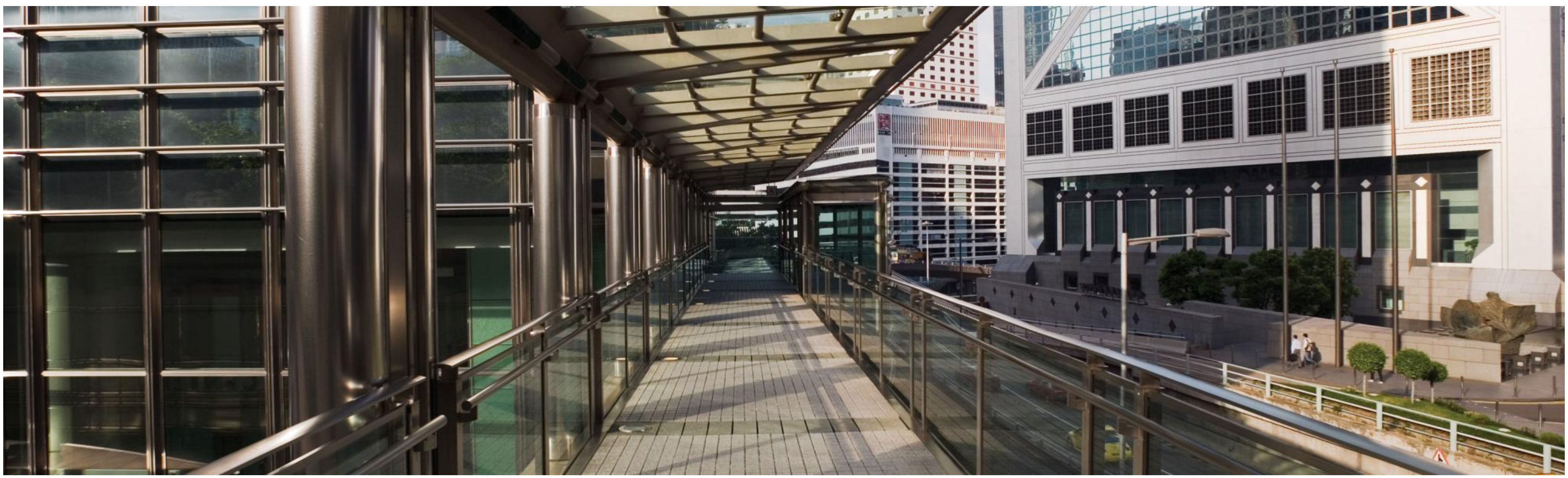
Lehman Brothers' Bankruptcy

Lessons learned for the survivors

Informational presentation for our clients
August 2009



PricewaterhouseCoopers

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Purpose and background

The sudden failure of Lehman Brothers Holdings, Inc., (LBHI or Lehman Brothers) in mid-September 2008 is widely viewed as a watershed moment in the global financial crisis of 2007-2009. With over $639 billion in assets and $613 billion in liabilities, the Lehman Brothers' bankruptcy was the largest in United States history.[1] It eclipsed by nearly double the failure of Washington Mutual two weeks later.[2] By any measure, the LBHI bankruptcy and the subsequent insolvency and bankruptcy filings by other Lehman Brothers entities globally were catastrophic and traumatic events for the worldwide financial markets. This was due in large part to Lehman Brothers' extensive global footprint in the debt, equity, and derivatives markets.

While a full assessment of the causes and effects of Lehman Brothers' failure will be discussed and debated for years—if not decades—to come, we believe certain valuable lessons have already been learned from this event.

The purpose of this document is to present our point of view on the implications of the Lehman Brothers' bankruptcy, and how market participants may respond to the lessons emerging from this historic event.

[1] Lehman Brothers Bankruptcy Filing, http://www.rediff.com/money/2008/sep/16lehman.pdf Accessed 07 April 2009
[2] http://money.cnn.com/galleries/2009/fortune/0905/gallery.largest_bankruptcies.fortune/2.html

