

A Transparency Standard for Derivatives

- Viral V Acharya, New York University Stern School of Business¹

Derivatives exposures across large financial institutions often contribute to – if not necessarily create – systemic risk. During a crisis, lack of adequate understanding of such exposures often compromises regulatory ability to unwind an institution, inducing large-scale backstops and counterparty bailouts. It is often argued – in spite of the massive assistance that was provided in this crisis to deal with derivatives exposures – that derivative contracts are well collateralized so that counterparty risk is not a significant issue (on derivatives exposures). While this may have been true in some cases, evidence suggests otherwise in many important cases that contributed to the crisis.² Equally importantly, documenting such evidence beyond reasonable doubt is currently infeasible due to the poor quality of derivatives disclosures by financial institutions to regulators and to the public at large. Furthermore, a lack of standardization of existing disclosures aggravates the problem of obtaining any consistent inference across institutions.

Some reports suggest however that the problem is probably of non-trivial magnitudes and that even going forward, derivatives exposures are likely to remain a potentially important contributor to systemic risk. Using information from the 10-Q quarterly statements, the IMF reports estimate that the five key institutions that are active in the OTC derivatives market in the US – Goldman Sachs, Citigroup, JP Morgan, Bank of America, and Morgan Stanley – are jointly carrying almost \$500 billion in OTC derivative payables exposure as of 3Q09.³ The five largest European banks – Deutsche Bank, Barclays, UBS, Royal Bank of Scotland (RBS) and Credit Suisse – had about \$600-\$700 billion in under-collateralized risk (measured by residual derivative payables) as of December 2008. This residual exposure arises for two reasons, as per the IMF report. First, sovereigns, as well as AAA-rated insurers, corporations, large banks and multilateral institutions “do not post adequate collateral since they are viewed by large complex financial institutions as privileged and (apparently) safe clients.” Second, dealers have agreed, based on the bilateral nature of the contracts, not to mandate adequate collateral for dealer-to-dealer positions. In fact, credit-worthy dealers typically post no collateral to each other for these contracts.

¹ This proposal is partly based on the chapter “Regulating OTC Derivatives” co-authored with Or Shachar and Marti G Subrahmanyam, in the book “*Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance*”, NYU Stern and John Wiley & Sons, November 2010. The author is grateful to John Yan for research assistance and comments from Or Shachar and participants at the NBER conference “Measuring Systemic Risk Initiative” (October 2010).

² For example, *The Financial Crisis Inquiry Report*, released in January 2011, reports: “In the housing boom, CDS were sold by firms that failed to put up any reserves or initial collateral or to hedge their exposure. In the run-up to the crisis, AIG, the largest U.S. insurance company, would accumulate a one-half trillion dollar position in credit risk through the OTC market without being required to post one dollar’s worth of initial collateral or making any other provision for loss. AIG was not alone....”

³ Manmohan Singh, 2010, “Collateral, Netting and Systemic Risk in the OTC Derivatives Market”, IMF Working Paper 10/99.

These reported numbers from the IMF reports raise several pertinent questions: What is the true potential exposure on derivatives dealings of large institutions? How much of this exposure is collateralized? Is collateral posted adequate under some conservative requirements of maximum counterparty risk in the system?

These important questions can only be addressed if we obtain better and standardized data on various aspects of derivatives positions. In particular, data on their collateralization and their potential risk – due to market fluctuations and counterparty’s credit quality, as well as due to potential illiquidity of positions when these are required to be unwound at short notice during a systemic crisis.

The chapter proposes a transparency standard for derivatives and attendant counterparty risk, from the standpoint of understanding systemic risk issues. To demonstrate that such a standard is implementable, the chapter shows examples of existing disclosures from large dealer firms in their quarterly filings. These disclosures often contain useful firm-level data on derivatives, but due to a lack of standardization, these are not aggregation-friendly for assessing the risk to the system. Finally, the chapter discusses how the standardized data could be used by regulators, how the data could be made public and what benefits would that serve, and also the implications of the proposed standard for the Office of Financial Research (OFR) to be set up under the Treasury as per the Dodd-Frank Act in the United States.

