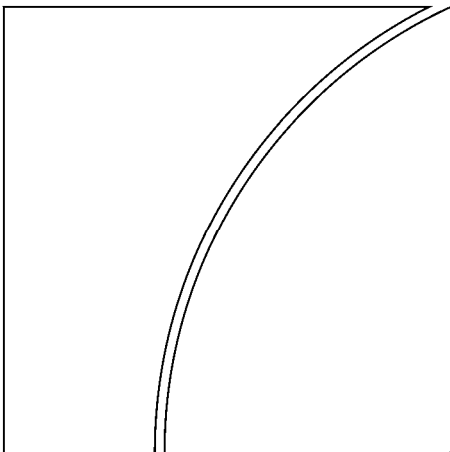




BANK FOR INTERNATIONAL SETTLEMENTS

Monetary and Economic
Department

OTC derivatives market activity
in the second half of 2008



May 2009

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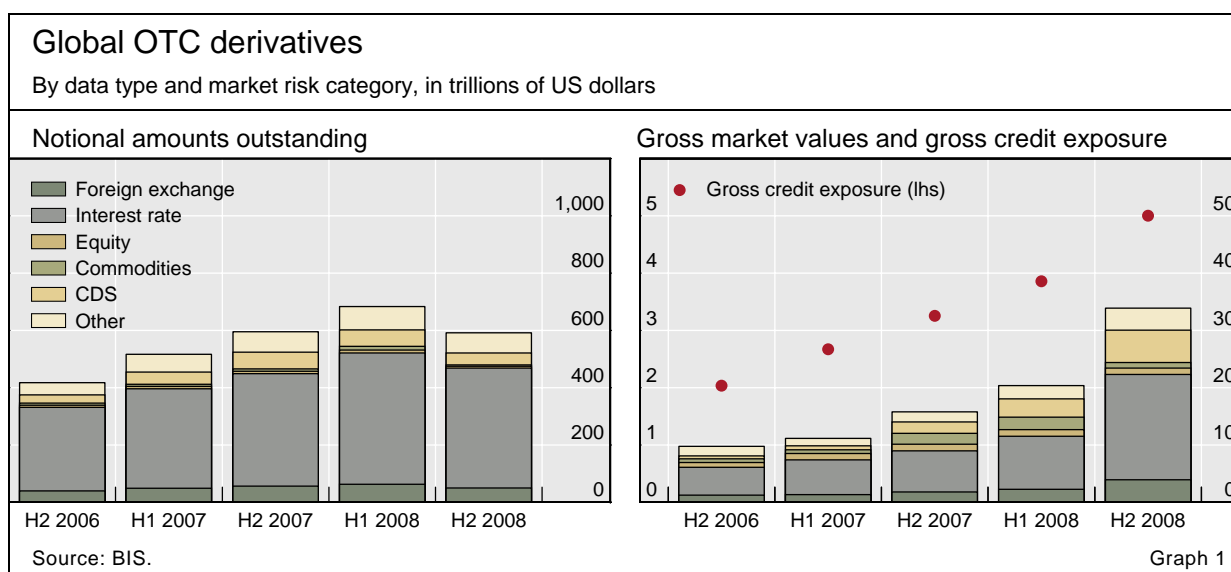
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I. Market developments in the second half of 2008

The financial crisis in the second half of 2008 resulted in the first ever decline in the total notional amounts outstanding of over-the-counter (OTC) derivatives since data collection began in 1998. Notional amounts of all types of OTC contracts stood at \$592.0 trillion at the end of December 2008, 13.4% lower than their total of \$683.7 trillion six months before (Graph 1, left-hand panel, and Table 1).

Facing significant price drops, markets for commodity and equity derivatives recorded volumes which were 66.5% and 36.2% lower, respectively. Against a background of severely strained credit markets combined with efforts to improve multilateral netting of offsetting contracts, credit default swap (CDS) volumes decreased by 26.9%. Foreign exchange and interest rate derivatives markets recorded their first significant downturns. Amounts outstanding of foreign exchange contracts fell by 21.0%, while amounts outstanding of interest rate contracts slid by 8.6%.

