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Derivatives

Lesson from Lehman Brothers for Hedge Fund Managers: The Effect of a Bankruptcy Filing on the Value of the Debtor's Derivative Book

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Prior to its bankruptcy filing, Lehman Brothers (Lehman) was a global broker-dealer/investment bank that conducted trades and made investments on behalf of itself as well as its clients, including many hedge fund managers. As part of this business, Lehman entered into a large number of "derivatives" transactions – such as credit default swaps, interest rate swaps and currency swaps – both for speculative and hedging purposes.[1] As of August 2008, Lehman held over 900,000 derivatives positions worldwide, in each case through one of its operating subsidiaries.[2] In many instances, Lehman's ultimate parent entity, Lehman Brothers Holdings Inc. (LBHI), guaranteed the obligations arising out of these derivatives positions.[3] As of August 31, 2008, Lehman internally estimated that, on an aggregate basis, its derivatives positions had a positive net value of approximately $22.2 billion, representing a significant asset of the company.[4]

This substantial "in the money" position abruptly turned "out of the money" as the result of LBHI's bankruptcy filing in the early morning of September 15, 2008. The commencement of LBHI's bankruptcy case – the largest by far in U.S. history, with claims well exceeding $300 billion[5] – provided a contractual basis for a large majority of Lehman's derivatives counterparties to terminate their transactions with Lehman. As a result, more than 80 percent of Lehman's derivatives positions terminated as of, or soon after, the date of the bankruptcy filing.[6] Alvarez & Marsal, Lehman's restructuring advisors, concluded in a three-month internal study that the losses from terminated derivatives trades cost the bankruptcy estate "at least" $50 billion.[7]

This article examines what may be one of the principal reasons why Lehman's bankruptcy filing resulted in such an extraordinary loss in value for the Lehman estate and how Congress has proposed to address this problem in any future failure of a major financial institution.

Background

A large majority of Lehman's derivatives transactions were governed by a form agreement referred to as the ISDA (or International Swaps and Derivatives Association) Master Agreement. (There are two versions of the ISDA Master Agreement – the 1992 version and the slightly modified 2002 version.) LBHI's bankruptcy filing in September 2008 constituted an "Event of Default" under this agreement in transactions where LBHI had assumed the role of "Credit Support Provider" (or guarantor). As a result of this Event of Default, many of Lehman's counterparties, as "Non-defaulting Parties," obtained the contractual right to terminate their transactions with Lehman in their discretion.[8]

Contract provisions that provide for, or permit, the termination of the contractual relationship with the debtor based on the debtor's bankruptcy filing (commonly referred to as "ipso facto" provisions) generally are unenforceable in

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bankruptcy. The U.S. Bankruptcy Code (Bankruptcy Code), however, contains so-called "safe harbors" for derivatives transactions (and certain other financial contracts) that permit counterparties, among other things, to exercise their bankruptcy-based termination rights notwithstanding this general prohibition against ipso facto provisions. Lehman's counterparties relied on these safe harbors and terminated approximately 80 percent of Lehman's derivatives positions based on LBHI's bankruptcy filing (or the ensuing bankruptcy filings of the affiliated primary obligors).

The Bankruptcy Code safe harbors (as generally understood in the market) also permit counterparties to exercise their right to "liquidate" (or reduce to value) the amounts owing from (or to) the debtor following the bankruptcy-based termination of derivatives transactions, notwithstanding any restrictions that may otherwise be deemed applicable.[9] Under the ISDA Master Agreement, the Non-defaulting Party has the exclusive right to calculate such amounts (referred to as "Settlement Amounts"), and may do so in one of three ways (depending on which methodology the parties had contracted to use):