A transparency standard for derivatives and counterparty risk

All dealers as well as large swap players should be required to produce frequent (as explained at the end of this section) risk reports on their derivatives positions as follows:

- **Classification of exposures** into
 - o product types (such as single-name CDS, index CDS, interest rate swaps, currency swaps, commodities, equities, etc.),
 - o by major currency categories,
 - o maturity (buckets) of contracts,
 - o type of counterparty (bank, broker-dealer, corporation, government-sponsored enterprise, monoline, insurance firm, etc.), and
 - o credit rating of counterparties.

- **Size of exposures** should be reported as⁴
 - o gross (maximum notional exposure),
 - o in fair-value terms (to account for mark-to-market changes),
 - o net (taking account of bilateral netting arrangements), and
 - o uncollateralized net (recognizing collateral posted by counterparties).

⁴ The crucial item here is “*uncollateralized*” as without knowledge of collateral backing the contracts, there is the risk of over-stating the derivatives exposures, but more importantly, it would create the uncertainty about magnitude of risk in the first place.

- **Uncollateralized net exposures** should be disclosed also as “*potential exposures*” based on stress tests⁵ that take account of
 - o several notches of ratings downgrade of counterparty and its ability to post additional collateral; and
 - o counterparty default and replacement risk for the exposures assuming severe market conditions such as replacement time of two to four weeks.⁶

To facilitate the understanding of potential exposures disclosure and for deriving implications for systemically risky exposures, the standard should also require two important and novel reports:

- **Margin call reports** that list the additional collateral liabilities of the firm as
 - o total additional liability in case the firm was to experience one, two or more (say, up to six) notch downgrades, and
 - o largest such liabilities aggregated by different counterparties (say, ten largest).
- **Concentration reports** should provide the above information for the entity’s largest counterparty exposures (say, the largest ten) or accounting for at least a substantial proportion (say, 75%) of the total exposure.

When aggregated across firms, the standardized report would produce a “map” of derivatives positions and their risks (mark-to-market risk, counterparty risk and liquidity risk) as shown in Exhibit 1.

Although the standard appears to involve a large amount of information, the costs of such disclosure are not likely to be that onerous. Investment banks already maintain such information for their internal risk management purposes, and they do publish some of it in their quarterly reports (though not in as granular form and in a highly non-standardized manner) as explained later in the chapter. Therefore, it should not be a significant additional burden for them to disclose such information to regulators in a standardized format at frequent intervals (say, weekly or bi-weekly). Some aggregated versions that respect customer confidentiality can then be made transparent to markets at large, say on a monthly or at least quarterly basis, to help enhance market discipline against the build-up of uncollateralized exposures. In particular, market transparency of counterparty exposures can potentially create a “tiering” of financial firms in each derivatives market, making it possible for new trades to be directed towards the least risky counterparty or to any counterparty at prices that are adequately sensitive to

⁵ The focus of the proposed standard is on stress tests based on counterparty risk. Nevertheless, stress tests based on macroeconomic scenarios, as proposed in Darrell Duffie [“Systemic Risk Exposures: A 10-by-10-by-10 Approach,” Working Paper, National Bureau of Economic Research, Systemic Risk Measurement Initiative, November, 2010], could also be augmented to the standard.

⁶ In particular, the current disclosure of Level-1, Level-2 and Level-3 of assets’ underlying value should also be enhanced to report potential illiquidity and opacity of positions (not just for derivatives), so that an asset could be Level-1 in normal times, but the disclosure would also state whether it is likely to be Level-1, Level-2 or Level-3 in reasonable stress scenarios.

counterparty risk assessments.

What do financial firms currently do and do not disclose?

The 10-Q filings of financial firms, as for any SEC-regulated firms in the United States, require disclosure of all materially relevant information. In case of financial firms, given their increasingly large presence in derivatives markets, these filings also contain information on positions – and on their risks – in these markets. A few examples below help illustrate what is useful in the current reports, and what could be improved.