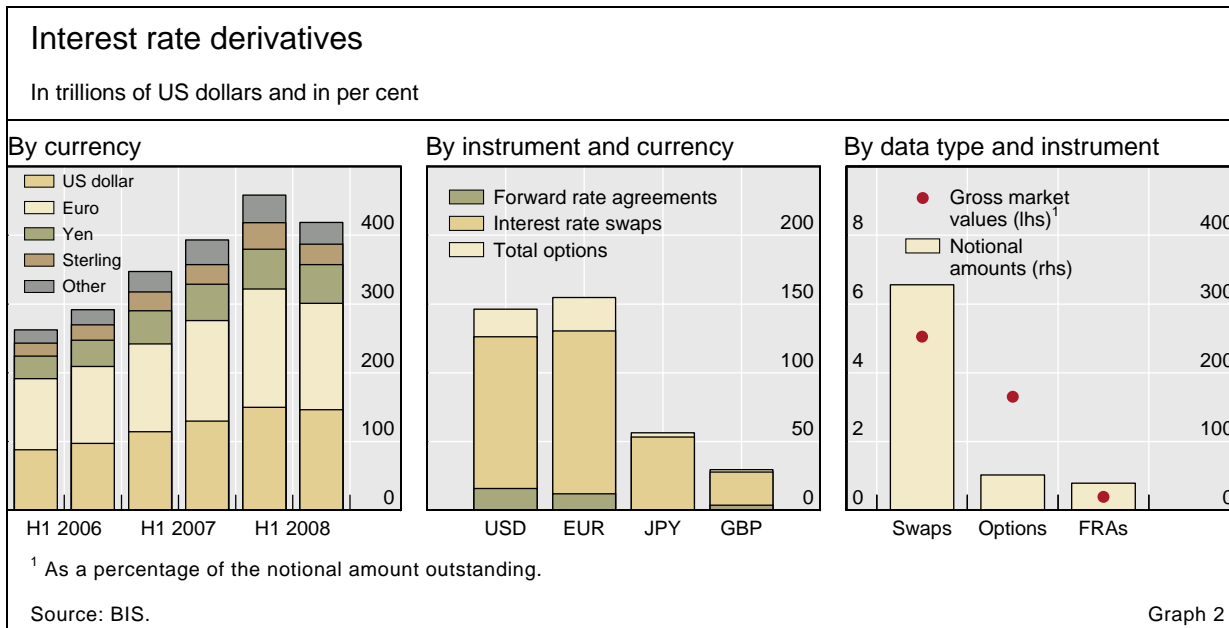
Gross market values, which measure the cost of replacing all existing contracts, represent a better measure of market risk than notional amounts. Despite the drop in amounts outstanding, significant price movements resulted in notably higher gross market values, which increased by 66.5% to \$33.9 trillion at the end of December 2008 (Graph 1, right-hand panel). The higher market values were also reflected in gross credit exposures, which grew 29.7% to \$5.0 trillion.¹



1. Market value of interest rate products almost double

In the second half of 2008 the market for OTC interest rate derivatives declined for the first time, after recording an above average rate of growth in the first half of the year. Notional amounts of these instruments fell to \$418.7 trillion at the end of December 2008, 8.6% lower than six months before (Graph 2 and Table 3). Despite the decrease in notional amounts outstanding, declining interest rates resulted in a notable 98.9% increase in the gross market value of interest rate derivatives, to \$18.4 trillion.

¹ Excluding CDS contracts for all countries except the United States. Gross credit exposures take into account legally enforceable bilateral netting agreements.



The amount outstanding of interest rate swaps decreased 8.0% to \$328.1 trillion. Outstanding volumes of US dollar- and yen-denominated interest rate swaps remained virtually unchanged relative to the previous quarter. In contrast, interest rate swap markets denominated in euros (-10.6%), sterling (-24.2%), Australian dollars (-27.8%), Canadian dollars (-16.7%), Swedish kronor (-21.2%) and Swiss francs (-6.9%) all saw declines in the amounts outstanding.

The gross market value for interest rate swaps – the largest market by far – grew 105.7%, from \$8.1 trillion to \$16.6 trillion. The most significant increase took place in the US dollar swap market, where the gross market value surged 201.2% to \$9.3 trillion.

