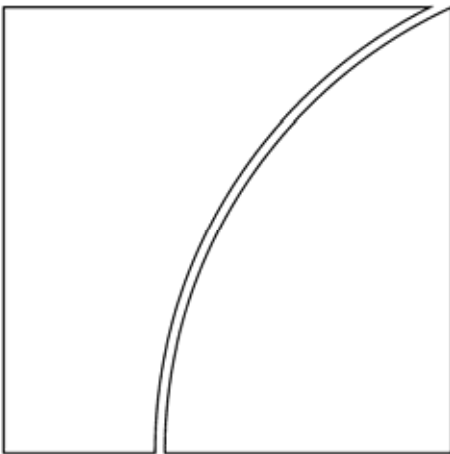




BANK FOR INTERNATIONAL SETTLEMENTS

Monetary and Economic
Department

OTC derivatives market activity
in the second half of 2006



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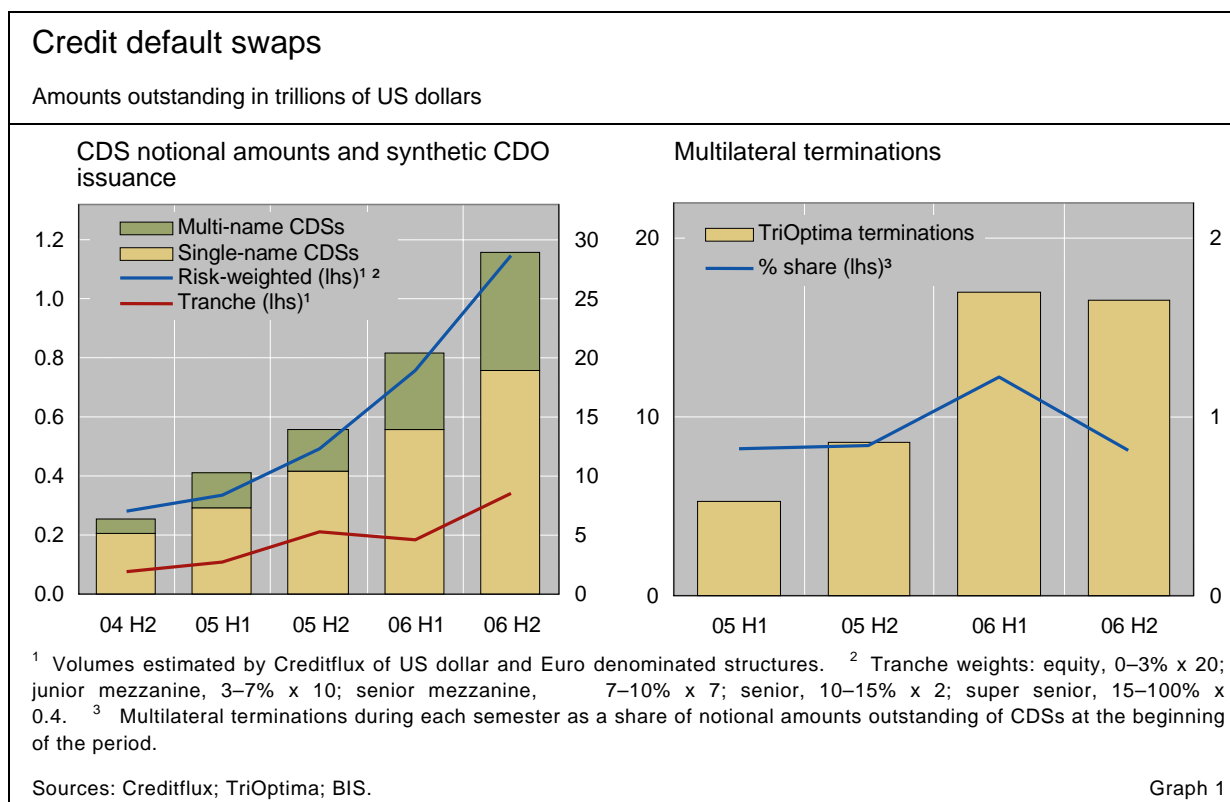
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I. Market developments in the second half of 2006

Growth in the over-the-counter (OTC) derivatives market slowed in the second half of 2006 to a pace in line with the long-term average rate of increase of the market. Notional amounts of all types of OTC contracts rose by 12% to \$415 trillion at the end of December (Table 1), after a 24% increase in the first half of the year.¹ Growth remained very strong in the credit segment, where the notional amounts of outstanding credit default swaps (CDSs) increased by 42%, but it fell to rates in the range of 5–11% in other risk categories. Gross market values, which measure the cost of replacing all existing contracts and thus represent a better measure of risk at a given point in time than notional amounts, remained roughly stable at \$10 trillion at the end of December 2006. Gross credit exposures due to OTC derivatives, after netting agreements, were also stable at \$2 trillion.²

1. Rapid growth in credit default swaps

The market for CDSs continued to expand at a fast pace in the second half of 2006. At 42%, the rate of growth was only somewhat below the 46% recorded in the first half of the year (Graph 1 and Table 4). At a cumulated \$1.7 trillion³ between July and December, multilateral terminations of CDS contracts were of a similar volume as in the first half of the year and shaved approximately 8% off the rate of growth in this market.⁴



¹ Growth rates have not been annualised but refer to changes over six months.

² Market sources indicate that these positions are largely collateralised. Netting arrangements and collateral are discussed in more detail in Committee on Payment and Settlement Systems, *New developments in clearing and settlement arrangements for OTC derivatives*, March 2007.