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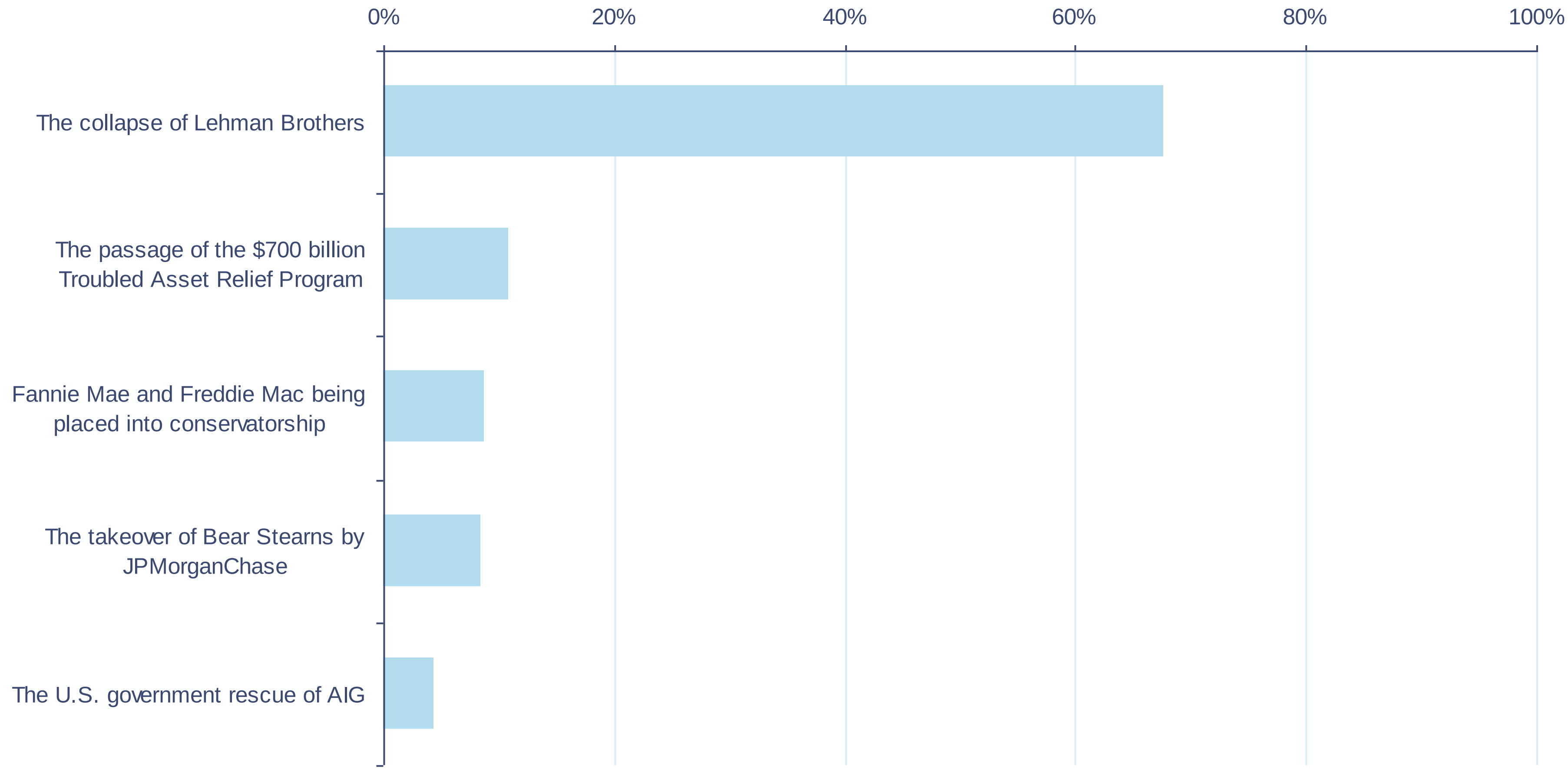
Section 1
The significance of Lehman Brothers' bankruptcy

The significance of Lehman Brothers' bankruptcy

Lehman Brothers' bankruptcy is viewed as a watershed event by the industry. The following shows results from a recent SIFMA survey that asked respondents "What event had the most significant impact on the industry during 2008?".

