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Counterparty Risk in the Over-The-Counter Derivatives Market

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Monetary and Capital Markets Department

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Abstract

The financial market turmoil of recent months has highlighted the importance of counterparty risk. Here, we discuss counterparty risk that may stem from the OTC derivatives markets and attempt to assess the scope of potential cascade effects. This risk is measured by losses to the financial system that may result via the OTC derivative contracts from the default of one or more banks or primary broker-dealers. We then stress the importance of "netting" within the OTC derivative contracts. Our methodology shows that, even using data from before the worsening of the crisis in late Summer 2008, the potential cascade effects could be very substantial. We summarize our results in the context of the stability of the banking system and provide some policy measures that could be usefully considered by the regulators in their discussions of current issues.

JEL Classification Numbers: F37; G11; G15; G28

Keywords: Counterparty risk, banking system stability, OTC derivatives, regulation

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Contents Page

I. Introduction

The over-the-counter (OTC) derivatives market has grown sizably in the past two years. Notional amounts of all categories of the OTC contracts reached almost $600 trillion at the end of December 2007. These include foreign exchange contracts, interest rate contracts, equity linked contracts, commodity contracts, and credit default swaps (CDS) contracts.[2] Interest rate contracts continue to be the largest segment of this market comprising 66 percent of all OTC derivative market or about $400 trillion. Growth in the credit derivatives segment has been the fastest and the volume has more than doubled in the last year to about $60 trillion.

In this paper we are interested in counterparty risk that may stem from the OTC derivatives markets. The financial market turmoil of recent months has highlighted the importance of such risk. The risk is measured by losses that may result via the OTC derivative contracts to the financial system from the default (or fail) of one or more banks or broker dealers. Thus, in order to quantify counterparty risk, we calculate (expected) losses absorbed by the system under two different scenarios (described in Section II.D). For the estimation of (expected) losses, we define (i) the exposure of the financial system to specific financial institutions (FIs); and (ii) propose a novel methodology to estimate the probability that given that a particular institution (counterparty) fails to deliver, other institutions in the system would also fail to deliver.[3]

With respect to a measure for exposure, we explain that the notional value of contracts does not provide any measure of exposure to quantify counterparty risk. Furthermore, gross market values of these contracts (essentially the total value of all the derivatives that are in-and-out of the money) also do not provide any basis for counterparty risk measure. In fact, we discuss the importance of “netting” within and across all categories of OTC derivative contracts and, reducing this netted amount by the “assigned” cash collateral to come up with a relevant measure for exposure to counterparty risk. With respect to the probability measure, in order to estimate such conditional probabilities, our methodology accounts for linear (correlations) and non-linear distress dependence (DD) among the FI’s that have obligations in the OTC market, and how it changes in periods of distress. These are key technical improvements over models that account only for linear dependence, or assume dependence fixed throughout the economic cycle.[4]

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[2] A comprehensive breakdown of the OTC derivative market is available in Table 1 of Bank for International Settlements release, “OTC derivatives market activity in the second half of 2007,” May 2008.

[3] This methodology is developed in Goodhart and Segoviano (2008).

[4] See Segoviano (2006b) and Segoviano (2008).

There has been very little (if any) research that looks at the full gamut of OTC derivatives market. Most of the recent discussion has been limited to credit derivatives (or the CDS market), that represents only 10 percent of the overall OTC derivatives market. One of the most cited recent works is by Barclays Bank where they acknowledge that "counterparty risk is theoretically present in all asset classes: FX derivatives, interest rate swaps, equity derivatives, commodity derivatives, and credit derivatives."[5] However, they limit their scope only to credit derivatives. They conclude that losses stemming from counterparty risk in credit derivatives market only could range from $36–$47 billion; these would largely stem from re-pricing—or gap risk—from a counterparty fail. Furthermore, they are cautious in not extrapolating their results to the other OTC derivative market.[6] Other research has generally been of a less rigorous analytical nature. A good example includes *Bloomberg* Magazine's July 2008 article, "The Risk Nightmare" that (again) limits the counterparty risk discussion to the credit derivative market only.[7]

A market measure of counterparty risk index is provided by Credit Derivative Research (CDR). The index measures the average CDS spread of the largest 15 credit derivative counterparties and thus, it does not take into account distress dependence among counterparties. This is a key element to take into account if risks are to be estimated adequately. Nor does the CDR index take into account a measure of counterparty liability (i.e., the "exposure"). In contrast, we account for distress dependence—see Section II for details—where the joint and conditional probabilities of default are derived for the portfolio of banks and prime-brokers.

Section II presents our definition of counterparty risk, exposure to counterparty risk, as well as the methodology proposed to measure the probability that, given that a particular institution (counterparty) fails to deliver, other institutions in the system would also fail to deliver. In Section III, we present potential loss estimates for the banking system. As explained further below, the potential loss estimates calculated in this paper should not be confused with the losses estimated in the IMF's October 2008 Global Financial Stability Report (GFSR), which are conceptually and methodologically quite different. Section IV concludes by summarizing our results in a policy framework for the stability of the banking

[5] Barclays Quantitative Credit Strategy Research Note: Counterparty risk in credit markets, 20th February 2008

[6] Barclays use a recovery value of 40 percent and a spread jump range—due to repricing—between 10 bps to 60 bps. These assumptions (such as recovery value that is linked to the cheapest-to-deliver bonds) cannot be used in fx, interest rate, commodity, or equity linked OTC contracts (Singh, 2004; and Andritzky and Singh, 2007). The Barclays study does not use "netted" counterparty risk and does not discern between counterparty liabilities and counterparty assets. We focus only on the counterparty liabilities as the counterparty assets are not re-priced when there is a default or a fail.

[7] Surprisingly, most discussions on counterparty risk by regulators and prominent asset managers such as PIMCO have revolved largely around credit derivatives only.

system, and provides suggestions for reforms in addition to the steps that are presently discussed by regulators.

