquency and default rates. In other words, investors could not always be certain about the degree to which their exposures to the mortgage market were leveraged at the time of investment. When delinquency assumptions associated with the mortgage securitizations of 2005, 2006 and early 2007 proved to be far too low, the leverage and losses experienced by investors in these secondary and tertiary repackagings were far greater than anticipated.

The second key characteristic of high-risk complex financial instruments is that, by their nature, they are prone to periods of sharply reduced market liquidity. As witnessed during the credit market crisis, market liquidity for many of these instruments was not merely reduced but in some instances virtually evaporated. In this environment, risk reductions – including de-leveraging – were nearly impossible, and hedging was very expensive and often imperfect, introducing basis risk. Needless to say, in these circumstances, valuations and price verification for these instruments had limited evidential support, although this did not obscure the fact that some positions and some trades had lost much, if not essentially most, of their value, with little prospect for material future recovery.

The third characteristic of high-risk complex financial instruments is that they may be characterized by a lack of price transparency. These instruments are often bespoke, and their valuations depend on proprietary financial models and the inputs that drive those models. Frequently, the inputs for these models are not directly observable in the market. In addition, even a valid model with accurate inputs will not always capture the immediate supply and demand profile of the market, meaning that the model price will not

always determine the price at which a transaction will occur. In this circumstance, buyers and sellers of high-risk complex financial instruments may achieve price discovery only through actual transactions, but these may not occur because of the aforementioned illiquidity.

It is possible that an instrument which would otherwise be high-risk and complex is not regarded as such because of its liquidity and price transparency. Large capitalization common stocks are generally considered neither high-risk nor complex, avoiding the label because of their visibility in the market and liquidity. If stocks were priced in a vacuum based only on a model of one's own design, such shares would probably be considered both high-risk and complex. Conversely, price transparency does not always preclude an instrument from being labeled high-risk and complex. There are, for example, futures markets in high-risk complex financial instruments that are so labeled despite the transparency provided by the futures markets.

While issues surrounding leverage, market liquidity, and price transparency are the key characteristics in identifying high-risk complex financial instruments, other factors have contributed to the problems witnessed during the credit market crisis. For example, in some investment vehicles the high-risk factors of leverage and market illiquidity were amplified by substantial maturity mismatches, where illiquid long-term assets were funded with short-term liabilities. Additionally, for many high-risk instruments, disclosure information was limited, or to the extent it was provided, it could have been more "user friendly" in its presentation. Finally, many high-risk complex financial instruments presented significant challenges for risk monitoring and management systems, which struggled to keep up with the complexities of product design and development and, in particular, encompass the risk that hedging strategies were ineffective, so generating additional, and sizeable, exposure in the form of basis risk.

The aforementioned characteristics are neither an exhaustive list nor should they be assumed to provide a strict definition of high-risk complex instruments, which the Policy Group believes should be avoided. Instead, market participants should establish procedures for determining, based on the key characteristics discussed above, whether an instrument is to be considered high-risk and complex and thus require the special treatment outlined in this section.

In the wake of the obvious problems presented by high-risk complex financial instruments, the Policy Group has developed a series of measures and recommendations that it believes address the shortcomings that surfaced during the credit market crisis while not unduly suppressing the beneficial role of innovation in the financial marketplace. The four broad areas of reform recommended by the Policy Group are as follows:

- (1) refining and elevating standards of sophistication for market participants;
- (2) enhancing the level and usefulness of disclosure;
- (3) strengthening intermediary-client relationships in such areas as sales and marketing practices; and
- (4) ensuring consistent diligence standards for issuers and placement agents of high-risk complex financial instruments.

## ***B. Standards of Sophistication***

The Policy Group strongly recommends that high-risk complex financial instruments should be sold only to sophisticated investors. Having said that, the practicalities of making this doctrine operational are both subtle and complex. The Policy Group further recommends that a standard of behavior and consistent practice be introduced for all market participants. While there are clearly delineated roles for originators, underwriters, managers, trustees, investors, and others, the Policy Group recommends that involvement in the market for high-risk complex financial instruments in any of these roles requires:

- education and training in the nuances of these instruments;
- systems and models sufficient for tracking performance, managing risk, and running stress scenarios;
- strong governance procedures and internal controls; and

- financial resources sufficient to withstand potential losses associated with high-risk complex financial instruments.

While these standards must apply to participants at every stage in the process, perhaps the most vital point of application is the investor. The starting point is the assurance that the investor has a high level of financial sophistication. It is therefore necessary to develop a workable definition of a “sophisticated investor”. One such approach followed in the United States is Securities and Exchange Commission (SEC) Rule 144A, which is itself quite complex to administer. In essence, Rule 144A lists and defines various types of entities which are called “Qualified Institutional Buyers” (QIBs). At the risk of considerable oversimplification, QIBs are entities that own and invest in at least \$100 million in securities of issuers that are not affiliated with the QIB. Similar regulatory definitions are employed in other jurisdictions, including under the European Union Markets in Financial Instruments Directive (MiFID) in Europe.

Any definition of a sophisticated investor should reflect at a minimum the definition provided by the relevant regulatory jurisdiction. The details of regulatory requirements, however, are such that entities may pass the quantitative (or objective) tests of the relevant regulations but may not be appropriate buyers of high-risk complex financial instruments as discussed above.

### ***Recommendations***

- III-1.* The Policy Group recommends establishing standards of sophistication for all market participants in high-risk complex financial instruments. In recommending specific characteristics and practices for participants, it is guided by the overriding principle that all participants should be capable of assessing and managing the risk of their positions in a manner consistent with their needs and objectives. All participants in the market for high-risk complex financial instruments should ensure that they possess the following characteristics and make reasonable efforts to determine that their counterparties possess them as well:



- the capability to understand the risk and return characteristics of the specific type of financial instrument under consideration;
- the capability, or access to the capability, to price and run stress tests on the instrument;
- the governance procedures, technology, and internal controls necessary for trading and managing the risk of the instrument;
- the financial resources sufficient to withstand potential losses associated with the instrument; and
- authorization to invest in high-risk complex financial instruments from the highest level of management or, where relevant, from authorizing bodies for the particular counterparty.

Large integrated financial intermediaries should adopt policies and procedures to identify when it would be appropriate to seek written confirmation that the counterparty possesses the aforementioned characteristics.

### ***C. Disclosure***

As discussed in the prior section, it is critical that participants in the markets for high-risk complex instruments must understand the risks that they face. An investor or derivative counterparty should have the information needed to make informed decisions. While the Policy Group has recommended that each participant must develop a degree of independence in decision-making, large integrated financial intermediaries have a responsibility to provide their counterparties with appropriate documentation and disclosures. Disclosures must meet the standards established by the relevant regulatory jurisdiction. The Policy Group believes that appropriate disclosures should often go beyond those minimum standards, both through enhancement for instruments currently requiring disclosure, and by establishing documentation standards for instruments that currently require little or none.

Risk information should be available to participants in a format that makes it easily accessible. The format should clearly identify the factors that influence day-to-day price changes in the instrument, as well as making a clear statement of the factors and influences that might lead to significant or catastrophic losses. While no intermediary or counterparty can literally predict the outcome of an investment or forward looking market conditions, appropriate disclosures should anticipate the factors and market conditions that will cause the instrument to experience losses. Disclosure should also identify, to the extent possible, the sensitivities of the instrument to those factors and conditions, as well as the approximate magnitude of the losses the instrument will likely experience in such an environment.

For instruments requiring disclosure, the depth and breadth of information required may contribute to the difficulty of accessing the most useful information concerning risk. This information is in the disclosure documents, but the Policy Group believes that a document containing a brief discussion of significant risks will contribute to increased transparency. For instruments currently requiring little or no disclosure, this document will serve as a means of communicating relevant risk information to counterparties. For instruments requiring disclosure, this summary should not be viewed as a substitute for the often lengthy disclosures, but rather as a supplement. Ideally, it will highlight significant risks and encourage a more thorough examination of the relevant sections of the full disclosure document.

### ***Recommendations***

The Policy Group believes that there are opportunities to enhance and strengthen the documentation and disclosures provided to prospective investors in high-risk complex financial instruments, while being mindful that documentation and disclosure practices will (and should) vary somewhat from instrument to instrument and will also vary over time. With that qualification in mind, the Policy Group recommends the following as a matter of industry best practice.

- III-2a.* The documentation of all high-risk complex financial instruments in cash or derivative form should include a term sheet: a concise summary highlighting deal terms and, where appropriate, collateral

manager capabilities, and portfolio and deal payment structure. The term sheets for all high-risk complex financial instruments, the full scope of which is outlined in Appendix A, must, among other factors, include the following:

- a clear explanation of the economics of the instrument including a discussion of the key assumptions that give rise to the expected returns; and
- rigorous scenario analyses and stress tests that prominently illustrate how the instrument will perform in extreme scenarios, in addition to more probable scenarios.

*III-2b.* The documentation associated with asset-backed high-risk complex financial instruments should include:

- A Preliminary and Final Offering Memorandum: The offering memorandum should include prominently within its first several pages the nature of the economic interest of the underwriter or placement agent (and its affiliates) in the transaction, including a clear statement of the roles to be undertaken and services to be provided by the underwriter or placement agent (or its affiliates) to the transaction, as well as any interests in the transaction (if any) that the underwriter or placement agent (or its affiliates) are required or expected to retain.
- A Marketing Book: The marketing book should include an in-depth description of the materials contained in the term sheet. It should especially focus on the collateral manager (in the case of a managed portfolio) and deal structure.
- Portfolio Stratifications: This documentation should be in the form of spreadsheets containing bond level information (sector, rating, par balance, *etc.*), where known, and weighted average

loan level information (FICO, service, LTV, % fixed, occupancy, geographic distribution, 2nd liens, *etc.*).

- Cash Flow/Stress Scenarios: This documentation should be in the form of spreadsheets and cash flow model outputs. Standard runs should be provided for each tranche offered. The output will typically be in the form of tranche cash flows and default/loss percentages for the tranches and collateral.

*III-2c.* In addition to the documentation standards covered above, the Policy Group further recommends that term sheets and offering memoranda for all financial instruments having one or more of the key characteristics associated with high-risk complex financial instruments as discussed on pages 54, 56 must have a “financial health” warning prominently displayed in bold print indicating that the presence of these characteristics gives rise to the potential for significant loss over the life of the instrument. The “health warning” should also refer to all risk factors in the offering documents.

The Policy Group recommends that complex bilateral transactions that are privately negotiated between sophisticated market participants are not subject to Recommendations IV-2b and 2c but are subject to Recommendation IV-2a regarding term sheets. In certain circumstances, however, and by mutual written consent, the term sheet requirement may be waived for bilateral transactions between highly sophisticated market participants or in the context of a repeated pattern of transactions of a particular type.

#### ***D. Intermediary-Client Relationships***

Although all market participants must be sophisticated, high-risk complex financial instruments involving a financial intermediary and an end-user or counterparty require special clarity with respect to the nature of the relationship between the parties and the obligations of each in connection with these transactions. These obligations start with the communication prior to and during the execution of a trade and often extend well beyond trade execution. This is particularly, but not exclusively, true for high-risk complex OTC

derivatives. Since these 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. These principles are intended as a complement to the standards of sophistication for market participants and disclosure enhancements outlined earlier. A sophisticated participant in possession of clear and concise risk information and a thorough understanding of its counterparty relationships will be in a better position to evaluate high-risk complex financial instruments and manage the associated risks. These principles are intended to complement, rather than substitute for, compliance by large integrated financial intermediaries with their express contractual undertakings and with applicable legal and regulatory requirements relating to the offer or sale of such products.

### ***Recommendations***

The Policy Group recommends strengthening the relationship between intermediaries and counterparties in sales, marketing and ongoing communications associated with high-risk complex financial instruments. While its first recommendation calls for establishment of a common standard of sophistication for all market participants in high-risk complex financial instruments, the Policy Group believes that large integrated financial intermediaries should provide clients with timely and relevant information about a transaction beyond the disclosures discussed in its Recommendation III-2 above.

- III-3a.* The intermediary and counterparty should review with each other the material terms of a complex transaction prior to execution.
  
- III-3b.* Both the intermediary and counterparty must make reasonable efforts to confirm the execution of a complex transaction in a timely manner.
  - The counterparty should be promptly notified of any expected delay in the creation of a confirmation.
  
  - The intermediary should disclose whether evidence of agreement, such as a signed term sheet, is binding as to

transaction terms. Each party should review the terms and promptly notify the other of any error.

*III-3c.* When a counterparty requests a valuation of a high-risk complex financial instrument, the intermediary should respond in a manner appropriate to the purpose of the valuation. The intermediary's sales and trading personnel may provide a counterparty with actionable quotes or indicative unwind levels. Only groups independent of sales and trading should provide indicative valuations and only in writing. Where relevant, such indicative valuations should include information describing the basis upon which the valuation is being provided.

*III-3d.* As a part of the relationship between intermediaries and their counterparties following trade execution, the intermediary should make reasonable efforts on a case-by-case basis to keep the counterparty informed of material developments regarding the performance of key positions.

## ***E. Issuer Diligence***

One area of focus in the creation and distribution of high-risk complex financial instruments is the responsibility of underwriters for understanding and ensuring proper documentation of the quality of assets in a securitization. Underwriters engage in a process known as "due diligence" when agreeing to bring a transaction to market. Due diligence in both the real estate and non-real estate asset-backed markets takes place on three levels: (1) due diligence of originators, (2) due diligence of the assets being securitized, and (3) due diligence of offering documents. The section that follows describes the current due diligence process in the securitization markets and offers several recommendations for improvements in practices and in communicating results. The description is quite detailed and outlines a very thorough process, but the Policy Group feels that there is room for some improvement. It also believes that the process as described along with the Policy Group's suggested improvements should be the standard by which all underwriters conduct their due diligence activities.

## 1. Due Diligence of Originators

Due diligence of originators in both the real estate and non-real estate asset-backed markets is driven by the following scenarios: (1) when a new or infrequent issuer comes to market, (2) when a frequent originator forms a new relationship with an underwriter, and (3) each time a frequent issuer plans to securitize a pool of loans. The process of due diligence involves developing an understanding and comfort level with respect to the business practices, background, creditworthiness, and historical performance data of an originator. When a new or infrequent issuer comes to market, the due diligence process involves a detailed examination of their business, involving a number of professionals from the underwriter representing the asset-backed business, credit risk management, and legal/compliance areas. For frequent issuers, due diligence generally occurs multiple times a year, often immediately prior to a transaction or on a fixed quarterly basis.

Once a relationship is established between an originator and an underwriter, the due diligence is largely confirmatory and relies on representations from the originator that nothing material has changed in its business practices as well as an ongoing examination of the originator's performance data in an attempt to determine if in fact there have been material changes. The due diligence conference call is a primary form of diligence of regular issuers and is composed of business and legal questions. Business questions are posed by the underwriter and focus on revealing any material issues related to the portfolio performance and forecast, changes in asset underwriting, the status of the servicer, competition within the relevant industry and any general corporate issues. Legal questions are asked by the underwriters' counsel and are meant to highlight material litigation, potential material legislation, regulatory issues and accounting concerns. Call participants include business and legal representatives from the issuer, all underwriters and their respective legal counsel. This "bring-down" acts as a confirmation of prior due diligence and is often undertaken immediately prior to a transaction, both to ensure that information is current as well as to accommodate a tight securitization schedule.

When a frequent issuer establishes a new relationship with an underwriter (*i.e.*, one with whom it has not previously been involved in a transaction), due diligence may involve the more detailed approach described above, but the underwriter may, depending on the circumstances, rely in part on the due diligence performed by another underwriter familiar

with the issuer. Generally, an underwriter in the co-manager role relies on the due diligence performed by the lead managers while the lead manager(s) undertake a more thorough examination. Since there is general agreement among underwriters about the characteristics of an acceptable originator, the reliance has not been considered problematic.

## **2. Due Diligence of Assets**

Due diligence of assets is the process by which an underwriter familiarizes itself with the assets to be securitized and establishes a comfort level as to the quality and disclosure of process and information provided by the originator. Asset due diligence is often conducted on behalf of the underwriter by third-party vendors specializing in this activity.

In the real estate and non-real estate asset-backed markets, due diligence involves the issuer or underwriter hiring an accounting firm to check data integrity. A formal “agreed upon procedures” (AUP) letter from the accountant reports the findings of this confirmatory analysis. In the United States, this letter is mandated by SEC Regulation AB, the SEC’s regulatory framework for publicly issued asset-backed securities (ABS), which took effect on January 1, 2006. All publicly registered ABS are subject to Regulation AB, which dictates registration, disclosure and reporting requirements. The AUP letter diligence occurs in two parts: (1) verification of the accuracy of historical data; and (2) comparison of the data tape to the actual loan files through “tape-to-file” procedures. The issuer provides the accountants with sample documents and data related to the transaction pool of receivables. These documents and data may include: (1) a preliminary and final pool of receivables data file; (2) a prospectus supplement; (3) selection criteria; (4) the composition of receivables, distribution of the receivables split by APR, payment frequency, current balance, geography, *etc.*; (5) the managed portfolio losses and delinquencies; (6) copies of the receivables files; (7) the servicer reports; (8) the pool file cash flows; and (9) the methodology used to project various payment speeds. Much of this information is made available to investors.

