

OTC Derivatives Market Analysis Year-End 2012

June 2013

Introduction and Executive Summary

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 netting, collateralization, portfolio compression and central clearing, to reduce risks in the system in accordance with G20 goals.

ISDA produces its Market Analysis to integrate market data to show the impact of these and other tools. For example, portfolio compression has significantly reduced notional amounts outstanding by 25% or more. Clearing, on the other hand, has the opposite effect and “artificially” increases notional outstanding. In addition, notional amounts, which are commonly used to describe the size of the market, are inappropriate for risk measurement purposes. Gross market value and gross credit exposure (which reflects netting) are far better measures of risk.

The publication of the Market Analysis corresponds 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 December 31, 2012.

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.

A. OTC Derivatives Market (Table 1)

- The notional amount outstanding of OTC derivatives (excluding FX transactions) at December 31, 2012 declined 3.3% over the past year and declined 1.3% compared to June 30, 2012.
- The volume of cleared transactions at year-end 2012 totaled \$346.4 trillion.
- After eliminating double-counting of cleared transactions, the notional amount outstanding of OTC derivatives (excluding FX transactions) at year-end 2012 declined 10.9% compared to year-end 2011 and declined 6.1% compared to June 30, 2012.
- Portfolio compression activity in the OTC derivatives markets reduced notional amounts by \$48.7 trillion during 2012 and by \$25.7 trillion in 2011.
- If the amount of compressed transactions were added back in, the notional amount outstanding of OTC derivatives (excluding FX transactions and adjusted for clearing) at December 31, 2012 was roughly flat over the most recent six-month and 12-month periods.

- Over the past five years, the notional amount outstanding of OTC derivatives (excluding FX transactions) rose 6.7%, to \$565.2 trillion from \$529.7 trillion at December 31, 2007.
- After eliminating double-counting of cleared transactions, the notional amount outstanding of OTC derivatives (excluding FX transactions) declined 17.5%.
- If the volume of compressed transactions during this time (\$214.3 trillion) were added back in, the notional amount outstanding of OTC derivatives (excluding FX transactions) increased by 23.0% from \$492.9 trillion to \$606.3 trillion over the five-year period ending December 31, 2012.

B. Interest Rate Derivatives (IRD) Market (Table 2)

- The notional amount outstanding of IRD at December 31, 2012 declined 2.9% over the past year and declined 1.0% compared to June 30, 2012.
- The volume of cleared transactions at year-end 2012 totaled \$341.4 trillion.
- After eliminating double-counting of cleared transactions, the notional amount outstanding for IRD products – which include interest rate swaps (IRS), forward rate agreements (FRAs) and interest rate options – declined 12.0% compared to year-end 2011 and 6.5% from June 30, 2012.
- During 2012, IRD compression totaled \$44.6 trillion.
- If the amount of compressed transactions were added back in, the notional amount outstanding of IRD at December 31, 2012 was roughly flat over the most recent 12-month period.

- Over the 2007-2012 period, the notional amount outstanding of IRD rose 24.6%, from \$393.7 trillion to \$489.7 trillion.
- After eliminating double-counting of cleared transactions, the notional amount outstanding of IRD decreased 5.8% in this period.
- From YE 2007 to YE 2012, \$143.7 trillion of IRD were eliminated via portfolio compression.
- If the volume of compressed IRD transactions were added back in, the notional amount outstanding of IRD rose 33.6% from \$346.3 trillion to \$462.7 trillion.

C. Credit Default Swaps (CDS) Market (Table 3)

- The notional amount outstanding of the CDS market at December 31, 2012 declined 12.2% over the past year and declined 6.7% compared to June 30, 2012.
- The volume of cleared transactions at year-end 2012 totaled \$2.5 trillion.
- After eliminating double-counting of cleared transactions, the adjusted notional outstanding for the CDS market was \$22.6 trillion at year-end 2012, a decline of 12.7% compared to December 31, 2011 and a decline of 7.0% from June 30, 2012.
- During 2012, approximately \$4.1 trillion of CDS was eliminated via portfolio compression; \$6.4 trillion was compressed in 2011.
- If the amount of compressed transactions were added back in, the notional amount outstanding of CDS (adjusted for clearing) at December 31, 2012 was up 1.9% compared to year-end 2011.