³ Figures supplied by TriOptima. The volumes of terminations of contracts between BIS reporting dealers has been divided by two to adjust for double counting.

⁴ See footnote 2 in BIS, *OTC derivatives market activity in the first half of 2006*, 2006 for a description of multilateral terminations. Please note that the figures on the volumes of multilateral terminations published in that note were not adjusted for double-counting.

The increase in the notional amounts of multi-name CDSs (54%) again outpaced growth in single-name contracts (36%). Positions in multi-name CDSs of non-financial institutions increased by 131% between July and December 2006, although at \$1 trillion – split roughly evenly between protection bought and protection sold – they remain relatively small compared to the size of the market as a whole.

Activity in the CDS market was in part driven by issuance of synthetic collateralised debt obligations (CDOs) and other structured products that use CDSs to obtain credit exposure. The impact of such issuance on positions in the CDS market could be considerably larger than suggested by nominal amounts, since hedging structured credit products may involve selling a multiple of their face value, in particular in the case of more junior tranches whose prices are very sensitive to market conditions. The multiples of more complex products, such as constant proportion portfolio insurance (CPPI) and constant proportion debt obligations (CPDOs), may be even higher. That said, it is impossible to disentangle the effect of structured issuance on CDS volumes from other factors.

2. Solid growth in interest rate products

The rapid expansion in the volume of OTC interest rate derivatives between January and June 2006 (24%) gave way to more moderate growth (11%) in the second half of the year. Notional amounts outstanding increased to \$292 trillion at the end of December 2006 (Table 3), whereas gross market values declined by 11% to \$5 trillion.

The volumes outstanding of interest rate options (18%) grew faster than those of interest rate swaps (11%) or forward rate agreements (3%). In the yen market, positions in forward rate agreements plummeted to the level recorded at the end of 2005, prior to the tightening of policy by the Bank of Japan. Between late 2005 and end-June 2006, notional amounts outstanding of yen-denominated forward rate agreements had increased by 58%.

3. Lower growth in FX derivatives gives mixed evidence for carry trade activity

Growth in OTC foreign exchange derivatives slowed to 5% in the second half of 2006, considerably below the 21% recorded in the first six months of the year (Table 2). Perhaps surprisingly, given the amount of media coverage of this issue, the data give only very mixed support for an expansion of carry trades during the period under review.⁵ The notional amounts of contracts on the Japanese yen changed little over the period, suggesting that carry trades were not an important driver of activity in that market segment. By contrast, positions in the Swiss franc, widely considered to be the second funding currency behind the yen, increased by 10%, thus outpacing the growth of the market as a whole. Turning to potential target currencies, the volumes outstanding of contracts on sterling expanded by 17%, which may partly reflect carry trade activity. However, important caveats have to be borne in mind when using the BIS Semiannual Survey to track carry trade activity. First, the low frequency of the data and the coarse instrument breakdown make it difficult to separate carry trades from other motives for trading. Second, the data are less than comprehensive for non-G10 currencies such as the Australian dollar because the local banks are excluded from the reporting population. In addition, some activity in non-G10 currencies might be captured under “other currencies” since reporting dealers do not have to identify positions in these currencies.

⁵ See *BIS Quarterly Review*, March 2007, pp 8–9, for alternative measures of carry trade activity.

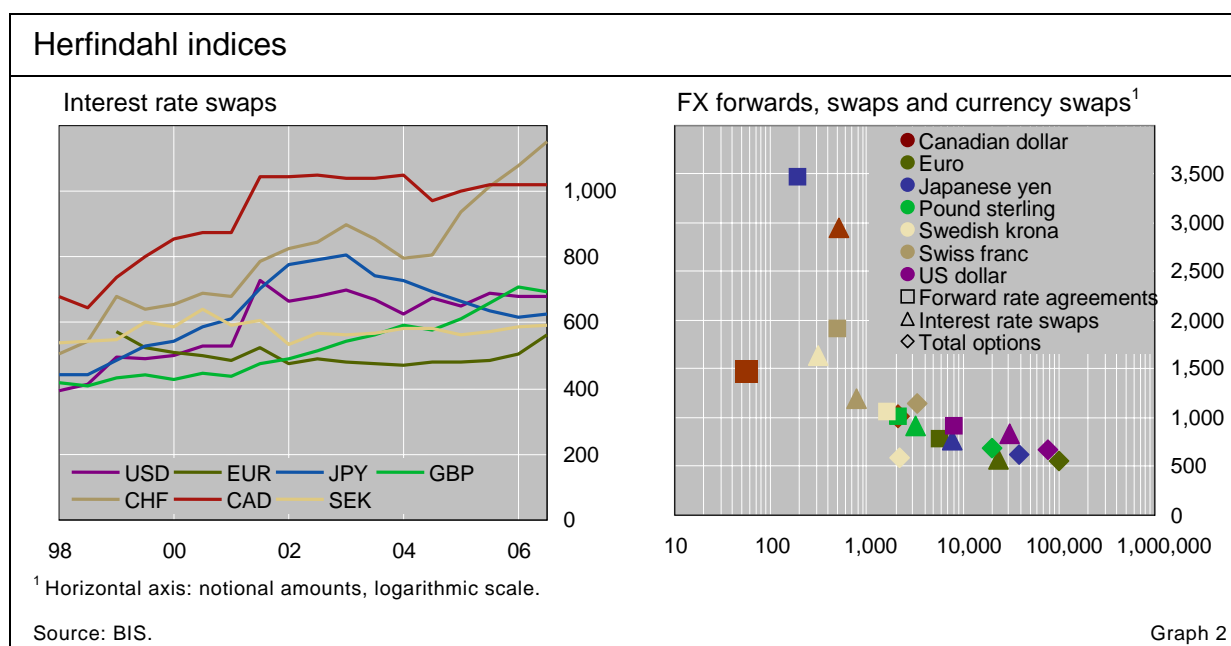
4. Declining growth in equity and commodity derivatives