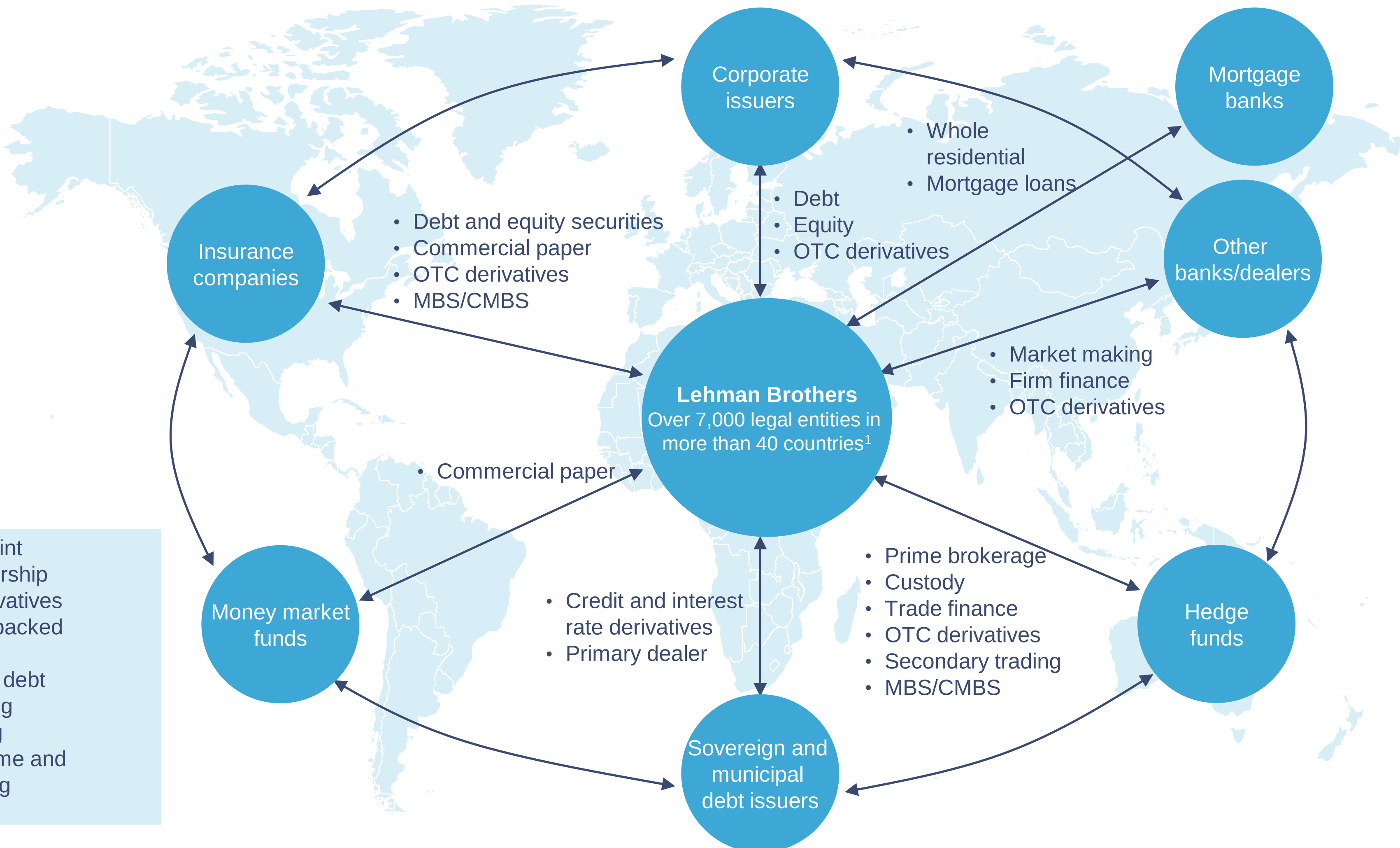


Source: Securities Industry and Financial Markets Association,"SmartBrief", http://alquemie.smartbrief.com, 11 December 2008

The significance of Lehman Brothers' bankruptcy

Lehman Brothers' global footprint meant that thousands of financial market participants were directly impacted by its collapse. In addition, numerous aftershocks were felt throughout the world resulting from numerous cross-border and cross-entity interdependencies. Lehman's insolvency has resulted in more than 75 separate and distinct bankruptcy proceedings.[1]

- Global footprint
- Market leadership
  - Credit derivatives
  - Mortgage backed securities
  - Equity and debt underwriting and trading
  - Fixed income and CDS pricing



[1] Lehman Brothers' press release on cross-border insolvency protocol, 26 May 2009

The significance of Lehman Brothers' bankruptcy

The impact of Lehman Brothers' bankruptcy was intensified because of the entity's globalized legal structure.

Many clients and counterparties found themselves exposed to multiple Lehman Brothers entities in various legal jurisdictions with different bankruptcy and insolvency laws and contractual protections and remedies.

Lehman Brothers' complex, globally distributed group of companies did not file for bankruptcy simultaneously. The LBHI bankruptcy filing on 15 September 2008 set off a chaotic sequence of events around the world, including the filing for administration by Lehman Brothers International (Europe) that same morning and the subsequent appointment of a SIPC trustee for Lehman Brothers, Inc., on 19 September 2009.

The significance of Lehman Brothers' bankruptcy

Key issues arising from Lehman Brothers' bankruptcy continue to challenge industry participants. Firms on both the buy- and sell-sides of the market are beginning to identify and implement risk mitigation measures to reduce the likelihood of future credit and liquidity-based losses.

- Market participants, in particular large and complex financial institutions, continue to address the challenges of accurately quantifying, aggregating, monitoring, and reporting market, credit, and liquidity risks.
- Clients have placed increased scrutiny on selecting and monitoring derivative and other counterparties, including their prime brokerage relationships. This focus includes evaluating risks inherent in contractual agreements and the legal rights and remedies afforded by such arrangements.
- Investors and counterparties are requiring added assurance that their assets and trade obligations are adequately safeguarded, moving business and assets away from arrangements and institutions perceived as less secure, or seeking to modify existing contractual arrangements.

Firms that have weathered the financial crisis thus far are beginning to identify and implement risk measurement and mitigation techniques, while also addressing the complexities of a changing regulatory landscape.

Section 2
Point of view

Point of view

Focus on the critical aspects of risk management

Firms should focus on the following areas in order to mitigate the likelihood of future market- and credit-based losses:
Understand and monitor counterparty, market, and credit risks
Firms should aggressively address the contractual, operational, and technical challenges posed by counterparty risk, particularly on bilateral derivative trades and repurchase agreements. Obtaining an accurate, consolidated view of risk across business units remains challenging for many sell-side firms due to legacy infrastructure and disjointed risk governance models.
Measure, monitor and manage liquidity risk
Management must have accurate daily views of positions, values, and liquidity measures. The ability to monitor and quickly react to changes in liquidity of various asset classes remains essential to maintaining solvency and financial creditability and viability in the marketplace.
Increase the operational effectiveness of collateral management and accurately capture contractual terms
Counterparty collateral management functions at dealers may present hidden ongoing sources of credit risk due to overtaxed systems and processes. The buy-side faces different yet equally significant challenges in managing collateral efficiently in order to optimize funding and reduce excess credit exposure to dealers and banks.
Know your investments
Market participants are analyzing complex financial products to better understand embedded risks, such as the counterparty default risk associated with the credit protection that is integrated into structured debt products.
Hedge funds and other users of prime brokerage are seeking alternative custody models to separate the custodian and trade finance functions
Prime brokerage clients are reviewing legal agreements to better understand important factors such as: • Their rights and remedies in the event of a counterparty default • The location, governing law, and legal jurisdiction in which assets are held • The risks posed by practices such as securities lending (for example, pledging and/or re-hypothecating assets) When negotiating contracts, prime brokerage clients should review contract terms to ensure that default provisions and set off/netting rights are fully documented and understood.
The financial crisis of 2007-2009 has highlighted the importance of transparency of internal controls surrounding the safekeeping of assets held at prime brokerage firms or other custodians
Funds and investors are seeking additional comfort over the existence and, where applicable, the effective segregation of their assets. Clients are also looking for assurance that the prime brokers and custodians holding their assets maintain effective internal controls. Proposed amendments to custody rules will require more robust internal controls over client assets. Firms are reevaluating existing systems and policies.