- Over the 2010-2012 period, CDS notional outstanding declined 16.1% from \$29.9 to \$25.1 trillion.
- After eliminating double-counting of cleared transactions, the notional amount outstanding of CDS decreased 18.4% in this period.
- During this timeframe, \$20.3 trillion in notional of CDS was eliminated via portfolio compression.
- If the amount of compressed transactions were added back in, the notional amount outstanding of CDS (adjusted for clearing) at December 31, 2012 increased 14.4% from 2010 to 2012.

D. Credit Exposure Management (Table 4)

- Gross Market Value, a BIS measure of credit exposure in the OTC derivatives market, was \$24.7 trillion, or 3.9% of notional, at year-end 2012.
- Gross Credit Exposure, which reflects the impact of netting, was \$3.6 trillion, or 0.6% of notional.

A. OTC Derivatives Market

Table 1

ADJUSTED OTC DERIVATIVES MARKET OVERVIEW¹

(Based on data from the BIS Semiannual Review)

Notional outstanding - US\$ trillions	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	Dec. 2011	June 2012	Dec. 2012
Total contracts - OTC derivatives	585.9	598.1	603.9	601.0	647.8	639.4	632.6
Foreign exchange adjustment	56.2	50.0	49.2	57.8	63.3	66.6	67.4
Cleared IRD volumes, adjusted for double counting	54.4	75.8	107.7	124.2	141.9	152.8	170.7
ICE CDS clearing volumes, adjusted for double-counting				2.2	2.7	2.6	2.5
OTC derivatives, adjusted for FX & for cleared volumes	475.3	472.3	447.0	416.8	439.9	417.4	392.0
Amount of OTC derivatives compressed	17.6	45.5	44.1	37.3	38.7	25.7	48.7
Cumulative amount of compression	35.8	81.3	125.9	162.7	201.4	227.1	250.1

Table 1 indicates that the outstanding notional amount of OTC derivatives fell 1.1 percent from \$639.4 trillion as of June 30, 2012 to \$632.6 trillion as of December 30, 2012. For the full year from December 31, 2011, the outstanding notional amount of OTC derivatives fell 2.3 percent.

¹ Table 1, Adjusted OTC Derivatives Market Overview, contains summary market data. It uses BIS data as a baseline and then makes two important changes to give a more consistent picture of the OTC derivatives market. The first is to exclude the volume of FX contracts; the second is to adjust for the impact of clearing.

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.

Regarding the impact of clearing: 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 and the CME 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 December 31, 2012.

Foreign exchange contracts (FX) totaled \$63.3 trillion at December 31, 2011, \$66.6 trillion at June 30, 2012 and \$67.4 trillion at year-end 2012. When FX transactions are excluded from total contracts, OTC derivatives declined 3.3% from \$584.5 trillion since December 31, 2011 and decreased 1.3% from \$572.8 trillion to \$565.2 trillion in the six months from June 30, 2012..

The volume of cleared transactions totaled \$289.2 at year-end 2011, \$310.8 trillion at mid-year 2012 and \$346.4 trillion at year-end 2012. After adjusting for double counting of cleared trades by reducing the totals by half, those numbers were \$144.6 trillion, \$155.4 trillion and \$173.2 trillion respectively.

On an adjusted basis – excluding the volume of FX contracts and adjusting for the impact of clearing (see footnote on previous page) – notional amounts outstanding of OTC derivatives declined by 10.9% compared to year-end 2011 and declined by 6.1% to \$392.0 trillion in the second half of 2012..

Portfolio compression – which reduces notional outstanding by eliminating matched trades or trades that do not contribute risk to a dealer’s portfolio – has had and continues to have a significant impact on notionals outstanding, reducing \$48.7 trillion during all of 2012 and \$25.7 trillion in the first half of 2012.

After adding back the amount of compressed transactions, the notional amount outstanding of OTC derivatives (excluding FX transactions and adjusted for clearing) at December 31, 2012 was roughly flat over the most recent six-month period and 12-month period.

Looking back five years, the notional amount outstanding of OTC derivatives increased 8.0% from \$585.9 trillion in December 2007 to \$632.6 trillion in December 2012. When FX transactions are excluded, the notional amount outstanding of OTC rose 6.7%, to \$565.2 trillion from \$529.7 trillion at December 31, 2007.

After eliminating double-counting of cleared transactions, the OTC derivatives market, adjusted to \$392.0 trillion, is now 17.5% smaller than as reported at year-end 2007 (\$475.3 trillion).