Growth in the market for OTC equity derivatives slowed to 10% in the second half of 2006, after 17% in the previous six months. Declining volumes of contracts on US (-4%) and Japanese equities (-2%) contrasted with increasing activity in derivatives on European equities (18%). The notional amounts of OTC equity contracts stood at \$7.5 trillion at the end of December 2006.

A lower rate of growth was also recorded in the market for OTC commodity derivatives, whose notional amounts increased by 9% in the second half of 2006 to \$6.9 trillion. In the previous six months, open positions had grown at twice that rate. The breakdown of activity by instrument indicates that the volumes of forwards and swaps increased by 26%, to \$3 trillion, whereas option volume remained roughly stable at \$4 trillion. Gross market values of commodity contracts fell by 7%, to \$0.7 trillion.

5. Market concentration low but increasing

Concentration in the OTC derivatives market appears to have risen somewhat in recent years, although it remains low on average (Table 6 and Graph 2). Concentration tends to be lowest in FX and interest rate derivatives, with Herfindahl indices (HI) in the range of 400 to 700 in the major currencies. Such values are below what most economists would consider an oligopolistic market. For example, a market with nine dominant firms of equal market size that have a joint market share of 80% would have an HI of just over 700. An HI of 500 would correspond to 13 dominant firms, always assuming that the remaining reporting dealers equally share the other 20% of the market.



However, while concentration tends to be low on average, there are some product categories where it could be an issue. For example, the HI of forward rate agreements in yen has increased to almost 3,500, which would correspond to the case of three firms with equal market share accounting for 100% of the market. In the first half of the decade, when volumes were several times larger than in 2006, HIs for yen-denominated forward rate agreements were well below 2,000. Another example of high, and increasing, concentration in the interest rate segment is options denominated in Canadian dollars, which have an HI of approximately 3,000. Concentration might also be an issue for products not captured by the available breakdown.

In general, large markets tend to be less concentrated than smaller markets, although there are some notable exceptions. For example, the HIs for interest rate swaps in Swedish kronor are the second lowest in the swaps segment behind the euro. They are much lower than those for swaps in Canadian dollars or Swiss francs, whose market is of comparable size.

II. Statistical notes

1. Coverage

As of end-June 1998, the central banks of the G10 countries introduced the regular collection of statistics on derivatives markets through reporting by leading global dealers. The objective of the reporting exercise is to obtain reasonably comprehensive and internationally consistent information on the size and structure of over-the-counter (OTC) derivatives markets.

The semiannual OTC derivatives market statistics (Tables 1 to 3) provide data on notional amounts and gross market values outstanding of forwards, swaps and options of foreign exchange, interest rate, equity, commodity and credit derivatives. 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 the total gross positive market value of contracts to the gross negative market value of contracts with non-reporting counterparties only.

As of end-June 2004, the BIS started releasing statistics on concentration measures in the context of the semiannual OTC derivatives statistics. The central banks of the G10 countries provided the BIS with data back to June 1998, including concentration measures for foreign exchange, interest rate and equity-linked derivatives (Tables 6a to 6i).

In response to a request made by the Committee on the Global Financial System (CGFS), as of end-December 2004 the BIS started releasing semiannual statistics on credit default swaps (CDSs) (Tables 4 and 5), which include notional amounts outstanding and gross market values for single- and multi-name instruments. As of December 2005, additional information by counterparty, sector and rating has been made available.

2. Definitions

2.1 Types of data collected

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 on 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 on 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 (ie 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 contracts, 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.

Herfindahl index: The Herfindahl index represents a measure of market concentration and is defined as the sum of the squares of the market shares of each individual institution. It ranges from 0 to 10,000. The more concentrated the market, the higher the measure becomes. If the market is fully concentrated (only one institution), the measure will have the (maximum) value of 10,000.

2.2 Instrument types

Forward contracts: Forward contracts represent agreements for delayed delivery of financial instruments or commodities in which the buyer agrees to purchase and the seller agrees to deliver, at a specified future date, a specified instrument or commodity at a specified price or yield. Forward contracts are generally not traded on organised exchanges and their contractual terms are not standardised. The reporting exercise also includes transactions where only the difference between the contracted forward outright rate and the prevailing spot rate is settled at maturity, such as non-deliverable forwards (ie forwards which do not require physical delivery of a non-convertible currency) and other contracts for differences.

Swaps: Swaps are transactions in which two parties agree to exchange payment streams based on a specified notional amount for a specified period. Forward-starting swap contracts are reported as swaps.

Options: Option contracts convey either the right or the obligation, depending upon whether the reporting institution is the purchaser or the writer, respectively, to buy or sell a financial instrument or commodity at a specified price up to a specified future date.

2.3 Specific definitions for credit default swaps

Single-name CDS: A credit derivative where the reference entity is a single name.