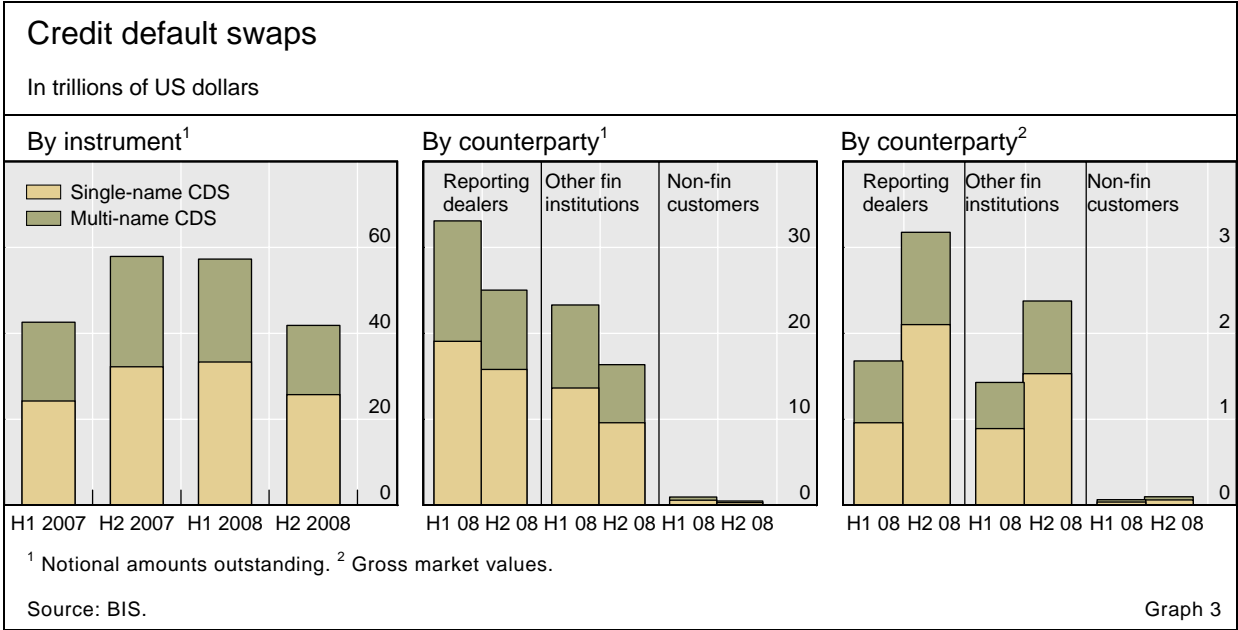
Outstanding volumes of options contracts declined 17.5% to \$51.3 trillion. The gross market value of options grew by 51.3% to \$1.7 trillion. The amounts outstanding of forward rate agreements (FRAs), the smallest of the interest rate derivative segments, remained stable at \$39.3 trillion, while the gross market value of outstanding FRAs grew 74.4% to \$153 billion.

2. Credit default swap volumes continue to contract

The volume of outstanding CDS contracts fell 27.0% to \$41.9 trillion against a background of severely strained credit markets and increased multilateral netting of offsetting positions by market participants. This was a continuation of the developments seen in the first half of 2008 (Graph 1 and Table 4). Single-name contracts declined by 22.8% to \$25.7 trillion while multi-name contracts, a category that includes CDS indices and CDS index tranches, saw a more pronounced decrease of 32.7%, to \$16.1 trillion.

Despite the lower outstanding volumes, the gross market value for CDS contracts increased by 78.2% to \$5.7 trillion as a result of the credit market turmoil. Gross market values grew 95.6% to \$3.7 trillion for single-name contracts and 52.5% to \$2.0 trillion for multi-name contracts.

Greater use of multilateral netting during the second half of 2008 also resulted in a change in composition across contract types (Graph 3, left-hand panel). Amounts outstanding of multi-name contracts fell 32.7% to \$16.1 trillion, while the 22.8% decline in single-name contracts to \$25.7 trillion was somewhat smaller.



The composition across counterparties also changed during the second half of 2008 (Graph 3, centre panel). Although the amount of CDS contracts between reporting dealers declined 24.4%, this was smaller than the 29.8% decrease in outstanding contracts between dealers and other financial institutions and the 47.7% drop in contract volumes between dealers and non-financial institutions.

