ISDA® Safe, Efficient Markets

OTC Derivatives Market Analysis
Year-end 2010

Many sources of data currently exist regarding the size and level of exposure in the over-the-counter derivatives (OTC) markets. The Bank for International Settlements (BIS), has long provided a helpful source of information to the markets, regulators and other interested parties. They publish data on the outstanding notional amounts of OTC derivatives for reporting banks, and provide insight into the impact of netting on gross and net credit exposures. LCH.Clearnet's SwapClear (LCH) has recently added to this, publishing data on cleared OTC interest rate derivatives volumes. ISDA supplements this with data on the level of exposure that is collateralized.

This note aims to integrate this data in order to show the impact of clearing, netting and collateral on notional amounts and risk exposures. ISDA intends to publish the market analysis at regular six-month intervals building on the work presented in the BIS semiannual OTC derivatives market statistics.

Impact of FX and Clearing on Notional Outstanding

As shown in Table 1, BIS OTC derivatives statistics from December 2007 through December 2010 show that the notional outstanding of OTC derivatives markets rose throughout the period and totaled approximately US$601 trillion at December 31, 2010.

The BIS figure includes foreign exchange (FX) contracts (US$57.8 trillion outstanding). FX contracts differ significantly from other OTC derivatives contracts outstanding. They are much older products and are typically very short term. These differences are reflected in the US Treasury's decision to exempt FX swaps and forwards from the clearing and execution requirements enacted under the Dodd-Frank Act. For these reasons, FX derivatives are excluded in Table 1 from the level of OTC derivatives outstanding.

The OTC interest rate derivatives market, which accounts for the vast majority of OTC derivatives notional outstanding, totaled US$465 trillion at year-end 2010. Of this amount, US$364 trillion was related to interest rate swaps (IRS). Dealers have been clearing IRS through LCH for over a decade. LCH publishes monthly data on cleared volumes, and according to their data, the total amount of cleared OTC IRS at the end of 2010 was US$248 trillion, measured in terms of notional amounts.

As the BIS has noted with regards to the effect of central clearing activities on the statistics,

> "When a derivative contract between two reporting dealers is cleared by a CCP, this contract is replaced, in an operation called novation, with two new contracts: one between counterparty A and the CCP and a second between the CCP and counterparty B. As the BIS data records all outstanding positions, it would capture both the contracts in this example. This measure of the market size, i.e. a measure that captures all outstanding contracts, may be appropriate for gauging counterparty risk, given that any outstanding contract could potentially be defaulted on. However, this approach overstates the size of the derivatives market if used to proxy other aspects, such as the transfer of underlying risks, for which a single counting of the centrally cleared contracts would be more appropriate."

Table 1 shows total market activity in all OTC derivatives from Dec 2007 through Dec 2010. It also shows total OTC derivatives notional amounts adjusted by excluding FX and the impact of clearing. Measured on this basis, the OTC derivatives markets decreased in size by approximately 12% from year-end 2007 to year-end 2010. This reflects in part the impact of portfolio compression (tear-ups), which reduced notional outstanding by approximately $137 trillion during that period. The decline in notional amount outstanding does not necessarily indicate a change in new OTC derivatives market activity.

Table 1

BIS, Notional amounts outstanding **US$ trillions**	Dec.2007	Dec.2008	Dec.2009	Dec.2010
Total contracts - OTC derivatives	585.9	598.1	603.9	601.0
Foreign exchange adjustment	56.2	50.0	49.2	57.8
LCH SwapClear volumes, adjusted for double- counting	54.4	75.8	107.7	124.3
OTC derivatives, adjusted for FX & LCH cleared volumes	**475.3**	**472.3**	**447.0**	**418.9**

Cleared and Uncleared IRS Volumes

Table 2 shows the total size of the OTC interest rate derivatives market, the portion of that market related to IRS, and the estimated impact of clearing on outstanding IRS volumes. It shows that the notional outstanding of all OTC interest rate derivatives was US$465 trillion at year-end 2010. As noted above, this includes US$364.4 trillion of IRS. When adjusted for double counting of cleared swaps, IRS notional outstanding is US$240 trillion. The cleared volume of IRS represents over 50% of the total IRS market, up from 21% three years ago. The uncleared volume of IRS has declined by 42% from US$201 trillion at year-end 2007 to US$116 trillion at year-end 2010.

Table 2

BIS, Notional amounts outstanding **US$ trillions**	Dec.2007	Dec.2008	Dec.2009	Dec.2010
OTC Interest Rate Derivatives (including FRA, IRS, options)	393.1	432.1	449.9	465.3
Interest Rate Swaps (IRS)	309.6	341.1	349.3	364.4
LCH SwapClear volumes, adjusted for double- counting	54.4	75.8	107.7	124.3
IRS, adjusted for LCH cleared volumes	**255.2**	**265.4**	**241.5**	**240.0**
IRS volumes cleared, %	**21.3**	**28.6**	**44.6**	**51.8**
IRS, uncleared	**200.7**	**189.6**	**133.8**	**115.7**

Risk Mitigation Benefits of Netting and Collateral

Notional principal amounts overstate exposure as they do not reflect the market value of the underlying contracts and benefits of close-out netting.

Table 3 shows the risk mitigation benefits of netting and collateral. After applying close-out netting, total credit exposure as reported by BIS at the end of 2010 was US$3.3 trillion, a reduction of 84% from gross market value and a reduction of 99% from total OTC notional value.

Collateralization further reduces credit exposure. According to the ISDA Margin Survey, collateralized exposure for all OTC derivatives on average was approximately 70% of the netted credit exposure at the end of 2010. This reduced credit exposure from 15.8% of gross market value (impact of close-out netting) to approximately 5% (impact of netting and collateral) at the end of 2010 or 0.2% of total notional amount.

Expressed as a percentage of notional, at year-end 2010, the gross market value was approximately 3.5% of notional, gross credit exposure after netting was 0.6% of notional and gross credit exposure after netting and collateral was 0.2% of notional.

Table 3

BIS **US$ trillions**	**Dec.2007**	**Dec.2008**	**Dec.2009**	**Dec.2010**
Gross market values, Total OTC contracts	15.80	35.28	21.54	21.15
% of Notional Amounts	**2.70%**	**5.90%**	**3.57%**	**3.52%**
Gross Credit Exposure (after netting)	3.3	5.0	3.5	3.3
% of Gross Market Value	**20.6%**	**14.2%**	**16.3%**	**15.8%**
% of Notional Amounts	**0.6%**	**0.8%**	**0.6%**	**0.6%**
Exposure collateralized, average, all OTC deriv, ISDA Margin Survey	65%	66%	69%	73%
Gross Credit Exposure (after netting and adjusted for collateral)	1.1	1.7	1.1	0.9
% of Gross Market Value	**7.2%**	**4.8%**	**5.1%**	**4.3%**
% of Notional Amounts	**0.2%**	**0.3%**	**0.2%**	**0.2%**

Notes on data sources

LCH volumes (http://www.lchclearnet.com/swaps/volumes/) are adjusted for double-counting,

BIS figures are based on their report: Semiannual Over-The-Counter (OTC) Derivatives Markets Statistics. 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_hy1105.pdf.

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

Portfolio compression numbers combine tear-ups of interest rate swaps and credit default swaps for the three year period. In 2008, 2009 and 2010, TriOptima compressed US$130 trillion, http://www.trioptima.com/resource-center/statistics/triReduce.html and Creditex compressed US$6.6 trillion, https://www.theice.com/post_trade_processing.jhtml.