Multi-name CDS: A contract where the reference entity is more than one name as in portfolio or basket CDSs or CDS indices. A basket CDS is a CDS where the credit event is the default of some combination of the credits in a specified basket of credits.

3. Data availability

Detailed tables on OTC derivatives and concentration measures from end-June 1998 are available, with their main breakdowns, on the BIS website under www.bis.org/statistics/derstats.htm.

4. Next publication dates

The next OTC derivatives statistics, covering the first half of 2007, will be released together with the results of the second part of the 2007 Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity, no later than 30 November 2007.

III. Statistical tables

Table 1
The global OTC derivatives market¹
 Amounts outstanding in billions of US dollars

	Notional amounts outstanding				Gross market values			
	Jun 2005	Dec 2005	Jun 2006	Dec 2006	Jun 2005	Dec 2005	Jun 2006	Dec 2006
GRAND TOTAL (including CDSs)	281,493	297,670	369,507	415,183	10,605	9,749	9,936	9,695
A. Foreign exchange contracts	31,081	31,364	38,091	40,179	1,141	997	1,134	1,262
Outright forwards and forex swaps	15,801	15,873	19,395	19,828	464	406	435	467
Currency swaps	8,236	8,504	9,669	10,772	549	453	533	599
Options	7,045	6,987	9,027	9,579	129	138	166	196
<i>Memo: Exchange-traded contracts²</i>	169	174	188	257				
B. Interest rate contracts³	204,795	211,970	261,960	291,987	6,699	5,397	5,435	4,834
FRAs	13,973	14,269	18,117	18,689	31	22	25	31
Swaps	163,749	169,106	207,042	229,780	6,077	4,778	4,831	4,166
Options	27,072	28,596	36,800	43,518	592	597	579	636
<i>Memo: Exchange-traded contracts²</i>	53,794	52,297	76,838	62,643				
C. Equity-linked contracts	4,551	5,793	6,782	7,485	382	582	671	851
Forwards and swaps	1,086	1,177	1,430	1,764	88	112	147	165
Options	3,464	4,617	5,351	5,721	294	470	523	687
<i>Memo: Exchange-traded contracts²</i>	4,554	5,346	7,389	7,612				
D. Commodity contracts⁴	2,940	5,434	6,394	6,938	376	871	718	667
Gold	288	334	456	463	24	51	77	56
Other	2,652	5,100	5,938	6,475	351	820	641	611
Forwards and swaps	1,748	1,909	2,188	2,813				
Options	904	3,191	3,750	3,663				
E. Credit default swaps⁵	10,211	13,908	20,352	28,838	188	243	294	470
Single-name instruments	7,310	10,432	13,873	18,885	136	171	186	289
Multi-name instruments	2,901	3,476	6,479	9,953	52	71	109	181
F. Unallocated⁶	27,915	29,199	35,928	39,755	1,818	1,659	1,683	1,610
GROSS CREDIT EXPOSURE⁷					1,897	1,900	2,029	2,045
<i>Memo: Exchange-traded contracts^{2,8}</i>	58,517	57,796	84,415	70,512				

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 absolute value of the gross negative market value of contracts with non-reporting counterparties. ² Sources: FOW TRADEdata; Futures Industry Association; various futures and options exchanges. ³ Single currency contracts only. ⁴ Adjustments for double-counting partly estimated. ⁵ See Tables 4 and 5. ⁶ Includes foreign exchange, interest rate, equity and commodity derivatives of non-reporting institutions, based on the latest Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity, in 2004. ⁷ Gross market values after taking into account legally enforceable bilateral netting agreements. ⁸ Excludes commodity contracts.

Table 2
The global OTC foreign exchange derivatives market^{1,2}

Amounts outstanding in billions of US dollars

	Notional amounts outstanding				Gross market values			
	Jun 2005	Dec 2005	Jun 2006	Dec 2006	Jun 2005	Dec 2005	Jun 2006	Dec 2006
Total contracts	31,081	31,364	38,091	40,179	1,141	997	1,134	1,262
With reporting dealers	12,179	12,161	15,278	15,597	377	323	367	437
With other financial institutions	12,334	12,721	15,118	15,878	470	412	471	520
With non-financial customers	6,568	6,482	7,695	8,704	294	261	296	306
Up to 1 year ³	24,256	23,910	29,563	30,228				
Between 1 and 5 years ³	4,729	5,165	5,837	6,658				
Over 5 years ³	2,097	2,289	2,691	3,293				
US dollar	27,584	26,297	31,756	33,775	1,024	867	967	1,066
Euro	12,404	12,857	15,340	15,907	512	397	472	508
Japanese yen	6,907	7,578	9,504	9,548	220	256	242	323
Pound sterling	4,273	4,424	5,217	6,128	150	121	148	197
Swiss franc	1,586	1,690	2,096	2,307	54	46	50	49
Canadian dollar	1,217	1,379	1,674	1,764	56	70	75	68
Swedish krona	1,039	1,067	1,172	1,219	48	24	31	33
Other	7,152	7,436	9,422	9,710	219	214	283	281
<i>Memo: Exchange-traded contracts⁴</i>	<i>169</i>	<i>174</i>	<i>188</i>	<i>257</i>				

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 2 to Table 1.