Developments in gross market values across counterparties reflected the uneven declines in the outstanding volumes for the different market segments (Graph 3, right-hand panel). The market value of contracts between reporting dealers grew by 89.3% to \$3.2 trillion, representing 56.2% of the total market value of outstanding CDS contracts. The market value of contracts between reporting dealers and other financial institutions increased by 66.3%, while the market value of contracts between dealers and non-financial institutions was 51.0% higher.

3. Global downturn in FX derivatives

Notional amounts outstanding of foreign exchange derivatives decreased by 21.0% to \$49.8 trillion. Gross market values rose by 73.2% to \$3.9 trillion (Table 2). Volumes of forwards and forex swaps, which account for almost half of total OTC FX derivatives in terms of notional amounts, declined by 23.1%, while options volumes fell 28.8%. In contrast, outstanding volumes of currency swaps saw a more moderate contraction of 9.7%. The US dollar and the euro remained the most important vehicle currencies, followed by the yen and sterling.

4. Commodity derivatives markets decline by two thirds

Amounts outstanding of OTC commodity derivatives fell by a solid 66.5% in the second half of 2008 to \$4.4 trillion. Contracts on gold contracted by 39.2%, to \$0.4 trillion at the end of 2008, while other commodity derivatives slid by 68.0% to \$4.0 trillion. The continued decreases in commodity prices during the second half of 2008 also had a substantial impact on the gross market value of commodity contracts, which fell by 56.8% to \$1.0 trillion.

5. Equity derivatives markets reflect sharply lower volumes and prices

In the second half of 2008 positions in OTC equity derivatives decreased by 36.2% to \$6.5 trillion, well below the levels seen in recent years and a notable change of pace from the 20.1% increase in the first half of 2008. The decline in outstanding amounts was of the same relative size across contract types.

Reflecting lower outstanding positions and significantly decreased equity prices, the gross market values of outstanding equity derivatives declined a moderate 2.8%. This change was driven mainly by the gross market value of options, which account for around three quarters of all notional amounts outstanding. The market value of options fell 10.1% to \$0.8 trillion, while the gross market value of forwards and swaps increased by 19.5% to \$0.3 trillion.

6. Slightly higher concentration in interest rate derivatives markets after crisis

Concentration increased slightly across all markets in the second half of 2008. According to the Herfindahl indices calculated on the basis of responses from individual dealers, interest rate derivatives in US dollars and sterling saw growth across all contract types, albeit from relatively low levels. In both cases the increases in concentration were more noticeable for contracts between dealers and non-reporters. Concentration did, however, also increase slightly in inter-dealer markets. Herfindahl indices also rose for FRAs in Japanese yen, with the higher concentration being more noticeable in the inter-dealer market.

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 (CDS) (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 CDS 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 and next publication date

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.

These published data may be subject to revisions. In most cases such revisions are likely to be minor. Should significant revisions occur, users will be informed of the revisions on the BIS website.

The next OTC derivatives statistics, covering the first half of 2009, will be released no later than 30 November 2009.