To verify historical data, the accountants recalculate a selection of key data and performance metrics and compare their findings with those of the issuer to ensure accuracy. In tape-to-file analysis, the accountants will perform statistical sampling of the



pool of assets and compare the information provided on the tape to underwriters with the information contained in the loan files or on the originator's or servicer's systems. If exceptions are found they are investigated by the underwriter with the originator and accounting firm to determine what caused the data discrepancy. Exceptions will generally result in the need for additional (or more targeted) sampling in order to determine whether there are systemic problems within the pool of assets and, a determination made, whether to proceed with a transaction. The accountants provide the results of their review via letter to the issuer and underwriter, but this is not shared with investors. AUP letters are also customary in nonpublic (e.g., Rule 144A) underwritten transactions.

In the real estate asset-backed market the due diligence involves random sampling of loans with a detailed examination of the loans in the sample. Here again, if exceptions are found, they are investigated and an additional (and larger) sample is taken. This process may be repeated. If problems persist in the larger samples, the underwriter may determine that the transaction should not proceed.

In both markets there is a tension in the sampling process between the desire for thorough review and the desire to respond quickly to an originating client's desire to come to market quickly. The sample size is sometimes a point of negotiation between the issuer and the underwriter with whom it is considering transacting.

### **3. Due Diligence on Disclosure**

Regulation AB specifies disclosure requirements in four key categories: static pool data, credit enhancement, transaction parties, and pool assets. Static pool performance data on delinquencies, losses, prepayments and residual realization must be provided for the past five years or for such shorter period during which the sponsor has been securitizing, originating or purchasing the same type of assets as those in the subject transaction. Such detailed performance data disclosure is mandated at the time of sale and the initial data are available throughout the life of the transaction on the issuer's static pool performance website, a link to which is typically provided in the prospectus. The prospectus should describe internal credit enhancement, including applicable subordination, overcollateralization and reserve accounts. The prospectus must articulate

the experience of and material concerns regarding transaction parties, specifically the sponsor, originator(s) and servicer.

Regulation AB also contains extensive disclosure guidelines regarding the securitized asset pool. For example, the “credit underwriting process” description must include: (1) details of any internal credit grading scales such as FICO or an equivalent internal scoring metric; (2) a description of any economic or other factors that may effect the pool assets; and (3) definitions of delinquencies, charge-offs and uncollectible accounts that address the effect of any grace period, re-aging, restructuring, partial payments considered current or other practices on delinquency experience.

Underwriters examine the disclosure documents to ensure that they accurately reflect the characteristics of the pool of assets. This includes a review by accountants and attorneys. The accountants undertake to comfort the portfolio statistics in the disclosure document and include this in their AUP letter referenced above. The attorneys ensure that the disclosure is not only accurate, but that it also does not omit any material facts. This review is generally thought to be quite thorough. While there are differences among disclosure documents there are no questions or recommendations for changing this due diligence procedure.

The Policy Group has some recommendations concerning due diligence, but is left with the question of what went wrong in the process and how diligence practices might have contributed to the unexpected nature of the losses associated with a number of asset-backed securitizations. This problem appears to have arisen more from a general reliance by all market participants – including, perhaps, the rating agencies – on historical information in assessing the potential for losses, rather than systemic shortcomings in due diligence. While the Policy Group has identified some areas for enhancement of diligence and strongly urges all underwriters to adhere to rigorous standards like those described above, it does not believe these changes would have materially changed performance expectations in the market at the time of the bubble. For this reason, the Policy Group recommended elsewhere in this Report more imaginative use of stress tests and so-called “reverse stress tests” to better inform potential investors and counterparties of the risks they face.

**Recommendations**

With respect to high-risk complex asset-backed securitizations, underwriters and placement agents should have in place an ongoing framework for evaluating the performance and reputation of issuers as well as effective and clearly articulated procedures for evaluating the quality of assets. The Policy Group strongly urges that underwriters and placement agents redouble efforts to adhere fully to the letter and spirit of existing diligence standards, and seek opportunities to standardize and enhance such standards. These enhancements include the following recommendations:

- III-4a.* Requiring all firms to follow statistically valid sampling techniques in assessing the quality of assets in a securitization; and
- III-4b.* Encouraging disclosure to investors of due diligence results, including making the AUP letter publicly available.

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## **SECTION IV: RISK MONITORING AND RISK MANAGEMENT**

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### ***A. Introduction***

As is now widely recognized, the events leading up to the credit market crisis and the crisis itself have demonstrated shortcomings in risk monitoring and risk management across many institutions and classes of institutions. To some extent, these shortcomings reflect the fact that virtually all risk management tools are unable to model/present the most severe forms of financial shocks in a fashion that is credible to senior management. In addition, these shortcomings reflect “technical” limitations associated with risk management tools, including the fact that most quantitative models are, to some extent, backward-looking. That is to say, they are in essence a disciplined framework for the analysis of historic data and, as such, they implicitly assume that the future will look like the past. As another example of technical limitations, many hedges are far less than perfect, giving rise to basis risk; for example, when historic correlations, or default rates, or other parameters move materially away from modeled outcomes, which on occasion has resulted in substantial write downs or losses. Finally, and perhaps most importantly, there have been shortcomings regarding the full appreciation of the tight linkages and interdependencies between capital adequacy and liquidity – both market liquidity and funding liquidity.

While these and other shortcomings in risk monitoring and risk management can, with the benefit of hindsight, be explained, there is a larger and more profound issue at work in this context. That is, despite all of the complexities of risk management, the essence of risk monitoring and risk management is quite straightforward. Specifically, risk monitoring and management reduces to the basics of getting the right information, at the right time, to the right people, such that those people can make the most informed judgments possible.

Looked at in that light, several things stand out. Risk management assumes that risk monitoring is effective and that critical information flowing into and out of risk monitoring processes can be distilled and compiled in a coherent and timely manner and made available, not only to the risk managers, but to key business leaders across the institution and to top management. Only when this logical sequence of conditions is present and is supported by a rigorous but flexible framework of corporate governance will there be

reasonable prospects that business judgments can better anticipate and respond to contagion and systemic events. This is the fundamental reason why the Policy Group has placed so much emphasis on the core precepts outlined in Section I.

This same philosophy has also shaped the content of this section with its emphasis on (1) corporate governance, (2) enhanced tools and techniques in risk monitoring and management, (3) the use of the “maximum liquidity outflow” technique to substantially upgrade liquidity management, and (4) the linking together of the conceptual frameworks for analysis of capital adequacy, leverage and liquidity. Indeed, to the extent that capital adequacy and rigorous stress testing of liquidity are viewed as a single discipline, concerns about leverage and leverage ratios will be substantially mitigated.

## ***B. Governance Background and Recommendations***

The Policy Group has identified corporate governance as a core precept for large integrated financial intermediaries. Because effective risk monitoring and risk management are so tightly linked to sound corporate governance, this part of Section IV includes discusses and makes recommendations regarding corporate governance. These recommendations are designed to reinforce Core Precept I relating to corporate governance in Section I. The recommendations discussed below cover the following aspects of governance:

- (1) structure;
- (2) internal communication; and
- (3) the roles of committees.

### **1. Structure**

Large integrated financial intermediaries by definition take risk. The goal of risk management is not to eliminate that risk, but to manage it effectively to provide the stakeholders of the institution with long-term returns commensurate with the risk. Risk management – in the broadest possible meaning of that term – must be deeply rooted in

the culture of individual institutions. However, culture is easy to recognize but hard to define. Thus, to a large extent, the practice of sound corporate governance must rely, in part, on the organizational structure of the firm.

Good governance begins with the Chief Executive Officer (CEO). The message that the CEO conveys to the firm's employees about the importance of corporate governance as it applies to the firm's risk taking and the way in which that risk taking is discussed with the board sets the tone for the overall corporate governance process.

Effective corporate governance is realized when the many facets of an organization work closely together to properly identify, monitor, price and mitigate (or intentionally accept on an unmitigated basis) all of the risks inherent in the business model of the organization, including financial, operational and reputational risk. Success depends importantly on the highest levels of the organization having information that is clear, timely and actionable.

To create the link between corporate governance and risk management, some firms use the concept of "three lines of defense". In this model, the business unit is the first line of defense and is accountable for identifying, assessing, taking and mitigating the risks of its business. The second line of defense includes the business support functions, such as risk management, legal, compliance, human resources, finance, operations, and technology. Each of these groups independently and collectively works closely with the business units to ensure that the business has appropriately identified, measured, priced, and managed the risk in the business. It is expected that the business support functions will work closely in helping to shape strategy, implementing company policies and procedures, and collecting information across the business units to create company-wide views of risk. The third line of defense includes the audit function that independently tests the efficacy of the processes created by senior business leaders and top management and the judgments made by these officials.

There is a widespread consensus about the need for a strong, independent risk management function. This is usually achieved by having a role, such as Chief Risk Officer (CRO), with a strong reporting relationship that reinforces the importance of the function. However, the reporting relationship is not sufficient by itself. The CEO and board of directors need to ensure that the individual performing the CRO role is a clear

and visible member of the firm's top management team and is able to independently influence risk taking, risk appetite, and risk mitigation. The members of the risk management organization should have shared responsibility for approving new business, products, and transactions along with the business line. The risk management team must work closely with other independent support and control functions, such as controllers, operations and internal audit, to ensure seamless control of risk taking and mitigation across the family of control functions.

The CRO function must have human and infrastructure resources available to it commensurate with the level of sophistication of the institution. As businesses are started or continue to develop, senior management needs to ensure that the business support functions are staffed with individuals capable of understanding the business's risk as it evolves and relating it to other risks within the institution. Consideration needs to be given to rotating business leaders into business support functions in order to deepen their understanding of risk and to provide additional experience and expertise to the support functions. Information systems and processes must allow for a robust and timely assessment of the risks of the firm.

### ***Recommendations***

- IV-1a.* The Policy Group recommends that risk management and other critical control functions be positioned within all large integrated financial intermediaries in a way that ensures that their actions and decisions are appropriately independent of the income producing business units and includes joint approval of key products and transactions. This would generally mean having a CRO with a direct line of responsibility to the CEO and having the CEO and the board take a highly active role in ensuring that the culture of the organization as a whole recognizes and embraces the independence of its critical control functions. Even without the direct reporting, the CRO should have a clear line of communication to the board.
  
- IV-1b.* The Policy Group further recommends that institutions ensure that their risk management functions are staffed appropriately for both the upside

and the downside and are able to understand and properly size risks in tranquil markets as well as during periods of market stress. The risk management functions must also have the capacity to function effectively in periods of spikes in processing volumes and under various disaster recovery scenarios.

## **2. Communication**

While far from being universally true, much of the writings from the events of the last 12 months have focused on the inability of firms to see the totality of the risk they faced. This problem was the result of several causes, including: (1) inadequate risk aggregation systems, (2) systems or processes that did not pull together all exposures because they were viewed as outside the scope of the firm's risk, (3) siloed business or risk management units, and (4) simply a lack of understanding.

As described above, the creation of a specific governance structure will not, by itself, solve these problems. Firms which were able to work across their organizations with common language and measures of risk had a greater chance of success during times of market stress.

All personnel in risk taking and risk mitigation business units must understand all aspects of risk – strategic, credit, market, liquidity and operational risk. During the credit market crisis, credit risks became market risks, which then became liquidity risks in very short order. Officials across the organization need to understand those connections and the potential for contagion, just as they must understand the implications of those connections for risk appetite even though there is no single metric that will measure the risk of contagion or express that appetite.

In the complex world of large integrated financial intermediaries, there are a myriad of risks and measures of those risks. It is the responsibility of risk management to distill that information into a very understandable and concise format. Risk transparency is not measured by the quantity of information considered in committees, but by the ease of understanding of that information by someone who is not experienced in that field. This is



true of information presented to all committees within the company, including information submitted to senior management and, when appropriate, to the board of directors.

### **Recommendations**

- IV-2a.* The Policy Group recommends that all large integrated financial intermediaries evaluate the manner in which information relating to risk taking, risk monitoring, and risk management is shared with senior management and the board of directors and make necessary improvements to ensure that such information flows are timely, understandable, and properly presented. As a part of this effort, senior management should actively encourage ongoing discussion with board members in order to improve the quality, coverage and utility of information made available to the board. Each institution should evaluate how effective its information flows are as they relate to the intersection of credit, market, operational and liquidity risk.
- IV-2b.* The Policy Group recommends that each institution ensure that the risk tolerance of the firm is established or approved by the highest levels of management and shared with the board. The Policy Group further recommends that each institution ensure that periodic exercises aimed at estimation of risk tolerance should be shared with the highest levels of management, the board of directors and the institution's primary supervisor in line with Core Precept III, as discussed on pages 11, 12.
- IV-2c.* The Policy Group further recommends that large integrated financial intermediaries ensure that their treasury and risk management functions work with each other and with business units to manage balance sheet size and composition in a manner that ensures that the established risk tolerance is consistent with funding capabilities and ongoing efforts to manage liquidity risk.
- IV-2d.* The Policy Group further recommends that each institution review its internal systems of both formal and informal communication across

business units and control functions to ensure that such communication systems encourage the prompt and coherent flow of risk-related information within and across business units and, as needed, the prompt escalation of quality information to top management.

### **3. The Roles of Committees**

All large integrated financial intermediaries must, as a practical matter, rely on a number of senior level institution-wide committees to facilitate communication, coordination, and, in some instances, collective or consensus-based decision-making. While the names and mandates of such institution-wide committees will vary from one institution to another, the subject matter covered by these committees is fairly common and typically includes areas such as (1) financial risk management including funding and liquidity, (2) large commitments of the firm's own capital, (3) operational and reputational risk, (4) business practices, and (5) new product approvals. Recognizing the vital roles of these committees as an integral part of governance arrangements at large integrated financial intermediaries, the Policy Group believes that there are opportunities to strengthen the functioning of the committee structure. Specifically:

- IV-3a.* The Policy Group recommends that, when schedules permit, the CEO and the second ranking officers of all large integrated financial intermediaries should frequently attend and participate in meetings of risk management-related committees.
  
- IV-3b.* The Policy Group further recommends that the highest levels of management periodically review the functioning of the committee structure to ensure, among other things, that such committees are appropriately chaired and staffed and there is an appropriate overlap of key business leaders, support leaders, and enterprise executives across committees to help foster firm-wide cooperation and communication.
  
- IV-3c.* The Policy Group further recommends that for certain classes of firm-wide committees, such as those responsible for the approval of new products – especially new products having high financial, operational or

reputational risks – the committee oversight process should include a systematic post-approval review process. This post-approval review process would assess the extent to which new products have, in commercial terms, performed as expected. Equally important, the process would assess whether the risk characteristics of the new product have been consistent with expectations, including the burden of the new products on technology and operating systems. Further, it is particularly appropriate to review at the earliest opportunity outsized profitability and market share gains to ensure that this does not reflect a problem with the original pricing or risk assessment of the product.

### ***C. Risk Measurement and Monitoring and Recommendations***

CRMPG I and CRMPG II incorporated a number of recommendations that were broadly grouped into “Transparency and Counterparty Risk Assessment” (CRPMG I), “Internal Risk Measurement, Management and Reporting” (CRMPG I) and “Risk Management and Risk-Related Disclosure Practices” (CRMPG II) sections. As a result of significant individual firm and broader industry attention and investment, substantial progress has been made in fulfilling a preponderance of these initial recommendations. However, as a result of a more complex business environment and other factors, including an increasing variety of structures giving rise to basis and liquidity risk, required standards for risk management have increased substantially.

One component of these standards, without which effective risk management is not possible, is the accurate measurement and monitoring of credit and market risks. Building on the recommendations of the CRMPG I and II Reports, the following reflects additional or updated recommendations, which are essential, in the current environment, to the measurement and monitoring of these risks.

#### **1. Investment in the Risk Management Process**

Recent events have highlighted limitations and weaknesses in the risk management processes and infrastructures of many large integrated financial intermediaries and their clients. In some cases, reliance on other “smart” players to vet trades has been

considered sufficient to allow other firms to do “copy cat” trades. In other cases, excessive reliance on rating agencies without an independent and detailed analysis of the rating agencies’ rating criteria has led to complacency in building large positions of highly-rated but complex and illiquid financial instruments. In yet other cases, risk management teams have engaged in sophisticated theoretical modeling with limited connection to practical risk-taking activity. As a result, these teams’ relevance and efficacy have been limited.

These and other causes contributed to risk management systems and processes that were inadequate for the task of managing risk in the volatile, stressed environment of the credit market crisis.

### ***Recommendations***

Large integrated financial intermediaries need to make serious and sustained investment in their risk management teams and infrastructures. This activity must be at the core of the risk taking process. Large integrated financial intermediaries who choose not to make such investments, or who cannot afford to develop a comprehensive, sophisticated knowledge of the products in which they propose to trade, would be prudent to refrain from significant involvement in these areas.

Building these risk capabilities is not inexpensive. Nor can they be assembled “just in time” for large incremental market positions or new initiatives. Firms must make significant and sustained commitments during both tumultuous and quiet markets. Moreover, risk management infrastructure cannot be quickly discarded if the product or industry sector is no longer an area of opportunity; it must remain in place as long as the risk positions remain in place.

*IV-4a.* The Policy Group recommends that sustained investment in risk management systems and processes, and the careful calibration of such investment to business opportunities being pursued, be a key area of focus for a firm’s senior management team.

*IV-4b.* The Policy Group further recommends that each firm’s CRO commission a periodic review and assessment of the firm’s investments

in risk management for presentation to its senior management and the audit committee of its board.

## **2. Stability of Credit Terms**

Credit terms, including initial and variation margin for derivatives, haircuts for margin loans, and similar terms have been a key means by which large integrated financial intermediaries compete for client business. During benign market periods, it is not uncommon for credit terms to be negotiated down to levels that could expose large integrated financial intermediaries to material risk (relative to the credit of the counterparty) in the event of a counterparty default. Conversely, when market conditions deteriorate, large integrated financial intermediaries are often inclined to tighten credit terms to levels providing greater resilience against credit issues.

