BANK FOR INTERNATIONAL SETTLEMENTS

Monetary and Economic Department

OTC derivatives market activity in the first half of 2003

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Contents

Notations used in this release

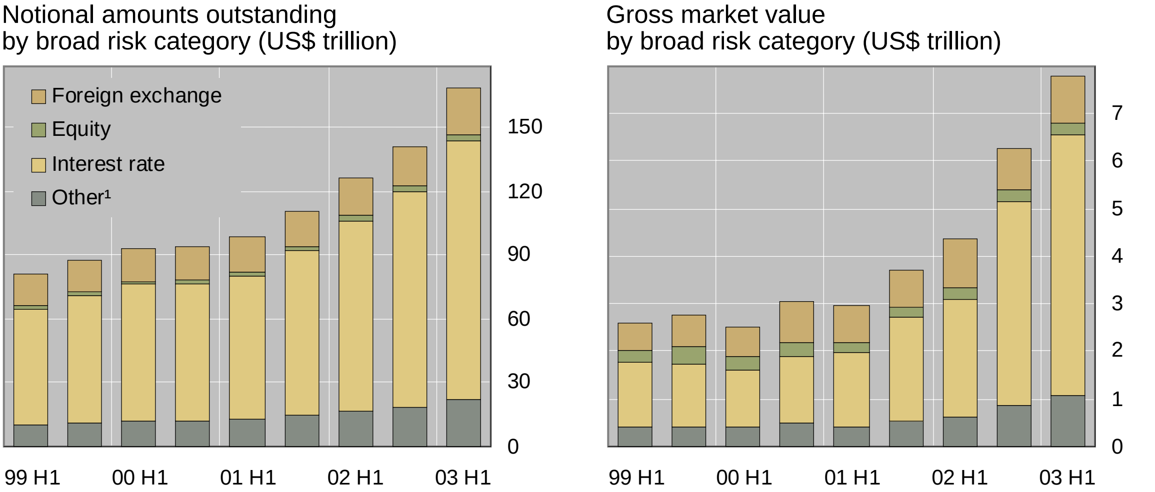
billion	thousand million
…	not available
.	not applicable
$	US dollar unless specified otherwise

Differences in totals are due to rounding.

I. Market developments in the first half of 2003

The data released by the BIS on positions in the global over-the-counter (OTC) derivatives market point to continued vigorous growth in interest rate swap contracts in the first half of 2003. As a result, the total estimated notional amount of outstanding OTC contracts stood at $169.7 trillion (Graph 1) at the end of June 2003, a 20% increase from end-December 2002. This compares with an 11% increase in the previous half-year period. Gross market values also grew significantly, rising by 24% to $7.9 trillion, compared with a 43% increase in the second half of 2002.

Global OTC derivatives



[1] Estimated positions of non-regular reporting institutions.

Source: BIS. Graph 1

1. Growth across all risk categories except gold

The strong growth in the market was visible in all market risk categories except the gold portion of commodities. The growth in the interest rate product segment continued uninterrupted, reaching $121.8 trillion of notional amounts outstanding (see Table 1). The segment as a whole posted an advance of 20% in amounts outstanding versus +13% in the second half of 2002. Interest rate swaps rose by 20% period on period, accelerating further from the 16% rise posted in the previous six months. Forward rate agreements (FRAs) returned to growth in the first half of 2003 (+17%) from a decline of 4% to the end of December, whilst the interest rate options category showed an increase of 23%.

Noticeably, overall business in OTC foreign exchange markets was equally buoyant. This is an area which had not seen double digit growth since the BIS began collecting these statistics. However, in the first half of 2003, outstanding contracts rose by 20% for this risk category. Currency options provided the prime source of momentum, with a surge of 42%. This was particularly marked in non-financial counterparties, where the use of currency options grew by 91% period-on-period.

At first glance, equity-linked OTC derivatives have also been especially popular in the current climate, posting a 21% increase in amounts outstanding versus a meagre 4% increase in the previous period. European dealers have been particularly active in this area, accounting for practically all of the increase in notional amounts outstanding.[1] Equity markets rallied substantially from mid-March, led by the balance sheet improvements in the financial sector. However, this sentiment did not spread across all major equity

[1] Caution should be exercised in interpreting the figures on notional amounts outstanding of equity derivatives: the valuation methods used by certain reporters for exotic equity options are in flux and the large increase shown in this period should be viewed with this in mind. The numbers reported for this segment are likely to be highly volatile.

sectors, and certain market sources reported a shift within equity derivatives away from company-specific instruments towards equity index-based OTC offerings. The popularity of index-based instruments is also a factor in the substantial growth of exchange-based business (see below).