Consider for example the reporting of credit protection sold by Citigroup and JPMorgan Chase, shown from their 10-Q filings in Exhibits 2a and 2b. Citigroup reports its positions by industry, product and credit rating of underlying reference entity, whereas JPMorgan reports them by maturity and credit rating of underlying entity. While it is possible to draw some relative conclusions about average credit rating of entities they write protection against (Citigroup wrote more risky protection than JPMorgan), other aspects of disclosures are not comparable. Nevertheless, the exhibit reveals that financial firms could report more on this aspect and in a standardized manner if required to do so.

Next, consider Exhibits 3a and 3b that show Goldman Sachs and JPMorgan Chase's reporting of counterparty credit risk in their over-the-counter (OTC) derivatives positions. Goldman Sachs reports the positions as well as their value net of collateral by credit rating of counterparty, by risk types and by maturity buckets. In this case, JPMorgan's reporting provides similar information as that of Goldman Sachs, facilitating a straightforward comparison. One can easily reach the conclusion that overall, in terms of percentage of overall exposures, JPMorgan's counterparty credit risk profile is safer than that of Goldman Sachs, as 40% of its OTC derivative credit exposure is at AA and above counterparties versus around 20% for Goldman Sachs.

Notably, there are no concentrations of exposures in derivatives revealed in any of the 10-Q filings, to the best of the author's knowledge. This represents a significant gap to assessing systemic risk based on current public disclosures of financial firms.

In contrast, there is some useful information on potential margin calls. Exhibit 4a illustrates that different financial firms report their margin liabilities in case of own downgrades with varying levels of granularity and "stress". JPMorgan's report historically appears the best in a relative sense in that it includes margin liabilities for one-notch downgrade and up to six-notch downgrade. Goldman Sachs, however, reports margin liabilities only up to two notches, and the second notch is disclosed only since the crisis. It is immediately apparent from this report that JPMorgan's liquidity risk from one to six notch downgrade is far smaller in terms of multiplier on required collateral than it is for Goldman Sachs.

No discussion of collateral liability can be complete without a discussion of A.I.G. Exhibit 4b shows that A.I.G. reported only one notch downgrade risk up until 3Q 2008, and in that last quarter, reported up to two notches. From one to two notch, its

collateral liability increased by a factor of six, a valuable piece of information in assessing system's counterparty risk to A.I.G. that was *NOT* available in their reports until 2Q 2008.⁷ As it turned out ex-post, while Moody's and Fitch downgraded it by two notches, Standard & Poor's did so by three notches, resulting in collateral liability of \$20 bln which was compounded upwards eventually to \$32 bln given mark-to-market or fair-value adjustments due to deteriorating market conditions coincident with its multi-notch downgrade.

Finally, it is instructive to use these margin reports in conjunction with the cash position of these firms to assess their "margin coverage ratios" (MCR). In 3Q 2008, JPMorgan Chase had cash-equivalent assets of \$26 bln, so that its MCR was over four, even for a six-notch downgrade. Goldman Sachs had cash assets (its "total global core excess") of over \$100 bln, giving it an MCR of over 50 for a two-notch downgrade. That is, while Goldman Sachs' liquidity risk due to collateral calls is substantial, it also holds a lot of unencumbered cash to deal with this risk. In contrast, A.I.G. had cash assets of just around \$2.5 bln in 2008, giving it an MCR of between 1 and 2 for one-notch downgrade. Once it revealed its two-notch downgrade risk in August 2008, its MCR for two-notch downgrade was just around 0.25. A.I.G.'s collateral risk was simply not well covered for a "stress" downgrade scenario by its holdings of cash assets.

The purpose behind reporting these data from 10-Q filings is two-fold. One, to make it clear that financial firms can, and do, report much of the standard proposed in this chapter for derivatives reporting. Second, to illustrate that standardized data can support and enhance the assessment of counterparty credit risk in derivatives markets using simple analytical tools employed by credit rating analysts in their assessment of non-financial corporations.