III. Statistical tables

Table 1
The global OTC derivatives market¹

Amounts outstanding in billions of US dollars

	Notional amounts outstanding				Gross market values			
	Jun 2007	Dec 2007	Jun 2008	Dec 2008	Jun 2007	Dec 2007	Jun 2008	Dec 2008
GRAND TOTAL (including CDS)	516,407	595,341	683,726	591,963	11,140	15,813	20,353	33,889
A. Foreign exchange contracts	48,645	56,238	62,983	49,753	1,345	1,807	2,262	3,917
Outright forwards and forex swaps	24,530	29,144	31,966	24,562	492	675	802	1,732
Currency swaps	12,312	14,347	16,307	14,725	619	817	1,071	1,588
Options	11,804	12,748	14,710	10,466	235	315	388	597
<i>Memo: Exchange-traded contracts²</i>	303	291	367	220	...	...	...	...
B. Interest rate contracts³	347,312	393,138	458,304	418,678	6,063	7,177	9,263	18,420
FRAs	22,809	26,599	39,370	39,262	43	41	88	153
Swaps	272,216	309,588	356,772	328,114	5,321	6,183	8,056	16,573
Options	52,288	56,951	62,162	51,301	700	953	1,120	1,694
<i>Memo: Exchange-traded contracts²</i>	86,150	71,051	73,779	52,712	...	...	...	...
C. Equity-linked contracts	8,590	8,469	10,177	6,494	1,116	1,142	1,146	1,113
Forwards and swaps	2,470	2,233	2,657	1,632	240	239	283	338
Options	6,119	6,236	7,520	4,862	876	903	863	775
<i>Memo: Exchange-traded contracts²</i>	8,637	7,735	7,862	4,945	...	...	...	...
D. Commodity contracts⁴	7,567	8,455	13,229	4,427	636	1,899	2,209	955
Gold	426	595	649	395	47	70	68	65
Other	7,141	7,861	12,580	4,032	589	1,829	2,142	890
Forwards and swaps	3,447	5,085	7,561	2,471	...	...	...	...
Options	3,694	2,776	5,019	1,561	...	...	...	...
E. Credit default swaps⁵	42,581	57,894	57,325	41,868	721	2,002	3,172	5,652
Single-name instruments	24,239	32,246	33,334	25,730	406	1,143	1,889	3,695
Multi-name instruments	18,341	25,648	23,991	16,138	315	859	1,283	1,957
F. Unallocated⁶	61,713	71,146	81,708	70,742	1,259	1,788	2,301	3,831
GROSS CREDIT EXPOSURE⁷	...	...	...	...	2,672	3,256	3,859	5,004
<i>Memo: Exchange-traded contracts^{2,8}</i>	95,091	79,078	82,008	57,876	...	...	...	...

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, commodity and credit derivatives of non-reporting institutions, based on the latest Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity, in 2007. ⁷ Gross market values after taking into account legally enforceable bilateral netting agreements. Excludes CDS contracts for all countries except the United States. 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 2007	Dec 2007	Jun 2008	Dec 2008	Jun 2007	Dec 2007	Jun 2008	Dec 2008
Total contracts	48,645	56,238	62,983	49,753	1,345	1,807	2,262	3,917
With reporting dealers	19,173	21,334	24,845	19,380	455	594	782	1,427
With other financial institutions	19,144	24,357	26,775	21,214	557	806	995	1,753
With non-financial customers	10,329	10,548	11,362	9,158	333	407	484	737
Up to 1 year ³	36,950	40,316	43,639	32,375	...	...	...	...
Between 1 and 5 years ³	8,090	8,553	10,701	9,664	...	...	...	...
Over 5 years ³	3,606	7,370	8,643	7,715	...	...	...	...
US dollar	40,513	46,947	52,152	42,170	1,112	1,471	1,838	3,133
Euro	18,280	21,806	25,963	20,969	455	790	1,010	1,567
Yen	10,602	12,857	13,616	12,128	389	371	433	916
Sterling	7,770	7,979	8,377	5,606	174	260	280	692
Swiss franc	3,056	3,662	3,964	3,239	54	91	119	197
Canadian dollar	2,239	2,404	2,226	1,711	106	134	93	127
Swedish krona	1,390	1,525	1,589	1,261	23	29	30	88
Other	13,440	15,297	18,078	12,421	377	470	721	1,114
<i>Memo: Exchange-traded contracts⁴</i>	303	291	367	220	...	...	...	...

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 2007	Dec 2007	Jun 2008	Dec 2008	Jun 2007	Dec 2007	Jun 2008	Dec 2008
Total contracts	347,312	393,138	458,304	418,678	6,063	7,177	9,263	18,420
With reporting dealers	148,555	157,245	188,982	162,970	2,375	2,774	3,554	6,629
With other financial institutions	153,370	193,107	223,023	214,107	2,946	3,786	4,965	10,731
With non-financial customers	45,387	42,786	46,299	41,601	742	617	745	1,061
Up to 1 year ²	132,402	127,601	153,181	137,278	...	...	...	...
Between 1 and 5 years ²	125,700	134,713	150,096	138,263	...	...	...	...
Over 5 years ²	89,210	130,824	155,028	143,137	...	...	...	...
US dollar	114,371	129,756	149,813	146,249	1,851	3,219	3,601	10,200
Euro	127,648	146,082	171,877	154,773	2,846	2,688	3,910	5,200
Yen	48,035	53,099	58,056	56,419	364	401	380	815
Sterling	27,676	28,390	38,619	29,593	627	430	684	1,189
Swiss franc	3,921	4,101	5,253	4,967	52	42	71	108
Canadian dollar	2,828	3,014	3,286	2,701	43	37	60	176
Swedish krona	5,155	5,176	6,454	5,104	48	43	73	122
Other	17,678	23,520	24,946	18,872	232	317	484	610
<i>Memo: Exchange-traded contracts³</i>	<i>86,150</i>	<i>71,051</i>	<i>73,779</i>	<i>52,712</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>