Point of view

Understand and monitor counterparty, market, and credit risks

Firms should aggressively address the contractual, operational, and technical challenges posed by counterparty risk, particularly on bilateral derivative trades and repurchase agreements.

- We have observed that market participants are undertaking efforts to effectively aggregate and monitor counterparty exposures across all asset classes and relationships. Aggregating counterparty exposure requires a complete and accurate understanding of contractual terms and data relating to trading positions and collateral. Clients carrying portfolio exposure to a financial company's securities, such as bank commercial paper or credit default swaps (CDS) referenced to an entity with whom they trade, should evaluate the degree to which such portfolio risk impacts their total exposure to that counterparty. A similar exercise should be conducted for each counterparty.

- Leading industry practices include giving the chief risk officer authority to monitor aggregate counterparty exposure, and to limit or reduce exposure in response to changes in credit, market, and liquidity risk tolerances. Timely and complete monitoring of aggregated counterparty risk also helps firms avoid the unintended exposure to unwanted risk concentrations. Counterparty exposure should be evaluated as it relates both to bilateral trades, such as over-the-counter (OTC) derivatives and related collateral; unsecured deposits; and prime brokerage assets.

Firms should obtain an accurate, consolidated view of risk across businesses. This can be challenging due to legacy infrastructure and disjointed risk governance models.

- Boards and management need the ability to effectively measure, monitor, and manage market, credit, and liquidity risks at an enterprise level. A common challenge at financial companies that trade multiple, complex asset classes is obtaining an enterprise-wide integrated view of risks from an increasingly diverse range of front- and middle-office applications that support various financial products. Absent a comprehensive view, market participants cannot effectively manage business risks. Long-term, firms should endeavor to manage these risks on a real-time basis. In the short term, however, financial companies should ensure that monitoring techniques are comprehensive, risk models are based on reliable data, and decisions are made using well-understood and robust risk models.

- It is not uncommon for risk governance frameworks and policies to vary considerably within a single firm. Both buy- and sell-side firms are reassessing the ways in which they use technology to integrate risk management into their daily decisions. Firms are also emphasizing the use of meaningful stress testing techniques and ensuring that appropriate documentation is maintained to support risk management procedures and valuation models. In order to achieve the desired outcome, substantial investments may be required to upgrade and optimize technology, and improvements to governance and accountability may need to be introduced. In addition, firms will need to address the challenges of changing risk behaviors.

Point of view

Measure, monitor, and manage liquidity risk

Management must have accurate daily views of positions, values, and liquidity measures. The ability to monitor and quickly react to changes in liquidity of various asset classes remains essential to maintaining solvency and financial creditability and viability in the marketplace.

- Banks and hedge funds can both draw lessons from the liquidity challenges and risks observed in Lehman Brothers' bankruptcy.
- The illiquid market for some structured credit products, auction rate securities, and other products backed by opaque portfolios led to major write-downs across the industry in 2008. The resulting depletion of capital led to credit downgrades, which in turn drove counterparty collateral calls and sales of illiquid assets. This further depleted capital balances. Widening CDS spreads have become widely viewed as a leading indicator of a bank’s financial health and viability.
- Management needs an accurate and complete daily view of gross and net positions, values, and marks. The continued ability to raise and renew short-term borrowing depends to a great extent on a borrower’s reputation. As many firms came to understand firsthand in 2008, a company's entire reputation and viability can be irreparably damaged by a single event if it results in the loss of confidence by market participants. Managers of leveraged pools of capital should be vigilant about changing market depth for less liquid asset classes, especially when an asset class shows signs of becoming less liquid.

Point of view

Increase the operational effectiveness of collateral management and accurately capture contractual terms

The counterparty collateral management functions at sell-side firms may present hidden and ongoing sources of credit risk due to overtaxed systems and processes.

- The role of collateral management is straightforward: to reduce expected losses in the event of counterparty default. In some dealer firms, however, the volume, diversity, and complexity of collateralized transactions have surpassed the ability of the collateral management function to respond effectively. This leads to increased counterparty default exposure. The market downturn and CDS portfolio compression may have provided temporary relief, but if underlying issues persist, they may be masking substantial counterparty default exposures.

- Underperforming collateral management functions can also create potentially dangerous latent exposures by causing or hiding significant risks, such as:
  - Portfolio concentration
  - Inaccurate credit and/or customer data
  - Substandard or missing legal documentation

- We have observed increased efforts by firms across the industry to remediate the operational processes and data that support collateral management and margin functions. In addition, industry and organizational changes have required assignments and novations that potentially impact thousands of OTC derivative trades and associated agreements. To mitigate risks associated with under-collateralization, firms should:
  - Ensure that contractual terms and trade data are accurate and updated
  - Make certain that processes are being employed to verify that sufficient eligible collateral is “called” and collected from each counterparty on a timely basis.