As the events that create stress in one counterparty may also impact others, the combined impact of multiple counterparties simultaneously coming under stress can undermine the stability of the financial system by setting off rounds of cascading liquidations and accelerating price declines.

While incentives for pro-cyclical credit loosening and credit tightening actions are readily understandable, the effect of these actions is to increase financial stress on a counterparty when that counterparty – and sometimes the entire financial system – is most vulnerable. Consequences include straining systemic liquidity, requiring the sales of positions on an immediate or other accelerated basis, and potential promulgation of adverse rumors.

Large integrated financial intermediaries and other market participants can also adversely affect counterparties through other means, including: (1) requesting (or not accepting when requested) assignments or novations of trades, (2) requesting that a counterparty close out derivatives transactions (especially those that are in-the-money to the counterparty and thus require the return of collateral), and (3) withdrawing funding lines. These decisions can have the same effects as tightening credit terms, not only in terms of draws on liquidity, but also on the ability of the counterparty to maintain its desired portfolio composition.

The effect of these actions can both increase the stress on individual counterparties, as well as increase the risk of systemic disruption.

### ***Recommendations***

Large integrated financial intermediaries and their clients must mutually recognize the value of stable credit terms and work together to create sustainable arrangements. Such credit terms should be analyzed to estimate their adequacy during stress periods. Those that are likely to prove inadequate should be identified so the parties can consider strengthening them. The term and haircuts of a financing should be sized to the anticipated time required for an orderly liquidation during periods of market stress, while at the same time incorporating the uncollateralized credit quality of the counterparty. For example, a large integrated financial intermediary would have less onerous terms and haircuts than a small, standalone fund. Large integrated financial intermediaries and their clients should be aware of the consequences of requesting and setting credit terms that are not resilient to changing market conditions, and clients should prepare contingency plans to deal with adverse developments in credit terms.

*IV-5a.* The Policy Group recommends that all market participants implement a paradigm shift in credit terms, establishing arrangements that create more stable trading relationships, are less pro-cyclical, and thus reduce systemic risk.

*IV-5b.* The Policy Group further recommends that each firm's senior management commission a periodic review of credit terms extended over a cycle, together with an assessment of the stability of such terms, for discussion with the firm's senior management.

### **3. Credit Risk Systems – Exposure Aggregation Capabilities**

To manage risk effectively, large integrated financial intermediaries must have the capability to monitor risk comprehensively. However, the range of large integrated financial intermediaries and client products, markets and businesses, together with the volumes and varieties of trades, and the disparate risk metrics applicable to these

products, makes this difficult. Further complicating the compilation of accurate exposure information is the variety of collateral and other limit- and trade-specific terms used, and the multitude of contract forms that are used to document trades and their associated credit terms.

Large integrated financial intermediaries need to maximize their ability to take appropriate actions to deal with counterparties before, during, and after the time the counterparty experiences problems. To do this, it is essential that large integrated financial intermediaries have the ability to rapidly compile aggregated counterparty information. This information should incorporate exposures across all related legal entities, on a global basis, with adjustments to reflect the effect of enforceable netting and collateral arrangements.

### ***Recommendations***

*IV-6a.* The Policy Group recommends that large integrated financial intermediaries ensure that their credit systems are adequate to compile detailed exposures to each of their institutional counterparties on an end-of-day basis by the opening of business the subsequent morning. In addition, the Policy Group recommends that large integrated financial intermediaries ensure their credit systems are capable of compiling, on an *ad hoc* basis and within a matter of hours, detailed and accurate estimates of market and credit risk exposure data across all counterparties and the risk parameters set out below. Within a slightly longer time frame this information should be expandable to include: (1) the directionality of the portfolio and of individual trades; (2) the incorporation of additional risk types, including contingent exposures and second and third order exposures (for example, SIVs, ABS, *etc.*); and (3) such other information as would be required to optimally manage risk exposures to a troubled counterparty. Large integrated financial intermediaries should be able to use exposure aggregation data both prospectively to avoid undue concentrations and, if necessary, in real time to react to unanticipated counterparty credit events.

- IV-6b.* To demonstrate their compliance with the aforementioned standards, the Policy Group recommends that firms conduct periodic exercises for both individual and multiple institutional counterparties, and, to the extent that deficiencies are observed, develop remediation plans as a matter of urgency.

#### **4. Portfolio Metrics**

Consistent with the recommendations of CRMPG I and II, market participants have expanded the range of risk metrics they use to include a range of stress tests, scenario analyses and other measures that are useful in revealing portfolio risk characteristics. However, in many cases during the recent market disruption, these risk metrics were not effective in capturing the totality of risks that were actually incurred. Deficiencies included: (1) insufficiently extreme modeling of adverse price moves; (2) unanticipated deterioration in liquidity (which stretched out closeout periods); (3) unfavorable position correlations; and (4) the incomplete capture of contingent risks.

Risk reports may also be materially affected by the incorporation of underlying assumptions that are not fully apparent to users, but which can have a profound effect on calculated exposures. Examples include underlying assumptions about: (1) the effectiveness of market and credit hedges; (2) collateral valuations; (3) collateral enforceability; (4) trade valuations; and (5) prepayment, default, delinquency, and severity.

Despite the range of available metrics, public disclosure has remained focused on VaR and on current exposure as the major measures of market and credit risk, respectively. This has contributed to the market's lack of understanding of the size and nature of risks being taken by large integrated financial intermediaries and other market participants.

#### ***Recommendations***

- IV-7a.* The Policy Group recommends that large integrated financial intermediaries' risk analytics incorporate sufficient granularity to reveal less obvious risks that can occur infrequently but that may potentially



have a significant impact (for example, basis risks between single name underliers and index hedges). However, risk management professionals and senior management must recognize the limitations of mathematical models, and that the tendency to overly formalize arcane aspects of an analysis can often detract from an understanding of the bigger picture implications of the total risk position. Incremental analytical detail must not be allowed to overwhelm users of the data. The salient risk points must be drawn out and made apparent, especially to senior management. Adequate time and attention by senior management must also be allotted to socializing the implications of the risk data.

- IV-7b.* The Policy Group recommends that large integrated financial intermediaries ensure that assumptions underlying portfolio analyses are clearly articulated and are subject to frequent, comprehensive review. Alternative measures should be presented to demonstrate the sensitivity of the calculated metrics to changes in underlying assumptions.
- IV-7c.* The Policy Group recommends that credit risks be viewed in aggregate across exposures, giving full consideration to the effects of correlations between exposures. Further, counterparty credit risks, including correlations and directionality, should be evaluated based not only on positions within a large integrated financial intermediary, but also considering available data regarding the size and direction of positions the counterparty has at other firms.
- IV-7d.* The Policy Group further recommends that large integrated financial intermediaries work to supplement VaR as the dominant risk measure of market risk and current exposure as the dominant risk measure for credit risk, both for public reporting and for risk discussion purposes. Supplemental measures should include statistical information intended to display the most likely ways a large integrated financial intermediary

or a managed portfolio could sustain significant losses, as well as an indication of the potential size of those losses.

## **5. Stress Tests**

Considerable emphasis has recently been given by risk practitioners, regulators, internal and external auditors, and other constituents to the practice of using stress tests as an essential metric in measuring risk. As conventionally performed, financial institutions select one or multiple stress scenarios and then evaluate their portfolio against the stresses incorporated in the selected scenario(s). They then draw conclusions based on the resulting loss levels relative to the capital, earnings capacity, or other determinants of the ability of the institution to incur such losses, as well as the returns expected and other such considerations.

One limitation of this approach is that it has, as a starting point, assumptions about the underlying markets and other parameters. To the extent that users of stress tests consider these assumptions to be unrealistic, too onerous, not strenuous enough, incorporating unlikely correlations or having similar issues which detract from their credibility, the stress tests can be dismissed by the target audience and its informational content thereby lost.

Additional ways of running and analyzing the data from stress tests may be useful. One approach which might draw out additional information would include the use of so-called "reverse stress tests". The starting point in the analysis would be an assumption that over a short period of time an institution incurs a very large multi-billion dollar loss. The analysis would then work backward to identify how such a loss could occur given actual positions and exposures prevailing when the stress test is conducted. If the assumed loss were truly large, it is highly likely that the possible sequence of events producing such a loss would have to entail elements of contagion or systemic forces. Thus, the reverse stress test is likely to require institutions to address issues that are not normally captured in stress tests. Done properly, the conduct of such a reverse stress test would be a very challenging exercise, requiring the engagement of senior personnel from both the income-producing and the control functions in a context in which the results of such exercises

would be shared with senior management. Finally, the use of reverse stress tests would be very much in keeping with Core Precept III, as discussed in Section I.

### **Recommendations**

*IV-8a.* The Policy Group recommends that firms think creatively about how stress tests can be conducted to maximize their value to the firm including the idea of a reverse stress test where the emphasis is on the contagion that could cause a significant stress event to the firm.

*IV-8b.* The Policy Group further recommends that firms incorporate the expanded suite of stress tests into a formalized production schedule, against which trends and developments in key risk factors and exposure amounts can be tracked.

## **6. Risk Metrics and Liquidity Parameters**

Among parameters incorporated into risk metrics in particular and risk management in general, current and prospective position liquidity is arguably the least developed. This is not because the importance of liquidity is not recognized. For example, CRMPG II specifically recommended that greater attention be focused on identifying and mitigating crowded trades. However, despite best intentions, little progress has been made in systematically or broadly capturing liquidity information. This is due in part to its volatility and lack of transparency.

Recent experience has demonstrated that the range of trades and entire markets that can become illiquid is very broad, and that illiquidity events can occur rapidly and with little warning. For example, recently, markets saw illiquidity in the “usual suspects” of popular but crowded trades and bespoke trades with limited numbers of potential counterparties. But, previously unrecognized product deficiencies were also revealed as there was rapid loss of liquidity in the commercial paper, asset-backed commercial paper, and municipal and student loan auction rate markets.

As a result, risk analytics and metrics that are based on “normal market” price volatility, unwind periods and other parameters can materially understate the risks inherent in trades or portfolios during periods of illiquidity. This is the case regardless of whether such illiquidity occurs as a result of crowded trades, market technical factors or other causes.

The use of “normal market” risk analytics and metrics permits (and perhaps even encourages) the development and use of structures that appear to be low risk but that in fact have unrevealed tail risk during periods of systemic stress (for example, SIVs and quantitative strategies-oriented hedge funds).

In addition to resulting in the potential understatement of the amount of risk being taken by a large integrated financial intermediary to its counterparties, the absence of liquidity information also has the potential to obscure the large integrated financial intermediary’s understanding of its counterparties’ credit quality. From a risk of loss perspective this is a toxic combination.

### ***Recommendations***

- IV-9a.* The Policy Group recommends that large integrated financial intermediaries adjust quantitative measures of potential credit risk with margined counterparties to take into account exceptionally large positions, as well as position concentrations in less liquid instruments. The adjustment should anticipate potentially protracted unwind periods and the risk of price gapping during unwinds.
  
- IV-9b.* The Policy Group further recommends that consideration be given to collecting higher initial margin and higher haircuts from counterparties with outsized positions relative to market liquidity. Large integrated financial intermediaries should also evaluate the need to adjust internal pricing for large positions.

Additional transparency in fixed income markets and their trade flows should be encouraged to permit market participants to better understand market activity. Initiatives like TRACE reporting of transactions and prices on a timely basis will improve

understanding of the markets and permit participants to better manage their risks. In aggregate, this will reduce systemic risk.

Industry groups and regulators need to support and sponsor additional academic and applied research on developing analytics for measuring, and procedures for disseminating, information on illiquid trades of all forms.

## **7. Pricing of Trades**

Over the past year, one of the more public indications of market turmoil was the prevalence of significant valuation disputes. Mortgages, leveraged finance, and structured credit generally were among the markets where pricing disagreements were frequent and often substantial. This led to protracted periods of wide bid-ask spreads, and lack of consistent (or even non-existent) price information. This was true even among products and trade structures that had historically evidenced substantial trading volumes and strong price discovery.

In addition to differences in valuation methodologies, causes of pricing discrepancies included a lack of adequate infrastructure by some industry participants. As a result, some large integrated financial intermediaries were not able to analyze positions on a timely or comprehensive basis.

Among other consequences, there was a rise in levels of collateral disputes to magnitudes that contributed materially to systemic risk and that compromised risk management effectiveness. This increase also imposed additional burdens on stressed counterparties, for whom non-payment of collateral was sometimes construed as an indication of financial distress.

### ***Recommendations***

*IV-10a.* The Policy Group recommends that large integrated financial intermediaries ensure that they employ robust, consistent pricing policies and procedures, incorporating disciplined price verification for both proprietary and counterparty risk trades. Special attention should

be given to bespoke trades, structured products, illiquid products, and other difficult to price assets. A robust monitoring process should be employed to track stale prices and elevate unresolved issues.

*IV-10b.* The Policy Group further recommends that firms and industry groups promote standardized and strengthened dispute resolution mechanisms and encourage the application of higher levels of resources to position pricing. Firms should also promote enhanced understanding of the need for cooperative behavior among firms (for example, when requested to provide indicative bids).

*IV-10c.* The Policy Group further recommends that increased emphasis be given to using, wherever possible, transparent and liquid instruments rather than bespoke products. To incentivize this conduct, large integrated financial intermediaries should consider imposing internal charges against the P & L of hard to value and illiquid transactions, or other methods, such as higher capital charges, higher haircuts to collateralized borrowers, and the imposition of limits on allowed trade volumes. The recommendations incorporated in the section on High-Risk Complex Financial Instruments regarding documents and disclosure are of particular relevance to bespoke products.

## **8. Consistency of Position Prices Across Applications**

The challenges associated with pricing illiquid and highly structured positions are compounded by the multiple outlets through which such prices are used inside and outside of a large integrated financial intermediary. Firm books and records, customer statements, collateral calls, and regulatory filings are but some of the applications for these valuations.

Many large integrated financial intermediaries acknowledge providing, externally, or using internally, different valuations for identical underlying products. This can lead to legal, reputational, regulatory and other potential issues, which can lead to financial and non-pecuniary losses. It can also lead to inaccurate information being used for internal and

external decision making. Finally, it contributes to, and may be indicative of, a lack of discipline and financial control within a firm.

### **Recommendations**

*IV-11a.* The Policy Group recommends that large integrated financial intermediaries ensure, in the absence of exceptional circumstances, that when the same instrument is held by different business units, such instrument is marked at the same price in each unit. Large integrated financial intermediaries should restrict those personnel and groups that are authorized to provide marks to internal and external audiences. Any differentials in pricing across applications or units should be carefully considered and the rationale for such differences should be fully documented. Notwithstanding the above, it is recognized that for large integrated financial intermediaries, there are communication walls that are designed to fulfill regulatory requirements for the restriction of information flows. In these instances, it is understood that legitimate differences in pricing may occur.

## **9. Incentive Structures – Impact on Risk (including Systemic Risk)**

Large integrated financial intermediaries and other market participants manage their businesses within a complex framework of rules, norms, and practices established by regulators, auditors, legal departments, equity and debt investors, and a variety of other constituents.

Large integrated financial intermediaries typically attempt to optimize performance subject to liquidity, rating agency, regulatory capital, accounting, and other parameters. This can encourage behavior which, when taken across an industry as a whole, can prove highly pro-cyclical. This is particularly the case given industry participants' tendency to mirror each other's trading strategies, and their requirement to unwind positions on a simultaneous basis during periods of market stress.

## **Recommendations**

- IV-12a.* The Policy Group recommends that large integrated financial intermediaries ensure that a review of the systemic risk implications of incentives and consequent remedial actions is an integral component of each firm's risk management practices. Regulators should encourage this proactive review and assessment on a regular periodic basis. Regulators should identify practices that have the potential to destabilize markets during periods of stress and communicate their concerns aggressively.
- IV-12b.* The Policy Group further recommends that, when considering new trade structures, strategies, or other opportunities, systemic risk implications be evaluated by the senior management of large integrated financial intermediaries. Trades or structures which materially add to systemic risk should be subject to particular scrutiny.

## ***D. Liquidity Background and Recommendations***

The recent market dislocation has demonstrated the critical need for individual firms to adopt liquidity practices that are appropriate for the scope of their businesses, their geographic footprint, and their risk profile. Maintenance of a strong liquidity position, combined with effective risk management and monitoring practices, is essential to the financial condition of individual firms and, more broadly, the health of the financial system.

As demonstrated by the recent events surrounding Bear Stearns, few institutions can withstand extreme funding and liquidity dislocations involving both secured and unsecured financing sources. At a minimum, these events demonstrated several threats to firms that have become more prevalent over the preceding ten years: (1) the unwillingness of counterparties to provide funding, even against certain high quality assets, in a time of severe stress; (2) the rapid loss of funding from prime brokerage clients; and (3) dislocations related to CDS. Although it is not possible to anticipate the precise evolution of financial markets and innovation over the next ten years, our recommendations reflect the belief that new vulnerabilities will undoubtedly appear.



The immediate instinct, after the extreme liquidity dislocation experienced recently, is to mandate a prescriptive, target-based approach to liquidity management. While convenient, that approach will wholly miss the mark of what will be effective. The Policy Group believes that liquidity should be monitored by supervisors in the context of the Basel II, Pillar II process *via* an evaluation of a firm's liquidity risk management processes and models, as well as the assessment of a broad set of liquidity metrics. Firms' liquidity needs, strategies, and processes vary widely for entirely legitimate business reasons. Therefore, to effectively supervise liquidity is to recognize the unique product and geographic nature of different firms and the related set of factors that make for a well-functioning liquidity program.