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

Table 4

Credit default swap market¹

Amounts outstanding in billions of US dollars

	Notional amounts outstanding									Gross market values		
	December 2007			June 2008			December 2008			Dec 2007	Jun 2008	Dec 2008
	Bought	Sold	Total	Bought	Sold	Total	Bought	Sold	Total			
Total CDS contracts	44,298	45,626	57,894	45,853	44,555	57,325	33,866	33,024	41,868	2,002	3,172	5,652
With reporting dealers	31,387	32,673	32,030	33,309	32,858	33,083	25,033	25,010	25,022	938	1,678	3,177
With other financial institutions	12,513	12,661	25,174	12,010	11,287	23,297	8,526	7,826	16,352	1,011	1,430	2,377
Banks and securities firms	6,843	7,163	14,006	6,985	6,698	13,683	5,841	5,505	11,345	489	737	1,575
Insurance firms	328	176	504	279	119	398	284	115	399	19	26	58
Other	5,342	5,322	10,664	4,746	4,469	9,216	2,401	2,207	4,608	504	667	744
With non-financial customers	399	291	690	534	410	944	306	188	494	52	65	98
Up to 1 year	2,575	2,482	3,130	3,327	3,092	3,968	2,436	2,337	2,975	...	...	...
Between 1 and 5 years	27,640	28,693	35,954	29,538	29,145	36,923	21,464	21,112	26,714	...	...	...
Over 5 years	14,084	14,451	18,811	12,988	12,318	16,433	9,965	9,576	12,179	...	...	...
Single-name instruments ²	24,554	24,740	32,246	26,610	25,812	33,334	21,070	20,470	25,730	1,143	1,889	3,695
Multi-name instruments	19,745	20,885	25,648	19,243	18,743	23,991	12,796	12,554	16,138	859	1,283	1,957

¹ Data on total CDS and gross market values are shown on a net basis. Data on CDS 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 swap market¹
Single-name instruments

Amounts outstanding in billions of US dollars

	Notional amounts outstanding									Gross market values		
	December 2007			June 2008			December 2008			Dec 2007	Jun 2008	Dec 2008
	Bought	Sold	Total	Bought	Sold	Total	Bought	Sold	Total			
Total single-name instruments	24,554	24,740	32,246	26,610	25,812	33,334	21,070	20,470	25,730	1,143	1,889	3,695
With reporting dealers	16,916	17,181	17,049	19,139	19,037	19,088	15,878	15,741	15,810	485	959	2,103
With other financial institutions	7,365	7,340	14,706	7,057	6,589	13,646	4,996	4,612	9,608	634	893	1,530
Banks and securities firms	3,954	3,932	7,886	4,070	3,745	7,814	3,328	3,030	6,358	320	451	999
Insurance firms	173	107	280	146	96	242	185	89	274	13	18	43
Other	3,238	3,301	6,540	2,841	2,749	5,590	1,483	1,492	2,976	301	425	488
With non-financial customers	272	219	492	415	185	600	196	117	313	24	36	62
Up to 1 year	1,590	1,512	2,003	2,294	2,150	2,786	1,864	1,791	2,274	...	...	...
Between 1 and 5 years	16,033	16,397	20,896	17,511	17,275	21,812	13,280	12,967	16,265	...	...	...
Over 5 years	6,931	6,831	9,346	6,805	6,388	8,736	5,926	5,713	7,191	...	...	...
Sovereigns	1,410	1,390	1,798	1,659	1,641	2,177	1,277	1,282	1,650	...	...	...
Non-sovereigns	23,144	23,350	30,448	24,951	24,171	31,157	19,793	19,188	24,080	...	...	...
Investment grade	15,249	16,071	20,659	17,380	17,218	22,155	13,728	13,627	16,957	...	...	...
Below investment grade	3,751	3,716	5,011	5,535	5,343	6,756	4,672	4,100	5,492	...	...	...
Non-rated	5,553	4,954	6,576	3,696	3,251	4,423	2,671	2,743	3,281	...	...	...