II. Definitions and Methodology

A. Counterparty Risk

Counterparty risk largely stems from the creditworthiness of an institution. In the context of the financial system that includes banks, broker dealers, and other non-banking institutions (e.g., insurers and pension funds), counterparty risk will be the cumulative loss to the financial system from a counterparty that fails to deliver on its OTC derivative obligation. Thus, in order to estimate the potential cumulative loss in the system, we need to quantify two variables (i) the exposure of the financial system (EFS) to a particular institution or institutions that would fail to deliver; and (ii) the probability that given that a particular institution (counterparty) fails to deliver, other institutions in the system would also fail to deliver. The estimation of such conditional probabilities should incorporate a quantification of DD among the financial institutions that have obligations in the OTC derivative market. Thus in what follows, we define the EFS and present the methodology that we employ to estimate the conditional probabilities necessary to quantify counterparty risk.

B. Exposure of the Financial System to Counterparty Risk

We define the exposure of the financial system to the failure of a particular counterparty as the liabilities of a particular institution (counterparty) to others in the financial system stemming from its OTC derivatives that have not been netted under a master netting agreement (e.g., International Swaps and Derivatives Association) or cross margining agreements where margin/cash is assigned and netted across product categories.[8]

In order to highlight the importance of counterparty liabilities, it is necessary to discuss notional OTC contracts and the gross market value of such notional contracts.

Notional amounts are defined as the gross nominal value of all OTC derivative deals concluded and not yet settled on the reporting date. These amounts provide a measure of the size of the market, but do not provide a measure of risk. Risk in derivatives stems from various other variables including price changes, volatility, leverage and hedge ratios, duration, liquidity, and counterparty risk.[9]

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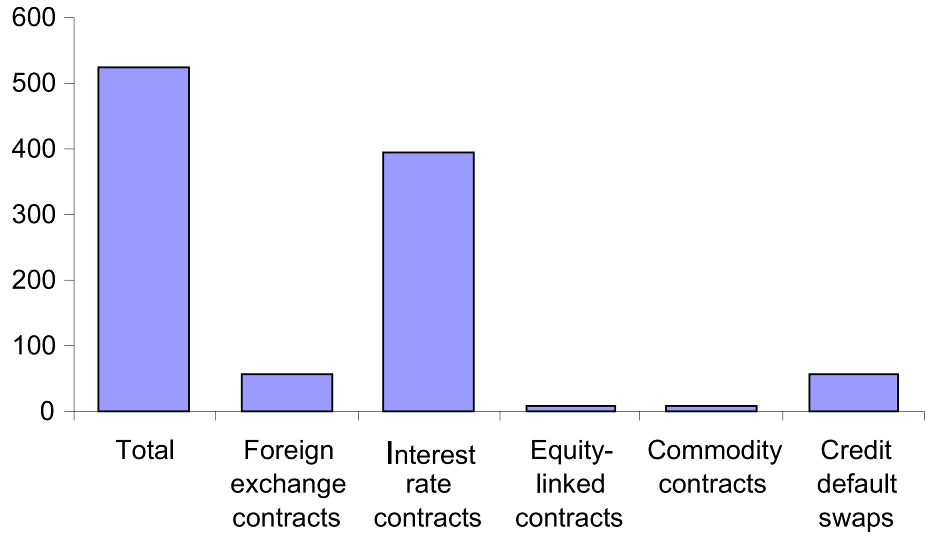
[8] We understand that cross margining/netting will be specific to the master agreement of the institution; thus it is possible that OTC derivatives may not be offset against repot positions. Furthermore, in the U.S., only "core" affiliates are entitled to "mutuality" under one master agreement. Thus peripheral affiliates will not be covered.

[9] See BIS's discussion paper, "OTC derivatives market activity in the second half of 2007," May 2008. Market sources also generally agree with these conceptual definitions.

Figure 1. Global OTC Derivatives as of December 2007

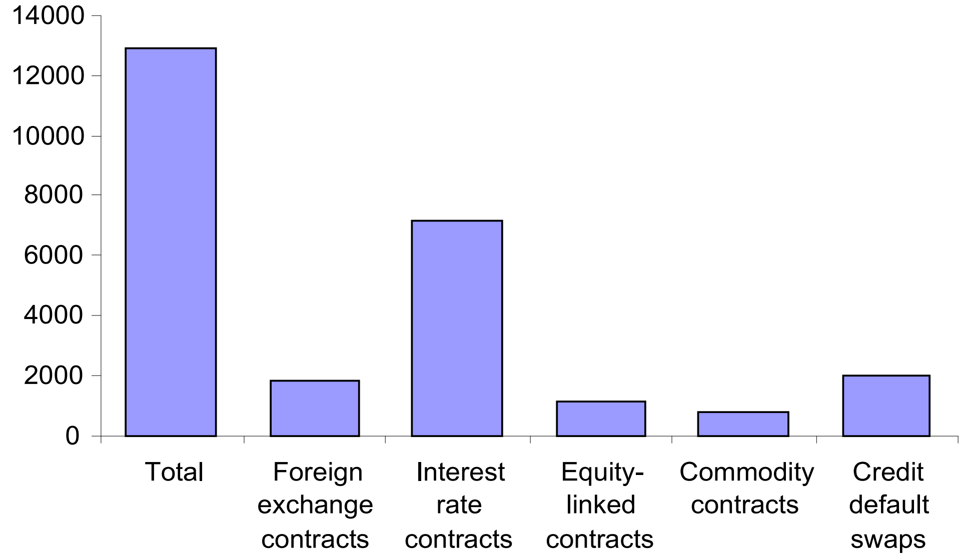
(Notional Amount In Trillion of U.S. Dollars)



Source: Bank for International Settlements.