In that context, the role of an effective liquidity manager is to identify a firm's full set of potential liquidity fault lines, to build a nuanced understanding of the dynamic behavior of different liquidity levers in stress events, and to develop a thoughtful set of expectations around outcomes and survival periods under these stress events. These activities, of course, must incorporate any regulatory or jurisdictional restrictions on the use of liquidity for a firm's different legal entities and reflect the sometimes very complex structure of legal entities comprising large integrated financial intermediaries.

A number of recent efforts, including the draft Basel Committee on Banking Supervision, "Principles for Sound Liquidity Risk Management and Supervision," provide broad-based views on effective liquidity management in the context of the credit market crisis. CRMPG III objectives in this area are not to present a comprehensive policy view of effective liquidity management, but rather to highlight the most critical lessons from the recent dislocation and make related recommendations.

## **1. Maximum Liquidity Outflow (MLO) Stress Testing**

Over the past nine to twelve months, unprecedented market disruptions have combined with a deterioration of the financial condition of firms to place significant pressure on the funding of individual firms, as well as on the system as a whole. These events, and the resulting funding pressures, have exposed weaknesses in firms' approaches to stress testing and the connection between these stress tests and "business as usual" liquidity management. Many firms had sound approaches to idiosyncratic and systemic funding

liquidity disruptions but did not forecast the likely overlap of these events and their related maximum liquidity outflows in any given period of time. In addition, many firms' stress testing and contingency planning were designed with relatively short survival horizons under the assumption that a crisis would be of moderate duration and that within this timeframe confidence in the institution and the system would be restored.

### **Recommendations**

*IV-13a.* The Policy Group recommends that all large integrated financial intermediaries should, on a regular basis, conduct liquidity stress tests to measure their MLO. Stress tests should be based on scenarios that consider how normal sources of liquidity, both secured and unsecured, could be disrupted for the firm, the markets, or both. The stress test scenarios should focus on potential liquidity outflows, taking into account a firm's particular vulnerabilities.

*IV-13b.* The Policy Group further recommends that, in addition, at a minimum, firms monitor their MLO within the first 30 days and for additional intervals within this timeframe (for example, overnight, one week, two weeks). The MLO is defined as the net loss of liquidity under the firm's most severe scenario from the time of the calculation for the tenors prescribed.

*IV-13c.* The Policy Group recommends that stress scenarios, both for purposes of stress testing and calculation of MLO, should:

- Include both firm-specific and systemic events and their overlapping nature.
- Consider extreme shocks as well as progressive events.
- Take into account implicit as well as explicit risks and potential damage of a firm's actions to its franchise.

- Review the potential for loss of key sources of secured and unsecured funding, including deposits, commercial paper, and other short- and long-term debt. Firms should also consider the impact of funding illiquidity on asset-backed commercial paper conduits and on the ability to securitize pools of assets.
- Analyze the potential outflows related to customer activity, including prime brokerage.
- Examine the impact of on- and off-balance sheet exposures including the potential outflows related to derivative transactions, liquidity commitments, and special purpose vehicles.
- Consider the impact of intra-day liquidity exposures, including the heightened interest of counterparties to accelerate trades and settlements in times of stress and other time-related mismatches in the flow of funds.
- Consider other large cash payments including salaries, taxes and lease payments.
- As with all liquidity practices, evaluate the impact on both individual legal entities, as well as the consolidated firm.
- Consider the availability of central bank facilities. Generally speaking, extraordinary central bank facilities, such as the Federal Reserve System's Primary Dealer Credit Facility, should not be considered an element of an effective liquidity plan.

These stress tests, and their results, would be internally classified, confidential documents that would be shared with senior management, boards of directors, and primary supervisors on a periodic basis. The

information provided by the stress tests should be used to identify funding gaps and assess where gaps are incompatible with the firm's risk appetite. Since the stress test information provided to supervisors would be confidential supervisory information, it would and should be protected from public disclosure.

## **2. Availability of Unencumbered Highly-Liquid Reserves**

Recent events have demonstrated that firms may experience a rapid reduction in the availability of both unsecured and secured funding. This experience requires a reexamination of the types of assets that would be available for incremental funding in a liquidity event. Pools of lower quality unencumbered assets may not provide incremental funding if the firm cannot convert assets into same day liquidity through sale, repo, or pledge to a central bank. Further, recent experience has indicated that firms may lose secured funding from lower quality assets that are currently providing liquidity.

### ***Recommendations***

*IV-14.* The Policy Group recommends that all large integrated financial intermediaries maintain, on an ongoing basis, an unencumbered liquidity reserve of cash and the highest grade and most liquid securities. The liquidity reserve should be sized in relation to the firm's stress tests and MLO and should explicitly reflect the firm's liquidity risk tolerance and desired survival periods.

## **3. Structural, Long-Term Liquidity**

Long-term, structural liquidity shortfalls translate, over time, into short-term funding needs or vulnerabilities. This is particularly the case under more prolonged periods of dislocation. A comprehensive view of a firm's liquidity requires utilizing measures to address both the short-term and long-term liquidity position of the firm. To enable an effective liquidity program, there is a need to regularly assess the structural, longer-term liquidity position of the firm.

## **Recommendations**

IV-15. The Policy Group recommends that all large integrated financial intermediaries maintain long-term structural liquidity in excess of their illiquid assets. In making this assessment, large integrated financial intermediaries should analyze the term structure of their long-term liabilities and the long-term stable portion of their deposits (where applicable), as well as equity capital. Illiquid assets should include those assets that cannot be converted to cash within a specified horizon and potential growth of those assets, as well as the haircuts necessary to convert generally liquid assets to cash through sale, securitization, or secured financing.

The baseline assessment of whether a large integrated financial intermediary has long-term structural liquidity in excess of its illiquid assets should reflect current business conditions. However, the amount of this excess (“the cushion”) should reflect an evaluation of the assets and liabilities under stressed conditions. This cushion should be replenished with structured long-term liabilities, with tenors appropriate to market conditions, business strategy, and existing debt maturities.

## **4. A More Encompassing Approach to Liquidity Management**

Strategic planning and new product development processes have not consistently taken into account their initial and ongoing impact on liquidity. In addition, firms systematically have not fully incorporated into their liquidity planning the full extent of on- and off-balance sheet obligations, including non-contractual, reputational and franchise related exposures. In particular, the growth and nature of off-balance sheet liquidity exposures have not been consistently factored into liquidity plans, subjected to adequate stress tests, priced in a manner commensurate with their expected risks, or consistently factored into risk capital models. The incorporation of these risks into the broader thinking of liquidity managers has often been gradual and in some instances lagged market events.

## **Recommendations**

IV-16. The Policy Group recommends that a firm's liquidity plan and any stress tests mentioned above include, in all instances, the full set of on- and off-balance sheet obligations. In addition, they must reflect a clear view of how the firm will address non-contractual obligations that have significant franchise implications. While some non-contractual obligations may not lend themselves to incorporation into the core stress scenarios, an evaluation of how such exposures will play out in different market environments should be an overlay to the core stress scenarios. In addition, a clear assessment of how practices in relevant markets (for example, SIVs and auction rate securities) will affect an individual firm's conduct should be directly factored into liquidity planning. The above liquidity exposures should be fully priced under the firm's transfer pricing policies (see Recommendation V-17).

## **5. Comprehensive Funds Transfer Pricing**

One of the foundations for business performance evaluation and the management of a firm's balance sheet is a comprehensive funds transfer pricing mechanism that assigns the cost of funding to businesses that make use of it and credits the benefits of funding to businesses that generate it. Many of today's issues around liquidity and funding at individual firms can be traced back to a failure to adequately price for both on- and off-balance sheet funding exposures.

## **Recommendations**

IV-17. The Policy Group recommends that all large integrated financial intermediaries incorporate appropriate pricing-based incentives for the full spectrum of their funding activities. This includes a funds transfer pricing policy that assigns the cost of funding to businesses that use funding and credits the benefits of funding to businesses that provide it. This must encompass both on- and off-balance sheet activities (for example, contingent funding), as well as potential funding needs related to actions that might be taken to preserve the institution's reputation.

The funds transfer pricing process should be informed by stress testing efforts that identify potential vulnerabilities and assign the related costs to the businesses that create them. The methodology should provide direct economic incentives factoring in the related liquidity value of assets and behavioral patterns of liabilities. The costs and benefits identified should be assigned to specific businesses and, under all circumstances, used in evaluating the businesses' performance.

## **6. Integration of Liquidity Risk Management into a Firm-Wide Risk Management Approach**

Recent market events and the resulting stress on individual financial institutions and on the system, more broadly, exposed shortfalls in the communication processes between risk disciplines within firms and between the risk functions and the respective business managers. Regardless of a firm's formal organizational structure, communication processes often fell short of that necessary to ensure identification and mitigation of the comprehensive set of risks faced by firms. The President's Working Group on Financial Markets' March 6, 2008 "Policy Statement on Financial Market Developments" appropriately notes that firms that suffered extensive losses exhibited "inadequate communications among senior management, business lines and risk management functions". Further, the Financial Stability Forum, in its April 2008 report, "Enhancing Market and Institutional Resilience," observes that firms did not adequately address the links between funding, market, liquidity, and credit risk. Failure to link these disciplines in a seamless way contributed to liquidity blind spots within firms, resulted in inadequate evaluation of liquidity buffers and contributed to dislocations in the money markets.

### ***Recommendations***

- IV-18.* The Policy Group recommends that to manage, monitor, and control funding liquidity risk, treasury officials in particular need to be included in an enterprise-wide risk management process with appropriate channels of communication. The evaluation of the interconnected elements of these risks requires seamless communication across all risk disciplines, as well as between risk management functions,

treasury and the underlying businesses. All integrated financial services firms should hold regularly scheduled meetings of an oversight committee represented by the above disciplines to monitor the firm's liquidity positions.

## **7. Capital and Liquidity Planning**

As part of the liquidity planning process, firms regularly collect information (for example, levels, rates, maturities) about the entirety of the balance sheet. This information allows them to manage the inherent interest rate risk and to evaluate any maturity mismatches that may exist. At the same time, capital planning information related to asset levels and sensitivities is critical for effective liquidity planning. The events of the past year have made it clear that the liquidity and capital planning processes need to be more coordinated.

### ***Recommendations***

- IV-19.* The Policy Group recommends that firms explicitly coordinate across their liquidity and capital planning processes and, at a minimum, ensure that critical information flows between the two processes. Executive management must have the capacity to evaluate and incorporate the highly integrated nature of the two disciplines into its planning activities.

## ***E. Capital Adequacy and Recommendations***

Strong levels of capitalization are essential to ensuring confidence in financial institutions. The turmoil in credit and money markets over the last year has reemphasized this. Firms that have experienced substantial losses in connection with subprime, leveraged loan, or other write-downs have found it imperative to replenish their capital bases. Failing to do so risked a further erosion of confidence in these firms as going concerns by investors, counterparties, customers, and supervisors. The capital raising completed over the last year – in the hundreds of billions of dollars – has helped strengthen firms' abilities to absorb future potential losses and repositioned them to invest in more attractive business segments as opportunities present themselves. Reflecting upon the issue of capital



adequacy in the context of the recent market stresses, two important considerations emerge:

First, while strong capital levels are critical to future financial performance, they alone do not ensure a financial institution can or will remain a going concern. Both Bear Stearns and Northern Rock appeared to have reasonable levels of capitalization as measured by their respective regulatory regimes. However, neither firm was able to maintain the necessary liquidity to fund their operations on a continuing basis, resulting in their effective insolvency. Therefore, it is evident that capital management and liquidity management are complementary disciplines that must be addressed together.

Second, the adequacy of capital is best determined by employing robust measures of the economic risks of the assets the capital is funding. Accounting measures of capital leverage and blunt risk-based measures such as Basel I provide potentially misleading signals about capital adequacy – particularly in periods of market stress – because they do not properly recognize material risk factors applicable to underlying assets (including their liquidity characteristics) or the structural features of business activity, such as dynamic collateral requirements. This consideration underscores the Policy Group’s belief that the risk-sensitive regime in Basel II is preferable to both Basel I and leverage ratio measures.

### **Recommendations**

*IV-20a.* The Policy Group re-affirms its recommendation that for large integrated banks and investment banks, Basel II should remain the primary capital standard that such institutions, their primary supervisors, and the marketplace generally look to in making judgments about capital adequacy.

*IV-20b.* The Policy Group recommends, at least for the present, that the existing Basel II standards for minimum capital and well-capitalized institutions be maintained. In taking that position, the Policy Group recognizes that the experience of the credit market crisis provides a

sobering reminder to individual institutions, their senior management and their supervisors that future judgments about capital adequacy should be more sensitive to downside risks than perhaps has been the case in the past.

*IV-20c.* The Policy Group further recommends that supervisory judgments about capital adequacy for all large integrated banks and investment banks give primary weight to case-by-case evaluations based on the range of criteria contained in Basel II, Pillar II, and, when necessary, such judgments should be promptly shared with individual institutions.

*IV-20d.* The Policy Group strongly recommends that every reasonable effort be made by the international community of supervisory authorities to (1) seek to stabilize, at least for a reasonable period of time, the methodology associated with Basel II, (2) move toward a common implementation date across major jurisdictions, and (3) insure a competitive and supervisory level playing field in the application of Basel II across classes of institutions and across national boundaries.

## ***F. Leverage***

The Policy Group is strongly of the view that leverage ratios are a seriously flawed measure of capital adequacy, except in highly unusual circumstances. The limitations that are inherent to leverage ratios were spelled out in the CRMPG I Report in 1999 and repeated in the CRMPG II Report in 2005.

As set out in detail in Appendix A of the CRMPG I Report, traditional measures of leverage, such as total on-balance sheet assets to equity, are misleading because they inadequately capture the relationship between the real risk of loss and the capital available to absorb it. A gross on-balance sheet leverage measure (1) does not take into account the potential variability in the value of off-balance sheet assets, (2) does not capture the risk dynamics of assets with embedded leverage, (3) does not give credit for hedging (including when matched book assets are perfectly hedged with offsetting liabilities), and (4) most importantly, fails to distinguish between assets with the same

balance sheet value but widely differing risk. All balance sheet measures of leverage share a critical flaw in that a firm that appears to have relatively low leverage can nonetheless be taking substantial risks, while a firm that looks relatively highly leveraged may well be taking little risk. Viewed in isolation without greater understanding of the risk characteristics of portfolio assets, balance sheet measures of leverage can send false signals about a firm's financial and risk condition. Appendix A to the CRMPG I Report explored these flaws and offered progressively more sophisticated measures of leverage to address them. In the end, CRMPG I concluded there is no single right measure of leverage. The challenge for financial institutions is to ensure that there is deep understanding and management of how asset liquidity and funding liquidity interact dynamically for a given portfolio of assets and sources of financing, including capital.

Notwithstanding the Policy Group's view as to the shortcomings of leverage ratios, the Policy Group does recognize that (1) in some circumstances they can provide useful information and (2) in the aftermath of the credit market crisis they cannot be dismissed out of hand.

### ***Recommendations***

- IV-21a.* The Policy Group recommends that where the use of leverage ratios is compulsory, supervisors monitor such leverage ratios using the Basel II, Pillar II techniques and intervene regarding the adequacy of such leverage ratios only on a case-by-case basis.
  
- IV-21b.* The Policy Group recommends that efforts be directed at either (1) framing more meaningful leverage ratios where they exist or (2) phasing out their use and implementing alternative risk measures that more effectively fulfill their intended objectives.

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## **SECTION V: ENHANCED CREDIT MARKET RESILIENCY**

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### ***A. Introduction***

A sound foundation and sturdy frame – unseen by the casual observer – underlie the integrity of any structure, making it safe for ordinary use, preventing it from collapsing in on itself, and supporting it against unexpected, external shocks. In short, strong foundations and sturdy frames ensure structural resilience.

The recent, seismic shock to the financial markets has thrown into sharp focus some of the flaws and deficiencies in the foundation and frame that support the credit markets and the credit derivatives market in particular. The goal in this section of the Report is to highlight some of the most important structural flaws and make specific recommendations to remediate those deficiencies. The analysis does not undertake an inquiry into the macro- or microeconomic benefits or costs of particular financial instruments. Rather, it assumes that the credit derivatives market will continue to be a large, growing and important part of the global financial landscape and we therefore seek to expeditiously reinforce the weak structural elements of the market architecture.

While the focus of this section is on the credit markets, we would expect that many of the observations and recommendations are transferable to other markets characterized by rapid growth, innovation and complexity, including (but not limited to) interest rate derivatives, equity derivatives, and commodity derivatives. This section also incorporates several specific recommendations related to the fixed income tri-party repo market given its importance to the financing by dealers of a significant share of their inventories.

A resilient credit derivatives market requires the ongoing commitment of major market participants to support the talent, technology, business process, market practice and legal architecture integral to a strong market foundation. That foundation should be designed and operated to (1) avoid systemic risk that would arise from operational malfunction during ordinary markets, and (2) absorb, rather than amplify, shocks created by extraordinarily stressed markets.

Such a commitment may require market participants to (1) make costly investments in infrastructure (in both human capital and technology), (2) change business processes, and (3) accept changes to market practices that in the past have generated sizable revenues but have done so at the cost of not investing in more scalable infrastructure. This reinforcement of the market structure will fail if not explicitly mandated and monitored by the senior-most executives of major market participants (buy-side as well as sell-side) and actively encouraged and supported by senior officials of central banks and other official institutions.