The gold price was on a dramatic rollercoaster ride through the first half of 2003. However, notional amounts outstanding actually fell by 4% (gross market values –22%), to a degree as a result of continual and extensive producer dehedging (with extremely low interest rates, producers earn less on proceeds of forward sales of gold), and with attention focused on other commodity markets.

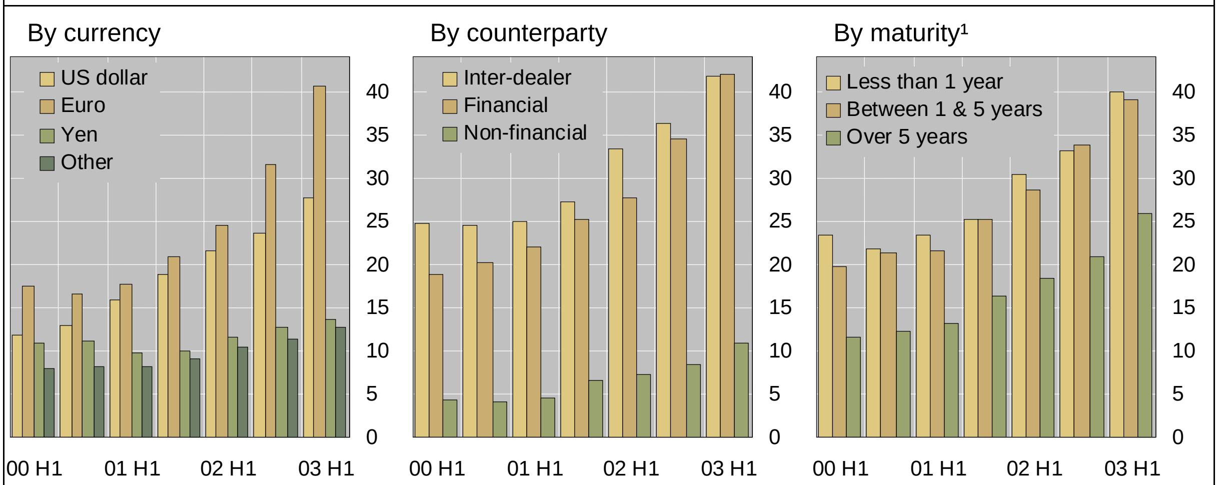
Precious metals contracts have been immensely popular, driven by scarcity of the underlying resources and the attraction of these US dollar-priced instruments under a perceived reflationary environment both from industry and as alternative investments in their own right. The first half of 2003 showed a 31% increase in notional amounts outstanding for this normally quiet area. Other commodities followed suit (gross market values +55%, notionals +20%).

2. Euro-denominated swap instruments continue to dominate

With $95 trillion in notional amounts outstanding, interest rate swaps remain by far the largest single group of products in the OTC derivatives market (see Tables 1 and 3), representing 56% across market risk categories. The US dollar-denominated interest rate swap market grew by 17% in the first half of 2003 with outstanding contracts rising to $27.6 trillion. Yen swaps rose by 6% to $13.5 trillion (there was a modest 1% depreciation of the yen against the dollar over this period). The euro-denominated swap market continues to be the strongest performer, with notional outstanding contracts standing at $40.7 trillion representing 43% of all interest rate swap products, up from 36% a year earlier. This area showed a dramatic 29% increase in the first half of 2003 in US dollar terms, a similar rate to the previous period. There was a notable currency effect with the euro appreciating by 10% over this period; however, at constant exchange rates growth remained a strong 18%.

Interest rate swaps

Notional amounts outstanding, in trillions of US dollars



[1] Includes FRAs, which in June 2003 accounted for approximately 8% of the total notional amounts outstanding.

Source: BIS. Graph 2

As illustrated in Graph 2, the growth in notional amounts outstanding in absolute terms was driven strongly by the increased use of swaps by other (non-dealer) financial institutions. A worldwide theme emerged in the second half of 2003 which contributed to this increase: mortgage convexity hedging.[2] Whilst trading in a narrow range for the first quarter, US Treasury prices rose dramatically in early May after the US Federal Reserve's policy meeting reinforced prior comments on unconventional monetary policy measures. Yields reversed quickly as the US Federal Reserve cut its target rate by just 25 bp on June 25, mortgages extended their duration and hedgers were forced to actively sell into the market. A significant widening of swap spreads followed as investors sought to pay fixed rates. Over this entire period, European markets very closely tracked US developments, partly owing to the dearth of significant macroeconomic improvements in the euro area (the ECB cutting rates in both March and June).