Gross market values do provide some measure of the financial risk from OTC derivatives. These are all the open contracts that are either in a current gain (or loss) position at current market prices and thus, if settled immediately, would represent claims (or liabilities) on counterparties. Gross market values are correlated to the notional amounts of the derivative contracts: the larger the notional amount, the larger the gross market value from price changes, all other things being equal. Although gross market values capture the economic significance, these values are not netted.

Figure 2. The Global OTC Derivatives Market as of December 2007
(Gross Market Value in US$ billion



Source: Bank for International Settlements.

Thus, counterparty risk will be discussed only in the context of "un-netted" and "unassigned" liabilities of an institution. These liabilities are generally available for all U.S. banks and broker dealers in their 10Q and 10K filings. The Call Reports on the OCC/FDIC website are useful sources to verify this information. Most of the European institutions that are active in the OTC derivative market such as U.B.S. and Deutsche Bank do not comply with the standard 10Q and 10K filings and thus their counterparty liability data are not available. For Bear Stearns, we used their 10K filing from end-November 2007 as their last 10Q filing of end-February 2008 (before being absorbed by JPMorgan) did not have counterparty liability data.[10] An example of the language used in 10Q reports that alludes to counterparty risk is as follows:

A footnote referring to the counterparty assets and liabilities under the table "Fair Value of OTC Derivative Contracts by Maturity," Lehman Form 10-Q (page 80), Feb 29, 2008, states:[11]

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[10] JPMorgan Chase's 10Q filing for end of Q1, 2008 does not mention absorbing Bear Stearns' counterparty liabilities; hence there is no double counting in the data.

[11] Discussions with legal counsel and market participants suggest that repo positions are not generally netted from OTC derivatives positions. Repos are collaterized and concentrated in a couple of clearing banks (JPMorgan and Bank of New York).

> Cross-maturity netting represents the netting of receivable balances with payable balances for the same counterparty across maturity and product categories. Receivable and payable balances with the same counterparty in the same maturity category are netted within the maturity category when appropriate. Cash collateral received or paid on a counterparty basis, provided legal right of offset exists. Assets and liabilities at February 29, 2008 were netted down for cash collateral of approximately $26.5 billion and $17.6 billion, respectively. [The 'Liabilities' for OTC are $36,063, as in Figure 4, are adjusting for netting and cash collateral.]

C. Distress Dependence in the Financial System and Conditional Probability of Distress of Specific Financial Institutions

In order to quantify counterparty risk, it is necessary to estimate the probability that, given that a particular institution (counterparty) fails to deliver, other institutions in the system would also fail to deliver. The estimation of such conditional probabilities should incorporate a proper quantification of DD among the FIs that have obligations in the OTC derivative market.

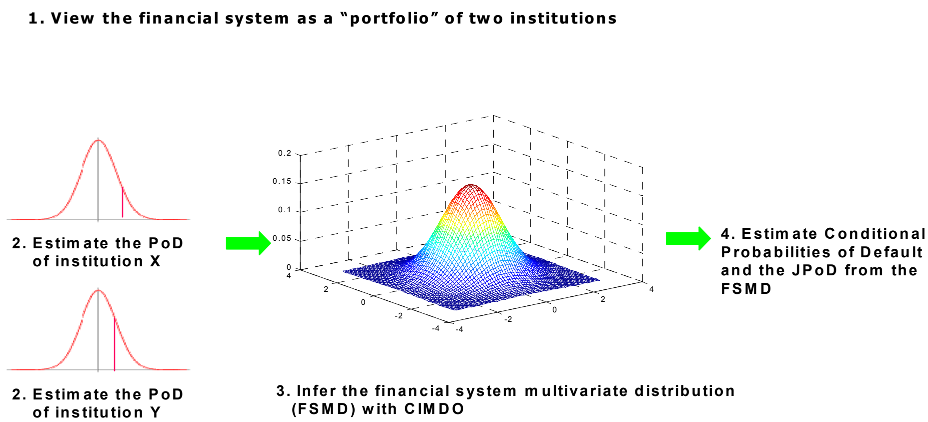
FIs' DD is based on the fact that FIs are usually linked, either directly, through the inter-bank deposit market and participations in syndicated loans, or indirectly, through lending to common sectors and proprietary trades. FIs' DD tends to rise in times of distress since the fortunes of institutions decline concurrently through either contagion after idiosyncratic shocks (direct links) or through negative systemic shocks (indirect links). Therefore, in such periods, the financial system's joint probability of distress (JPoD), which embeds FIs' DD, may experience larger and nonlinear increases than those experienced by the probabilities of distress (PoDs) of individual banks. Consequently, it becomes essential for the proper measurement of counterparty risk at a system level to incorporate FIs' DD and changes across the economic cycle. In modeling DD, we follow Goodhart and Segoviano (2008), summarized in Box 1. Under this approach, we conceptualize the financial system as a portfolio of FIs and model the system's portfolio multivariate density (FSMD) from which a set of conditional probabilities of distress of specific pairs of FIs, and the JPoD are estimated. The FSMD and hence, the estimated conditional probabilities and the JPoD, captures the linear (correlation) and non-linear dependencies among the FIs in the portfolio, allowing for these to change throughout the economic cycle. These are key advantages over traditional risk models that most of the time incorporate only correlations, and assume them constant throughout the cycle.

The set of pair wise conditional probabilities of distress estimated from the FSMD are presented in the conditional distress dependence matrix (DiDe). This matrix contains the PoD of the FI indicated in the row, conditioned on the FI in the column falling on distress (Table 1).