¹ Data on total CDS and gross market values are shown on a net basis. Data on CDS 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

	Canadian dollar			Swiss franc			Euro			Sterling			Japanese yen			Swedish krona			US dollar		
	FRAs ¹	IRS ²	Opts. ³	FRAs ¹	IRS ²	Opts. ³	FRAs ¹	IRS ²	Opts. ³	FRAs ¹	IRS ²	Opts. ³	FRAs ¹	IRS ²	Opts. ³	FRAs ¹	IRS ²	Opts. ³	FRAs ¹	IRS ²	Opts. ³
Jun 1998	824	681	999	1,053	504	953	...	...	...	713	419	723	779	440	500	1,160	539	975	521	393	869
Dec 1998	810	647	962	1,133	542	1,077	...	...	...	828	406	628	860	440	436	965	542	899	617	415	901
Jun 1999	923	737	1,438	1,085	678	937	834	572	525	856	433	828	942	484	949	870	549	824	655	495	847
Dec 1999	1,373	800	1,340	1,317	643	1,154	937	522	578	641	444	686	932	528	596	914	601	987	710	490	734
Jun 2000	1,418	856	1,458	1,421	655	1,432	851	511	530	614	429	677	1,014	545	715	936	586	1,036	755	500	782
Dec 2000	1,452	876	1,791	1,274	688	2,439	1,107	500	565	728	448	662	1,109	585	791	957	640	1,076	879	528	819
Jun 2001	1,347	874	1,621	1,264	678	1,239	936	486	559	693	438	648	1,937	613	708	1,125	592	989	888	529	764
Dec 2001	1,812	1,044	1,702	1,252	788	1,228	740	524	584	638	476	727	1,758	706	1,217	1,002	608	1,081	1,145	730	1,143
Jun 2002	1,556	1,044	1,682	1,234	824	1,461	556	478	561	605	489	648	1,763	779	1,202	944	532	1,149	907	666	1,044
Dec 2002	1,818	1,047	2,112	1,218	846	1,693	571	492	546	610	515	615	1,942	790	1,624	886	569	1,224	1,042	682	1,038
Jun 2003	1,530	1,041	2,161	1,264	896	1,684	539	481	608	607	544	643	1,972	806	1,223	839	561	1,174	901	701	961
Dec 2003	1,522	1,039	2,226	1,269	852	1,616	639	478	591	1,095	565	666	1,647	744	1,065	947	570	1,230	786	672	877
Jun 2004	1,965	1,048	2,313	1,169	797	1,796	670	473	675	930	594	747	1,308	728	978	965	583	1,137	725	626	847
Dec 2004	1,741	973	2,697	1,222	807	1,292	597	481	607	923	578	1,452	1,852	693	739	861	583	995	645	673	767
Jun 2005	1,659	1,000	2,955	1,158	936	1,508	631	479	567	855	614	1,288	2,565	664	781	811	564	1,077	652	650	756
Dec 2005	1,649	1,017	3,052	1,630	1,015	1,584	667	484	539	1,210	661	905	3,025	635	793	767	571	1,259	690	691	762
Jun 2006	1,670	1,018	2,703	1,698	1,080	1,398	690	503	534	1,083	707	958	3,280	613	824	847	586	1,431	788	678	816
Dec 2006	1,499	1,020	2,952	1,919	1,149	1,205	783	561	569	1,024	692	916	3,468	620	768	1,068	594	1,638	917	679	830
Jun 2007	1,234	1,038	2,604	2,043	1,150	1,045	812	623	604	1,120	736	806	2,569	675	799	1,096	628	1,945	850	686	865
Dec 2007	1,122	985	2,962	2,032	1,162	948	709	596	596	1,066	765	777	2,302	673	745	1,242	660	2,337	967	698	982
Jun 2008	1,400	1,001	3,253	1,712	1,336	899	648	562	594	1,055	830	824	1,981	660	938	1,152	677	1,904	880	729	1,020
Dec 2008	1,160	1,072	2,920	1,847	1,353	949	558	598	645	1,257	953	876	2,861	727	880	1,110	729	1,389	924	783	1,132

¹ Forward rate agreements. ² Interest rate swaps. ³ Interest rate options.