- *Market Quotation*. Many Non-defaulting Parties had contracted to use the "Market Quotation" methodology, which required them to solicit at least four dealers for quotes to enter into replacement transactions for the terminated trades with Lehman. Under this methodology, if the Non-defaulting Party received more than three quotes, it was required to calculate its Settlement Amount using the arithmetic mean of the quotes that remained after disregarding the highest and lowest quotes. If the Non-defaulting Party received exactly three quotes, it was required to rely on the median quote.
- *Loss*. If, in applying the Market Quotation methodology, the Non-defaulting Party was unable to obtain at least three quotes from dealers – or if the quotes received would not have produced a "commercially reasonable" result – it was required to use the "Loss" methodology instead. (Alternatively, the parties could have contracted to use Loss in the first instance, thereby obviating the need to solicit market quotes at all). Under the Loss methodology, the Non-defaulting Party was required to reasonably determine in good faith what its cost (or gain) would have been in replacing the terminated transactions, and assert that value as part of the Settlement Amount. In doing so, the Non-defaulting Party was permitted to take account of a variety of non-exclusive factors, including any loss of bargain or cost of funding.
- *Close-out Amount*. Market Quotation and Loss were options available to counterparties that had transacted under the 1992 version of the ISDA Master Agreement. Non-defaulting Parties that were party to the 2002 version of the ISDA Master Agreement were required to use the "Close-out Amount" method, which is similar to Loss, and does not require (although it encourages) the solicitation of dealer quotes.[10]

Each methodology described above is designed to ascertain what the cost (or gain) would be for the Non-defaulting Party to enter into new transactions to replace the terminated ones.

Analysis

Bid/Offer Spreads

This article focuses on what may be one of the principal reasons why Lehman abruptly lost $50 billion or more in value on its derivatives portfolio following its bankruptcy filing: the application of bid/offer spreads.

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In general terms, a "bid/offer spread" is the difference between the highest price dealers are willing to pay for an asset (bid), and the lowest price for which dealers are willing to sell it (offer). In a typical trading scenario, a dealer that makes a market in an asset would keep this entire spread amount as an earned fee. Therefore, in the simplest terms, the bid/offer spread represents the transactional cost of trading. To give an example, if a market maker were to buy an asset (such as a share of IBM stock) for $10 and then sell it for $11, the bid/offer spread would be $1 – the difference between the bid price ($10) and the offer price ($11).

Another important pricing indicator is the "mid-point" value, which, in the above scenario, would be $10.50 – the average of the bid price and the offer price. In the field of derivatives, open (that is, unterminated and unexpired) trades often are valued on a mid-point basis. Derivatives transactions will on any given day have a positive value to one party and a negative value to the other. Such values are referred to as "mark-to-market" values and fluctuate due to a variety of factors deemed relevant by the market.[11] If two derivatives counterparties have a "Credit Support Annex" in place which requires the "out of the money" counterparty to post collateral to the "in the money" party on a periodic basis, the assessment of how much collateral must be posted would be made by reference to the mid-point values for the underlying trades. When Lehman calculated as of August 31, 2008 that it was "in the money" by $22.2 billion on account of its derivatives book, it is likely to have done so by observing the mid-point values of its open derivatives positions.

Although the mid-point is a useful reference tool for this and other reasons, it is merely a theoretical value. In order for a Non-defaulting Party to determine what the real world cost (or gain) would be to enter into a replacement transaction for a terminated derivatives trade, it would need to obtain bona fide market quotes from dealers or, failing that, estimate what such cost (or gain) would be, among other things, by taking account of the bid/offer spreads that were observed in the market as of the relevant time period. Many of Lehman's derivatives counterparties that had portfolios composed of thousands of transactions with Lehman were unable to obtain quotes from dealers during the chaotic period that followed LBHI's bankruptcy filing. Not only was the market inundated with quote requests around that time, dealers themselves tended to be preoccupied with internal risk management, often leaving little to no availability to respond to quote solicitations. As a result, many Non-defaulting Parties were forced to resort to estimating their replacement costs (or gains), often by adding what they deemed to be appropriate "bid-to-mid" (on the buy-side) and "mid-to-offer" (on the sell-side) spreads to the mid-point values that were applicable for each terminated trade.

