OTC Derivatives Market Analysis
Mid-Year 2012

December 2012

Introduction and Executive Summary

ISDA produces its Market Analysis to correspond with the release of the Bank for International Settlement's (BIS) semi-annual statistical release. The BIS's most recent release covered the period ending June 30, 2012.

Our reporting aims to integrate market data to show the impact of clearing, netting, compression and collateral on notional amounts and risk exposures in the over-the-counter (OTC) derivatives markets.

The Market Analysis draws on information sources including LCH.Clearnet's SwapClear, TriOptima, the DTCC Trade Information Warehouse, Markit, ICE, CME, ISDA's 2012 Margin Survey and other clearinghouses and trade vendors. Links to data sources are at the end of this paper. ISDA welcomes suggestions from readers regarding additional improvements to the Market Analysis.

The OTC derivatives market continues to provide essential risk management tools for all sectors of the global economy, for entities such as corporations, pension funds, investment firms, insurance companies and governments. The industry has worked very hard, using tools such as collateralization, portfolio compression and central clearing, to reduce risks in the system in accordance with G20 goals. Notwithstanding the very high levels of activity in the market, the use of these tools has enabled the industry to achieve a reduction in notional amounts outstanding and a reduction in gross credit exposure over the six-month period ending June 30, 2012.

A. OTC Derivatives Market

1. Adjusted notional amounts[1] of over-the-counter (OTC) derivatives outstanding at June 30, 2012 were $416.9 trillion, a decline of 5.3% from December 31, 2011. Compared to year-end 2007, adjusted OTC derivatives notional outstanding at mid-year 2012 declined by 12.3%. (Table 1)
2. Cumulative compression activity in the interest rate swap (IRS) and credit default swaps (CDS) markets have reduced notionals by just under $230 trillion.

B. OTC Interest Rate Derivatives Market

1. Adjusted notional amounts outstanding for interest rate derivatives products – which include interest rate swaps (IRS), forward rate agreements (FRAs) and interest rate options – fell 5.8% from December 2011 to $341.2 trillion at June 2012. (Table 2)
2. Adjusted notional for IRS alone fell 6.2% from December 2011 to $246 trillion. (Table 2)
3. Uncleared IRS notionals fell 7.6% from December 2011 to $112.6 trillion. (Table 2)
4. During the first half of 2012, clearing of forward rate agreements (FRAs) increased significantly. 43.2% of the FRA market was cleared as of June 2012, up from 2.8% at year-end 2011.
5. IRS compression totaled $145.4 trillion on a net, cumulative basis as of June 2012. Compression of cleared IRS reduced the ratio of cleared IRS to total IRS from 63.7% to 54.2%.

C. CDS Market

1. Adjusted notional outstanding for the CDS market was $24.3 trillion at June 30, 2012, a 6.2% decrease from year-end 2011 (Table 3).
2. ISDA estimates the total notional amount of trades that cannot be electronically confirmed is no more than $1.9 trillion as of mid-year 2012. Around $780 billion of these are multi-name transactions.
3. More than $31 trillion notional amount of CDS has been cleared since the commencement of CDS clearing in 2009. Of that notional amount, only a portion remains as open interest in the clearing-houses at mid-year 2012, mostly due to compression. If compression had not occurred, ISDA estimates that a significantly greater amount of CDS would continue to exist in clearinghouses.
4. Compression of uncleared CDS totaled $84 trillion on a net, cumulative basis as of mid-year 2012.

D. Credit Exposure Management

1. Gross Market Value, a BIS measure of credit exposure in the OTC derivatives market, was $25.4 trillion at mid-year 2012, a decrease of 7% (Table 4).
2. The benefits of netting reduced credit exposure by 85.7% globally. (Table 4)
3. Collateralization also reduces credit exposure. Based on the metrics in ISDA's Margin Survey (which is also the basis for past Market Analyses), the combined effectiveness of netting and collateral is 95.7%.
4. Netting and collateral reduce credit exposures to 4.3% of the Gross Market Value and 0.2% of the notional amount. However, another method for determining the effectiveness of collateral produces a slightly lower effectiveness rate of 92.5%. ISDA will continue its work on collateral in an effort to reconcile two entirely independent survey results.

[1] Adjustments to IRS and CDS numbers are detailed in the separate sections of the Market Analysis. These adjustments address double counting of cleared trades and exclusion of FX transactions.