This section highlights six interrelated areas of weakness in need of immediate improvement and enhancement. They are:

- I. *Timeliness and integrity of transaction details*, including the economic terms of the transaction and subsequent transfer, assignment or novation of the transaction.
- II. *Daily reconciliation of collateral valuations*, including trade population reconciliation, valuation methodology and market inputs to that methodology.
- III. *Operationally manageable number and gross notional of outstanding trades in the market*, including compression of the current market outstandings and the subsequent avoidance of regrowth.
- IV. *Credit Event settlement*, including greater efficiency and certainty of the process.
- V. *Close-out of defaulting counterparty*, including adoption of a viable method for timely and orderly close-out and general preparedness to execute a close-out of a major counterparty.
- VI. *Central Clearing Mechanism*.

The Policy Group makes specific recommendations for strengthening each of these six areas of weakness, including:

- Improvements to the infrastructure that processes trade confirmation and reconciliation of transaction details, and suggested timeline for implementation.
- Enhancements to the daily valuation and collateral management process.
- Endorsement of an industry initiative to compress outstanding trade populations.
- Formal adoption of the auction-based, net physical settlement procedure for Credit Events as a part of standard ISDA documentation.
- Rapid bilateral adoption, which has already begun, amongst major banks/dealers of the Close-out Amount methodology, and the creation of a close-out ISDA supplement that would bridge the gap between the Market Quotation method and the Close-out Amount method and thereby facilitate a more general, wide-scale adoption of a more resilient close-out method without prejudicing the rights of a defaulting party.
- A central counterparty helps address many of the deficiencies of the current market foundation, and the Policy Group recommends that the industry move with deliberate speed toward the creation of one or more such counterparties in a manner that does not compromise the integrity or robustness of the marketplace.

In making the recommendations in the sections below, the Policy Group is cognizant of the fact that some of them are very ambitious in light of existing market practices. Nevertheless, the Policy Group firmly believes that these recommendations are more than just aspirational in nature. Rather, they are concrete goals that, if implemented by major market participants, will substantially enhance the credit market's resilience to stress events and conditions, including the failure of one or more major counterparties. Therefore, the Policy Group strongly urges major market participants to make substantial

progress toward implementing the recommendations by the targeted dates, recognizing that progress is likely to vary across firms. The Policy Group also recognizes the need for the support of official institutions, especially the Federal Reserve Bank of New York, in implementing these recommendations in line with the target dates.

The Policy Group is mindful of the enormous scale and complexity of the issues and challenges raised in this discussion of market resiliency, but it is also mindful of the substantial progress made in these areas after the publication of the CRMPG II Report three years ago. Many observers regard this progress as a classic example of private sector/public sector cooperation. Significant steps were taken in reducing confirmation backlogs, shifting from manual to automated processing, the creation and operation of the DTCC CDS “warehouse,” and perhaps most importantly halting the practices of assigning trades without the consent of the original counterparty. In contemplating these and other improvements, it is probably reasonable to conclude that as severe as the crisis of the past 12 months has been, it almost certainly would have been worse if these improvements had not been made. In that spirit, the Policy Group looks forward to a continuation and an intensification of cooperation with the Federal Reserve Bank of New York and other official institutions in a concerted effort to bring about the further enhancement of credit market resiliency as contemplated by the following discussion.

## ***B. Timeliness and Integrity of Transaction Details***

Trade matching, confirmation and settlement must be the foundation for any discussion about market resiliency. The rapid confirmation and settlement of a transaction ultimately drives the integrity of market valuations and collateral exchange, ensures common certainty in credit event settlement, and gives the market confidence in the orderly close-out of defaulting counterparties. In short, the standards that market participants apply to the orderly processing of trades must be sufficiently robust to withstand at least the kind of shocks and systemic disruption that the market has experienced over the past 12 months.

That said, a resilient credit derivatives marketplace requires the development of the next generation of efficient, controlled and scalable operational infrastructure, particularly around the population of trades which are eligible for electronic platforms. The industry and its major market participants need to implement tools and practices that achieve a

same day (T+0) standard for confirmation and regular ongoing reconciliation of positions, settlements and market-to-market values (MTMs). If this is done, a significant degree of dispute resolution will be avoided.

We urge senior leaders and regulators to take a direct interest in progress on this topic.

Throughout the life cycle of a trade, specific goals must be met to achieve the required standard of resiliency.

### **Recommendations**

- V-1. The Policy Group recommends trade date (T+0) matching for electronically eligible transactions.

Goal: End 2009.

At the inception of a transaction, an electronic record representing the evidentiary requirements for a legal trade is required to ensure the agreement of all trade and allocation details between counterparties. When achieved on trade date, this record can serve as the binding foundation for all ongoing trade activities – clearing, settlement calculation, and warehouse activities such as credit event processing. Subsequent client trading (e.g. novations, partial and full terminations) should likewise follow a T+0 matching standard. These records also serve as an optimal basis for accurate risk management. A T+0 matching standard also supports the goal of implementing a centralized clearing arrangement, the benefits of which are discussed below.

A key point to the success of the above goal is convergence of the affirmation and confirmation processes. The current process of affirmation presumes delays in the legal confirmation process and bifurcates the workflow between the trading desk and operations. As industry participants merge trade date matching with the legal confirmation process, the need for an affirmation workflow is eliminated. To achieve this goal, front office personnel may be required, in



coordination with support and control personnel, to communicate systematically and directly with each other to confirm transactions electronically under tight timeframes.

- V-2. The Policy Group recommends the linkage of confirmation and settlements.

Goal: Dealers early 2009.

The exchange of cash flows on a trade (including but not limited to fees, coupons and credit event settlements) should be based upon the legal electronic trade record. This serves to prevent ongoing disputes around portfolio composition, trade status, economic details, calculations and other common root causes of settlement disputes. Central settlement for credit derivatives was launched in a phased approach within the DTCC's Deriv/SERV Trade Information Warehouse in November 2007. The initial phase has been successfully implemented among a group of 18 dealer firms but has not yet been expanded to include buy-side firms. To strengthen the link between confirmation and settlement, the Policy Group recommends dealers complete development of the central settlement platform. In addition, the Policy Group encourages the broadening of central settlement to buy-side market participants.

- V-3. The Policy Group recommends a tiered approach to market participation and incentive structure.

Goal: Ongoing.

The increasingly sophisticated market infrastructure will require a two-tiered approach for market participants. High volume participants from both the buy- and sell-sides will be expected to use technology and processes that facilitate adherence to the above same-day submission and matching standards. While it is expected low-volume participants (fewer than four trades per month) will maintain industry guidelines around confirmation and settlement timeliness, it is not expected that

this group will necessarily participate electronically. Regulators should impose appropriate incentives on derivatives dealers to adhere to market standards and practices.

V-4. The Policy Group recommends incentives to buy-side participants.

Goal: Ongoing.

It is important to recognize that buy-side market participants will operate at different volumes. Moderate to large-volume participants (more than four trades per month) will be expected to adhere to the same standards as dealer-side firms with respect to transmission standards, trade date confirmation, settlement and mark-to-market comparisons. As with adoption of the Novation Protocol, dealers should consider limiting trading activity with firms that do not adhere to industry standards. Adherence to industry standards should be part of a routine dealer operational due diligence (side-by-side with the normal credit due diligence).

### ***C. Implementation challenges***

The marketplace faces challenges on several fronts that must be overcome in order to meet the above next generation goals. These limitations necessitate fundamental changes to industry platforms, standards, processes and participant-specific technology and resources. Most of these changes have not yet been turned into operational implementation plans, which may raise significant practical and cost issues. Senior management should clearly support and set these goals into business plans at each participating firm and review ways to resolve the expected obstacles. Progress made should be reviewed with regulators, as appropriate. These challenges are discussed briefly below and recommendations are made for overcoming them.

#### **1. Segregation of trade execution, affirmation and confirmation**

Presently, credit derivative trades are executed in a variety of methods (for example, voice, broker or vendor platforms). Many participants will separately affirm the trades

either via voice, email or a vendor platform. In yet another separate step, legal confirmation is sought via DTCC or a signature on a paper trade. The bifurcation of these processes splits the management and control of a given trade between the trade executors (*i.e.*, sales, trading) and the operations professionals who typically affirm and confirm the trades.

### ***Recommendation***

- V-5. The Policy Group recommends that market participants should seek to streamline their methods for trade execution and confirmation/affirmation, which should facilitate an end-to-end process flow consistent with same-day matching and legal confirmation.

## **2. Resourcing**

To achieve a T+0 standard for matching and legal confirmation, a significant investment will need to be made in human capital for key areas such as legal, technology, operations, controllers and risk management. Senior management should be cognizant of both the cost implications and the lead time required to hire these relatively scarce professionals.

### ***Recommendation***

- V-6. The Policy Group recommends that senior leaders of trading support functions should clearly articulate to senior management the resource requirements necessary to achieve the same-day standards. Recognizing the expense management imperatives driven by recent market conditions, senior management should make every effort to help support functions achieve these standards for the overarching benefit of enhancing market resilience.

Goal: Ongoing.

### **3. Vendor readiness and facilitation**

In today's marketplace, vendors provide a variety of solutions to various aspects of the workflow and lifecycle – affirmation, confirmation, prime brokerage give-ups, portfolio reconciliation, *etc.* Often, solutions are not designed to be compatible with one another, with the result that participants must build out and support multiple technology integrations. Furthermore, required time to market on new products and life cycle events often lags market growth and innovation, and vendors face pressure to go live with phased or incremental solutions to remain relevant in the marketplace.

#### ***Recommendation***

- V-7. The Policy Group strongly urges that major market participants should deploy a combination of utility and vendor-supplied solutions and should, at a minimum, ensure interoperability of those solutions.

Goal: End of 2009.

### **4. Speed of electronic adoption**

Both buy- and sell-side participants have proven to require lengthy ramp-up periods to integrate electronic platforms. Increasingly standardized legal documentation (*e.g.*, standard terms supplement) has provided some benefit, but onboarding negotiations still consume time and resources. As new functionality is rolled out, participants schedule the development and testing according to internal schedules and priorities. These efforts significantly slow the speed to electronic platform usage.

#### ***Recommendation***

- V-8. The Policy Group recommends that major market participants on both the sell- and buy-sides should make every reasonable effort to speed up the adoption of electronic platform usage. This should entail revisiting the priorities in development and testing schedules.

Goal: End of 2009.

## 5. Market standardization

While tools exist today for standard processing (for example, DTCC pay receive, CLS, RED identifiers, and DTCC new product rollouts), many market participants still lag significantly behind and are inconsistent in the adoption of these tools.

### ***Recommendation***

- V-9. Consistent with Recommendation V-7 above, the Policy Group further recommends that major market participants on both the sell- and buy-sides should hasten their adoption of tools that facilitate standardization in the marketplace. This will in turn facilitate the achievement of the next generation goals for the timeliness and integrity of transaction details.

Goal: End of 2009.

## ***D. Collateral Management Process***

Counterparty risk monitoring and risk management are enhanced by robust portfolio reconciliation and collateral management practices. In the sections below, CRMPG III makes recommendations to improve practices in the credit derivatives market. It also addresses collateral management practices in the tri-party repo market, the smooth functioning of which is critical to overall performance of financial markets.

### 1. Derivatives Market

#### ***Recommendation***

- V-10. The Policy Group further recommends frequent portfolio reconciliations and mark-to-market comparisons, including on collateralized instruments.

Goal: Weekly end 2008, moving to daily for electronically eligible trades mid 2009.

Along with timely bookings and same-day electronic trade records, frequent portfolio reconciliation standards ensure (1) the ongoing integrity of the trade population versus each trading counterparty and (2) that any material mark-to-market differences are isolated and escalated to the trading desks or higher levels of management for immediate review and resolution. This function serves as a sound basis for accurate margin calculations, a critical component of market resiliency. Ensuring that appropriate fair market valuations are agreed on all product types also will act as a foundation for any close-out situation in the event of a default. In making this recommendation, the Policy Group emphasizes the critical need to maintain the confidentiality of client trade information consistent with applicable internal “wall crossing” restrictions. Dealers should review such processes and enhance them to the extent necessary. To facilitate the implementation of this recommendation, the Policy Group further recommends that the industry develop a common file format for the exchange of portfolio information.

## **2. Common collateral standards**

### ***Recommendations***

Today’s collateral management process, driven in large part by the sell-side, is bespoke in terms of the format, process and resourcing of each major market participant. This bespoke nature strictly limits the industry’s capability to quickly diagnose the root causes of disputes. To achieve a best-in-class standard for collateral, the Policy Group recommends:

- V-11. ISDA Credit Support Annex documents spell out the bilateral terms of the margin process. While the process is generally standardized, the Policy Group recommends that the industry find an effective means to resolve valuations disputes, particularly for illiquid products. Doing so is likely to be a difficult and demanding matter and therefore an industry-wide approach may have to be considered.

Goal: End of 2009.

- V-12. The Policy Group recommends that, as mark-to-market disputes inevitably surface through the collateral portfolio reconciliation process, the information should be passed to the executing trading desks on a real-time basis to allow for research and resolution. This should, of course, be done with appropriate anonymity for the counterparty's identity, positions and broader portfolio. A close alignment of the collateral team with trading desks – without violating the fire walls and controls that are critically important to the integrity of the financial system – would facilitate such information sharing. As necessary, significant and large value collateral disputes should promptly be escalated to the appropriate senior officers.

Goal: Immediate.

The implementation challenges related to these collateral management goals are similar to those related to the goals for timeliness of transaction details. They should be addressed in a coherent fashion to maximize the opportunity for successful implementation. On a note of caution, as the industry pursues changes needed to bolster the resiliency of the CDS market consistent with these recommendations, it must do so in a manner that preserves the ability of firms to execute and maintain bespoke transactions which serve legitimate economic interests.

### **3. Tri-party Repo Market**

The dealer community relies on repurchase agreements (repos) entered into with investors as a principal source of funding. A large percentage of dealer repo financing is arranged in the form of tri-party repos, with Bank of New York and JPMorgan Chase & Co. acting as clearing banks. Tri-party financing originated as an adjunct to the banks' U.S. government securities clearing business, through which the banks, via their accounts at the Federal Reserve Bank of New York, facilitated the settlement of dealer purchase and sale of U.S. Treasury and U.S. government-related entity securities. Tri-party financing evolved as a natural extension of the banks' clearing role and proved to be a highly

efficient vehicle for the dealers to finance their securities inventory with the investor community while at the same time offering independent collateral management services to investors, assuring the investors that their collateral would be held by the banks in safekeeping at all times.

In recent years, dealer clearing activity has expanded to include a wider range of less liquid and sometimes harder to value security types, and investors have accepted these securities as collateral for their repo financings. In addition, maturities are often overnight, although investors and dealers also enter into term repos.

While the clearing banks act in the role of agent, on the morning following the repo trade, if the clearing banks are prepared to extend credit to the respective dealers, they will “unwind” the repo, crediting cash to the investors’ accounts and holding the dealer’s securities to collateralize the intra-day loan.

When clearing tri-party repo transactions, clearing banks extend secured intra-day financing to dealers in two situations:

1. For maturing repo transactions, the clearing bank unwinds the transactions between tri-party investors and dealers between 8 am and 8:30 am. The cash lent by a tri-party investor is returned to the investor in a bailment account held at the clearing bank. The investor may instruct the clearing bank to:

- wire the cash to another bank (usually from 8:30 am to 10:30 am);
- use the cash in the bailment account to net payments during the day under a pre-agreed netting program;
- retain the cash in the bailment account, available to be moved at the investor's instructions; or
- move the cash to the investor's custody or demand deposit account at the clearing bank.



2. For term repo transactions, the clearing bank also unwinds the transactions between tri-party investors and dealers between 8 am and 8:30 am. The cash lent by a tri-party investor is then moved to a bailment account (per above) in the name of the investor, returning the dealer's securities to its box account. This practice enables the dealer to more easily use its securities for trade settlement and to substitute other eligible collateral.

In both scenarios 1 and 2 above, the clearing bank allows dealers to deliver out of the box securities securing the clearing bank's intra-day financing as long as there is sufficient Net Free Equity (NFE) in the account. The NFE is the current market value of the securities in the box plus the intra-day margin established by the clearing bank minus the intra-day financing provided for any particular dealer. The NFE ensures that intra-day secured financing provided by the clearing bank is properly collateralized.

The tri-party repo market could pose systemic risk issues, in particular, if the clearing banks fail to effectuate the "unwind", due to liquidity, collateral or dealer creditworthiness concerns. Another potential source of stress to the financial system emanates from dealer funding risks if the dealer has excessive reliance on overnight financing for less liquid, harder to price securities, or should investors be unwilling to roll their overnight repo arrangements. In light of the manner in which the market has evolved and the risks market participants bear, as described above, the sections below outline actions that can mitigate such risks.

### ***Recommendation***

V-13. The Policy Group recommends that dealers, investors and the clearing banks agree on "Best Practices" to govern the tri-party repo market. Components of such Best Practices should include the following:

1. Tri-party repo program size.

Secured financing of dealer inventory plays an important role in the capital structure of the dealer community. However, as with any financing technique, dealers should not be overly reliant on any one

type or source of financing, and should establish parameters to assure diversified sources of funding and appropriate term structure. Consideration should be given to the liquidity under stressed conditions of the inventory which is being financed, with sensitivity to avoid excessive overnight funding of illiquid securities. Use of term repos should be encouraged with maturity schedules spread out to avoid concentration of roll-over risk occurring on any single day. The clearing banks should also consider setting specific limits regarding the amount of intra-day unwind exposure that they will take to a given dealer based upon the composition and liquidity of the dealer's collateral and other relevant factors.