Case for regulatory and market disclosure of standardized derivatives reports

It is useful to step back and consider theoretically what exactly is the market failure in the provision of information in derivatives markets. Acharya and Engle (2009)

⁷ This information too was available not in a well tabulated form in AIG's 10-Q of 3Q 2008 but in the body of the text: "*Credit ratings are important to AIG's business, results of operations and liquidity. Downgrades in AIG's credit ratings could increase AIG's borrowing costs and could adversely affect its competitive position and liquidity. With respect to AIG's liquidity, it is estimated that, as of the close of business on April 30, 2008, based on AIGFP's outstanding municipal guaranteed investment agreements (GIAs) and financial derivative transactions at that date, a downgrade of AIG's longer-term senior debt ratings to 'Aa3' by Moody's Investors Service (Moody's) or 'AA-' by Standard & Poor's, a division of the McGraw-Hill Companies (S&P) would permit counterparties to call for approximately \$1.8 billion of collateral, while a downgrade to 'A1' by Moody's or A+ by S&P would permit counterparties to call for approximately \$9.8 billion of additional collateral. Further downgrades could result in requirements for substantial additional collateral, which could have a material adverse effect on how AIGFP manages its liquidity. The actual amount of collateral that AIGFP would be required to post to counterparties in the event of such downgrades depends on market conditions, the fair value of outstanding affected transactions and other factors prevailing at the time of the downgrade. Additional obligations to post collateral would increase the demands on AIGFP's liquidity.*"

and Acharya and Bisin (2010) formalize this idea under the notion of a “counterparty risk externality”.⁸ The basic idea is simple.

To illustrate the idea, suppose that counterparty A agrees to pay B. Then, A turns around and sells a similar contract to C. The addition to A’s position from the contract with C dilutes the payoff on its contract with B in case that A turns out ex-post to not have adequate funds to repay both B and C. Thus, B’s payoff dependency on what else A does represents a negative payoff externality on B due to A’s counterparty risk. The key efficiency question is whether B can adequately reflect this risk in charging price or adopting risk controls (e.g., margins or overall position limits) on A. Clearly, B’s ability to do so depends upon whether B can observe what A does.

Now, if markets are organized OTC, as with many derivatives contracts, the counterparty risk externality described above cannot be adequately reflected in price and collateral arrangements (or enforced by court). More broadly, since generating information about each firm’s derivatives positions requires its cooperation but benefits the system at large, the firm may not fully internalize the social benefits of transparency. Theory predicts that there will be in general too little production of private information in settings that involve such counterparty risk externality.

There are several ways to address this market failure. One view is that central clearing and margining on exchanges get around this failure (at least when viewed in the realm of a particular clearinghouse or exchange). Central counterparty or trade guaranteeing body or exchange observe end-of-day (or even intra-day) positions, and can set position limits, concentration limits and margin calls accordingly. This arrangement works best if the same clearing entity clears most products.

Yet, many markets, especially for complex and customized derivatives will almost necessarily remain OTC. They cannot easily be standardized if their primary purpose is to provide hedging to some end-users and the system may not find it profitable to incur transaction costs in setting up clearinghouses or exchanges for these products if their volumes are thin. Hence, for these remaining derivatives, regulators may be able to control the counterparty risk directly by limiting leverage (charging capital requirements) against them. Still, regulatory attempts to do so have failed miserably even on simpler instruments such as mortgages, loans and lines of credit.

Another possibility, not necessarily exclusive of the first one, is to rely more on markets’ transparency at large. Suppose the proposed derivatives disclosure standard of this chapter, or another alternative, was made available to market participants, then it could enable better pricing and managing of counterparty risk by markets themselves. This way, dealers would be incentivized to lower their counterparty risks in an efficient manner. With a market-wide standard, dealers would also be incentivized to provide

⁸ Acharya, Viral V and Robert Engle, 2009, “Derivatives trades should all be transparent,” *Wall Street Journal*, 15 May 2009, and Acharya, Viral V and Alberto Bisin, 2010, “Counterparty risk externality: Centralized versus over-the-counter markets,” working paper, NYU-Stern.

transparency about management of counterparty risk, a move that would benefit them the most in times of significant aggregate uncertainty when customers tend to leave business with riskier counterparties, triggering a “franchise value run”, as witnessed by Goldman Sachs and Morgan Stanley around the collapse of Lehman Brothers.

The common argument against public transparency of positions and counterparty level data is that it reduces economic benefits of undertaking these positions in the first place and could reduce risk-sharing gains for the economy. When one considers this argument, such gains must of course be offset against financial stability concerns. But, even ignoring that, a compromise would be to provide market transparency with a reasonable lag, so that price impacts for trading parties are minimized on the one hand, and the disclosed information is still viable on the other.