A. OTC Derivatives Market

Table 1

ADJUSTED OTC DERIVATIVES MARKET OVERVIEW

(Based on data from the BIS Semiannual Review)

Notional outstanding - US$ trillions	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	June 2011	Dec. 2011	June 2012
Total contracts - OTC derivatives	585.9	598.1	603.9	601.0	706.9	647.8	638.9
Foreign exchange adjustment	56.2	50.0	49.2	57.8	64.7	63.3	66.6
LCH SwapClear volumes, adjusted for double-counting	54.4	75.8	107.7	124.3	148.8	141.7	152.8
CDS clearing volumes, adjusted for double-counting				2.2	2.8	2.7	2.6
OTC derivatives, adjusted for FX, SwapClear & CDS cleared volumes	**475.3**	**472.3**	**447.0**	**416.7**	**490.6**	**440.1**	**416.9**

Table 1, Adjusted OTC Derivatives Market Overview, contains summary market data and also adjusts BIS data to give a more consistent picture of the OTC derivatives market. The adjustment subtracts from the Grand Total on BIS Table 1 (page 12 of the BIS statistical release at end-June 2012) both foreign exchange (FX) contracts as well as one-half of the amount of cleared IRS, FRAs and CDS.

ISDA believes that FX contracts differ meaningfully from other OTC derivatives contracts. FX contracts typically reach maturity within a few months while other OTC derivatives mature over much longer time periods. The US Treasury has also recommended that FX swaps and forwards be exempt from the clearing and execution requirements enacted under the Dodd-Frank Act.

The clearing of OTC derivatives transactions increases notional amounts by 100%. If two parties execute a $100 million swap on a bilateral basis, only one $100 million contract exists. If the same transaction is booked through a clearinghouse, it will be booked as two $100 million contracts or $200 million in total. For this reason, we reduce notionals by 50% of cleared IRS, FRAs and CDS. The cleared IRS and FRA data come from SwapClear while the BIS now reports cleared CDS figures.

The BIS semi-annual release is based upon a survey of large dealers conducted by 13 central banks. This survey is less comprehensive than a broader survey that is conducted every three years. To align the two releases, the BIS produces an estimate of the volumes it misses in the semi-annual survey. The BIS does not allocate this estimate to individual products and this analysis does not include these unallocated amounts, which totaled $42.0 trillion notional at June 30, 2012.

Our Table 1 indicates that the outstanding notional amount of OTC derivatives fell 1.4% from $647.8 trillion as of December 31, 2011 to $638.9 trillion as of June 30, 2012. Looking further back, the market has increased 9.0% from year-end 2007.

Adjusted figures tell a different story. Adjusted notional amounts outstanding of OTC derivatives declined by 5.3% to $416.9 trillion in the first half of 2012. Table 1 shows the OTC derivatives market, as adjusted, is now 12.3% smaller than the market as reported at year-end 2007 ($475.3 trillion). Compression has had a significant impact on notionals outstanding, as outlined later in this report.

B. OTC Interest Rate Derivatives Market

Table 2

ADJUSTED INTEREST RATE OTC DERIVATIVES MARKET

(Based on BIS notionals and SwapClear clearing data)

Notional outstanding - US$ trillion	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	June 2011	Dec. 2011	June 2012
OTC Interest Rate Derivatives	393.1	432.1	449.9	465.3	553.9	504.1	494.0
Adjustment for double-counting of cleared Interest Rate Derivatives	54.4	75.8	107.7	124.3	148.8	141.7	152.8
Adjusted OTC Interest Rates Derivatives	338.7	356.3	342.2	341.0	405.1	362.4	341.2
OTC Interest Rate Swaps	309.6	341.1	349.3	364.4	441.2	402.6	379.4
Adjustment for double-counting of cleared Interest Rate Swaps	54.4	75.8	107.7	124.3	148.8	140.3	133.4
Adjusted OTC Interest Rates Swaps	255.2	265.3	241.6	240.1	292.4	262.3	246.0
IRS volumes cleared, %	21.3	28.6	44.6	51.8	50.9	53.5	54.2%
IRS, uncleared	200.8	189.5	133.9	115.8	143.6	121.9	112.6
OTC Forward Rate Agreements				51.6	55.7	50.6	64.3
Adjustment for double-counting of cleared FRAs				--	--	1.4	19.4
Adjusted FRAs				51.6	55.7	49.2	44.9
FRA volumes cleared, %				--	--	2.8	43.2%
FRAs, uncleared				51.6	55.7	47.8	25.5