3. Foreign exchange shows vigour

Whilst the OTC foreign exchange market was largely stable in the second half of 2002, the first half of 2003 sprang back to life (see Table 2).There was a noticeable acceleration of growth relative to the second half of 2002 in most major currency sectors. Notional amounts outstanding of contracts involving the US dollar expanded by 18%, those involving the euro grew by 27% (16% at constant exchange rates), while those involving the yen increased by 2%. Turnover of euro/dollar contracts surged considerably with the 10% appreciation of the euro over this period, primarily due to expectations of continued US economic deterioration and consumer confidence in free fall until the second quarter of 2003.

4. Continued rise in gross market values

The second half of 2002 had seen a tremendous rise in gross market values, primarily because of the significant valuation shifts for interest rate contracts (see Graph 1 and Table 1). This had the effect of increasing the overall ratio of gross market values to notional amounts outstanding (for all risk categories) from a stable 2001 level of 3.5% to 4.5% of total OTC derivatives market activity by the end of 2002, and this was maintained through the first half of 2003 (4.7%).[3]

It should, however, be noted that data on gross market values tend to overstate the actual credit exposures faced by counterparties because they do not take into account the availability of legally enforceable bilateral netting arrangements and other risk reducing measures. After taking into account such netting arrangements, the derivatives-related gross credit exposures of reporting institutions stood at $1.75 trillion at the end of the most recent half-year, a 16% increase period on period, maintaining the pace of the previous six months.

5. Boom times for the exchanges

The organised exchanges posted much stronger six-month growth than the OTC market with a 61% increase in notional amounts outstanding (versus 20% in OTC) in the first half of 2003.[4] This contrasts with the second half of 2002, when the stock of OTC contracts had increased by 11% whilst the exchanges stagnated. The stronger increase of activity at exchanges occurred both in the foreign exchange and interest rate segments with exchange-based contracts showing increases of 42% and 65% respectively. As discussed in the September 2003 issue of the *BIS Quarterly Review*, trading of fixed income exchange-traded option contracts had been boosted by mortgage hedging activity and uncertainty about the use of non-conventional US monetary policy tools.

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2 See *BIS Quarterly Review*, September 2003, page 6.

3 A change in the differential between short- and long-term interest rates will lead to an increase in the value of interest rate swap contracts for some counterparties and a symmetrical decrease in value for others. A significantly large change will be reflected in gross market values.

4 It should be noted, however, that activity in the two types of markets cannot be directly compared owing to inherent differences in the characteristics and uses of products. In exchange-traded derivatives markets, the reversal of an initial position leads to a decline in open interest because of the offsetting of contracts though a central counterparty. In OTC derivatives markets, such a reversal involves the writing of new positions, which leads to an increase in notional amounts outstanding.

II. Statistical notes

1. Coverage

Overall coverage: As from end-June 1998, the central banks of the G10 countries have collected statistics on OTC derivatives on a semi-annual basis. The data are reported by major derivatives dealers, and compiled and published by the BIS. Prior to that date, the BIS used to compile and publish OTC derivatives data based on information provided by the International Swaps and Derivatives Association (ISDA). The latter were limited to data on turnover and contracts outstanding in notional amounts of currency and interest rate swaps and swap-related transactions, such as caps, collars, floors and swaptions, as provided by a restricted number of reporting dealers.

The current semi-annual OTC derivatives market statistics provide comprehensive data not only on notional amounts but also on gross market values outstanding of forwards, swaps and options of foreign exchange, interest rate, equity and commodity derivatives. However, in contrast to the exchange-traded derivatives statistics, data are only available on amounts outstanding and not on turnover of contracts. All published figures are adjusted for double-counting resulting from positions between reporting institutions. Notional amounts outstanding are adjusted by halving positions vis-à-vis other reporting dealers. Gross market values are adjusted by adding total gross positive market value of contracts to the gross negative market value of contracts with non-reporting counterparties only.

Reporting: The regular OTC derivatives market statistics are currently reported by 60 major reporting dealers in the G10 countries. The overall coverage of the market is fairly comprehensive, as OTC derivatives activity is highly concentrated. Moreover, the reporting dealers are requested to report their transactions on a worldwide consolidated basis inclusive of the activity of their foreign affiliates. Deals between affiliates of the same institution are excluded. All data are reported to the BIS in US dollars. Positions in other currencies of individual segments or instruments are converted into US dollars by reporting dealers at the exchange rate prevailing at the end of each reporting period. Data are broken down by market risk category, type of instrument, counterparty and remaining maturity.