Table 3
The global OTC interest rate derivatives market¹

Amounts outstanding in billions of US dollars

	Notional amounts outstanding				Gross market values			
	Jun 2005	Dec 2005	Jun 2006	Dec 2006	Jun 2005	Dec 2005	Jun 2006	Dec 2006
Total contracts	204,795	211,970	261,960	291,987	6,699	5,397	5,435	4,834
With reporting dealers	87,049	91,541	114,465	126,445	2,598	2,096	2,215	1,954
With other financial institutions	92,092	95,320	114,865	127,215	3,265	2,625	2,515	2,252
With non-financial customers	25,655	25,109	32,630	38,327	837	676	705	628
Up to 1 year ²	66,681	69,378	90,585	104,207				
Between 1 and 5 years ²	82,341	86,550	101,607	110,417				
Over 5 years ²	55,773	56,042	69,767	77,362				
US dollar	72,558	74,441	88,022	97,612	1,826	1,515	2,117	1,665
Euro	76,426	81,442	103,429	112,116	3,692	2,965	2,298	2,306
Japanese yen	25,224	25,605	32,146	37,954	454	294	457	295
Pound sterling	16,621	15,060	19,066	22,274	372	344	291	311
Swiss franc	2,804	3,275	3,647	3,544	75	49	46	34
Canadian dollar	1,602	1,747	2,047	2,125	53	36	38	31
Swedish krona	2,222	2,551	3,452	3,595	63	41	38	32
Other	7,339	7,850	10,151	12,767	165	153	150	160
<i>Memo: Exchange-traded contracts³</i>	<i>53,794</i>	<i>52,297</i>	<i>76,838</i>	<i>62,652</i>				

¹ See footnote 1 to Table 1. ² Residual maturity. ³ See footnote 2 to Table 1.

Table 4

Credit default swaps market¹

Amounts outstanding in billions of US dollars

	Notional amounts outstanding									Gross market values		
	December 2005			June 2006			December 2006			Dec 2005	Jun 2006	Dec 2006
	Bought	Sold	Total	Bought	Sold	Total	Bought	Sold	Total			
Total CDS contracts	10,672	10,174	13,908	15,729	15,232	20,352	22,571	22,372	28,838	243	294	470
With reporting dealers	6,988	6,888	6,938	10,670	10,547	10,609	16,044	16,165	16,104	109	138	244
With other financial institutions	3,325	3,009	6,335	4,657	4,360	9,017	5,965	5,678	11,643	119	142	199
Banks and securities firms	1,839	1,703	3,541	2,555	2,470	5,025	2,928	2,758	5,686	57	69	80
Insurance firms	176	59	235	229	68	297	211	95	306	2	2	2
Other	1,310	1,248	2,559	1,873	1,823	3,696	2,826	2,824	5,650	60	72	116
With non-financial customers	359	277	636	402	325	727	561	530	1,091	15	14	27
Up to 1 year	830	455	862	1,326	1,168	1,574	1,966	1,876	2,341	–	–	–
Between 1 and 5 years	7,436	7,513	9,821	9,994	9,910	13,019	13,251	13,366	16,984	–	–	–
Over 5 years	2,406	2,205	3,225	4,408	4,154	5,759	7,353	7,131	9,513	–	–	–
Single-name instruments ²	7,882	7,737	10,432	10,646	10,448	13,873	14,463	14,401	18,885	171	186	289
Multi-name instruments	2,790	2,437	3,476	5,082	4,784	6,479	8,108	7,971	9,953	71	109	181

¹ Data on total CDS and gross market values are shown on a net basis. Data on CDSs bought and sold are shown on a gross basis, ie not adjusted for inter-dealer double-counting. ² See Table 5.

Table 5
Credit default swaps market¹
Single-name instruments

Amounts outstanding in billions of US dollars

	Notional amounts outstanding									Gross market values		
	December 2005			June 2006			December 2006			Dec 2005	Jun 2006	Dec 2006
	Bought	Sold	Total	Bought	Sold	Total	Bought	Sold	Total			
Total single-name instruments	7,882	7,737	10,432	10,646	10,448	13,873	14,463	14,401	18,885	171	186	289
With reporting dealers	5,216	5,158	5,187	7,277	7,164	7,221	9,982	9,975	9,978	82	92	150
With other financial institutions	2,400	2,353	4,753	3,095	3,059	6,154	4,200	4,142	8,342	80	86	130
Banks and securities firms	1,323	1,296	2,619	1,580	1,528	3,109	1,856	1,758	3,613	41	41	48
Insurance firms	94	32	125	90	38	129	110	58	169	1	1	1
Other	983	1,026	2,009	1,425	1,492	2,916	2,234	2,326	4,560	38	43	81
With non-financial customers	265	226	492	274	225	499	280	284	565	9	8	9
Up to 1 year	621	402	688	911	765	1,087	1,202	1,062	1,445	–	–	–
Between 1 and 5 years	5,623	5,764	7,497	7,084	7,110	9,272	8,880	9,070	11,630	–	–	–
Over 5 years	1,638	1,571	2,247	2,651	2,574	3,514	4,381	4,269	5,810	–	–	–
Sovereigns	873	880	1,258	476	466	641	799	705	1,024	–	–	–
Non-sovereigns	7,009	6,858	9,174	10,170	9,981	13,232	13,664	13,695	17,861	–	–	–
Investment grade	5,642	5,549	7,316	7,426	7,241	9,330	9,067	9,035	11,657	–	–	–
Below investment grade	1,028	1,029	1,469	1,362	1,445	2,002	1,806	1,853	2,404	–	–	–
Non-rated	1,212	1,159	1,647	1,858	1,762	2,542	3,589	3,512	4,824	–	–	–

¹ Data on total CDS and gross market values are shown on a net basis. Data on CDSs bought and sold are shown on a gross basis, ie not adjusted for inter-dealer double-counting.