Table 2, Adjusted Interest Rate OTC Derivatives Market, provides information regarding the largest derivatives asset class – interest rates. Table 2 adjusts notionals for the double counting of clearing for all rates products and for IRS alone. With respect to all rates products, unadjusted notionals declined from $504.1 trillion at year-end 2011 to $494 trillion at June 30, 2012, a decrease of 2%. Since 2007, however, unadjusted notionals increased from $393.1 trillion.

On an adjusted basis, the OTC interest rate derivatives market was $341.2 trillion at June 30, 2012, down by 5.8% compared to $362.4 trillion at year-end 2011. Since year-end 2007, adjusted notionals of all rates products are up 0.7% during that period.

With respect to IRS only, the adjusted figures ($246.0 trillion) show a 6.2% decline from the end of 2011 and a 3.7% decline since year-end 2007.

The level of uncleared interest rate derivatives has declined significantly in the past several years. Uncleared IRS totaled $112.6 trillion at mid-year 2012, down 7.6% from year-end 2011 and down 43.9% since year-end 2007.

During the first half of 2012, clearinghouses began to clear significant volumes of forward rate agreements (FRAs). According to the BIS survey, there were $64.3 trillion of FRAs outstanding at June 30, 2012. Adjusted for clearing, FRAs outstandings totaled $44.9 trillion. 43.2% of the FRA market was cleared at mid-year 2012. The level of uncleared FRAs declined 46.7% from year-end 2011 and 50.6% from year-end 2010.

IRS Compression

Compression involves the tearing up of matched trades or trades that do not contribute risk to a dealer's portfolio. Great strides continue to be made in compression in IRS.

As of mid-year 2012, IRS compression had reached a gross amount of $290.8 trillion, including $51.3 trillion in 2012 alone. Gross compression figures need to be reduced by 50%, which produces cumulative net compression of $145.4 trillion and 2012 net compression of $25.7 trillion. As explained in ISDA's February 2012 paper, "Interest Rate Compression: A Progress Report", the industry is devoting more resources and more effective techniques to IRS compression. These improved results will continue to have the effect of reducing adjusted notionals, as has occurred since 2007.

Compression distorts the percentage of IRS that has been cleared. Compression of cleared IRS reduced the ratio of cleared IRS to total IRS from 63.7% to a still high 54.2%.

C. CDS Market

Table 3

ADJUSTED CDS MARKET DATA

(Based on data from the BIS Semiannual Review)

Notional outstanding, US$ trillions	**Dec. 2010**	**June 2011**	**Dec. 2011**	**June 2012**
Total Market	29.9	32.4	28.6	26.9
Adjustment for Clearing	2.2	2.8	2.7	2.6
Adjusted Total	**27.7**	**29.6**	**25.9**	**24.3**
% Cleared	7.9%	9.5%	10.6%	10.7%
Single Name	18.1	18.1	16.9	15.6
Adjustment for Clearing	.8	1.1	1.2	1.2
Adjusted Total	**17.3**	**17.0**	**15.7**	**14.4**
% Cleared	4.6%	6.5%	7.6%	8.3%
Multiple Names	11.8	14.3	11.8	11.4
Adjustment for Clearing	1.4	1.6	1.5	1.4
Adjusted Total	**10.4**	**12.7**	**10.3**	**10.0**
% Cleared	13.5%	12.6%	14.5 %	14.0%

The BIS produces CDS information in its tables 4 through 8 in the semi-annual release. These tables include important data for the past two or three six-month periods. Our Table 3 contains data from the past three six-month periods. This coincided with when the BIS first produced information regarding cleared CDS.

Table 3 indicates the unadjusted CDS market declined in volume by 5.9% in the first half of 2012. Adjusted notionals fell as well, by the same percentage. ISDA believes adjusted CDS notionals are now below year-end 2007 volumes due to the substantial effects of compression.

In previous editions of the Market Analysis, ISDA indicated that clearing CDS poses considerable risk management issues, relating to liquidity and volatility of prices. In all, 10.7% of total notional CDS outstanding remain open in the clearinghouse at June 30, 2012. This includes 8.3% of single name reference entities and 14.0% of multiple name transactions.