Box 1. Distress Dependence

In modeling distress dependence, we follow Goodhart and Segoviano (2008). Thus, first, we conceptualize the financial system as a portfolio of institutions (FIs). Then, we infer from CDS spreads the PoD of the individual institutions comprising the portfolio. Subsequently, using as inputs (exogenous variables) such PoDs, and employing the Consistent Information Multivariate Density Optimizing (CIMDO) methodology (Segoviano, 2006b), a novel non-parametric approach based in cross-entropy, we derive the FSMD. Lastly, from the FSMD we estimate a set of conditional PoDs of specific pairs of FIs, and the financial system's JPoD (Figure 3).

Figure 3. The Financial System's Multivariate Density



Source: Goodhart and Segoviano 2008.

The FSMD and thus, the estimated conditional probabilities and the JPoD, embed the institutions' distress dependence. This captures the linear (correlation) and non-linear dependencies among the FIs in the portfolio, and allows for these to change throughout the economic cycle. These are key advantages over traditional risk models that most of the time incorporate only correlations, and assume that they are constant throughout the economic cycle.

The distress dependence structure embedded in the FSMD is characterized by the CIMDO-copula (Segoviano, 2008). The structure of linear and non-linear dependencies among the assets in a portfolio can be represented by copula functions. Our approach infers copulas directly from the joint movement of individual PoDs. This is in comparison to parametric copula approaches, in which parametric copula functions have to be chosen and calibrated explicitly—usually a difficult task, especially under data constraints.

Table 1. Distress Dependence Matrix

	A	B	C	D
A	1	P(A|B)	P(A|C)	P(A|D)
B	P(B|A)	1	P(B|C)	P(B|D)
C	P(C|A)	P(C|B)	1	P(C|D)
D	P(D|A)	P(D|B)	P(D|C)	1

Source: Goodhart and Segoviano 2008.

D. Loss Scenarios

Based on the conditional probabilities of distress, we devise two alternative scenarios to quantify counterparty risk.

Scenario 1: Loss due to the probability that at least one FI fails to deliver.

The probability that at least one FI fails to deliver, given that a specific FI failed to deliver corresponds to the probability set marked in the Venn diagram (Figure 3). This probability set corresponds to the union of conditional PoDs of all the FIs in the system, given that a specific FI failed to deliver. Note that among the two scenarios considered in this study, scenario 1 embeds the highest probability of occurrence.

Once the probability of Scenario 1 is estimated, we quantify the (expected) losses of the system under this scenario, conditional on each counterparty failing to deliver. For example, the losses of the system, given that counterparty A failed to deliver (LSc1/A) are represented by the following formula:

$$\left(\mathrm{LSc1}|\mathrm{A}\right) = \mathrm{ExpA} \times 1 + \left[\sum_{i=B}^{i=D} \mathrm{Exp}_i \times \mathrm{P(Scenario\ 1|A)}\right] \qquad (1)$$

Scenario 2: Loss due to the probability that exactly one bank fails to deliver

The probability that exactly one FI fails to deliver, given that a specific FI failed to deliver corresponds to the probability set marked in the Venn diagram (Figure 4). This probability set is defined by (i) estimating the union of conditional PoDs of all the FIs in the system (as in Scenario 1); and (ii) subtracting the intersection of such conditional probability sets. The event of exactly one FI failing to deliver, given that another counterparty already failed to deliver, embeds a lower probability of occurrence than the probability estimated under Scenario 1.

Figure 4. Probability that at Least one Financial Institution Fails to Deliver

Scenario 1: Loss Due to the Probabilitv That At Least One Bank Fails to Deliver

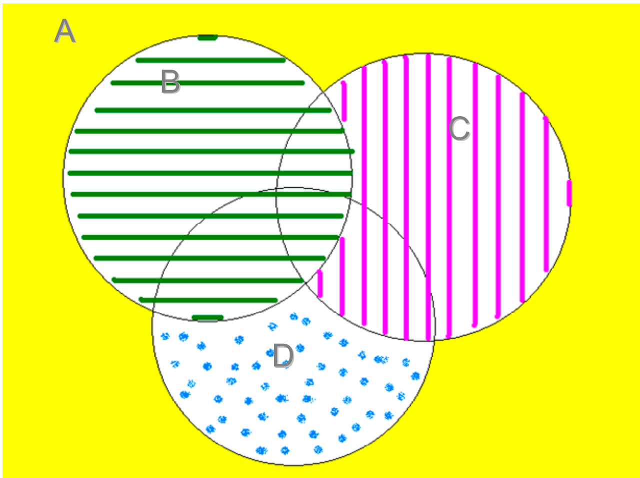
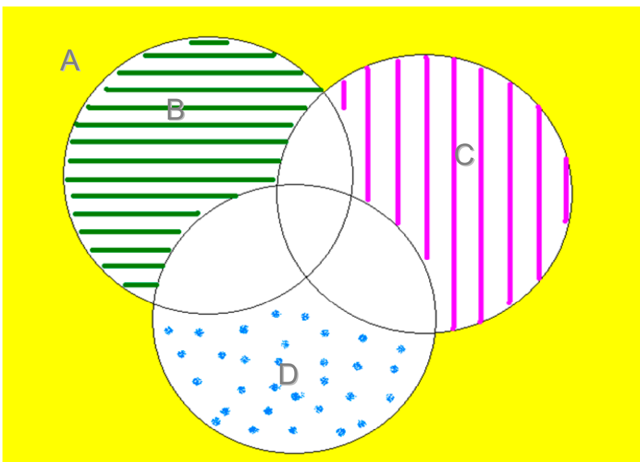


Figure 5. Probability that Exactly one FI Fails to Deliver

Scenario 2: Loss Due to the Probability That Exactly One Bank Fails to Deliver



Under Scenario 2, the (expected) losses of the system, given that counterparty A failed to deliver (LSc2/A) are represented by the following formula:

$$\left(LSc2|A\right) = ExpA \times 1 + \left[\sum_{i=B}^{i=D} Expi \times P(Scenario\ 2|A)\right] \qquad (2)$$