The buy side faces different, yet equally significant, challenges in managing collateral efficiently in order to optimize funding and reduce excess credit exposure to dealers and banks.

- Firms engaged in collateralized transactions, including margin trading, repurchase agreements, securities borrowing/lending and OTC derivatives, increasingly want to optimize funding costs and minimize unnecessary counterparty exposure.

- Firms seek to achieve these goals through effective portfolio reconciliation and collateral management practices. Buy-side firms should:
  - Perform regular and rigorous portfolio reconciliations with all counterparties in order to ensure daily margin requirements are based on the correct set of positions and balances.
  - Where appropriate, recall excess collateral from dealers promptly in order to lower both funding requirements and counterparty risk.

Point of view
Know your investments

Market participants are analyzing complex financial products to better understand hidden risks, such as embedded credit risk.

- Lehman Brothers was a leading dealer in the OTC derivatives market, including CDS. When Lehman Brothers collapsed, it was party to over 900,000 derivative contracts, including significant numbers of CDS contracts. Investors in the OTC derivatives market dealing with an investment strategy or structured products are likely to expect increased transparency into how funds and managers evaluate and manage counterparty and dealer risk.
- By embedding a derivative contract with nonzero default risk in addition to two-way collateral provisions into a product or strategy, fund managers may incur unanticipated types of risk.
- Firms and investment managers should consider additional analyses of possible seller default risks associated with strategies employing OTC derivatives such as CDS.

Point of view

Hedge funds and other prime brokerage clients are seeking alternative custody models to separate the custodian and trade finance functions

Prime brokerage clients are reviewing legal agreements to better understand their rights and remedies in the event of a counterparty's default, the location and governing law and legal jurisdiction in which assets are held, and risks posed by practices such as securities lending

- A central lesson from Lehman Brothers is that prime brokerage clients should understand not only where their assets are being held, but also the contractual provisions and legal remedies that exist should a prime broker or other counterparty default. Assets may not be held at the legal entity with whom the prime brokerage agreement was executed, and may have been transferred to other legal jurisdictions globally. Investor protections and bankruptcy/insolvency laws differ depending on the legal jurisdiction in which assets are held at the time an entity either files for bankruptcy or otherwise becomes insolvent.

- As hedge fund managers seek to avoid unsecured exposure to prime brokers, some funds and their service providers are structuring new custody and finance arrangements. In these "tri-party" arrangements, a prime broker provides financing and short-selling secured by pledged collateral (that is, the fund's position in long securities and cash) held by a third party, such as a bank. These arrangements help investment funds lower their exposure to risks associated with the pledging or re-hypothecation (lending) of client securities by the prime broker.

When negotiating contracts, prime brokerage clients should review contract terms to ensure that default provisions and set off/netting rights are fully documented and understood.

- Lehman Brothers was counterparty to numerous types of financial transactions and had business relationships with investment funds and other market participants. These relationships and financial transactions were governed by different contract standards, including: prime brokerage agreements, International Securities Dealers Association Agreements (ISDA), Margin Lending Agreements (MLA), Global Master Repurchase Agreements (GMRA), Global Master Securities Lending Agreements (GMSLA), and Cross Margining and Netting Agreements (CMNA).

- Many investment funds and other Lehman Brothers counterparties have learned that their contracts with the various Lehman Brothers entities did not include specific protocols to be employed in the event of bankruptcy. In addition, the same contracts did not always provide contractual rights of set-off and netting, resulting in many firms reverting to the rights and remedies under different legal jurisdictions, including the UK, to understand and reduce their Lehman Brothers exposures.

- Market participants should revisit their prime brokerage agreements and other counterparty arrangements to ensure that all risks are understood. Where practical and appropriate, contracts should be renegotiated.

Point of view

The financial crisis of 2007-2009 has highlighted the importance of transparency of internal controls over the safekeeping of assets held at prime brokerage firms or other custodians

Funds and their investors are increasingly seeking assurance that prime brokers and custodians holding their assets maintain effective internal controls and that such assets are appropriately segregated, when appropriate.

- As investment funds seek to improve their own risk management practices and provide additional transparency to their investors, they are likely to demand additional information surrounding their prime broker's internal controls over trade processing, asset custody, and recordkeeping. In light of the Madoff scandal and other recently uncovered financial frauds, hedge funds and their investors are increasingly focused on verification of cash, securities positions, and other assets held by their custodians and prime brokers.
- While increased transparency around the segregation of client assets appears likely, certain industry practices still in use will make it difficult to provide the necessary information. For example, existing prime brokerage arrangements and other related agreements may allow the prime broker to pledge, re-pledge, hypothecate, and re-hypothecate (lend out) the securities in a prime brokerage account, or transfer title.
- Clients should seek to better understand the safekeeping controls implemented by their prime brokers and/or custodians. Prime brokers who are able to provide assurances regarding their internal controls over client assets will have a competitive advantage in the market and be better prepared to respond to increased regulatory requirements regarding the safeguarding of client assets.

Proposed amendments to custody rules will require more robust internal controls over client assets.