## 2. Margin.

Margin should be proportional to the risk of the collateral, meaning it should be sufficient to cover the potential price decline of the securities held as collateral during expected liquidation timeframes. To accomplish this, margin should be applied to collateral types at a level granular enough to distinguish their risk, taking into account the price volatility and the liquidity of each security. Investors should regularly review their margin requirements (investor margin) in order to assure that they accurately reflect current market conditions, and should also stress test their assumptions for adverse market environments. Clearing banks should determine how much margin is required in order to undertake the intra-day risks associated with the daily unwind and whether to impose concentration and/or notional limits on certain types of securities (clearing bank margin). Such clearing bank margin should be set at levels which accurately reflect current market conditions and should be stress tested for adverse market environments. These steps should enable market participants to be well equipped to make the best possible risk assessments. Finally, clearing banks and investors should make individual credit assessments of each dealer to determine margin requirements and the amount of intra-day credit available.

### 3. Collateral eligibility.

Collateral eligibility is determined based on negotiations between borrowers and lenders. Clearing banks will establish their own eligibility standards. As a general matter, collateral eligibility should be based on the quality and liquidity of securities being pledged by dealers. Appropriate collateral types should be defined along with concentration and diversification standards. Such standards should be continuously reviewed in light of prevailing market conditions and stress tests. Consideration should be given to publishing aggregate data reflecting market practice indicating collateral mix, by type, ratings and maturities.

### 4. Collateral valuation.

Collateral valuation methodologies should be transparent and reliable. Clearing banks and investors should understand and be satisfied with the reliability of the sources used to price collateral, whether based on bids or quotes from market participants or pricing models, or sourced by vendors or by multiple or single dealers. Pricing methodology flags should be used to indicate how the price was set and margin should be adjusted to take into account the source and methodology used to derive security prices. Prices used for valuation purposes should reflect the most current market conditions, and stale pricing should not be utilized.

## ***E. Managing Size of Trade Population***

Market risk is best measured by net notional exposure. However, gross notional exposure and the number of outstanding line items are relevant to counterparty and operational risk. While considerable progress has been made in enhancing the operational infrastructure of the credit derivatives market since 2005, continued rapid growth in the volume of credit derivatives traded, outstanding gross notional and “warehoused” line items now demand that market participants work together to reduce gross notionals by terminating offsetting trades. Compressing the industry’s current outstanding notional would have two

immediate and systemic benefits: (1) a reduction in market-wide operational risk and (2) a reduction in counterparty risk, thereby enhancing ease of “close out” going forward.

### ***Recommendation***

- V-14. The Policy Group recommends that market participants actively engage in single name and index CDS trade compression. ISDA has agreed on a mechanism to facilitate single name trade compression with Creditex and Mark-it Partners. Established vendor platforms exist for termination of offsetting index trades, and we urge major market participants to aggressively pursue their use.

The Policy Group notes that the industry has agreed to separate future trade compression and market consistency discussions from the historical portfolio compression. The industry did caveat that the historical compression should not preclude any future consistency or compression solutions and should be supportive of the industry’s long-term goal to match and clear CDS on trade date.

### ***Recommendation***

- V-15. Based on the considerations above, the Policy Group recommends that the industry, under the auspices of the current ISDA Portfolio Compression Working Group, commit immediately and with all due speed to achieve consistency of the current product, including potentially:
- utilizing industry preferred Reference Obligations or elimination of Reference Obligations;
  - eliminating Restructuring Basis distinctions, recognizing that this needs to be considered in a broader global perspective taking into account regional and national differences; and

- standardizing fee calculations based on a single, common model analytic.

## ***F. Credit Event Settlement***

Standard credit derivative documentation currently provides for physical settlement of transactions following the occurrence of a credit event involving the reference entity on the trade. As the volume of outstanding transactions has grown over the last several years so too has the prospect of market disruption due to settlement through disorderly delivery of bonds and loans. In credit events over the last three years for which there were a significant number of affected trades, ISDA has published a protocol to allow parties to amend their outstanding trades to facilitate cash settlement while preserving the option of physical settlement. In each case an ISDA-sponsored auction, managed by Creditex and Mark-it Partners, has been conducted to establish a price for one or more deliverable obligations. Each of these auctions has produced an outcome that has been generally accepted in the market as an appropriate valuation of deliverable obligations.

Participation in the auction by adherence to the protocol is a voluntary process and, while the vast majority of active market participants have participated in the past, there is a concern that, given the voluntary nature of the protocol process, for any given credit event one or more major market participants could choose to stay outside the protocol and auction process. As the protocol and auction process is designed to reduce the need to physically settle a large number of trades, one or more major market participants choosing to stay outside will continue to raise the prospect of a squeeze on deliverable obligations, with resulting volatility and uncertainty around the ability to settle a large number of trades. Though that risk is small and this situation has not occurred in the previous protocols, the uncertainty that could arise would undermine the broad-based acceptance of credit derivative products and justifies expeditious action.

ISDA has anticipated incorporation of the auction mechanism into its standard credit derivative documentation, using the experience of past credit events to make minor modifications to the mechanism. The mechanism has not been utilized for a credit event in Europe or for a credit event involving a very large reference entity with a large number of outstanding obligations. While the mechanism would no doubt benefit from being

tested in those circumstances, it is clear now that it is more important to incorporate the mechanism into the standard documentation so that market participants will be committed to follow the process.

Building the settlement auction into the ISDA documentation requires decisions to be made in advance about a number of issues that would otherwise be addressed on the basis of the particular fact situation. There are therefore a number of issues that must be solved before the auction methodology can be built into the ISDA documentation. These include:

- how an auction following a Restructuring Credit Event should be structured, given that the provisions of the ISDA definitions limiting the maturity of deliverable obligations reference the maturity dates of individual contracts (given the difficulties with structuring an auction following a Restructuring Credit Event, it is likely that the process may, initially, move forward focusing solely on Bankruptcy and Failure to Pay Credit Events);
- how the decision as to the deliverable obligations to be included in the auction should be made, and disputes resolved within the timescale of the auction; and
- dispute resolution procedures generally.

In light of this background and the related issues, the Policy Group recommends the following:

### ***Recommendations***

- V-16. The Policy Group recommends that ISDA should update its Credit Derivative Definitions to incorporate the auction mechanism so that counterparties to new credit default swap trades commit to utilize the auction mechanism in connection with future credit events.
- V-17. The Policy Group recommends that ISDA should run a protocol (a so-called “big bang” protocol) to provide market participants with an

operationally efficient means to amend their existing credit default swap trades to utilize the auction mechanism in connection with future credit events. This protocol should not effect any other changes to the bilateral agreements in effect between adopting counterparties.

In making these recommendations, the Policy Group recognizes that some market participants, particularly on the buy-side, might wish to consider the nature and extent of participation in an auction mechanism more selectively than would be afforded through a big bang protocol. As some of these market participants approach the auction issue on a case-by-case basis, the Policy Group strongly encourages them to review the benefits of such an approach as discussed above.

### ***G. Counterparty Close Out***

The subject of the methodology used to execute close out by a non-defaulting counterparty in the event of a default by one or more counterparties has been a subject of lively discussion in CRMPG III, just as it was in CRMPG II and CRMPG I. While the terms of these discussions are often highly complex, the central issue is the extent to which market participants generally are willing to use the so-called “Close-out Amount” as promulgated by ISDA in 2002 as the methodology for close out of a defaulting counterparty. In this regard, it remains true (as was the case with CRMPG II in 2005) that among many “buy-side” market participants there is a concern that the ISDA Close-out Amount may work to the disadvantage of the defaulting counterparty. For this reason, CRMPG II and CRMPG III were unable to reach agreement calling for the broad application of Close-out Amount as an industry standard. Nevertheless, a clear consensus has emerged around three principles that must be associated with any close-out methodology. These are: (1) commercial reasonableness; (2) duty of good faith; and (3) fair dealing. The Policy Group believes these principles must guide any future work in this area.

In a simple world in which market prices and/or market inputs for all financial instruments were readily available and systemic financial shocks never occurred, this debate would have been resolved long ago or, perhaps, the debate would have never occurred. However, neither of these conditions has existed for many years. Thus, the risk

associated with the close out of a major counterparty in a stressed market environment has risen appreciably. Indeed, one can only speculate as to how much worse things might have been in March 2008 if dozens of counterparties were simultaneously seeking to close out Bear Stearns at the same time.

In these circumstances, the CRMPG III attaches great significance to Recommendation V-18 whereby the dealer community is in the process of adopting the Close-out Amount methodology in their relationships with each other. Recognizing that the dealer community as a whole represents a substantial fraction of total transaction volume and the fact that the intra-dealer exposures are very large, this common approach within the dealer community represents a clear and positive step in the direction of containing systemic risk.

Over the course of the deliberations of CRMPG III, the opposition on the part of the buy-side to extending Recommendation V-18 to all market participants surfaced once again. In those circumstances, Recommendation V-19 calls for a further effort to develop a close-out methodology, under the auspices of ISDA, which would apply to all market participants. The Policy Group attaches great importance to the consensus that emerged on the need for prior agreement on valuation parameters as a prerequisite to migrating to a commercially reasonable close-out procedure, described below. At the same time, however, the Policy Group is uneasy about recommending yet another effort to reconcile the differing views with respect to the policy and legal underpinnings of close out in the 2002 ISDA model as this could introduce more uncertainty into a situation that needs more certainty, not less. But given the importance of work on prior agreement on valuation parameters, the Policy Group believes another attempt to come up with a potential industry-wide approach could be worthwhile, provided that such discussions are streamlined in scope and time.

Given the explosive growth and complexity of financial markets in recent years, and with particular emphasis on the CDS market, a further source of potential instability relates to the policies and procedures associated with the close out of defaulted counterparties – especially large counterparties – in a stressed market environment. To achieve orderly close out in such circumstances, the process must meet the following criteria:



- does not add to market instability;
- produces commercially reasonable prices for purposes of close out; and
- is practical to implement for portfolios that are potentially large and contain illiquid positions.

The Policy Group has considered in detail the challenges of closing out a major market participant and reaches the following conclusions:

- The Market Quotation method (1992 ISDA) is impractical for the early termination of a counterparty with a large and/or complex portfolio, particularly one including bespoke transactions.
- At the same time, neither the Loss method (1992 ISDA) nor the Close-out Amount method (2002 ISDA) is acceptable to a large number of counterparties (in particular, buy-side counterparties) due to concerns of potential for unfairly disadvantaging a defaulting counterparty.
- A prerequisite to migrating to a commercially reasonable close-out procedure is for the counterparties to have previously agreed to any necessary valuation parameters and methodologies, to have evidenced these in their relevant agreements (ISDA Master, supplements to the Master or confirmations, as appropriate) and to have established a robust daily process of valuation reconciliation in order to highlight any discrepancies in valuation approach or parameters long before a close out might need to occur.
- There is general agreement that in determining close-out amounts market inputs should be used unless doing so would produce a commercially unreasonable result. However, there remains a significant disagreement as to whether the definition of Close-out Amount in the 2002 ISDA Master Agreement in practice achieves an outcome that is both consistent with that general agreement and commercially reasonable.

- Given this general agreement on the desirable outcome (that market inputs should be used unless doing so would produce a commercially unreasonable result), the Policy Group believes that it should be possible to reconcile the competing views in order that one generally accepted formulation of close-out methodology reflecting that general agreement could be used by the market and that, given the desirability of a consistent industry-wide approach, further efforts should again be made to reconcile these views.

Consistent with these conclusions, the Policy Group recommends the following:

### ***Recommendations***

- V-18. The Policy Group recommends that all large integrated financial intermediaries (e.g., the major dealers) should promptly adopt the Close-out Amount approach for early termination upon default in their counterparty relationships with each other. We note that this can be agreed and suitably documented without making any other changes to the ISDA Master. The Policy Group expects that these arrangements will be in place in the very near term.
- V-19. The Policy Group recommends that a working group should be formed under the auspices of ISDA, with representatives of both dealer and buy-side firms, to review the methodology for counterparty terminations in order to (1) produce a set of best practices and suggested bilateral templates for the transparency of valuation methodologies and parameters, as noted above, for use by all market participants, (2) consider how contractual provisions could reflect prior reconciliation of valuation parameters and (3) seek to reconcile the differing views on what is necessary to evidence agreement that market inputs will be used unless commercially unreasonable. The Policy Group hopes that the working group will be able to report a recommended approach by December 31, 2008.

- V-20. The Policy Group recommends that all major market participants should periodically conduct hypothetical simulations of close-out situations, including a comprehensive review of key documentation, identification of legal risks and issues, establishing the speed and accuracy with which comprehensive counterparty exposure data and net cash outflows can be compiled, and ascertaining the sequencing of critical tasks and decision-making responsibilities associated with events leading up to and including the execution of a close-out event.
- V-21. The Policy Group recommends that all market participants should both promptly and periodically review their existing documentation covering counterparty terminations and ensure that they have in place appropriate and current agreements including the definition of events of default and the termination methodology that will be used. Where such documents are not current, market participants should take immediate steps to update them. Moreover, each market participant should make explicit judgments about the risks of trading with counterparties who are unwilling or unable to maintain appropriate and current documentation and procedures.
- V-22. The Policy Group recommends that the industry should consider the formation of a “default management group”, composed of senior business representatives of major market participants (from the buy-side as well as the sell-side) to work with the regulatory authorities on an ongoing basis to consider and anticipate issues likely to arise in the event of a default of a major market counterparty.

## ***H. Central Clearing***

Many of the issues discussed in this section and the related recommendations have a direct bearing on the speed and effectiveness with which the industry can implement a centralized counterparty clearing arrangement (CCP) for classes of transactions starting with CDS. A robust CCP can significantly benefit the stability of the credit derivatives market by creating a shock absorber to lessen the impact of a default by a major

participant in the market. A CCP will also fit well into the existing market infrastructure and add to the overall efficiency of risk-reducing efforts within the industry.

A CCP will provide financial resources to absorb the shock of a major participant default through use of initial margin, variation margin and a guarantee fund structure. This effectively mutualizes the counterparty risk of the participants to each other. In addition, a CCP will help to reduce gross amount of trades required to be unwound in the event of a participant default, thereby reducing the operational impact of a participant default. Compression across a given curve point to a position-based notional will be enhanced by a CCP that allows true counterparty indifference in the compression process and centralizes the operational process of multilateral netting.

Moreover, a robust CCP will create an additional layer of risk management across the largest market participants. Unusually large or risky positions may result in additional margin, which can in turn create pressure on participants to maintain high quality risk management practices and appropriate capital.

But there are many challenges in ensuring that a CCP is in fact robust and actually reduces risk, rather than providing merely the appearance of risk reduction. In fact, any CCP will face certain limitations. A CCP cannot, on its own, create additional liquidity that does not naturally exist in the market, though it can facilitate trading which may help increase liquidity in the market. Additionally, the need for frequent and robust trade valuations means that not all asset classes will be eligible for a CCP, which means many of the issues raised above will still need to be addressed on a bilateral basis.

In November 2004 the Bank for International Settlements Committee on Payments and Settlement System and the Technical Committee of IOSCO issued a report titled “Recommendations for Central Counterparties” ([BIS Recommendations](#)). The report provided 15 headline recommendations which covered the major types of risks CCPs face. The report also included a methodology for assessing implementation of the recommendations, and provides guidance on the assessment of a CCP. Development of any CCP for the clearing of credit derivatives must take these recommendations into account. However, the recommendations leave room on a number of issues for judgment by a CCP, and its regulators, on how to best implement the recommendations.

The sections below set forth some of the key challenges in the development of a CCP for credit default swaps.

## **1. Participant Criteria**

A CCP must control the risks to which it is exposed by dealing only with sound and reliable counterparties. Participation requirements established by a CCP are its primary means to ensure that participants have sufficient financial resources and robust operational capacity to meet obligations arising from participation. To reduce the likelihood of a participant's default and to ensure timely performance by the participant, a CCP should establish rigorous financial requirements for participation. Capital requirements should also take account of the nature of products cleared by a CCP. In addition to capital requirements, some CCPs impose standards such as a minimum credit rating or parental guarantees.

A CCP should establish requirements to ensure that participants have robust operational capacity, including appropriate procedures for managing risks, such that the participants are able to achieve timely performance of obligations owed to the CCP. They should also have arrangements to effect collateral, payment, and delivery obligations to the CCP. Since the nature of the credit markets requires a longer post-default liquidation period than other asset classes, membership criteria should ensure the ability to participate in the unwind process in the event of a participant default.

A secondary participation issue which must be addressed is the extent to which the arrangements for clearing credit derivatives between a CCP and its participants will flow to non-participants. It is important to note that in the context of the credit derivatives market, electronic trade processing, which is often associated with clearing, is and will remain available to the general market within DTCC's Deriv/SERV Transaction Information Warehouse.

## **2. Availability of Daily Pricing Across the Cleared Portfolio**

One of the challenges for the clearing of credit defaults swaps will be to ensure sufficiently transparent end-of-day pricing across the entire cleared portfolio. Pricing of cleared

trades will be used to measure risk, assess margin and guarantee fund contributions and will be used to unwind the trades of a defaulting participant. This means that before any asset class may be cleared at a central counterparty there must be sufficiently transparent pricing available at the end of each trading day to ensure appropriate margin may be calculated.