III. Counterparty Risk: Empirical Estimation

A. Counterparty Risk Exposure

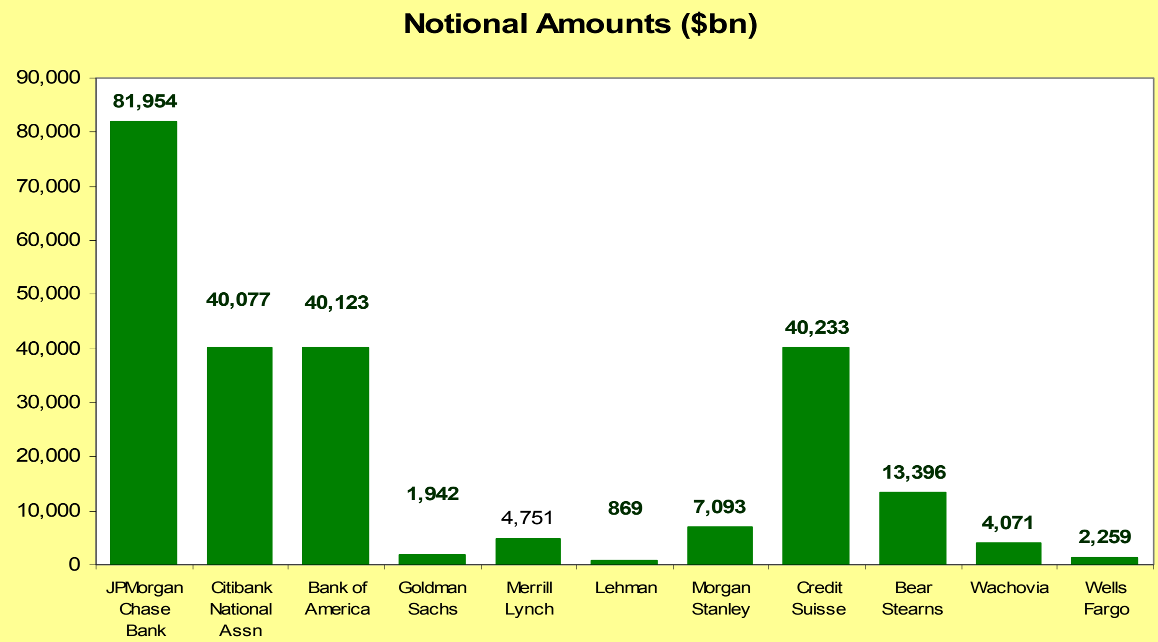
We use date from before the Lehman failure in late Summer 2008 to illustrate the methodology. The banks and prime brokers that are included in our sample include JPMorgan Chase, Citibank, Bank of America, Goldman Sachs, Merrill Lynch, Lehman, Morgan Stanley, Credit Suisse, Bear Stearns, Wachovia, and Wells Fargo. We also found the counterparty liability data for Credit Suisse, the only European institution in our sample, in their Form 20-F SEC filing. All data refers to the first quarter, 2008 filing of the above institutions. Bear Stearns data is from their 10 K filing from November 2007 since their last filing was on February 2008 and it does not provide counterparty liability data.

The BIS's global OTC derivative survey comprises about 60 banks, non-financials and dealers. These show a $3.2 trillion dollar netted counterparty positions which includes assets and liabilities. Assuming the OTC data to be the overall population where in aggregate counterparty liabilities should not be very different from counterparty assets, $1.6 trillion can be used for the total counterparty liabilities that are not "netted." Our sample shows $630 billion of counterparty liabilities or about 40 percent of the total OTC data. This fraction could be higher if $3.2 trillion has to be lowered for assigned cash collateral. [12]

[12] The $3.2 trillion netted position could be lower if adjusted for assigned cash collateral. For the purposes of this study, we assume that $3.2 trillion is in line with the counterparty liabilities from the various 10Q reports that are 'netted' and also reduced by the assigned cash collateral.

Figure 6. OTC Derivatives: Notional Amounts as of end of March 2008

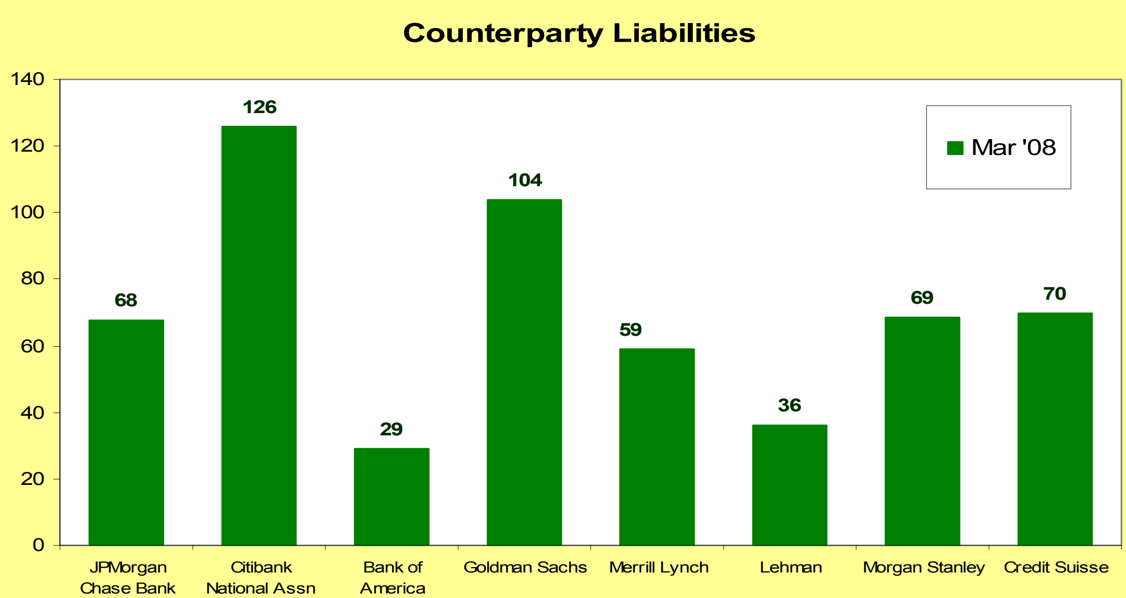
(US. Billions)



sources: 10Q reports, Call Reports from FDIC and staff estimates in a couple of cases.
For Credit suisse March 31 exchange rate CHF 1= $1.132.