2. Definitions

Notional amounts outstanding: Nominal or notional amounts outstanding are defined as the gross nominal or notional value of all deals concluded and not yet settled at the reporting date. For contracts with *variable nominal or notional principal amounts*, the basis for reporting is the nominal or notional principal amounts at the time of reporting.

Nominal or notional amounts outstanding provide a measure of market size and a reference from which contractual payments are determined in derivatives markets. However, such amounts are generally not those truly at risk. The amounts at risk in derivatives contracts are a function of the price level and/or volatility of the financial reference index used in the determination of contract payments, the duration and liquidity of contracts and the creditworthiness of counterparties. They are also a function of whether an exchange of notional principal takes place between counterparties. Gross market values provide a more accurate measure of the scale of financial risk transfer taking place in derivatives markets.

Gross positive and negative market values: Gross market values are defined as the sums of the absolute values of all open contracts with either positive or negative replacement values evaluated at market prices prevailing at the reporting date. Thus, the gross positive market value of a dealer's outstanding contracts is the sum of the replacement values of all contracts that are in a current gain position to the reporter at current market prices (and therefore, if they were settled immediately, would represent claims on counterparties). The gross negative market value is the sum of the values of all contracts that have a negative value on the reporting date (i.e. those that are in a current loss position and therefore, if they were settled immediately, would represent liabilities of the dealer to its counterparties).

The term gross is used to indicate that contracts with positive and negative replacement values with the same counterparty are not netted. Nor are the sums of positive and negative contract values within a market risk category such as foreign exchange, interest rate contracts, equities and commodities set off against one another.

As stated above, gross market values supply information about the potential scale of market risk in derivatives transactions. Furthermore, gross market value at current market prices provides a measure of economic significance that is readily comparable across markets and products.

Current credit exposure and liabilities: Current credit exposure represents the gross value of contracts that have a positive market value after taking account of legally enforceable bilateral netting agreements. Liabilities arising from OTC derivatives contracts represent the gross value of contracts that have a negative market value taking account of legally enforceable bilateral netting agreements.

3. Data availability

The aggregate data from end-June 1998 onwards are available, with their main breakdowns, on the BIS website under http://www.bis.org/statistics/derstats.htm

4. Next publication dates

The next OTC derivatives statistics covering the second half of 2003 will be released no later than 20 May 2004.

III. Statistical tables

Table 1

The global OTC derivatives market[1]

Amounts outstanding in billions of US dollars

	Notional amounts				Gross market values			
	End–Dec 2001	**End–Jun 2002**	**End–Dec 2002**	**End-Jun 2003**	**End–Dec 2001**	**End–Jun 2002**	**End–Dec 2002**	**End-Jun 2003**
GRAND TOTAL	**111,178**	**127,509**	**141,679**	**169,678**	**3,788**	**4,450**	**6,360**	**7,908**
Foreign exchange contracts	**16,748**	**18,068**	**18,460**	**22,088**	**779**	**1,052**	**881**	**996**
Outright forwards and forex swaps	10,336	10,426	10,719	12,332	374	615	468	476
Currency swaps	3,942	4,215	4,503	5,159	335	340	337	419
Options	2,470	3,427	3,238	4,597	70	97	76	101
Interest rate contracts[2]	**77,568**	**89,955**	**101,658**	**121,799**	**2,210**	**2,467**	**4,266**	**5,459**
FRAs	7,737	9,146	8,792	10,270	19	19	22	20
Swaps	58,897	68,234	79,120	94,583	1,969	2,213	3,864	5,004
Options	10,933	12,575	13,746	16,946	222	235	381	434
Equity-linked contracts	**1,881**	**2,214**	**2,309**	**2,799**	**205**	**243**	**255**	**260**
Forwards and swaps	320	386	364	488	58	62	61	67
Options	1,561	1,828	1,944	2,311	147	181	194	193
Commodity contracts[3]	**598**	**777**	**923**	**1,040**	**75**	**79**	**86**	**110**
Gold	231	279	315	304	20	28	28	22
Other	367	498	608	736	56	51	58	88
Forwards and swaps	217	290	402	458	...	...	...	...
Options	150	208	206	279	...	...	...	...
Other[4]	**14,384**	**16,496**	**18,330**	**21,952**	**519**	**609**	**871**	**1,083**
Gross credit exposure[5]	.	.	.	.	**1,171**	**1,317**	**1,511**	**1,750**
Memorandum item: Exchange-traded contracts[6]	*23,760*	*24,031*	*23,810*	*38,217*	.	.	.	.