Approximately \$250 trillion of interest rate and credit derivatives have been eliminated through compression, and \$214.3 trillion since year-end 2007.² If the volume of compressed transactions during this time were added back in, the notional amount outstanding of OTC derivatives (excluding FX transactions) increased by 23.0% from \$492.9 trillion to \$606.3 trillion over the five-year period ending December 31, 2012.

While portfolio compression reduces the size of the market, the continued growth in central clearing of OTC derivatives has the opposite effect (because one bilateral trade becomes two centrally

² Portfolio compression activity is reported on a net basis. The volume of cleared trades that have been compressed is reduced by 50% to avoid double-counting of such transactions.

cleared trades). At year-end 2012, approximately \$173.2 trillion of OTC derivatives were centrally cleared, including 53.5% of all interest rate derivatives.

B. OTC Interest Rate Derivatives Market

Table 2

ADJUSTED OTC INTEREST RATE DERIVATIVES MARKET

(Based on BIS notionals, SwapClear/CME clearing data and TriOptima compression data)

Notional outstanding - US\$ trillion	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	Dec. 2011	June 2012	Dec. 2012
OTC Interest Rate Derivatives	393.1	432.1	449.9	465.3	504.1	494.4	489.7
Adjustment for double-counting of cleared Interest Rate Derivatives	54.4	75.8	107.7	124.2	141.9	152.8	170.7
Adjusted Interest Rate Derivatives	338.7	356.3	342.2	341.1	362.4	341.2	319.0
Adjusted Interest Rate Derivatives, % cleared	16.1%	21.3%	31.5%	36.4%	39.2%	44.8%	53.5%
Amount of IRD compressed	7.6	13.5	25.8	27.5	32.3	--	44.6
Cumulative amount of compression	20.8	34.3	60.1	87.6	119.9	--	164.5

Table 2, Adjusted OTC Interest Rate Derivatives Market, provides information regarding the largest derivatives asset class – interest rates. Notionals declined from \$494.4 trillion at June 30, 2012, to \$489.7 trillion at December 31, 2012, a decrease of 1.0%. For the full year, notionals declined 2.9%.

Table 2 also adjusts notionals for the double counting of clearing for all rates products -- \$341.4 trillion in IRD were cleared at December 31, 2012, or \$170.7 when adjusted for double-counting. On this adjusted basis, the OTC interest rate derivatives market was \$319.0 trillion at December 31, 2012, down by 6.5% compared to \$341.2 trillion at June 2012 and down 12.0% from \$362.4 at year-end 2011.

At December 31, 2012, approximately 53.5% of the interest rate derivatives market was cleared. According to data provided by LCH SwapClear, about 60% of interest rate swaps and 79% of forward rate agreements were cleared as of year-end 2012. Five years ago, the percentage of the

interest rate derivatives market that was cleared was 16.1%. This consisted entirely of IRS; FRA clearing began in 2010.

Uncleared interest rate derivatives totaled \$148.3 trillion at year-end 2012, down 21.3% in six months, down 32.7% in a year, and down 47.8% from \$284.2 trillion at year-end 2007.

During 2012, gross IRD compression totaled \$80.5 trillion, with \$71.8 trillion of this amount related to compression of cleared trades. On a net basis, after adjusting for the double counting of cleared trades that were compressed, \$44.6 trillion of IRD were eliminated through compression in 2012. (See footnote 3.)

The cumulative level of compression of IRD totaled \$244.9 trillion as of year-end 2012, including \$161 trillion of cleared trades. On a net basis, \$164.4 trillion of IRD have been eliminated through portfolio compression, including \$143.7 trillion in the five-year period ending year-end 2012.

If the volume of compressed transactions during this time were added back in, the notional amount outstanding of IRD increased by 58.5% from \$291.9 trillion to \$462.7 trillion over the five-year period ending December 31, 2012.

Compression reduces the percentage of the IRD market that is cleared. Approximately \$35.9 trillion of the \$44.6 trillion of IRD eliminated in 2012 through compression involved cleared transactions. If compression had not taken place in 2012, the percentage of IRD that were cleared would have been 58%.