While enhancing market transparency in derivatives in this manner, regulators could also rely on standardized disclosures to adopt prudential safeguards against systemic risk. For instance, if regulators required that the largest exposure (e.g., protection sold) of each financial firm is sufficiently well collateralized by the firm, then they would have effectively mitigated a significant part of the systemic risk in derivatives markets and at a reasonable cost since this collateral could also be given benefit as collateral against other exposures that are not too correlated. Further, in case of failures, regulators, who would possess the necessary information ahead of time, would know the exposures with precision and could take anticipatory action to contain contagion.

Transparency standards that are developed and implemented well in good times can thus provide the system with “informational buffers” in bad times since they would reveal outcomes that are possible under stress scenarios and thereby prevent these scenarios from resulting in generalized uncertainty (an information vacuum akin to collateral risk of A.I.G.’s multi-notch downgrade). In this sense, the proposed standard could in fact be a powerful countercyclical tool for macro-prudential policy aimed at mitigating the market failures in stress outcomes linked to derivatives connections across firms.

Finally, it is highly likely that an efficient transparency standard for derivatives will in turn produce an efficient information system at each financial firm that aggregates its own derivatives positions in different subsidiaries, markets and countries. This could improve firm’s own risk management by providing timely information about enterprise-wide risks and thereby mitigating operational risk from lack of synchronicity in trading and hedging inside the firm.

We now turn to specific benefits delivered by the proposed standard with respect to the recent financial reforms legislated in the United States.

Implications for the Dodd-Frank reforms and the Office of Financial Research

The “Wall Street Transparency and Accountability” part of the Dodd-Frank Act of 2010 requires that

- All existing derivative positions (both cleared and un-cleared “swaps”) be reported to a swap data repository within 180 days of its enactment;
- All new positions – cleared or un-cleared – be reported starting 90 days after the enactment (or an alternative legislated period);
- The repository be tasked with providing data to the regulatory agencies – including foreign and international agencies, if applicable – to minimize systemic risk;
- The repository be tasked with publishing aggregate market information (trading and clearing in major swap categories, participants and developments in new products) to public twice a year;
- There be *real-time public reporting*, meaning “to report data relating to a swap transaction, including price and volume, as soon as technologically practicable after the time at which the transaction has been executed”; and,
- Such public reporting, however, not include counterparty or customer information, and also have a delay exemption for “block trades” (to be defined by rule-makers for particular markets and contracts) taking account of the impact of disclosure of such trades on liquidity.

While these attempts to improve transparency in the derivatives markets are commendable, there are also several notable omissions:

- Prices of new trades are often not sufficient to mark old positions, especially in context of derivatives that are often struck at terms so as to be at zero fair-value to both involved parties. Hence, it is essential to have for derivative trades their *potential exposure* and *collateral risk*, not just current mark-to-market values, but such risk management variables are not required by the Act to be collected by data repository. In particular, there is no mention of reporting of collateral information on trades precluding sufficient analysis of illiquidity-induced counterparty risk.
- While clearinghouses will clearly collect required counterparty information for trades they clear and will set adequate initial and variation margins to counterparties, several complex derivatives positions will still remain OTC. Understanding the counterparty risk in these OTC positions is crucial for margining on clearinghouses as well as in broader assessments of credit risk and systemic risk.
- Legislating counterparty risk transparency for regulators is good, but given the arguments in this chapter (likelihood of regulatory failure and improving market discipline as a substitute), such transparency should be extended in some form to markets, with a lag so as not to compromise business incentives to undertake specific positions.