- Leading practices around custody of hedge fund assets, prime brokerage agreements, and counterparty risk management are rapidly being redefined in response to the lessons learned and implications from Lehman Brothers' bankruptcy.
- The recently issued proposed amendments to the SEC's Custody Rule would require the following:
  - Registered investment advisors would be subject to annual surprise examinations of client assets by an independent public accountant.
  - If an investment advisor is a qualified custodian and maintains custody of client funds or securities, the advisor would need to obtain an annual written report regarding internal controls accompanied by an opinion by an independent public accountant registered with, and subject to regulation by, the PCAOB (for example, a SAS 70 internal controls report). The internal controls report would need to include a description of the advisor's controls in place relating to custodial services, including the safeguarding of cash and securities held by the advisor or a related person on behalf of the advisor's clients, as well as tests of operating effectiveness.

Firms are reevaluating existing systems and policies.

- Firms that have weathered the financial crisis are beginning to invest in needed improvements to the systems and policies they use to measure and control risk, while addressing a changing regulatory landscape.

Section 3
A framework for response

A framework for response

Managing market and credit risk

Ensure that management has timely, aggregated views of market and credit risk exposure. Implement improved tools to aggregate information, report risk exposures, and improve overall transparency.

- Policies should be implemented to manage capital market risk across the enterprise. This may include re-tooling or developing and implementing robust models to measure market, liquidity, and credit risk. Models and tools should be linked with effectively designed governance practices to establish risk appetite, and to monitor, manage, and report risks.

- Valuation models should be appropriately stress tested to provide senior management with confidence that a complete and accurate picture of the firm's financial position is visible on a daily basis.

- No risk tool or model, however well designed, will produce consistently useful results without high-quality position data and robust, independently verified price information. Firms should review their data management, valuation processes, and operational risk exception reports. Any substandard processes should be remediated. In some cases, this may require substantial investment to replace legacy infrastructure and/or bring enterprise data management up to industry standards.

- To ensure effective and prompt response to deteriorating credit and market conditions, firms should allocate risks by business division or function and assign ownership of risk within each business. Linking business-unit management of risks with the enterprise-wide governance structure should improve a firm's ability to respond quickly and effectively to changing market conditions.

A framework for response
Counterparty risk

Prime brokers should prepare for heightened client attention to safety and soundness as well as internal controls. Funds should ensure they have comprehensive, timely views of aggregate exposure to counterparties and procedures to reduce excess exposures. Diversifying prime brokerage responsibilities among several firms is also prudent, and should be considered as an additional means of reducing counterparty risk.

- Hedge funds are increasingly seeking to obtain comfort that their custodians and prime brokers have established adequate financial and operational controls over the custodial function. Custodians and prime brokers should anticipate increased scrutiny by investment managers, since their investors are demanding increased transparency. The ability to provide reasonable assurance regarding internal controls and related processes may present an opportunity to gain a competitive advantage.

- Firms should have adequate systems and reports to monitor counterparty exposure. Counterparty exposure reports should account for the most up-to-date exposures across all markets and instrument types (e.g., OTC derivatives, unsecured deposits, and prime brokerage balances) and should also account for all credit enhancements. The overall risk management policy should prescribe counterparty credit exposure limits and mitigating actions if exposures exceed prescribed limits.

- Firms should evaluate their asset classes and prime brokerage relationships, and determine whether further diversification of such relationships among several firms is prudent.

A framework for response
Efficient collateral management

Dealer firms should ensure that collateral management functions are structured and resourced appropriately in light of the complexity and volume of transaction activity.

- To effectively maintain collateral and decrease the risk of unsecured default exposures, management should have a clear understanding and awareness of all relevant contractual terms. Understanding the practical application of these contractual terms is also essential to collateral management. Effective utilization of electronic document platforms, standardization tools, and frequent portfolio reconciliation and valuation will further aid in improving the collateral management functions. Firms with large books of collateralized trades should focus on end-to-end data quality and the effectiveness of related processes through timely correction of errors and the prevention of further process deficiencies. Clients should consider investing in sustainable changes to current operating models to improve and maintain data integrity.

- A number of document management vendors have introduced solutions designed specifically to help manage the "terms basis risk" in large populations of ISDA credit support documents. These tools could have significant value in reducing process complexity and greatly improve the accuracy with which firms track and control key provisions and terms of ISDA and related credit agreements.

Buy side firms should ensure that they have visibility into all assets and positions on a real-time basis to evaluate risk exposure data across all counterparties.

The following leading practices in buy-side collateral management should be considered:

- Review activity to determine if transactions are being financed and collateralized efficiently to minimize funding costs and identify areas for improvement.

- Implement a system or utilize software tools to completely and accurately capture data from each prime broker on a daily basis, reconcile the securities positions with each firm and monitor aggregate counterparty risk with each dealer and prime broker.

- Standardize the methodology for calculating mark-to-market values and collateral requirements. Negotiate with counterparties to develop clearly defined escalation and resolution procedures for disputes. These actions will help resolve disputes in a more accelerated and consistent manner and may lead to lower funding costs and reduced counterparty credit exposure. For example, by optimizing the use of portfolio- and cross-margining, funds may be able to reduce the amount of cash collateral required to be posted.

A framework for response
Liquidity and risk modeling

Perform liquidity stress testing to determine the firm's maximum liquidity outflow on a regular basis.

- Liquidity stress testing should include on- and off-balance sheet obligations and include a process to regularly measure the firm’s maximum liquidity cash outflows. The impact of losing key liquidity channels is both firm-specific and dependent upon other systemic risks. For example, stress tests should address: the loss of key sources of liquidity, such as commercial paper; cash outflows from customer withdrawals; and intra-day liquidity exposures, including situations when counterparties desire to hasten settlement during periods of market stress.