Hypothetical Settlement Amount Calculation

The following hypothetical illustrates how Settlement Amounts can be calculated in line with the concepts discussed above. Imagine that Party A and Party B enter into two trades, Trade 1 and Trade 2 (for simplicity, both CDS transactions with different reference obligations), under the ISDA Master Agreement. Party A and Party B have a Credit Support Annex in place that requires the "out of the money" party to post collateral on a daily basis to the "in the money" party in an amount sufficient to cover the net mark-to-market exposure under these two transactions. In accordance with this arrangement, on Day 1, the parties determine that, on a mid-point basis:

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Party A owes Party B $10 million on account of Trade 1; and

Party B owes Party A $8 million on account of Trade 2.

Because Party A owes Party B $2 million on a net basis, Party A posts collateral worth $2 million to Party B.

On Day 5, Party B files for bankruptcy protection, giving rise to the ability of Party A to terminate Trades 1 and 2 in its discretion. Party A exercises this right by delivering a termination notice to Party B on Day 10 (and identifies that day as the "Early Termination Date"). (For ease of discussion, this hypothetical assumes that the mid-point values for Trades 1 and 2 as of the Early Termination Date remain what they were as of Day 1.) On the Early Termination Date, Party A (having opted for the Market Quotation methodology under the ISDA Master Agreement) solicits quotes for Trades 1 and 2 from various dealers. Party A obtains the minimum of three quotes from eligible dealers for Trade 1, but is unable to do so for Trade 2. Party A therefore calculates its Settlement Amount as follows:

Trade 1 – As required under the ISDA Master Agreement, Party A takes the median quote received from the three dealers that responded to its solicitation for quotes. The median quote is an offer of payment by Dealer to Party A in the amount of $9.9 million so that Dealer can "step into the shoes" of Party B. (Because Party B is "in the money" on Trade 1 as of the Early Termination Date in the amount of $10 million on a mid-point basis, it presumably is worthwhile for Dealer to assume this position by paying $9.9 million. The $0.1 million difference between the mid-point value and the quoted price is the profit Dealer hopes to make from taking on this trade.) Under the terms of the ISDA Master Agreement, Party A is required to pay over to Party B this $9.9 million gain.

Trade 2 – Party A, unable to obtain a minimum of three quotes from dealers, is required to revert to the Loss methodology. In order to calculate its Loss amount, Party A refers to industry information sources (such as Quotevision, a commonly-referenced compilation of dealer quotes) and determines that based on a mid-point value, it would be owed $8 million by Party B on account of Trade 2. In order to estimate what the real world cost would be to enter into a replacement transaction for this trade, Party A weighs a variety of factors and determines that in order for a dealer to assume Party B's "out of the money" position in respect of Trade 2, such dealer would demand at least $8.1 million. (Although Party B is "out of the money" on Trade 2 as of the Early Termination Date in the amount of $8 million on a mid-point basis, it presumably is worthwhile for a dealer to assume this position if it were to receive $8.1 million as consideration. The $0.1 million difference between the mid-point value and the quoted price is the profit a dealer would hope to make from assuming this transaction.) Under the ISDA Master Agreement, this estimated amount of $8.1 million – which Party A determines it would have to pay a dealer to "step into the shoes" of Party B in respect of Trade 2 – would constitute a claim against Party B in its bankruptcy filing.

Based on the calculations described above: (x) Party A owes Party B $9.9 million in relation to Trade 1; and (y) Party B owes Party A $8.1 million in relation to Trade 2. Under the ISDA Master Agreement, these amounts are netted to produce a single payable amount of $1.8 million. Party A's payable obligation of $1.8 million is then set off entirely

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against the $2 million in collateral it had posted to Party B on Day 1, before Party B's bankruptcy filing. The net effect of this Settlement Amount calculation is that Party A has a claim against Party B in the bankruptcy case for $0.2 – the amount of the excess collateral.

In the above hypothetical, notwithstanding that the mid-point values for Trades 1 and 2 were assumed to be the same as of the Early Termination Date as they were on Day 1 – when collateral was posted in order to reduce the net exposure between Parties A and B to zero – as a result of Party B's bankruptcy filing and the ensuing termination of those trades, Party A has a claim against Party B for $0.2 million, which is the sum of the charges that Party A determined it would be assessed in the course of entering into replacement transactions for Trades 1 and 2.