C. CDS Market

Table 3

ADJUSTED CDS MARKET DATA

(Based on data from the BIS Semiannual Review)

	<u>Dec. 2010</u>	<u>Dec. 2011</u>	<u>June 2012</u>	<u>Dec. 2012</u>
Total Market	29.9	28.6	26.9	25.1
Adjustment for Clearing	2.2	2.7	2.6	2.5
Adjusted Total	27.7	25.9	24.3	22.6
% Cleared	7.9%	10.4%	10.7%	11.1%
CDS compressed	9.8	6.4	--	4.1
Cumulative amt of compression	75.2	81.6	--	85.7
Single Name	18.1	16.9	15.6	14.3
Adjustment for Clearing	0.8	1.2	1.2	1.1
Adjusted Total	17.3	15.7	14.4	13.2
% Cleared	4.6%	7.6%	8.3%	8.3%
CDS compressed	1.3	0.8	--	0.6
Multiple Names	11.8	11.8	11.4	10.8
Adjustment for Clearing	1.4	1.5	1.4	1.4
Adjusted Total	10.4	10.3	10	9.4
% Cleared	13.5%	14.6%	14.0%	14.9%
CDS compressed	8.5	5.6	--	3.5

Table 3 indicates the unadjusted CDS market declined in volume by 12.2% in the full year to December 31, 2012 and by 6.7% in the second half of 2012. Adjusted for the impact of clearing, notionals fell as well, by 12.7% for the year and by 7.0% for six months. A primary reason for the decline is the compression of CDS trades. Approximately \$4.1 trillion of CDS were eliminated via compression in 2012. Overall, some \$85 trillion of CDS have been compressed over the past several years, including \$20.3 trillion in the past 3 years.

Compression of CDS trades adversely limits the percentage of trades that are cleared. On an adjusted basis, 11.1% of total notional CDS outstanding remain open in the clearinghouse at December 31, 2012. This includes 8.3% of single name reference entities and 14.9% of multiple name transactions. In previous editions of the Market Analysis, ISDA indicated that clearing CDS poses considerable risk management issues, relating to liquidity and volatility of prices.

Trades Not Electronically Confirmed

The BIS CDS year-end 2012 data are \$1.9 trillion greater than the data the DTCC Trade Information Warehouse provided to the public as of the same date. 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.

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	Dec. 2011	June 2012	Dec. 2012
<u>BIS Data*</u>							
Gross Market Value, Total OTC	15.8	35.3	21.5	21.3	27.3	25.4	24.7
% of Notional Amounts	2.7%	5.9%	3.6%	3.5%	4.2%	4.0%	3.9%
Gross Credit Exposure (after netting)	3.3	5.0	3.5	3.5	3.9	3.7	3.6
% of Gross Market Value	20.6%	14.2%	16.3%	16.3%	14.3%	14.6%	14.6%
% of Notional Amounts	0.6%	0.8%	0.6%	0.6%	0.6%	0.6%	0.6%
<u>ISDA Estimates</u>							
Exposure collateralized, avg, all OTC deriv, ISDA Margin Survey	65%	66%	69%	70%	71%	71%	69%
Gross Credit Exposure (after netting and adjusted for collateral)	1.1	1.7	1.1	1.1	1.1	1.1	1.1
% of Gross Market Value	7.2%	4.8%	5.1%	4.9%	4.1%	4.2%	4.4%
% of Notional Amounts	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%

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

Table 4 shows the risk mitigation benefits of netting and collateral and highlights the gross market value and gross credit exposure (after netting) of OTC derivatives. These figures provide a more representative picture of OTC derivatives risk exposure. 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.

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 2012, Gross Market Value declined from \$25.4 trillion to \$24.7 trillion. Gross Credit Exposure, which reflects the impact of netting, declined from \$3.7 trillion to \$3.6 trillion and was 14.6% of Gross Market Value.

Collateralization further reduces credit exposure. As per the previous Market Analysis, ISDA used the percentage of trades covered by collateral agreements (69%, which is the percentage reported in the 2013 ISDA Margin Survey) rather than the percentage of credit exposure covered by collateral to calculate the impact of collateral on credit exposure.³

After applying the 69% reduction to Gross Credit Exposure, the remaining exposure was only 4.4% of Gross Market Value. The dollar amount (\$1.1 trillion) was nearly the same as June 30, 2012. 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 2013 ISDA Margin Survey, which is the industry's only source for collateral in circulation, indicates there is \$3.70 trillion of collateral. Utilizing \$1.5 trillion means collateral only covers 49% 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.

³ 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_hy1305.htm

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/>

LCH.Clearnet SwapClear volumes

<http://www.lchclearnet.com/swaps/volumes/>. Volumes are adjusted for double-counting.

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>