- Risk models and the choice of risk measures should realistically factor in liquidity and be updated to reflect changes in market conditions. These liquidity considerations have an impact on the market risk of positions, as well as the risk of default when adverse price movements occur. This cascading effect should be adequately captured in the market and credit risk models.

Engage in transactions that are transparent and understand the impact of leverage.

- Transparency of complex transactions is essential in preventing unfavorable interactions and hidden linkages between trades and/or self-reinforcing risks. To improve the transparency of these transactions, firms should create incentives to implement strategies that use less complex and more liquid instruments. Regular reviews of strategies involving embedded derivatives will also help to ensure that risks are captured and appropriately managed.

- There is discussion in the marketplace that CDS may become regulated in the near-term. In the interim, clients should perform adequate due diligence on the issuers of CDS and other OTC derivatives if they are used as part of credit enhancements for a complex transaction. The credit risk inherent in these instruments should be thoroughly assessed and the embedded derivatives should be monitored to prevent concentration of exposure.

A framework for response

Prime brokerage: contractual provisions, including legal rights and remedies

Increased scrutiny of prime brokerage relationships and applicable bilateral contracts, including provisions governing legal rights and remedies.
• Clients, in particular prime brokerage users, should carefully assess all of their counterparty and margin lending agreements to understand the legal entities to whom they are exposed and the legal jurisdictions in which their assets reside. “Events of default” should be clearly defined with respect to all parties to a contract, and contractual “set off” rights, including master netting agreements, where applicable, should be considered in order to reduce financial exposures in the event of a counterparty default. • Industry initiatives and goals (e.g., >95% T+1 confirmation rates for OTC derivative trades, formation of a central CDS counterparty) may help to mitigate some of the systemic risk present in this market. Increased regulation of the OTC market is also likely to occur and may reduce some of the uncertainty and asymmetry in the OTC credit markets. As an interim measure, clients should review the terms of prime brokerage, bilateral margin, collateral and securities lending agreements to balance more equitably the credit protections afforded both clients and dealers. This would include reviewing contractual rights for the return of assets that may have been pledged or re-hypothecated by a prime broker. • Since regulatory and substantive industry-wide changes may not be fully implemented for months or perhaps years, clients should undertake an immediate effort to reduce the risks associated with inequitably written bilateral agreements and, at a minimum, determine whether management has a comprehensive, current inventory of its contracts and other legal documentation, and evaluate the impact of contract amendments and/or addendums.

A framework for response

Prime brokerage: reporting on internal controls over safeguarding of client assets

Statement on Auditing Standards No.70: Service Organizations (SAS 70) reports may provide prime brokers with the internal controls reporting necessary to satisfy regulatory requirements and provide a competitive edge.

- Prime brokers should consider issuing SAS 70 reports to address the increased scrutiny being placed on safeguarding client assets and to satisfy the SEC-proposed amendments to the Custody Rule, which will require a qualified custodian with custody of client funds or securities to obtain an annual written report on custody controls and opinion by an independent public accountant. SAS 70 reports have been in use for many years in the investment advisor and mutual fund industries.

- To prepare for the issuance of a SAS 70 report, prime brokers should conduct an analysis of the different types of clients that may request a report on controls and the nature of the information they may seek to acquire. Additionally, management should review its current obligations regarding contractual client “rights to audit” to determine whether these rights may be satisfied through the issuance of a SAS 70 report. Finally, clients should consider conducting an assessment of internal controls, and performing related testing, to identify potential internal control gaps that should be addressed in the near term.

A framework for response

Asset verification

Ensure that internal records agree to third-party safekeeping and custody reports, and that assets and securities positions are being held in accordance with contractual terms.
• Perform reconciliations on a daily basis and conduct appropriate follow-up procedures to resolve identified discrepancies. Timely reconciliations will help to ensure compliance with contractual terms. • Some hedge funds are working with service providers to establish ways to segregate assets or to avoid the transfer of title to assets held as collateral under lending arrangements. This model may not be realistic for all funds and asset classes, so certain fund clients may want to obtain more robust periodic asset reconciliations from their prime brokers. Clients may also want to request additional assurances about the broker's internal controls over the safekeeping of cash and securities, and about maintaining complete and accurate books and records.

Section 4
How PwC can help

How PwC can help

Ever-changing regulatory and other critical developments affecting domestic and international financial institutions can be challenging – and are often overwhelming. As a market leader, PwC's financial services professionals continually anticipate, understand, and resolve emerging issues at the forefront of the industry, helping our clients negotiate the maze of regulatory requirements. Our clients include leading asset and alternative investment management and real estate firms, prime brokers, broker-dealers, banks, insurance companies, pension funds and consumer finance organizations.

- We routinely provide a wide variety of services to our financial services clients, including assisting them with the challenges associated with the ongoing financial crisis, such as:
  - Evaluating the effectiveness of enterprise risk management and governance structures;
  - Analyzing and making recommendations to improve processes and procedures over credit, market, liquidity and counterparty risk management;
  - Analyzing exposures to failed financial institutions and gathering documentation supporting claims filed with bankruptcy trustees and other court-appointed liquidators and receivers;
  - Advising on processes and procedures to value complex financial instruments;
  - Reviewing internal control policies and procedures over the collateral management, safekeeping and custody of client assets; and
  - Performing and issuing SAS 70 internal control reports on the effectiveness of internal controls at organizations that service the financial services industry.