Application to Lehman Brothers

As the hypothetical above demonstrates, a bankruptcy filing, by itself, can cause deficits to develop in trading relationships where none existed. This phenomenon may explain, to a degree, why Lehman lost $50 billion or more in value on its derivatives portfolio as a result of its sudden entry into bankruptcy. In accordance with the ISDA Master Agreement, Lehman's derivatives counterparties that elected to terminate their dealings with Lehman appear to have assessed, in most instances, bid-to-mid or mid-to-offer spreads (as applicable) on terminated transactions. Moreover, during the chaotic period that followed Lehman's collapse, the cost of transacting in derivatives tended to be far higher than in other, relatively normal, times (in other words, the bid/offer spreads tended to be far wider), making the impact of this phenomenon more pronounced.

As noted above, in the absence of dealer quotes, Non-defaulting Parties have a substantial amount of discretion in deciding how much additional charges (in the form of bid-to-mid or mid-to-offer spreads) to incorporate into the Settlement Amount calculation. The general guidance offered under the ISDA Master Agreement is that such calculations be done "reasonably" and "in good faith" or on a "commercially reasonable" basis. Lehman has objected to a large number of claims filed by derivatives counterparties on the basis that their asserted Settlement Amounts were inflated.[12] Lehman's position has been that the bid/offer spreads that these counterparties factored into their claims submissions were not reflective of the market conditions that existed after Lehman's collapse. Even assuming that were true, there is no question that a bankruptcy filing can lead to a massive deterioration in the value of the debtor's derivatives book, even if only a portion of the $50 billion in value acknowledged to have been lost as a result of Lehman's chapter 11 filing can be attributed to a proper application of bid/offer spreads by Lehman's derivatives counterparties.

The Legislative Fix

In response to the public's criticism of the financial bailouts in late 2008 and the lack of federal authority to resolve institutions like Lehman in a manner that could contain systemic risk, Congress enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), which was signed into law on July 21, 2010. Title II of the Dodd-Frank Act creates a framework to prevent the potential meltdown of systemically important U.S. financial businesses. This framework includes a new federal receivership procedure, the so-called orderly liquidation authority (OLA), for significant, interconnected non-bank financial companies

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whose unmanaged collapse could jeopardize the national economy. The OLA is part of a new regulatory framework intended, among other things, to improve economic stability and mitigate systemic risk. The OLA generally is modeled on the Federal Deposit Insurance Act (FDIA), which deals with insured bank insolvencies, and also borrows heavily from the Bankruptcy Code. See "Treatment of a Hedge Fund's Claims Against and Other Exposures To a Covered Financial Company Under the Orderly Liquidation Authority Created by the Dodd-Frank Act," The Hedge Fund Law Report, Vol. 4, No 15 (May 6, 2011).

In keeping with the stated goal of preventing the financial meltdown of financial institutions, the Dodd-Frank Act contains a feature that appears to have been intended specifically to address the phenomenon observed above. Although the Dodd-Frank Act – like the FDIA and the Bankruptcy Code – contains safe harbor provisions that permit derivatives counterparties to exercise their right to terminate their transactions with the insolvent entity (referred to under the Dodd-Frank Act as, the "covered financial company") notwithstanding the general stay imposed upon the commencement of the receivership, it also imposes a one-business day stay on the ability to exercise such rights.[13] This temporary restriction is designed to enable the Federal Deposit Insurance Corporation (FDIC), as receiver, to preserve derivatives positions that may constitute valuable assets of the covered financial company by assigning such positions to third parties or, if third-party purchasers cannot immediately be found, to a bridge financial company (a federally-chartered entity formed to temporarily maintain selected assets of the covered financial company). If the FDIC elects to assign a derivatives contract, the Non-defaulting Party loses the ability to terminate the contract based on the insolvency event, and must resume the contractual relationship with the assignee (whether it is a third party or the bridge financial company) who will take the place of the covered financial company.