Figure 7. OTC Derivatives: Counterparty Liabilities as of end of March 2008

(US. Billions)



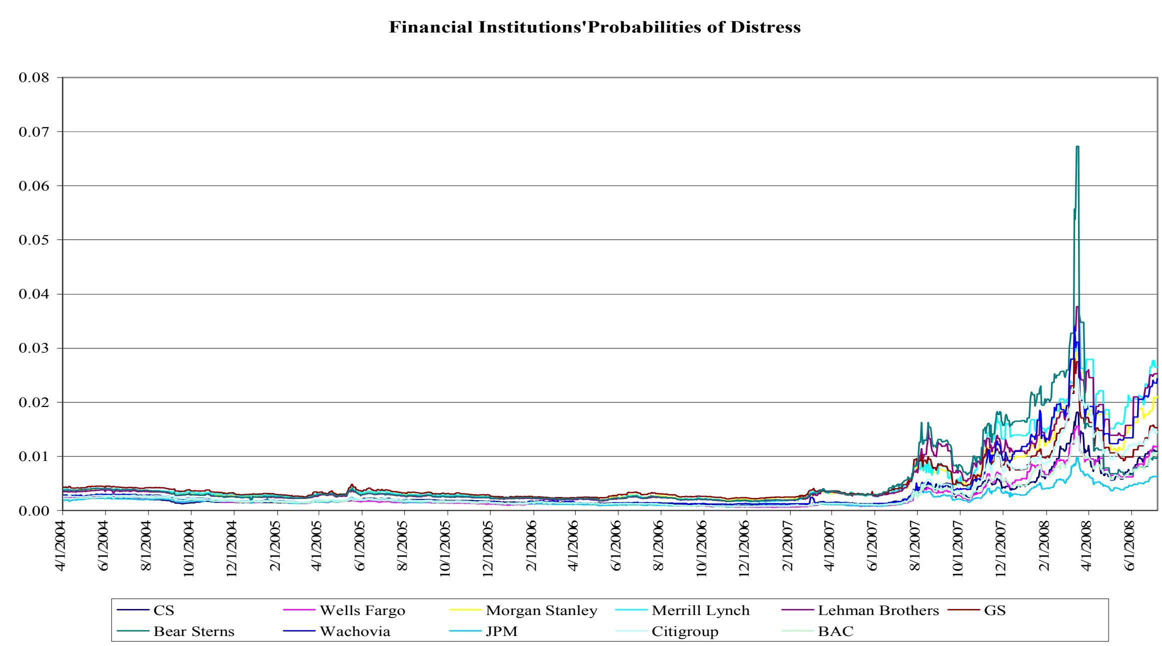
sources: 10Q reports, Call Reports from FDIC and staff estimates in a couple of cases.
For Credit suisse March 31 exchange rate CHF 1= $1.132.

B. Conditional Probability of Distress of Financial Institutions

In order to estimate the probability that, given that a particular institution (counterparty) fails to deliver, other institutions in the system would also fail to deliver, we follow Goodhart and Segoviano (2008). Thus, first, we conceptualize the financial system as a portfolio of FIs. Then, we infer from five year CDS spreads the PoD of the individual institutions comprising the portfolio. As it is well known, such PoDs are risk neutral. Since our final objective is to quantify losses, we adjusted these PoDs for risk aversion. The methodologies to estimate PoDs from CDS spreads and to adjust for risk aversion are described in Goodhart and Segoviano (2008). The adjusted PoDs are presented in Figure 8.

When estimating PoDs, we used a fixed recovery rate of 40 percent. During the distress, the recovery value of bonds may be higher or lower than 40 percent and is best approximated by the cheapest-to-deliver bonds (Singh, 2006). Thus, probability measures will be a function of the cheapest-to-deliver-bonds. Our CDS and other data are immediately after Bear's merger with JPMorgan and thus Bear's bonds did not collapse in value; hence recovery value remained at par and our choice of constant recovery is robust for probability calculations. However, if studies use CDS data after Lehman's default, this will necessitate the use of variable recovery value or in its absence, the cheapest-to-deliver bonds.

Figure 8. Probabilities of Distress of Financial Institutions Included in this Study



Subsequently, using as inputs the risk aversion-adjusted PoDs, and employing the CIMDO methodology, we derived the FSMD. From the FSMD we estimated the DiDe (Table 2).

Table 2. Distress Dependence Matrix

3/31/2008	FI1	FI2	FI3	FI4	FI5	FI6	FI7	FI8	FI9	FI10	FI11
FI1	**1.00**	0.30	0.77	0.45	0.42	0.41	0.35	0.32	0.43	0.28	0.36
FI2	0.58	**1.00**	0.63	0.52	0.52	0.55	0.48	0.47	0.54	0.44	0.55
FI3	0.51	0.21	**1.00**	0.30	0.32	0.30	0.24	0.22	0.30	0.17	0.25
FI4	0.88	0.52	0.89	**1.00**	0.70	0.67	0.61	0.59	0.66	0.52	0.56
FI5	0.66	0.41	0.75	0.56	**1.00**	0.58	0.53	0.50	0.59	0.38	0.44
FI6	0.69	0.48	0.78	0.59	0.64	**1.00**	0.59	0.54	0.68	0.41	0.51
FI7	0.90	0.64	0.94	0.82	0.87	0.90	**1.00**	0.78	0.87	0.62	0.70
FI8	0.91	0.67	0.95	0.84	0.89	0.89	0.83	**1.00**	0.89	0.64	0.73
FI9	0.76	0.49	0.81	0.60	0.67	0.70	0.59	0.56	**1.00**	0.38	0.51
FI10	0.26	0.21	0.24	0.25	0.23	0.23	0.23	0.22	0.21	**1.00**	0.37
FI11	0.43	0.34	0.45	0.34	0.34	0.36	0.32	0.31	0.35	0.47	**1.00**