One point of concern, even in the liquid parts of the market expected to be cleared by a CCP, is the pricing of “off-the-run” trades. Most trading occurs to the nearest of four quarterly dates that is at least five years from the trade date. For example, most five-year trades executed between June 20 and July 19, 2008 will mature on September 20, 2013. Every three months, the maturity of the “on-the-run” trade is pushed out by three months. Additionally, many investors will unwind trades within six months to a year after they originally put the position in place. As a result, the market sees less activity in trades that have been outstanding for longer than one year and the vast majority of aged credit derivatives exist between major dealers. Any CCP will need to ensure there is appropriate pricing available for cleared products to set acceptable margin and guarantee fund requirements. Participating firms will need to provide higher quality marks than they currently do and must do so for all tenors and names. Margin policies may also require adjustment to reflect any change from “off-the-run” to “on-the-run”.

### **3. Structure of Margin, Guarantee Fund and Assessment Rights**

Establishing the appropriate margin and guarantee fund structure presents perhaps one of the greatest challenges a CCP for credit derivatives may face. Agreeing on a structure will require reaching consensus among participants and regulators regarding the risk management models used to measure risk. The BIS Recommendations provide a good deal of qualitative guidance, particularly on the topic of ensuring a CCP’s ability to withstand the default of the counterparty to which it has the largest exposure in extreme but plausible market conditions. However, the BIS Recommendations leave the quantitative measurement of the test to be determined by the CCP and its regulators.

A CCP's members will need to agree to an appropriate margin structure which accounts for the following:

- liquidity of each cleared product;
- changes in liquidity of a given cleared product over time (“on-the-run” to “off-the-run”);
- potential for increased margin on outsized positions; and
- effort and cost required to unwind a participant's portfolio in the event such participant defaults.

The size of any guarantee fund will reflect the degree of protection provided by the agreed margin structure. Consideration also will have to be given to the inclusion of assessment rights on participants should the margin structure and guarantee fund prove insufficient in the event of participant defaults. As part of the CCP development process, appropriate stress testing of actual and hypothetical portfolios would help provide a solid basis for determining the relative size of these risk management features. A sound risk management program would incorporate ongoing stress testing of portfolios to take account of evolving market and firm-specific conditions.

These issues will need to be addressed in a manner that satisfies the clearing participants, and their regulators, that the CCP is reducing risk across the system and adding to the stability of the market.

#### **4. Regulation**

Given the regulatory, media and legislative attention focused on the credit derivatives market, it is important that any CCP ensure appropriate regulatory support. This will require interaction with the various regulatory bodies that regulate not only the CCP itself but also the clearing participants. Any CCP for credit derivatives should engage in a frequent and open dialogue with the various financial markets regulators to ensure it is

addressing the BIS Recommendations in a manner that will satisfy the relevant financial markets regulators from inception.

## **5. Policy Group Views on Development of a CCP**

### ***Recommendation***

- V-23. Recognizing the benefits of a CCP as discussed above, the Policy Group strongly recommends that the industry develop a CCP for the credit derivatives market to become operational as soon as possible and that its operations adhere to the BIS Recommendations.

The Policy Group is aware of several CCP initiatives. It is most familiar with The Clearing Corporation effort, which is targeting to begin clearing OTC CDS on indices in the fourth quarter of 2008. In providing its support to any CCP arrangement that can demonstrate it is robust, the Policy Group notes the following, which will be critical to its success:

- senior management support at large market participants will be necessary to ensure the commitment of appropriate financial and operational resources; and
- incorporating non-index CDS trades into the CCP is likely to require agreement of further market conventions for purposes of trade valuation. This may in turn have business impacts, particularly on dealers, that will have to be balanced against the benefits of central clearing.

Ultimately, the Policy Group firmly believes that the challenges of developing a CCP for the CDS market can and will be addressed by the industry in close consultation and cooperation with the official sector, as has been demonstrated in the creation of other CCPs that have served to enhance market resilience.

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## **SECTION VI: EMERGING ISSUES**

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The July 2005 Report of the CRMPG II contained a section entitled “Emerging Issues”. In that section, a number of issues were presented as discussion items that, at the time, were thought to have future implications for emerging financial market practices and supervisory policies and practices. The emerging issues section did not by design include recommendations. The emerging issues discussed by CRMPG II in 2005 were the following:

- sales of complex financial instruments to retail investors;
- managing conflicts of interest;
- risk management for fiduciaries;
- official oversight of hedge funds; and
- supervisory challenges.

Building on the experience of 2005, and with an added sense of urgency, CRMPG III concluded that an open-ended discussion of several emerging issues would represent a further and valuable conclusion to this Report. There are five emerging issues discussed in this section of the Report:

- valuation and price verification;
- asset price bubbles;
- near banks;
- regulatory structure; and
- supervisory policy and practice.

### ***A. Valuation and Price Verification***

Over the course of the credit market crisis, one issue that has captured the attention of almost all market participants and public officials is the difficulties of valuation and price verification for complex financial instruments, particularly when the market for such

instruments is illiquid. To a considerable extent this issue arises in the context of instruments that are subject to so-called “fair value” (or “mark-to-market”) accounting, but valuation and price verification problems also arise for financial instruments that are not subject to mark-to-market accounting.

The debate over fair value accounting for financial instruments has raged for many years. It has been brought into even sharper focus over the past 12 months by the belief in some circles that the application of fair value accounting to certain complex financial instruments in a highly illiquid market has exaggerated market instability and added to downward price pressures. Thus, it is said that the application of fair value introduces artificial elements of volatility into financial statements and results, thereby intensifying the crisis. For some who hold this view, it has been suggested that one or more alternatives to fair value accounting should be permitted in certain market conditions, although even the proponents of such concepts tend to recognize the enormous difficulties in defining how such alternatives would work in practice. Others seem to have real doubts as to whether any such alternative could be sufficiently credible so as to not further damage the credibility of financial institutions whose collective reputation is already under strain.

Those who essentially favor the *status quo* regarding fair value accounting – or even its broader application – argue that the overriding benefit of fair value accounting is the discipline it brings to the risk-taking process. These proponents further stipulate that volatility – by its nature – is a reality, particularly in circumstances in which valuations and price verification, properly performed, can produce reasonable results even in difficult market conditions. Finally, those who advocate fair value accounting would also argue that, even with its limitations, there is no reasonable alternative that would be superior.

It is also noteworthy that both sides of the debate recognize that (1) in certain circumstances – notably financial instruments with easily available “market” prices – fair value is the right answer and (2) an alternative of “historic cost” accounting buttressed with discounted cash flow analysis and impairment tests for sub-par assets is not without its own problems. Finally, both sides of the debate acknowledge that there is an element of asymmetry associated with concerns that apply to the market downside, but not the market upside.

Under any circumstance, the details surrounding the application of either set of standards are frustratingly complex for even the most sophisticated observers and practitioners. In all of these circumstances, fresh attention is being devoted to a systematic review of these accounting standards. For example, on June 3, 2008, the IASB announced the formation of an “Advisory Panel of Experts”, drawn from preparers and users of financial statements as well as regulators and auditors, to “discuss the valuation of financial instruments in inactive markets.” Similarly, on July 9, 2007, the SEC conducted a “roundtable” on fair value accounting with a similar objective and a similar cross-section of participants.

It is far too early to anticipate what will emerge from these and other deliberations. However, regardless of what may emerge, the Policy Group is strongly of the view that under any and all standards of accounting and under any and all market conditions, individual financial institutions must ensure that wholly adequate resources, insulated by failsafe independent decision-making authority, are at the center of the valuation and price verification process. While the details of approaches and the family of techniques used for these purposes may – and will – differ from time to time and from institution to institution, these efforts should always pass the two common sense tests of (1) reasonableness and (2) consistency, both of which apply equally to positions or instruments that have gains and positions or instruments that have losses.

## ***B. Asset Price Bubbles***

It is painfully obvious that practitioners and policy makers alike have been less than successful in recognizing the implications of building asset price bubbles even in the advanced stages of their development. In the private sector, this failure reflects the competitive reality that there is a natural aversion against being the last institution in or the first institution out when selective sectors of the economy and financial markets are booming. In the public sector, and especially among monetary authorities, there has been something of an aversion against monetary policy initiatives designed to “target” asset price bubbles on the grounds that (1) such bubbles are difficult to recognize and (2) such policy initiatives may have a disproportionately large impact on the economy as a whole. Even worse, efforts to curtail bubbles may misjudge whether a bubble even exists, such that policy initiatives driven by false signals would have wholly unnecessary adverse consequences for the economy as a whole.

The issue of whether the private sector can do a better job of anticipating asset price bubbles is discussed in the core precepts and in the section on Risk Management. Similarly, public authorities, particularly central banks, are also reconsidering whether monetary authorities might be able – at the margin – to better anticipate asset price bubbles and respond with at least a “tilt” toward a more restrictive monetary policy. Finally, some have also raised the question as to whether the use of contra-cyclical supervisory policies (*i.e.*, selective increases in capital charges) might be contemplated.

The Policy Group believes that active consideration of all of these areas of inquiry is desirable, but in saying so it is also mindful of the “laws of unintended consequences”. That is, this subject matter is highly complex and is one where miscalculation or misjudgment can have serious adverse consequences. Finally, and most importantly, there is no substitute for sustained discipline in both public policy and private action, which remains the best recipe to limit the severity of asset price bubbles and contain their damage when inevitably they occur.

### **C. Near Banks**

In the period since the Long Term Capital Management (LTCM) episode in 1998, so-called “near banks” or “private pools of capital” have become a major force in the overall financial intermediation and risk-taking process. In the eyes of most informed observers, the term “near bank” applies to hedge funds and private equity funds, although some observers would cast a wider net to include large money managers, pension funds and even endowments. However narrowly or broadly defined, the one common denominator shared by all such institutions is that they are not, for the most part, subject to official prudential supervision.

The subject as to whether hedge funds, and to a lesser extent private equity funds, should be subject to some form of direct prudential supervision has been hotly debated since the LTCM episode in 1998. To some extent, and in some jurisdictions, hedge funds have over the past few years become subject to some limited forms of prudential oversight, but not of the nature and scope that is commonplace for traditional banks and the major investment banks in the United States.

The alternative to direct prudential supervision of near banks has been for the authorities to look to the counterparty relations between major regulated institutions and individual hedge funds to provide a meaningful degree of indirect prudential oversight and, when necessary, insights into information on emerging market trends and risks associated with the near banks. As a part of this process of indirect oversight, the major supervisory authorities evaluate, with care and in some detail, the manner in which major regulated financial institutions conduct their counterparty relationships with hedge funds.

During the credit market crisis, a number of hedge funds, including several very large hedge funds, have experienced major difficulties. Some have ceased to exist while others have received substantial financial support from their “owners” or “sponsors”. This has, in some cases, added to the already bloated balance sheets of regulated institutions.

On the whole, regulated institutions have done a credible job in managing their exposures to hedge funds even in the midst of the virtually unprecedented turmoil of the past 12 months. We have not, to date, witnessed a re-run of the hedge fund-driven systemic issues raised by the LTCM episode. On the other hand, it cannot be denied that the activities of at least some hedge funds (and some private equity funds) were important contributing factors to the reach and severity of the crisis.

Quite naturally, therefore, the question as to whether hedge funds and other private pools of capital should be subject to some form of direct supervision is receiving fresh attention. The primary downside to direct supervision is, of course, the so-called “moral hazard” risk of extending direct supervision to these institutions. CRMPG I and CRMPG II expressed serious reservations about such direct supervision, primarily on moral hazard grounds, a reservation that remains with CRMPG III.

In the current circumstances, some attention has been given to a modified form of direct, but standby, supervision. Under this approach, the authorities (*i.e.*, the Federal Reserve in the United States) would step in when problems at one or more hedge funds raise systemic concerns. While such an approach will no doubt be debated in public and official circles, CRMPG III believes that this approach too raises moral hazard questions. Moreover, as a practical matter it would be very difficult to administer such an approach, in part, because of the danger that the standby authority might be triggered when it is

already too late or, because the triggering of such authority might aggravate the very problem it is seeking to mitigate.

#### ***D. Regulatory Structure***

Not surprisingly, the credit market crisis has brought into even sharper focus the issue of regulatory structure, particularly in the United States and the United Kingdom. In both of these jurisdictions one of the central questions on the table for discussion relates to the role of the central bank in the conduct of supervisory policy with particular emphasis on seeking to better mitigate concerns about systemic risk.

This sharpened focus on the role of central banks is a natural outgrowth of the observed fact that central banks, for all practical purposes, are the only instrumentalities of public policy that (1) literally have day-to-day operational presence in financial markets and (2) can provide financial markets with large amounts of liquidity on short notice, while retaining the flexibility to also withdraw that liquidity when conditions warrant.

CRMPG III welcomes the initiative of the United States Department of Treasury in setting forth its “blueprint” for regulatory reform in the United States. The Policy Group recognizes that the public and political debate on the particulars of that blueprint will occur over an extended period of time. Regardless of the outcome of that lengthy debate, CRMPG III believes that the issue of the role of the central bank in the arena of prudential supervision and financial market oversight requires expedited consideration and resolution. Needless to say, and in the aftermath of recent developments, including but not limited to the Bear Stearns case, the resolution of this issue will have to carefully weigh and balance the implications of such resolution for the moral hazard dilemma while recognizing the unique role that central banks play in helping to promote financial stability. In weighing and balancing these factors, the Policy Group would note the following: (1) if the supervisory reach of the Federal Reserve, for example, is to be extended, it must have the direct and ongoing authority to discharge those responsibilities; and (2) legitimate moral hazard concerns notwithstanding, there will always be extreme circumstances in which extraordinary interventions by central banks or governments are necessary. However, as witnessed in recent months, extraordinary intervention by the authorities

clearly does not mean that financial institutions and their shareholders will be protected from substantial losses.

### ***E. Supervisory Policy and Practice***

As noted throughout CRMPG II and CRMPG III, supervisory practice and policy as applied to large integrated financial intermediaries constitute a sizeable challenge for the international community of prudential supervisors. On the whole, however, the supervisory process works reasonably well, especially as the emphasis of supervisory practices has shifted, in recent years, toward a principles-based approach. As noted earlier in this Report, nowhere are the benefits of such a shift in emphasis more apparent than in the March 6, 2008 Report of the Senior Supervisors Group. Thus, the Policy Group believes that there are clear opportunities to apply the philosophy of that effort to other aspects of supervisory practice. Moreover, because the effort of the Senior Supervisory Group included officials from a number of national jurisdictions, the effort was an obvious plus in terms of enhanced international communication and coordination. Needless to say, the follow-up to such efforts as related to individual institutions must largely be conducted by national level primary supervisors on a case-by-case basis. Even allowing for that fact, the cross-border benefits of the approach of the Senior Supervisors Group are a large and positive step in the direction of more effective supervisory practice.

While acknowledging the gains that have been made in supervisory practice, the Policy Group believes that the case for devoting greater resources to the supervisory effort is clear and compelling. The case for greater resources starts with attracting and retaining more, and more highly skilled, personnel and compensating such personnel in ways that will not fully match private sector practices, but will at least narrow the so-called “public service discount” in compensation.

There are, obviously, direct and indirect fiscal costs associated with devoting more resources to the supervisory process that are quite real in the current setting of pressing fiscal problems in virtually all countries. However, in weighing and balancing fiscal priorities, recent experience reminds us that the fiscal costs of enhancements to the resources applied to the supervisory process must be evaluated relative to the costs of failing to move in that direction.

In the arena of supervisory policy, one particular subject that is in need of further progress is implementing Basel II capital adequacy standards. The Policy Group and virtually all observers agree that a risk-based framework for capital standards is the optimal available approach to such standards, especially across borders, individual institutions and classes of institutions.

However, for understandable reasons, the design and implementation of Basel II has consumed almost a decade. Even now, implementation schedules differ among countries, reflecting in part differing views of individual regulatory bodies (especially in the United States). In addition, further refinements in the methodology for calculating the Basel II capital requirements have been recommended by the Financial Stability Forum and are now on the drawing boards. Finally, some observers have long-standing concerns about the potential for a pro-cyclical bias in the application of Basel II. This concern, in part, grows out of the important role of credit ratings in the Basel II methodology; a concern that, if anything, has probably been magnified by the recent issues that have arisen regarding credit ratings.

The Policy Group is under no illusion that there is a quick and easy solution to any of these issues regarding Basel II. Having said that, the Policy Group wishes to urge all deliberate speed on the part of the international community of supervisory authorities in (1) seeking to stabilize, at least for a reasonable period of time, the methodology associated with Basel II, (2) moving toward a common implementation date across major jurisdictions and (3) ensuring a competitive and supervisory level playing field in the application of Basel II across classes of institutions and across national boundaries.

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## **Appendix A:**

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### ***Term Sheets for High-Risk Complex Financial Instruments***

Financial institutions must use term sheets when marketing high-risk complex financial instruments. As this is often the first document reviewed by an investor/counterparty, it is essential that a term sheet convey significant terms and critical information clearly. The Policy Group recommends that term sheets be used when marketing high-risk complex financial instruments, whether in the form of a security, a derivative or other instrument, and that any such term sheets include the following categories of information, where applicable:

- A brief overview of the issuer and its capital structure, including a description of all liabilities to be offered. For each liability, the term sheet should include at least the expected notional, coupon, rating, relative seniority, average life (with underlying assumptions noted) and final legal maturity. For derivatives, the term sheet should identify the swap counterparty and credit support provider, if there is one.
- Identity of the collateral or asset manager, if any.
- Significant characteristics of the expected portfolio, including information regarding expected spread, ratings, geography, industry, asset class, correlation and any minimum or maximum parameters, as well as the significant terms of any hedges (e.g., interest rate, currency), expected to be purchased by the issuer.
- Significant terms, including major service providers (e.g., trustees, swap counterparties, guarantors), denominations, currency, exchange listing (if any), call periods, payment dates, pricing and closing dates, reinvestment periods, call periods, PIK provisions, defaulted asset provisions, termination provisions, make-whole payments, quality and coverage tests, the ramifications of failing applicable tests, substitution/reinvestment/management parameters, payment events (e.g., credit events, floating amount events), voting rights and payment

waterfall terms. Where possible, information should be displayed graphically (e.g., the waterfall may be displayed as a flow chart, rating diversity may be displayed in a pie chart, etc.). Expected or current levels of quality and/or coverage tests should also be displayed against trigger levels.