If Lehman's insolvency could have been resolved under the OLA – and the FDIC had been given ample opportunity to take the necessary actions within the one-business day stay period discussed above – the entirety of Lehman's derivatives book could have been assigned either to a third party or to a bridge financial bank in order to prevent derivatives counterparties from exercising their right to terminate their positions and to compel their continued performance under their contracts with Lehman. That ability, in and of itself, could have preserved billions of dollars in value for the Lehman estate.

Conclusion

In calculating their Settlement Amounts under the methodologies set forth in the ISDA Master Agreement, many of Lehman's counterparties incorporated what they estimated to be the transactional costs associated with replacing the terminated trades with Lehman. This approach may have contributed significantly to the massive and sudden deterioration in the value of Lehman's derivatives portfolio following LBHI's bankruptcy filing. It appears that Congress has fashioned a legislative remedy – in the form of Title II of the Dodd-Frank Act – to address this phenomenon in any future insolvency of a major financial institution.

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Noh has a cross-disciplinary practice with involvement in derivatives, financing and mergers and acquisitions, all with a focus on distressed and bankruptcy situations.

[1] Derivatives are a broad category of financial instruments that derive value from certain specified assets or indices. The value of a derivative is determined by fluctuations in the underlying asset, commonly stocks, bonds, commodities, currencies or interest rates.

[2] Report of Anton R. Valukas, Examiner, dated March 11, 2010 (the "Lehman Examiner's Report"), p. 569.

[3] *See generally* Debtors' Disclosure Statement for Second Amended Joint Chapter 11 Plan of Lehman Brothers Holdings Inc. and Its Affiliated Debtors Pursuant to Section 1125 of the Bankruptcy Code, dated June 30, 2011 (the "Lehman Disclosure Statement"), p. 42.

[4] Lehman Examiner's Report, p. 572.

[5] Lehman Disclosure Statement, Exhibit 6, p. 6-2.

[6] Jeffrey McCracken, "Lehman's Chaotic Bankruptcy Filing Destroyed Billions in Value," The Wall Street Journal, Dec. 29, 2008, at A10.

[7] *Id.*

[8] In instances where Lehman and its counterparties had opted for "Automatic Early Termination" under the governing ISDA Master Agreements, derivatives transactions were deemed to have terminated automatically upon the bankruptcy filing of LBHI, the Credit Support Provider.

[9] In a pending adversary proceeding, *Michigan State Housing Develop. Auth. v. Lehman Brothers Derivative Products Inc. et al.*, Adv. Proc. No. 09-01728, Lehman Brothers has challenged this common understanding of what is meant by "liquidation" and has sought a ruling that the term instead is synonymous with "termination." The chapter 11 debtors thereby argue that the calculation of damage amounts in respect of terminated derivatives transactions fall outside the safe harbors and remain subject to standard bankruptcy principles such as the unenforceability of *ipso facto* clauses. The bankruptcy court has yet to rule on this issue.

[10] Following the near collapse of Bear Stearns in March 2008, some derivatives counterparties (including in some instances Lehman) agreed amongst themselves to apply the Close-out Amount method even with respect to transactions that otherwise were governed by the 1992 version of the ISDA Master Agreement, the concern having been that in times of extreme market volatility brought about by the collapse of a major broker-dealer (such as Bear Stearns), it would be difficult if not impossible to obtain market quotes for large portfolios of terminated derivatives trades.

[11] One common form of derivative is a credit default swap ("CDS"). A CDS is a contract in which one party (the buyer of credit protection) pays its counterparty (the seller of credit protection) a specified amount to assume the risk that one or more designated "reference obligations" (bonds or other instruments) or a "reference entity" (typically a corporate or sovereign) will experience a "credit event" – for example, a bankruptcy filing of the reference entity or issuer of the reference obligation. The value of a CDS will fluctuate based on the market's perception of the creditworthiness of the reference entity (or issuer of the reference obligation) and the likely amount that would become due following the occurrence of a credit event, among other things.

[12] Although Lehman has settled with a number of its counterparties, many derivatives valuation disputes remain pending.

[13] Dodd-Frank Act, § 210(c)(10)(B)(i).