For example on March 31, 2008, this matrix indicates the PoDs of the FIs indicated in the rows, conditioned on the FIs in the columns falling on distress.[13]

With these conditional probabilities, and the counterparty risk exposures as of March 31, 2008, we proceeded to estimate losses under Scenarios 1 and 2. The losses (in billions of dollars) due to the probability that at least one FI fails to deliver (Scenario 1) and due to the probability that exactly one FI fails to deliver (Scenario 2) were as follows (Table 3):

Table 3. Losses Under Alternative Scenarios

(In billions of dollars)

3/31/2008	FI1	FI2	FI3	FI4	FI5	FI6	FI7	FI8	FI9	FI10	FI11
Scenario 1	606.66	532.94	607.48	597.05	599.67	603.73	589.88	577.05	602.09	532.49	572.77
Scenario 2	34.22	163.48	69.38	51.63	30.65	115.53	72.72	100.37	85.21	72.02	116.78

As explained in Section III.A, the sample that we employed to estimate counterparty exposure comprises $630 billion of not "netted" counterparty liabilities; i.e., approximately 40 percent of the total OTC not "netted" counterparty liabilities. Therefore, in order to approximate the total losses in the OTC system, we extrapolated the losses obtained with our sample. The extrapolated losses were as follows (Table 4). As can be seen, and based on the March 2008 data, in the case of a single institution failure, the total loss could be as high as $300–$400 billion depending on the FI; but when cascade effects are taken into account, the total loss could rise to over $1,500 billion.

It should be noted that these estimated potential losses are quite different in concept and methodology from the loss estimates in the IMF's October GFSR. First, here we look at potential losses in the global OTC derivatites market, whereas the GFSR estimates the losses on US-originated debt and securities. Second, here the losses depict extreme potential results

[13] In order to keep the estimations corresponding to specific FI's anonymous, we omit FI's names and have changed the ordering of FI's with respect to the ordering shown in the charts above.

derived from a probabilistic examination of potential cascade effects. In contrast, the GFSR estimates are based on losses that have already been incurred and predicted write-offs.

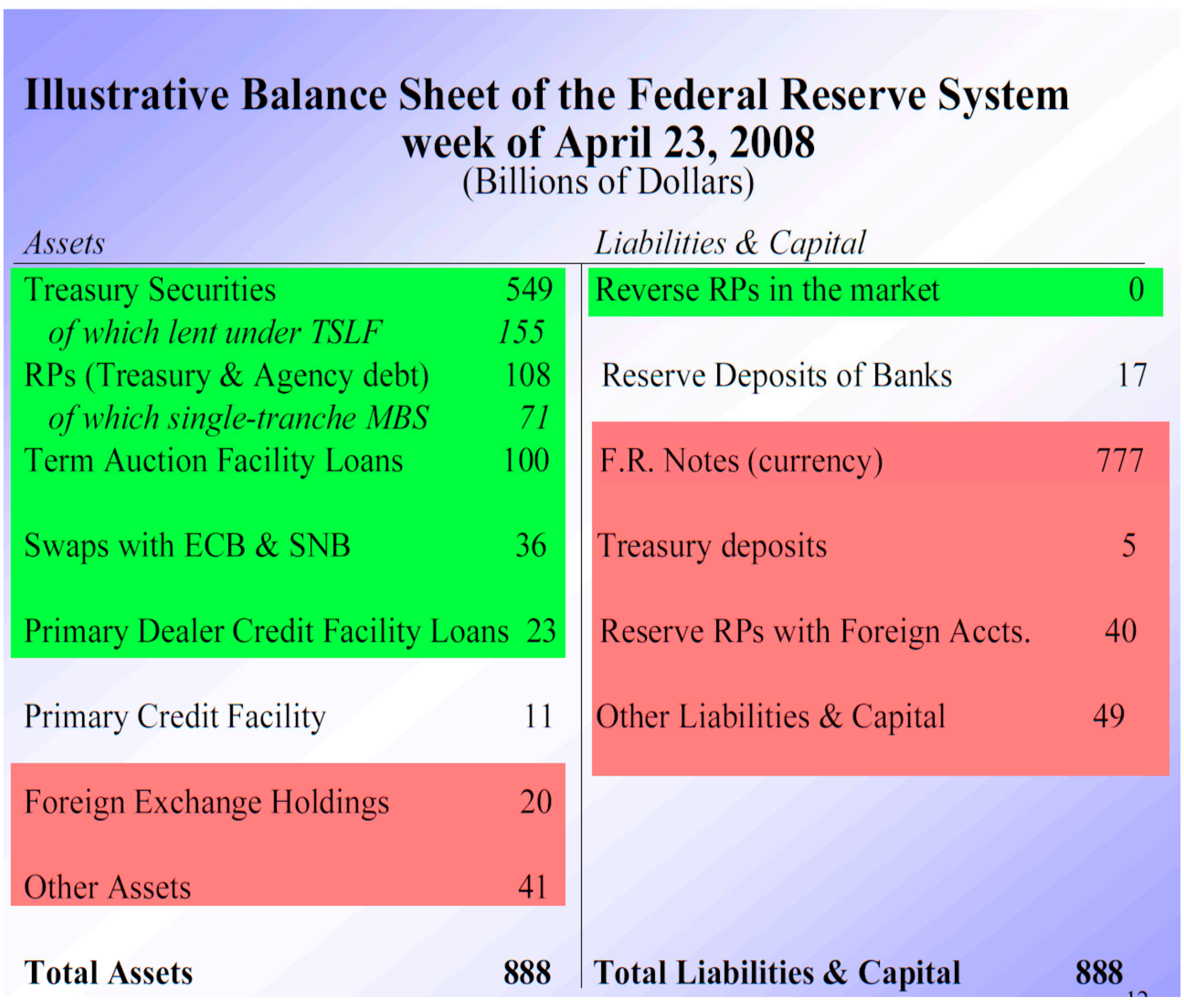
Table 4. Extrapolated Total Losses Under Alternative Scenarios