Table 6a
Herfindahl Indices for all OTC Interest rate derivatives contracts

Currency	Contract type	Dec 90	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
CAD	Forward rate agreements	810	923	1,373	1,418	1,452	1,347	1,812	1,556	1,818	1,530	1,522	1,965	1,741	1,859	1,849	1,870	1,499
	Interest rate swaps	647	737	800	856	876	874	1,044	1,044	1,047	1,041	1,039	1,048	973	1,000	1,017	1,018	1,020
	Options	962	1,430	1,340	1,450	1,791	1,621	1,702	1,602	2,112	2,161	2,226	2,313	2,697	2,955	3,052	2,703	2,951
CHF	Forward rate agreements	1,133	1,085	1,317	1,421	1,274	1,264	1,252	1,234	1,218	1,264	1,269	1,169	1,222	1,158	1,630	1,698	1,919
	Interest rate swaps	542	678	643	655	666	678	788	824	848	896	852	797	807	936	1,015	1,060	1,149
	Options	1,077	937	1,154	1,432	2,439	1,239	1,228	1,461	1,693	1,684	1,616	1,796	1,292	1,508	1,584	1,395	1,200
EUR	Forward rate agreements	...	834	937	851	1,107	936	740	556	571	539	639	670	597	631	667	690	783
	Interest rate swaps	...	572	522	511	500	406	524	470	492	401	470	473	401	479	404	502	501
	Options	...	525	578	530	565	559	584	561	546	608	591	675	607	567	539	533	567
GBP	Forward rate agreements	828	856	641	614	728	693	638	605	610	607	1,095	930	923	855	1,210	1,083	1,023
	Interest rate swaps	406	433	444	420	448	438	476	480	515	544	565	504	578	614	661	707	602
	Options	628	828	686	677	662	648	727	648	615	643	666	747	1,452	1,288	905	957	915
JPY	Forward rate agreements	860	942	932	1,014	1,109	1,937	1,758	1,763	1,942	1,972	1,647	1,308	1,852	2,565	3,025	3,260	3,468
	Interest rate swaps	440	484	528	545	585	613	706	779	790	806	744	728	603	664	635	618	624
	Options	438	949	596	715	791	708	1,217	1,202	1,624	1,223	1,065	976	739	781	793	829	769
SEK	Forward rate agreements	965	870	914	936	957	1,125	1,002	944	886	839	947	965	861	811	787	847	1,068
	Interest rate swaps	542	549	601	586	640	582	608	532	569	561	570	583	583	564	571	586	594
	Options	899	824	967	1,036	1,076	969	1,081	1,149	1,224	1,174	1,230	1,137	965	1,077	1,259	1,431	1,638
USD	Forward rate agreements	617	655	710	755	679	660	1,145	907	1,042	901	706	725	645	652	680	700	910
	Interest rate swaps	415	495	490	500	528	529	730	666	682	701	672	626	673	650	691	680	680
	Options	901	647	734	702	619	764	1,143	1,044	1,030	961	677	647	767	756	762	616	630

Table 6b
Herfindahl indices for all OTC foreign exchange derivatives contracts

Contract type	Dec 96	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
Forwards, forex swaps and currency swaps	333	372	413	423	423	416	471	427	434	438	429	442	446	440	464	475	483
Options	504	525	544	507	528	546	564	518	503	498	605	560	605	591	624	606	569

Table 6c
Herfindahl indices for all OTC equity-linked derivatives contracts

Region	Contract type	Dec 96	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
Europe	Forwards and swaps	869	715	787	618	750	693	733	770	762	768	698	611	631	598	652	616	690
	Options	659	639	613	657	779	891	880	952	791	985	1,013	1,195	659	662	615	689	780
Japan	Forwards and swaps	2,837	2,170	3,416	2,501	2,043	1,481	2,005	1,822	1,948	1,854	3,106	1,984	1,734	2,056	2,292	1,326	1,205
	Options	970	1,462	1,102	1,018	1,386	880	841	1,072	1,132	2,322	1,718	2,653	1,203	893	3,953	3,405	3,078
Latin America	Forwards and swaps	2,849	3,071	9,274	6,881	5,015	5,163	6,063	7,546	7,281	8,839	3,808	3,732	4,243	6,953	7,039	6,704	7,199
	Options	4,307	6,169	4,300	6,776	6,703	4,353	6,084	7,505	4,007	9,332	6,432	6,304	4,029	4,427	5,790	3,910	3,902
Other Asia	Forwards and swaps	1,313	3,506	3,006	5,119	1,663	1,631	5,294	6,066	1,677	3,197	2,233	2,010	1,536	1,355	1,334	1,294	1,066
	Options	1,271	1,388	2,341	1,586	1,600	1,188	1,447	1,550	1,675	1,894	5,464	5,435	1,674	1,177	5,566	5,536	5,615
United States	Forwards and swaps	1,111	1,215	1,885	1,088	1,132	1,048	1,070	1,174	1,037	964	1,040	855	849	722	947	941	1,487
	Options	750	1,042	1,275	749	759	663	751	890	665	793	1,031	836	915	725	787	1,402	752

Table 6d
Herfindahl indices for all OTC interest rate derivatives contracts between reporters¹