[1] All figures are adjusted for double-counting. Notional amounts outstanding have been adjusted by halving positions vis-à-vis other reporting dealers. Gross market values have been calculated as the sum of the total gross positive market value of contracts and the gross negative market value of contracts with non-reporting counterparties. [2] Single currency contracts only. [3] Adjustments for double-counting estimated. [4] Estimated positions of non-regular reporting institutions. [5] Gross market values after taking into account legally enforceable bilateral netting agreements. [6] Sources: FOW TRADEdata; Futures Industry Association; various futures and options exchanges.

Table 2

The global OTC foreign exchange derivatives market[1,2]

Amounts outstanding in billions of US dollars

	Notional amounts				Gross market values			
	End–Dec 2001	**End–Jun 2002**	**End–Dec 2002**	**End–Jun 2003**	**End–Dec 2001**	**End–Jun 2002**	**End–Dec 2002**	**End–Jun 2003**
TOTAL CONTRACTS	**16,748**	**18,068**	**18,460**	**22,088**	**779**	**1,052**	**881**	**996**
With reporting dealers	5,912	6,602	6,845	7,960	237	372	285	284
With other financial institutions	6,755	7,210	7,602	8,955	319	421	377	427
With non-financial customers	4,081	4,256	4,012	5,172	224	259	220	286
Up to one year[3]	13,427	14,401	14,533	17,561	...	...	...	...
Between one and five years[3]	2,340	2,537	2,719	3,128	...	...	...	...
Over five years[3]	981	1,130	1,208	1,399	...	...	...	...
US dollar	15,410	15,973	16,500	19,401	704	948	813	891
Euro	6,368	7,297	7,818	9,914	266	445	429	526
Japanese yen	4,178	4,454	4,791	4,907	313	254	189	165
Pound sterling	2,315	2,522	2,462	3,093	69	112	98	114
Swiss franc	800	861	936	1,244	28	50	49	42
Canadian dollar	593	746	701	991	25	32	22	57
Swedish krona	551	766	708	749	18	48	31	26
Other	3,280	3,517	3,004	3,878	135	214	132	172
Memorandum item: Exchange-traded contracts[4]	*93*	*79*	*74*	*105*	.	.	.	.

[1] See footnote 1 to Table 1. [2] Counting both currency sides of every foreign exchange transaction means that the currency breakdown sums to 200% of the aggregate. [3] Residual maturity. [4] See footnote 6 to Table 1.

Table 3

The global OTC interest rate derivatives market[1]

Amounts outstanding in billions of US dollars

	Notional amounts				Gross market values			
	End–Dec 2001	**End–Jun 2002**	**End–Dec 2002**	**End–Jun 2003**	**End–Dec 2001**	**End–Jun 2002**	**End–Dec 2002**	**End–Jun 2003**
TOTAL CONTRACTS	**77,568**	**89,955**	**101,658**	**121,799**	**2,210**	**2,467**	**4,266**	**5,459**
With reporting dealers	35,472	43,340	46,722	53,622	912	1,081	1,848	2,266
With other financial institutions	32,510	36,310	43,607	53,133	945	1,025	1,845	2,482
With non-financial customers	9,586	10,304	11,328	15,044	353	361	573	710
Up to one year[2]	27,886	33,674	36,938	44,927	...	...	...	...
Between one and five years[2]	30,566	34,437	40,137	46,646	...	...	...	...
Over five years[2]	19,115	21,844	24,583	30,226	...	...	...	...
US dollar	27,427	32,178	34,399	40,110	952	1,127	1,917	2,286
Euro	26,230	30,671	38,429	50,000	677	710	1,499	2,178
Japanese yen	11,799	13,433	14,650	15,270	304	326	378	405
Pound sterling	6,216	6,978	7,442	8,322	148	151	252	315
Swiss franc	1,362	1,591	1,726	1,962	21	33	71	72
Canadian dollar	781	859	828	1,136	29	24	31	37
Swedish krona	1,057	1,070	1,094	1,136	16	14	26	36
Other	2,696	3,175	3,090	3,862	63	82	93	129
Memorandum item: Exchange-traded contracts[3]	*21,758*	*21,887*	*21,710*	*35,745*	.	.	.	.

[1] See footnote 1 to Table 1. [2] Residual maturity. [3] See footnote 6 to Table 1.