As with IRS, compression of cleared CDS trades leads to a significant reduction in the percent of CDS that remain open in a cleared state. ISDA believes that this effect has been particularly dramatic in the CDS space as the instruments have become completely standardized following the Big Bang and Small Bang protocols in 2009, and thus are able to be compressed very efficiently. Furthermore, clearinghouses that clear CDS have an active program of compressing cleared trades.

For example, ICE reports that the gross notional amount of transactions cleared from the commencement of clearing in 2009 through June 29, 2012, is approximately $31.2 trillion. If compression had not occurred, ISDA estimates that a significantly greater percentage of CDS – much greater than the 10.7% referred to above – would continue to exist in clearinghouses.

Trades Not Electronically Confirmed

The BIS CDS mid-year 2012 data are $1.9 trillion greater than the data the DTCC Trade Information Warehouse provided to the public as of the end of June. The difference between the two data sources includes so-called "copper" trades which are bespoke transactions that cannot be confirmed electronically. DTCC has copper trades in the warehouse but does not publish information regarding these trades. The difference also includes, we believe, a modest amount of trades not reported to DTCC by participants such as small banks. Presumably, these transactions are mostly older trades as almost all participants now confirm single name CDS electronically. As in any comparison of two independent sources of data, there may be other elements of noise which make the analysis less precise, but we believe our analysis indicates that copper trades are no greater than $1.9 trillion, adjusted for double-counting.

The $1.9 trillion difference between the BIS figures at mid-year 2012 and the DTCC data is composed of $1.2 trillion of single-name CDS and $780 billion of multi-name transactions. It has been assumed that multi-name copper transactions include "impaired" transactions such as synthetic CDOs of subprime mortgages. ISDA's estimate indicates the relatively small size of this market segment, and we will continue to monitor its size in future Market Analyses. We do note that the difference between multi-name transactions reported by the BIS and DTC narrowed by $900 billion in the second half of 2011.

Compression of Uncleared CDS Trades

For CDS, compression continues to reduce operational risk and enables more efficient management of capital requirements. A large majority of CDS compression has been executed through TriOptima but important contributions have been made by the Markit/Creditex joint venture. Through mid-year 2012, some $168 trillion (gross) has been compressed, including $5 trillion in 2012. CDS compressed in 2012 includes $4.7 trillion gross (TriOptima) of single name and index products and $345 billion gross (Markit/Creditex) of single-name products. After adjustment, this means cumulative net compression has been $84 trillion, more than three times the current adjusted CDS market.

D. Credit Exposure Management

Table 4

BENEFITS OF NETTING AND COLLATERAL

(Based on data from the BIS Semiannual Review and ISDA research)

Notional outstanding - US$ trillions	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	June 2011	Dec. 2011	June 2012
BIS Data*							
Gross Market Value, Total OTC	15.8	35.3	21.5	21.3	19.5	27.3	25.4
% of Notional Amounts	**2.70%**	**5.90%**	**3.57%**	**3.54%**	**2.76%**	**4.21%**	**3.97%**
Gross Credit Exposure (after netting)	3.3	5.0	3.5	3.5	3.0	3.9	3.7
% of Gross Market Value	**20.6%**	**14.2%**	**16.3%**	**16.3%**	**15.2%**	**14.3%**	**14.3%**
% of Notional Amounts	**0.6%**	**0.8%**	**0.6%**	**0.6%**	**0.4%**	**0.6%**	**0.6%**
ISDA Estimates							
Exposure collateralized, avg, all OTC deriv, ISDA Margin Survey	65%	66%	69%	70%	70%	71%	71%
Gross Credit Exposure (after netting and adjusted for collateral)	1.1	1.7	1.1	1.1	0.9	1.1	1.1
% of Gross Market Value	**7.2%**	**4.8%**	**5.1%**	**4.9%**	**4.6%**	**4.1%**	**4.3%**
% of Notional Amounts	**0.2%**	**0.3%**	**0.2%**	**0.2%**	**0.1%**	**0.2%**	**0.2%**

*Some figures have been revised by the BIS since the year-end 2010

Notional principal amounts are not an accurate reflection of credit exposure as they do not reflect the market value of the underlying contracts and the benefits of close-out netting and collateral.