Example

How PwC can help

Banks and broker-dealers	Hedge funds
Remediation and process improvement: collateral management, prime brokerage, infrastructure rationalization, enterprise data management, client reporting	End-to-end risk assessments and design of effective controls
Trade processing and risk management system evaluation, vendor selection, re-design, implementation	Assessment and optimization of prime broker, collateral management and margin functions
Process reviews and assurance services for prime brokers	SAS 70s on prime brokers

Risk governance reviews and the development of frameworks, policies, and escalation procedures

Investigation and litigation support in a variety of areas such as counterparty bankruptcies and disputes, trading losses, alleged fraud, and custodial disputes

Section 4
How PwC can help

For further information, please contact:

Americas contacts	
John Garvey	john.garvey@us.pwc.com
	(646) 471-2422
Dan Ryan	daniel.ryan@us.pwc.com
	(646) 471-8488
Emanuel Bulone	emanuel.bulone@us.pwc.com
	(646) 471-5131
Richard Paulson	richard.paulson@us.pwc.com
	(646) 471-2519

Appendix A
Selected qualifications

Selected qualifications
Collateral management and prime brokerage

Client	Issues	Approach	Benefits
Leading wealth management firm	The client faced more than $500 million in unnecessary risk exposure due to outdated collateral management systems, data and processes.	PwC analyzed and tested the client's collateral management systems. We conducted a series of diagnostics to assess processes and data quality, and helped the client remediate thousands of ISDA documents.	The client collected over $1 billion in entitled collateral from its counterparties.
Major national bank	The client needed to replace its aging, spreadsheet-based collateral management system with a modern, integrated platform capable of supporting automated repricing of securities collateral.	PwC developed and validated system requirements, evaluated 6 potential vendors, and helped the client formulate and score a formal RFP within the client's short time frame.	The client identified and selected the preferred vendor platform in a matter of weeks, allowing them to accelerate time-to-value.
Leading prime broker	The client faced heightened competition in the market place from offshore PB platforms, and the need for a more competitive operating strategy.	PwC reviewed lending policies, regulations, and operations to map out alternative solutions to developing new leveraged lending products.	The client increased its product competitiveness in the market in order to protect and enhance its franchise.
Leading prime broker	The client wanted to increase its global footprint, improve client service and product coverage, as well as prevent run-off of market share and revenues to competitors.	PwC conducted a client survey and performed detailed competitor analysis. We used these inputs to provide a frame of reference and held a multi-day offsite workshop with key stakeholders and executive management.	PwC worked with the client to create a detailed future-state vision and action plan that set forth the new strategic plan. Established key implementation milestones and success factors.

Selected qualifications

Trade processing and risk systems

Client	Issues	Approach	Benefits
Large hedge fund	The client wanted to replace a complex environment of vendor and bespoke systems with a streamlined, multi-product trade processing platform.	PwC defined 782 requirements, created over 50 functional scenarios, analyzed 18 vendors, conducted "Best of Breed" analysis, drafted and distributed request for proposals, and provided expertise and negotiation support.	The client improved the control and handle of volume increases and new instruments in an efficient manner. Additionally, the client reduced future system spending through the software conversion.
Large regional bank	The client needed to improve the data architecture of a core risk data warehouse.	PwC worked with the client to develop a prioritized strategy and roadmap, as well as a conceptual data model to facilitate the implementation of the targeted improvements.	The client improved its data governance structure and processes, and implemented programs to build the target data environment.
Major national bank	The client wanted to implement a revised annual compliance risk assessment process.	PwC mapped existing compliance policies to federal requirements. We conducted a pilot risk assessment of the correspondent banking business.	The client revamped its risk assessment plan and reorganized its internal audit program to focus on high priority gaps subsequently identified.

Selected qualifications
Risk management and governance

Client	Issues	Approach	Benefits
Global investment bank	The client's audit committee wanted perspective on competitive positioning, operating performance, and risk management capabilities in the context of credit market-related setbacks.	PwC assessed the firm's risk management model globally against leading industry practices with attention to governance structure, risk organization model, reporting flows and analytics.	The client formulated a view on required improvement priorities and gained a roadmap to critical initiatives aimed at improving capabilities, in order to mitigate the risk of further setbacks.
U.S. branch of international bank	The client was setting up a de novo OTC derivatives dealer and wanted to adopt best-in-class risk management practices.	PwC reviewed the proposed risk governance model, procedures and systems. We compared the client's target operating model to leading practices and made recommendations for immediate and medium-term improvements.	The client received insight into key risk areas, refined their operating model and gained Board approval to launch the new line of business.
Large hedge fund	The client manages several families of funds, portfolio companies and private equity funds with exposure to a financial institution that was placed into bankruptcy.	PwC assisted the client with identifying the nature and extent of its exposures to the failed financial institution, evaluated the contracts and other documents supporting its prime brokerage and other margin lending agreements, and gathered documentation supporting failed securities trades and other OTC derivatives contracts.	The client obtained a comprehensive view of its exposures across all asset classes, an inventory of documents supporting its trading activity with the failed financial institution and information necesssary to file complete and accurate claims with the bankruptcy trustee.

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