- Scenario analysis that includes a breakeven analysis for debt and an IRR (or similar) analysis for equity tranches. The analysis should be done over a range of assumptions, including severe downside stress scenarios. Scenario analysis should also include an analysis of what assumptions would result in a significant percentage loss (e.g., 50%) of principal or notional. All implicit and explicit assumptions should be clearly indicated and calculation methodologies should be explained. Significant assumptions should be stress-tested with the results plainly disclosed.
- Investor eligibility requirements (e.g., QIB/QP, Reg. S, ERISA) and expected tax treatment.
- Appropriate risk factors, including risks associated with the instrument structure, leverage, market (interest rate, currency, credit) risks, hedging (if any) effectiveness, counterparty risks, and conflicts of interests with service providers (e.g., multiple roles).
- Appropriate disclaimers.

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## **Appendix B:**

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### ***CDO Risk Characteristics (Excerpted from CRMPG II)***

The following material originally appeared in the July 2005 CRMPG II Report. While some of the references to spread levels, as well as market size, composition and practices reflect structured credit products in the years up to and including 2005, the discussion of CDO products in the corporate and asset-backed markets is still quite relevant.

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#### **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.

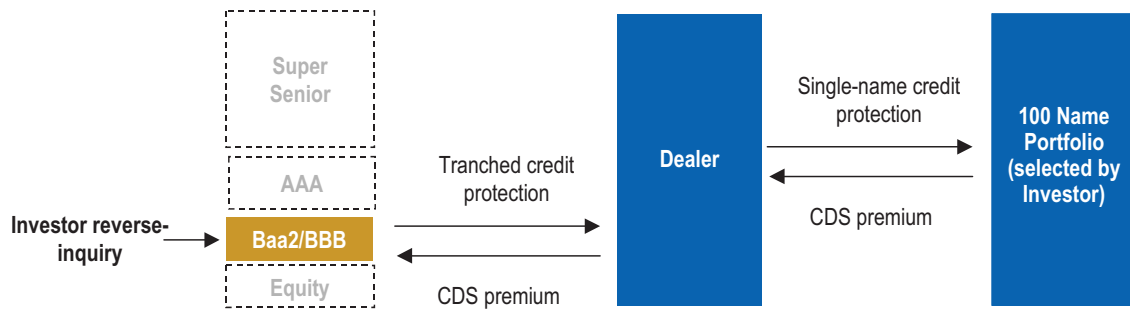
- **Synthetics:** Each vehicle sources exposure to a pool of pure credit risk using credit default swaps (CDS) on 100 or more single-names. Risk is tranching into distinct attachment and detachment points, meaning that investors can customize any number of loss exposures. Most pools are referenced to 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).

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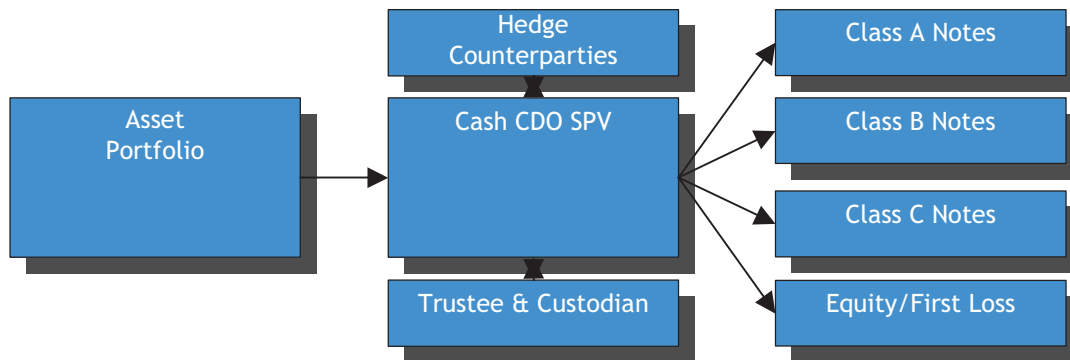
**Chart 4**  
*Indicative Synthetic CDO (Baa2/BBB Tranche)*

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- **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 tranching into various loss exposures with customized structures. Each structure contains extensive rules that restrict asset exposures and triggers that help protect the notes if the collateral deteriorates. Weighted average lives are typically 7 to 12 years.

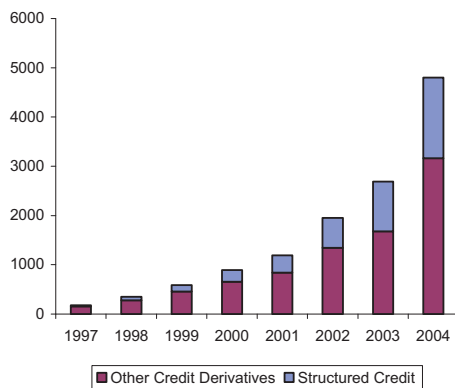
**Chart 5**  
Indicative Cash CDO



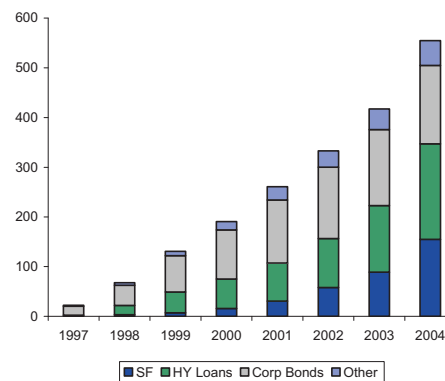
Synthetic issuance can be measured either by the amount of risk actually distributed to investors (approximately \$700 billion globally), or the amount of single-name CDS sold to support this issuance (approximately \$1.6 trillion globally). The latter number is more often cited in the market and can 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 Reg S 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 deleveraging 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 of 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 managers 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.

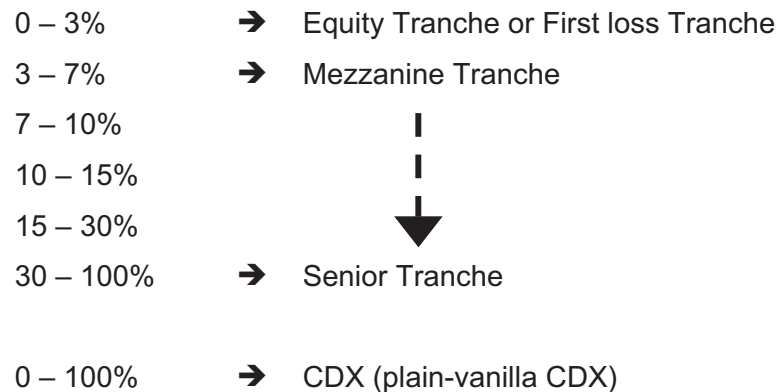
The charts below illustrate the sensitivities of a sample structured credit position to key input variables.

## **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.



- **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

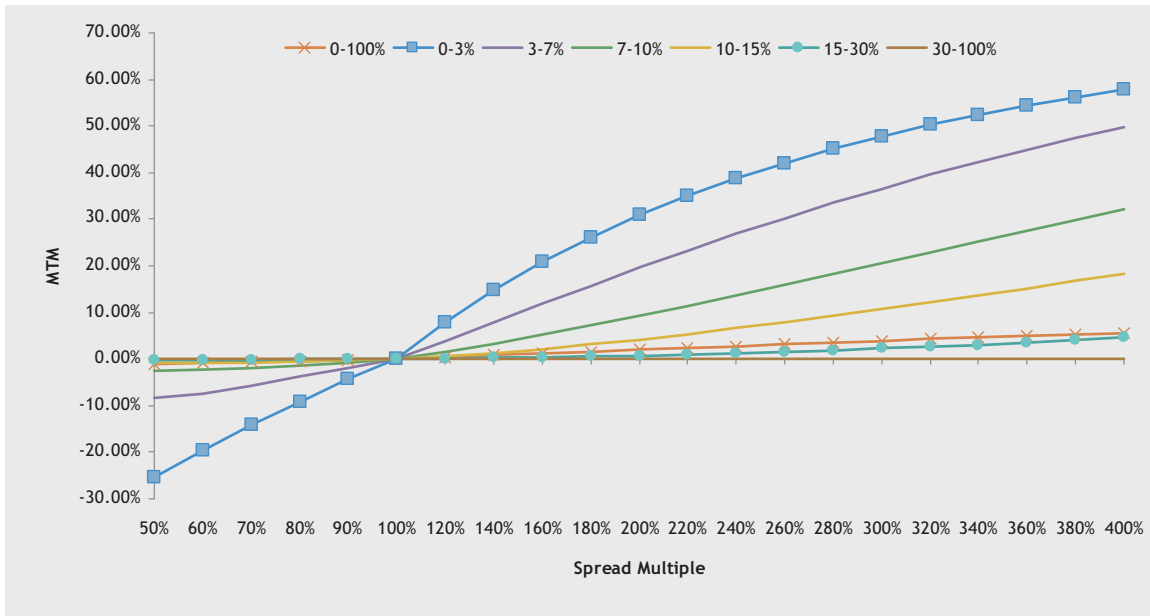
The chart below describes the sensitivity of the CDX (0 – 100%) and the CDX tranches to changes in the CDX Index Spread (in this example, a spread multiple of 100% makes reference to 47bps). The positive slope of both the plain-vanilla CDX and the CDX tranches confirms that a spread widening increases 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.



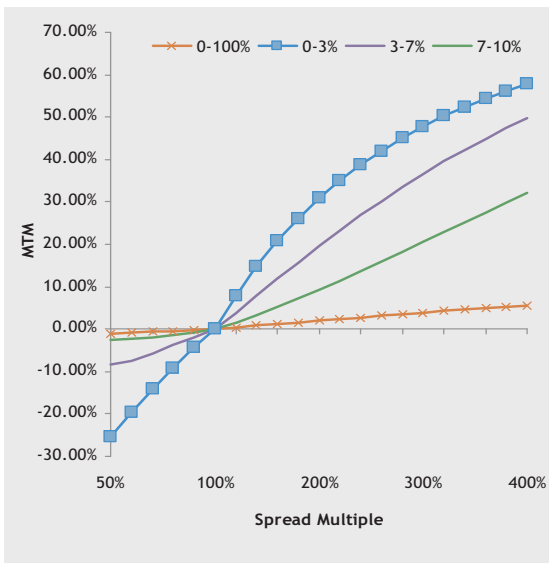
Chart 8

MTM vs. Spread Multiple - all tranches



Note: 0 - 3% assumes no upfront

CDX (0-100%) and Junior Tranches



Senior Tranches

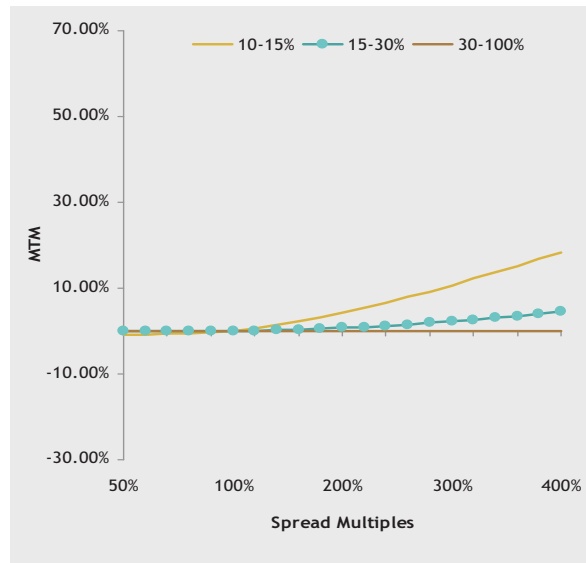


Chart 9 below quantifies the impact that a 100% widening in the index spread (from 47 bps to 94 bps) will have on the MTM of a protection buyer with contracts of \$1 million on each tranche.

**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.

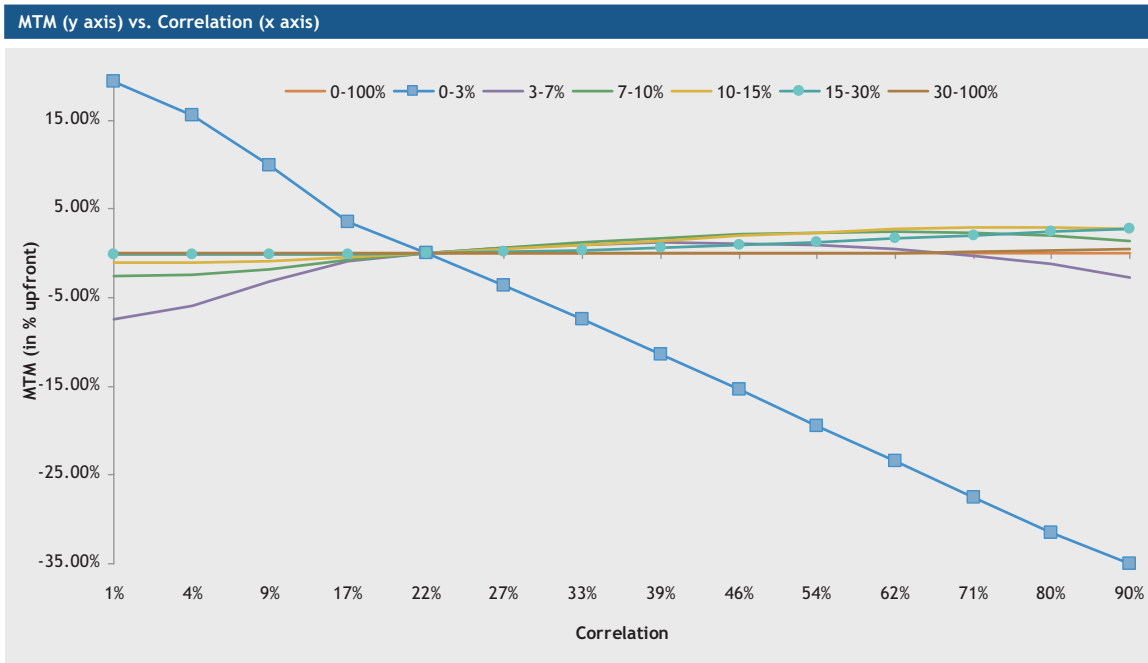
(b) Chart 10: Sensitivity to Correlation

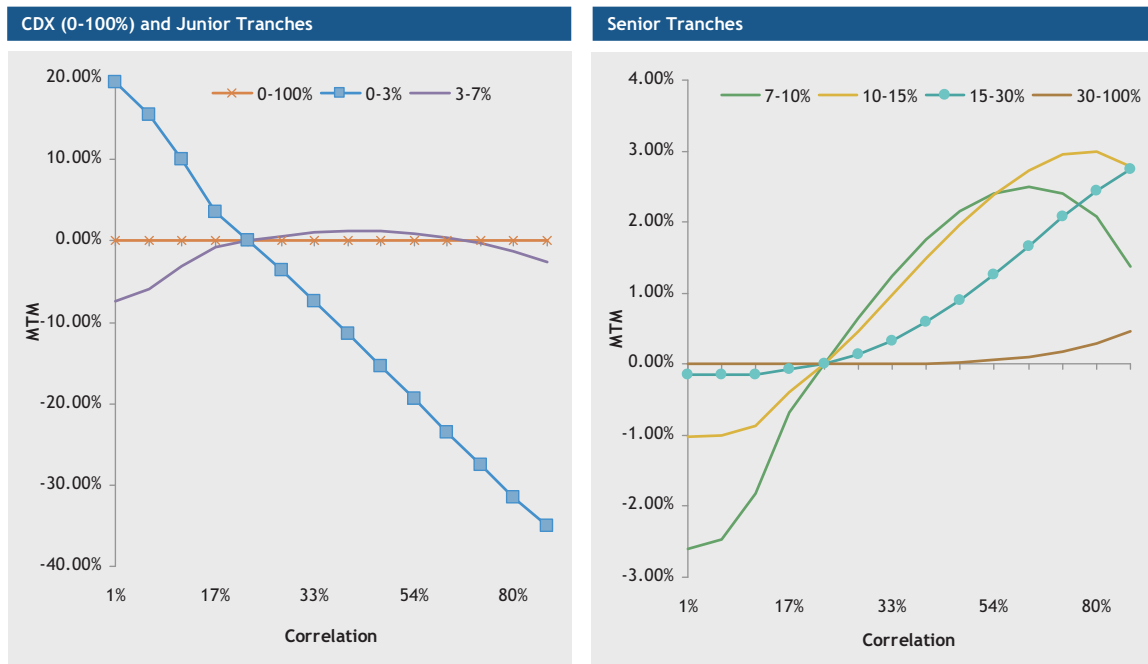
Chart 10 below describes the MTM sensitivity of the CDX (0 – 100%) and the CDX tranches to changes in correlation. Correlation is only relevant to the tranches because the impact of defaults over a specific tranche will depend on the level of tranche subordination. Few defaults (low correlation) will 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





(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%