All of these omissions are potentially amended by the proposed transparency standard in this chapter.⁹ Although there will remain private data repositories such as the Depository Trust and Clearing Corporation (DTCC), it is beyond doubt that over time the Office for Financial Research (OFR), which is required by the Dodd-Frank Act to be set

⁹ Indeed, the current hedge-accounting standards could also be layered upon the proposed standard to make it clear what proportion of the exposures are for hedging purposes and to account for hedging effects in reported values and risks of positions.

up under the Treasury for collecting, analyzing and disseminating systemic risk relevant information and early warnings, will require derivatives counterparty risk information. An adequate, standardized and self-reported but audited disclosure of derivatives positions and risks by the largest financial firms would be invaluable in such an exercise. The Financial Stability Oversight Council (FSOC), representing heads of regulatory agencies in the United States, formed as per the Dodd-Frank Act and charged with the task of identifying systemically important financial institutions (SIFI's) and regulating them, would also find such standardized reporting on derivatives of direct use as this would reveal information about which firms are currently – or potentially – too interconnected to fail. Academics, regulators, accounting boards, and derivatives dealers and large banks could come together to refine and implement the proposed standard.

Conclusion

In summary, better market discipline and regulatory intelligence about counterparty credit risk in derivatives market requires a new transparency standard. This standard could be layered on top of the current quarterly disclosures of derivatives positions and risks by financial firms in their 10-Q reports, but with a greater frequency for regulatory reports. The standard should include not just positions in a static sense, but also their potential exposure to stress scenarios, margin call exposure in case of credit quality deterioration, and concentration exposure for assessment of systemic interconnections. Developing such a standard will generate information about derivatives-related stresses in a countercyclical sense, lending robustness to regulatory responses. Disseminating the standard (with suitable lags) to markets at large will create incentives for financial firms to provide greater transparency to attract customers, and conversely, to seek out safer firms to limit counterparty risk.

Exhibit 1: Outcome of the proposed transparency standard for derivatives

Disclosure	Firm 1	Firm 2	...	Firm n
<u>Exposures</u> - Product type				
- Maturity bucket				
- Counterparty type				
- Counterparty credit rating				
<u>Value</u> – Maximum loss (“potential exposure”)				
– Uncollateralized net				
– Net of collateral				
– By Currency Categories				
<u>Collateral posted</u>				
<u>Margin Report: Additional collateral to post</u>				
– One notch downgrade				
- Two notch downgrade				
- Multi-notch downgrade				
<u>Concentration Report: Firms, %exposure</u>				

Exhibit 2a: Citigroup's reporting of credit derivatives as protection seller

The following tables summarize the key characteristics of the Company's credit derivative portfolio as protection seller (guarantor) as of September 30, 2009 and December 31, 2008:

<i>In millions of dollars as of September 30, 2009</i>	Maximum potential amount of future payments	Fair value payable⁽¹⁾
By industry/counterparty		
Bank	\$ 860,437	\$ 46,071
Broker-dealer	301,216	17,661
Monoline	-	-
Non-financial	2,127	96
Insurance and other financial institutions	151,326	12,753
Total by industry/counterparty	\$1,315,106	\$76,581
By instrument:		
Credit default swaps and options	\$1,314,282	\$76,383
Total return swaps	824	198
Total by instrument	\$1,315,106	\$76,581
By rating:		
Investment grade	\$ 759,845	23,362
Non-investment grade	422,865	33,231
Not rated	132,396	19,988
Total by rating	\$1,315,106	\$76,581

(1) In addition, fair value amounts receivable under credit derivatives sold were \$23,324 million.

Exhibit 2b: JPMorgan Chase's reporting of credit derivatives as protection seller

Protection sold – credit derivatives and credit-linked notes ratings/maturity profile^(a)

December 31, 2008 (in millions)	< 1 year	1-5 years	> 5 years	Total notional amount	Fair value ^(c)
Risk rating of reference entity					
Investment grade (AAA to BBB-) ^(b)	\$ (177,404)	\$ (1,767,004)	\$ (713,555)	\$ (2,657,963)	\$ (215,217)
Noninvestment grade (BB+ and below) ^(b)	(121,040)	(992,098)	(428,895)	(1,542,033)	(244,975)
Total	\$ (298,444)	\$ (2,759,102)	\$ (1,142,450)	\$ (4,199,996)	\$ (460,192)

(a) The contractual maturity for single-name CDS contract generally ranges from three months to ten years and the contractual maturity for index CDS is generally five years. The contractual maturity for CLNs typically ranges from three to five years.

(b) Ratings scale is based upon the Firm's internal ratings, which generally correspond to ratings defined by S&P and Moody's.