(In billions of dollars)

3/31/2008	FI1	FI2	FI3	FI4	FI5	FI6	FI7	FI8	FI9	FI10	FI11
Scenario 1	1596.46	1402.48	1598.64	1571.18	1578.08	1588.77	1552.31	1518.55	1584.44	1401.30	1507.30
Scenario 2	90.05	430.20	182.58	135.86	80.65	304.04	191.37	264.12	224.25	189.54	307.33

Figure 9 shows the Fed's Balance Sheet as of April 23, 2008. There it can be seen that the U.S. Treasury securities (AAA) available were just above $500 billion after the $29 billion loan to JPMorgan for Bear Stearns. Thus the Fed's balance sheet at that time was not big enough to absorb counterparty losses under Scenario 1, if more than one FI fails.

Figure 9. Fed's Balance Sheet as of April 23, 2008



IV. Conclusion and Policy Implications

The OTC derivatives market is tailored to clients' needs and thus goes beyond what is available in the standardized contracts that exchanges offer. Assuming anywhere from 1-25 basis points bid/ask spread on the notional value traded (about $ 600 trillion), dealers derive a significant income from OTC derivatives markets. Thus banks and prime brokers have a vested interest in protecting their franchise, and therefore limit transparency and standardization. However, if indeed the results of our scenarios are illustrative, counterparty risk is large (and especially large where cascade effects result in more than one bank or prime broker failing). In addition, the re-pricing risk following a counterparty failure cannot be easily quantified. Pressure to re-hedge at such times will be enormous and perhaps unaffordable, which could lead to unanticipated pressures on the financial system.

In light of this, here are some suggestions*, in addition* to those being proposed, that could further support the ongoing efforts to reduce counterparty risk in the OTC derivatives market:

- "Cross margining" requirements across product silos could be encouraged further. For example, allow cross netting across legal entities for CDS and repo contracts. Proposals for multilateral trade terminations are on these same lines. All ex-dealers had already developed their form agreements to facilitate cross agreement netting and margining that is offered to clients.

- With the Fed offering previously unavailable facilities to prime brokers (e.g.,Term Auction Facility Loans and Primary Dealer Credit Facility), all major derivative players (not only commercial banks) might be induced to go through a central clearing system, irrespective of their idiosyncrasies.

- The recent voluntary "commitment" to reform by the major dealers (now commercial banks) may be a quid-pro-quo for the Fed; this includes 75 percent of OTC equity and derivative trades being on electronic platforms by January 31, 2009 and an auction-based settlement mechanism for CDS contracts. Some market sources suggest that many banks (and ex-primary broker-dealers) may prefer to side-step exchanges; traders and other market sources suggest they would rather limit the flow of information and transparency to regulators.[14]

- However, most regulatory efforts are focused only on credit derivatives or about 10 percent of all OTC derivatives. Recent "tear-ups" (e.g., TriOptima) may be

[14] Standardization may increase basis risk, as tailor-made hedges are no longer available, but it may be preferable to have some basis risk than be exposed to a counterparty default.

forthcoming soon from Clearing Corp via Depository Trust & Clearing Corp.[15] The Chicago Mercantile Exchange (CME) is a viable proposition too and has hedge fund industry support. The CME has recently announced a joint venture with the hedge fund Citadel Investment Group to launch a combined trading and clearing operation that would aim to standardize the CDS contract and its associated bilateral margin requirements. Looking beyond the CDS market, the interest-rate swap (IRS) market should be addressed and Nasdaq OMX will likely launch the first exchange to trade and clear IRS, a market more than six times larger than CDS.[16]

- Collateral should be liquid securities and not merely of a high credit quality. Moreover collateral should be allowed to be rehypothecated. The ISDA Collateral Surveys, available on their website, are mostly cash and government securities (US and some European). If collateral could not be rehypothecated, though, the entire financial system would be put at risk, as this is the basis of so much activity in the system. The clearing house would allow netting down all collateral between individual counterparties at the level of the exchange which will act as the Central Counterparty for all trades.[17]

- Changes to increase the offsetting of new trades against old ones should be allowed. This could be done by increasing the standardization of CDS contracts, by reducing the number of dates to quarterly on all CDS (EM is now monthly) and limiting the premiums eligible for new trades, such as in 25bps or 50bps increments. Although details of the CME–Citadel venture are not public, standardization is most likely to be achieved by converting the running premium contracts to all up-front, and drastically reducing the number of allowable credit events.

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[15] TriOptima has been available for interest rate swaps but has never taken off and little attention has been given to non-credit derivatives. Market sources indicate that dealers have equity stakes in the interest rate derivatives exchanges; profits from OTC contracts may be higher than the equity returns from exchanges.

[16] We do acknowledge that CDS spreads have widened a lot more in the past year than interest rate swaps; however the sheer size of the IRS market, despite moves of only 100 bps in the past year, should also be addressed by regulators.

[17] Collateral standards should not only depend upon ex post facto “super margining” but instead require that an appropriate amount of collateral be maintained at all times.

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