Currency	Contract type	Dec 98	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
CAD	Forward rate agreements	983	1,008	1,707	1,594	1,876	1,365	2,266	1,992	2,325	2,000	1,814	2,118	2,218	1,815	1,979	1,698	1,687
	Interest rate swaps	671	772	834	876	910	810	1,000	949	890	974	1,010	1,000	1,045	930	970	996	1,007
	Options	1,041	1,436	1,341	1,212	1,622	1,558	1,474	1,720	2,426	2,695	2,811	2,722	3,135	2,333	2,659	2,686	2,738
CHF	Forward rate agreements	1,194	1,176	1,480	1,505	1,256	1,211	1,270	1,262	1,594	1,606	1,475	1,348	1,401	1,244	1,710	1,813	2,321
	Interest rate swaps	530	776	701	724	700	705	822	854	890	835	833	800	815	932	1,043	1,169	1,229
	Options	1,458	1,044	1,371	1,495	1,186	1,350	1,041	1,220	1,441	1,487	1,347	1,691	1,634	1,223	1,214	1,296	1,034
EUR	Forward rate agreements	...	744	961	956	1,071	954	727	540	547	555	540	506	576	661	679	707	820
	Interest rate swaps	...	595	549	543	530	506	571	503	505	474	478	474	470	483	496	516	517
	Options	...	591	503	504	619	610	642	636	558	600	575	605	649	556	547	557	501
GBP	Forward rate agreements	862	982	738	666	788	769	697	647	848	578	748	1,012	939	977	1,180	1,090	1,024
	Interest rate swaps	400	408	456	427	468	458	400	497	550	522	547	723	691	695	751	757	707
	Options	678	1,145	928	886	795	826	828	786	685	670	661	721	845	842	870	908	892
JPY	Forward rate agreements	869	894	973	1,073	1,386	2,319	2,194	2,095	2,316	2,379	1,803	1,463	2,291	3,163	3,447	3,841	3,662
	Interest rate swaps	460	501	568	600	629	691	801	866	895	935	894	843	792	749	706	666	651
	Options	521	546	795	822	876	803	1,381	1,665	1,740	1,423	1,383	1,158	855	871	903	888	833
SEK	Forward rate agreements	697	619	662	964	939	1,279	979	962	930	970	1,211	1,125	996	902	769	771	692
	Interest rate swaps	591	563	617	607	662	601	623	530	570	569	602	651	664	641	650	658	656
	Options	876	786	859	969	900	857	898	1,143	1,148	1,101	1,232	1,111	1,096	1,036	1,285	1,830	1,392
USD	Forward rate agreements	631	692	757	932	894	934	1,046	1,070	1,440	1,142	978	791	625	604	703	782	878
	Interest rate swaps	421	537	500	533	562	577	704	719	757	757	751	676	716	602	729	690	600
	Options	896	873	822	858	931	832	1,111	1,239	1,144	991	899	820	770	783	807	980	884

¹ Reporters (reporting dealers) are defined as those institutions whose head office is located in the G-10 countries and which participate in the Semi-annual OTC Derivatives Market Statistics; in addition reporting dealers include all branches and subsidiaries of these entities worldwide, reporters will mainly be commercial and investment banks and securities houses, including their branches and subsidiaries and other entities which are active dealers.

Table 6e
Herfindahl indices for all OTC foreign exchange derivatives contracts between reporters

Contract type	Dec 98	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
Forwards, forex swaps and currency swaps	342	385	425	437	430	411	464	444	452	478	463	499	491	493	534	534	525
Options	517	539	543	550	558	496	614	526	512	538	518	683	700	635	706	657	602

Table 6f
Herfindahl indices for all OTC equity-linked derivatives contracts between reporters

Region	Contract type	Dec 98	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
Europe	Forwards and swaps	1,192	851	883	694	938	948	859	840	753	639	705	582	670	619	760	569	708
	Options	502	725	750	943	074	034	912	737	720	655	676	697	715	740	700	030	070
Japan	Forwards and swaps	4,424	4,756	2,539	3,614	5,209	2,844	2,541	3,220	2,435	2,225	2,789	1,275	2,367	2,027	1,689	1,355	1,562
	Options	1,081	1,403	1,316	1,268	1,758	908	924	1,137	968	2,433	1,698	1,127	1,102	838	5,054	3,604	2,161
Latin America	Forwards and swaps	4,350	6,230	8,613	4,116	5,115	10,000	10,000	6,242	4,863	5,556	6,932	3,851	3,284	3,387	5,729	7,743	5,273
	Options	2,127	3,206	6,936	7,390	3,433	3,613	4,273	4,772	0,724	3,090	7,515	5,133	4,507	5,707	9,957	1,704	3,253
Other Asia	Forwards and swaps	2,370	6,148	6,097	7,915	3,550	4,962	9,879	9,740	5,494	7,022	5,918	3,675	2,467	2,482	2,062	1,924	1,189
	Options	2,001	2,386	5,268	2,502	1,604	2,152	2,120	3,200	3,678	3,520	3,166	2,526	874	1,000	905	873	931
United States	Forwards and swaps	1,154	1,157	1,049	850	1,136	2,424	1,315	2,542	1,632	708	889	800	931	870	787	630	1,118
	Options	1,347	1,448	1,796	975	1,020	753	783	765	951	1,555	668	774	762	803	851	1,316	908

Table 6g
Herfindahl indices for all OTC interest rate derivatives contracts between reporters and non-reporters