Table 4 shows the risk mitigation benefits of netting and collateral.

Gross Market Value, a BIS measure of credit exposure, is the market value of all outstanding contracts before netting. It shows the aggregate positive market values of all outstanding contracts to in-the-money counterparties. This is equivalent to the absolute value of the aggregate negative market values of those contracts to out-of-the-money counterparties. Gross Credit Exposure applies the benefits of netting to Gross Market Value.

During the second half of 2011, Gross Market Value declined from $27.3 trillion to $25.4 trillion. Gross Credit Exposure, which reflects the impact of netting, was 14.3% of Gross Market Value, flat with year-end 2011. Gross Credit Exposure decreased from $3.9 trillion to $3.7 trillion.

Collateralization further reduces credit exposure. As per the previous Market Analysis, ISDA used the percentage of trades covered by collateral agreements (71%, which is the percentage reported in

the 2012 ISDA Margin Survey) rather than the percentage of credit exposure covered by collateral to calculate the impact of collateral on credit exposure.[2]

After applying the 71% reduction to Gross Credit Exposure, the remaining exposure was only 4.3% of Gross Market Value. The dollar amount ($1.1 trillion) was the same as December 31, 2011. In all, netting and collateral reduced Gross Market Value to 0.2% of notional amounts outstanding.

ISDA recognizes that the use of the percentage of trades covered by collateral produces only an estimate of the effectiveness of collateral.

Another method to estimate the effectiveness of collateral is to use one-half of the value of collateral in circulation (to avoid double-counting). The ISDA Margin Survey, which is the industry's only source for collateral in circulation, indicates there is $3.6 trillion of collateral. Utilizing $1.8 trillion means collateral only covers 51% of Gross Credit Exposure, leaving $1.9 trillion of credit risk. This analysis implies that the total benefits of netting and collateral reduce Gross Market Value by 92.5%. ISDA will continue to work on collateral issues for future Market Analyses but warns that reconciling results from three independent surveys is a difficult matter.

[2] In addition, certain derivative trades facing structured vehicles may have the benefit of enhanced credit protection without the use of a traditional collateral agreement by relying on the assets within the vehicle.

DATA SOURCES AND REFERENCES

Bank for International Settlements
BIS figures are based on their report, "Semiannual Over-The-Counter (OTC) Derivatives Markets Statistics": http://www.bis.org/statistics/derstats.htm. As noted in the report, the published data may be subject to revisions so ISDA market analysis conclusions may vary according to BIS reports.

BIS figures are adjusted for double-counting of positions between reporting institutions (Notional amounts outstanding are adjusted by halving positions vis-à-vis other reporting dealers): http://www.bis.org/publ/otc_hy1211.pdf

ICE gross notional cleared
https://www.theice.com/clear_credit.jhtml. This page is updated each week with the most recent data. ICE provided the figures for June 29, 2012 used in the analysis.

ISDA Margin Surveys
http://www2.isda.org/functional-areas/research/surveys/margin-surveys

ISDA papers mentioned in this Analysis
Interest Rate Swaps Compression: A Progress Report:
http://www2.isda.org/attachment/NDAzMw==/IRS%20compression%20progress%20report%20-%20Feb%202012.pdf
Counterparty Credit Risk Management in the US Over-the-Counter (OTC) Derivatives Markets Part I:
http://www2.isda.org/attachment/MzQzMQ==/CounterpartyCreditLossesAug2011.pdf
Counterparty Credit Risk Management in the US Over-the-Counter (OTC) Derivatives Markets, Part II: A Review of Monoline Exposures:
http://www2.isda.org/attachment/MzcyMQ==/Counterparty%20Credit%20Risk%20II%20(Monolines).pdf

LCH.Clearnet SwapClear volumes
http://www.lchclearnet.com/swaps/volumes/. Volumes are adjusted for double-counting.

Federal Reserve Bank of New York
Staff Report, "An Analysis of CDS Transactions: Implications for Public Reporting":
http://www.newyorkfed.org/research/staff_reports/sr517.pdf

Portfolio compression data
Creditex: https://www.theice.com/post_trade_processing.jhtml
Markit: http://www.markit.com/en/products/data/cds-pricing/portfolio-compression.page
TriOptima: http://www.trioptima.com/resource-center/statistics/triReduce.html