(c) Amounts are shown on a gross basis, before the benefit of legally enforceable master netting agreements and cash collateral held by the Firm.

Exhibit 3a: Goldman Sachs' reporting of OTC derivatives counterparty exposure

OTC Derivative Credit Exposure
(in millions)

As of September 2009

Credit Rating Equivalent	0 - 12 Months	1 - 5 Years	5 - 10 Years	10 Years or Greater	Total	Netting ⁽²⁾	Exposure	Exposure Net of Collateral
AAA/Aaa	\$ 1,482	\$ 3,249	\$ 3,809	\$ 2,777	\$ 11,317	\$ (5,481)	\$ 5,836	\$ 5,349
AA/Aa2	6,647	12,741	7,695	9,332	36,415	(20,804)	15,611	11,815
A/A2	31,999	46,761	29,324	31,747	139,831	(111,238)	28,593	24,795
BBB/Baa2	4,825	7,780	5,609	8,190	26,404	(12,069)	14,335	8,041
BB/Ba2 or lower	3,049	13,931	2,903	1,483	21,366	(5,357)	16,009	9,472
Unrated	666	1,570	387	148	2,771	(224)	2,547	1,845
Total	\$48,668 ⁽¹⁾	\$86,032	\$49,727	\$53,677	\$238,104	\$(155,173)	\$ 82,931	\$61,317

Exhibit 3b: JPMorgan Chase's reporting of OTC derivatives counterparty exposure

Ratings profile of derivative receivables MTM

Rating equivalent December 31, (in millions, except ratios)	2008		2007	
	Exposure net of all collateral	% of exposure net of all collateral	Exposure net of all collateral	% of exposure net of all collateral
AAA/Aaa to AA-/Aa3	\$ 68,708	48%	\$ 38,314	57%
A+/A1 to A-/A3	24,748	17	9,855	15
BBB+/Baa1 to BBB-/Baa3	15,747	11	9,335	14
BB+/Ba1 to B-/B3	28,186	20	9,451	14
CCC+/Caa1 and below	5,421	4	357	—
Total	\$ 142,810	100%	\$ 67,312	100%

Exhibit 4a: Contingent collateral liabilities for JPMorgan and Goldman Sachs

Collateral

Credit-Risk-Related Contingent Features in Derivatives

	JP Morgan	AA to BBB: 6 notch	AA to AA-: 1 notch	Goldman Sachs	
	Collateral Posted (\$bn)	Additional Collateral in Case of downgrade		One Notch Downgrade, in \$mm	2 Notch
2006-Q4	26.6				
2007- Q1	27.0	2.6	0.1	607.0	
2007- Q2	28.3	2.9	0.2	598.0	
2007- Q3	32.8	3.2	0.3	752.0	NA
2007- Q4	33.5	2.5	0.2	595.0	
2008- Q1	48.5	3.4	0.3	957.0	
2008- Q2	58.2	3.5	0.6	785.0	
2008- Q3	60.1	4.3	0.9	669.0	
2008- Q4	99.1	6.4	2.2	897.0	2140.0
2009- Q1	82.3	4.9	1.4	941.0	2140.0
2009- Q2	67.7	4.0	1.2	763.0	1930.0
2009- Q3	66.0	4.4	1.5	685.0	1700.0
2009- Q4					

Exhibit 4b: Contingent collateral liabilities of A.I.G.

	2007-1	2007-2	2007-3	2007-4
Marginal Call Reports				
Additional Collateral for One-notch Downgrade Rating ⁽⁴⁾	\$902	\$847	\$830	\$1,390
Additional Collateral for Two-notch Downgrade Rating				
Additional Collateral for Three-notch Downgrade Rating				
Additional Collateral for Multi-notch Downgrade Rating				
	2008-1	2008-2	2008-3	Actual
Marginal Call Reports				
Additional Collateral for One-notch Downgrade Rating ⁽⁴⁾	\$1,800	\$1,200	\$1,800	
Additional Collateral for Two-notch Downgrade Rating			\$9,800	Moody's/Fit
Additional Collateral for Three-notch Downgrade Rating			\$20,000	S&P
Additional Collateral for Multi-notch Downgrade Rating			\$32,000	Market risk