Currency	Contract type	Dec 98	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
CAD	Forward rate agreements	885	1,026	1,613	1,567	1,412	2,114	2,003	1,681	1,991	1,681	2,079	2,092	1,773	1,978	1,448	2,003	1,656
	Interest rate swaps	786	885	982	1,050	1,050	1,167	1,495	1,568	1,631	1,374	1,366	1,423	1,276	1,235	1,220	1,177	1,157
	Options	1,047	1,500	1,589	1,963	2,065	1,917	2,111	1,996	2,451	2,174	2,269	2,448	2,632	3,559	3,339	2,763	3,164
CHF	Forward rate agreements	1,959	1,055	1,063	1,961	1,638	1,639	2,171	2,250	2,079	1,933	1,990	2,049	1,371	1,490	1,907	1,744	3,516
	Interest rate swaps	711	696	763	741	725	703	951	1,082	1,099	1,261	1,035	1,076	1,099	1,074	1,125	1,086	1,184
	Options	731	936	928	1,361	4,531	1,147	2,146	2,061	2,254	2,354	2,140	1,929	1,496	1,943	2,054	1,839	1,631
EUR	Forward rate agreements	...	1,415	999	1,294	1,449	1,032	1,040	831	931	814	1,209	1,295	876	859	891	959	1,026
	Interest rate swaps	...	645	597	557	513	515	540	529	559	563	551	565	656	545	556	568	680
	Options	...	567	973	615	541	543	578	499	607	707	684	861	943	716	632	583	670
GBP	Forward rate agreements	1,234	1,372	754	735	884	683	797	773	879	1,247	2,928	881	1,203	1,158	1,693	1,741	1,447
	Interest rate swaps	521	599	503	541	503	489	562	599	604	669	685	546	583	602	687	756	765
	Options	663	704	634	689	717	704	766	772	719	797	781	946	2,809	2,907	1,127	1,282	1,135
JPY	Forward rate agreements	1,709	3,035	3,055	3,153	2,502	3,915	4,132	4,983	3,782	2,431	2,105	1,692	1,395	1,503	1,409	1,581	2,406
	Interest rate swaps	501	578	592	571	632	575	625	717	739	767	762	807	1,077	775	775	742	720
	Options	466	2,701	688	729	759	656	1,009	946	1,402	911	802	1,008	1,275	670	732	898	870
SEK	Forward rate agreements	1,371	1,272	1,535	1,340	1,341	2,073	1,771	1,849	1,690	916	879	980	908	1,097	1,174	1,459	2,006
	Interest rate swaps	649	710	799	760	784	716	771	751	717	707	638	662	879	572	611	660	706
	Options	1,121	1,100	1,398	1,260	1,444	1,209	1,379	1,221	1,339	1,330	1,327	1,322	1,104	1,187	1,531	2,240	2,034
USD	Forward rate agreements	750	939	883	805	1,338	1,395	1,978	1,089	1,319	1,265	859	813	917	923	928	1,001	1,406
	Interest rate swaps	501	526	558	545	574	538	731	694	683	725	674	661	871	702	747	757	760
	Options	987	980	756	815	814	792	1,275	1,058	1,018	1,030	915	937	933	770	751	718	857

Table 6h
Herfindahl indices for all OTC foreign exchange derivatives contracts between reporters and non-reporters

Contract type	Dec 98	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
Forwards, forex swaps and currency swaps	357	401	432	438	444	453	516	469	468	460	443	445	518	454	461	475	487
Options	640	596	646	566	576	646	675	638	603	592	995	670	638	672	642	658	631

Table 6i
Herfindahl indices for all OTC equity linked derivatives contracts between reporters and non-reporters

Region	Contract type	Dec 98	Jun 99	Dec 99	Jun 00	Dec 00	Jun 01	Dec 01	Jun 02	Dec 02	Jun 03	Dec 03	Jun 04	Dec 04	Jun 05	Dec 05	Jun 06	Dec 06
Europe	Forwards and swaps	1,187	802	900	706	841	733	831	824	947	984	857	879	761	837	767	803	748
	Options	1,254	892	945	743	1,312	1,962	1,541	2,235	1,327	1,788	1,863	2,227	832	794	814	727	1,140
Japan	Forwards and swaps	2,691	1,877	4,186	2,616	2,359	1,924	2,494	2,059	2,458	2,910	5,520	3,114	2,209	2,330	3,014	1,942	1,645
	Options	912	2,028	1,909	1,822	918	1,412	1,108	1,096	2,110	2,132	1,988	4,446	1,932	1,583	2,080	3,004	4,896
Latin America	Forwards and swaps	2,883	3,093	9,277	6,919	5,051	5,524	6,324	7,932	7,526	8,863	4,353	3,839	4,681	7,270	7,122	6,857	7,330
	Options	4,570	7,075	4,538	7,794	6,875	4,945	8,829	8,324	9,561	9,622	7,604	6,678	4,072	4,623	5,481	3,971	3,953
Other Asia	Forwards and swaps	1,487	3,134	2,677	3,734	1,645	1,848	1,676	2,256	2,088	1,273	1,485	1,536	1,667	1,313	1,431	1,240	1,189
	Options	1,357	1,680	1,527	1,346	1,702	1,146	1,352	1,059	2,443	2,454	6,074	6,013	2,207	1,616	6,399	7,622	7,309
United States	Forwards and swaps	1,260	1,304	2,277	1,290	1,228	1,321	1,288	1,390	1,229	1,265	1,419	1,276	1,246	929	1,187	1,273	1,709
	Options	941	1,450	1,774	884	1,023	851	955	1,212	812	809	1,457	1,063	1,213	852	962	1,570	900