Table 6b

**Herfindahl indices for all OTC foreign
exchange derivatives contracts**

	Forwards, forex swaps and currency swaps	Options
Jun 1998	302	519
Dec 1998	333	504
Jun 1999	372	525
Dec 1999	413	544
Jun 2000	423	507
Dec 2000	423	528
Jun 2001	416	546
Dec 2001	471	564
Jun 2002	427	518
Dec 2002	434	503
Jun 2003	438	498
Dec 2003	429	605
Jun 2004	442	560
Dec 2004	446	605
Jun 2005	440	591
Dec 2005	464	624
Jun 2006	475	606
Dec 2006	481	567
Jun 2007	486	558
Dec 2007	497	570
Jun 2008	496	636
Dec 2008	513	628

Table 6c

Herfindahl indices for all OTC equity-linked derivatives contracts

	Europe		Japan		Latin America		Other Asia		United States	
	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options
Jun 1998	909	627	2,655	1,074	5,484	3,545	1,232	1,447	1,086	1,362
Dec 1998	869	659	2,837	970	2,849	4,307	1,313	1,271	1,111	759
Jun 1999	715	639	2,170	1,462	3,071	6,169	3,506	1,388	1,215	1,042
Dec 1999	787	613	3,416	1,102	9,274	4,330	3,606	2,341	1,895	1,275
Jun 2000	618	657	2,501	1,018	6,881	6,776	5,119	1,586	1,088	749
Dec 2000	750	779	2,043	1,386	5,015	6,703	1,663	1,600	1,132	759
Jun 2001	693	891	1,461	860	5,163	4,353	1,631	1,188	1,048	663
Dec 2001	733	880	2,005	841	6,063	8,084	5,294	1,447	1,070	751
Jun 2002	770	952	1,822	1,072	7,546	7,585	6,086	1,550	1,174	890
Dec 2002	762	791	1,946	1,132	7,281	4,807	1,677	1,675	1,037	665
Jun 2003	768	985	1,854	2,322	8,839	9,332	3,197	1,894	964	793
Dec 2003	698	1,013	3,106	1,718	3,808	6,432	2,233	5,464	1,040	1,031
Jun 2004	611	1,195	1,984	2,553	3,732	6,304	2,010	5,435	855	836
Dec 2004	631	659	1,734	1,203	4,243	4,029	1,536	1,674	849	915
Jun 2005	597	661	2,064	898	6,953	4,427	1,355	1,177	722	725
Dec 2005	650	614	2,347	3,973	7,039	5,790	1,334	5,566	947	787
Jun 2006	613	690	1,408	3,409	6,704	3,918	1,294	5,537	946	1,385
Dec 2006	687	775	1,278	3,158	7,199	3,902	1,066	5,615	1,487	751
Jun 2007	782	716	1,168	2,333	7,876	3,735	1,343	1,098	1,057	804
Dec 2007	732	668	1,423	1,310	7,420	4,415	1,350	2,882	803	755
Jun 2008	707	706	1,044	989	5,979	6,292	1,180	1,249	847	741
Dec 2008	740	856	1,094	1,187	4,566	4,934	989	850	729	898

Table 6d

Herfindahl indices for OTC interest rate derivatives contracts between reporters¹

	Canadian dollar			Swiss franc			Euro			Sterling			Japanese yen			Swedish krona			US dollar		
	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴
Jun 1998	972	740	1,193	1,231	551	1,110	...	...	...	673	414	866	832	494	489	1,021	610	816	653	454	722
Dec 1998	983	671	1,041	1,194	530	1,458	...	...	...	862	400	678	869	460	521	897	591	876	631	421	896
Jun 1999	1,008	772	1,436	1,176	776	1,044	744	595	591	982	408	1,145	894	501	546	819	563	786	692	537	873
Dec 1999	1,707	834	1,341	1,480	701	1,371	961	549	583	736	456	928	973	568	795	862	617	859	757	508	822
Jun 2000	1,594	876	1,212	1,505	724	1,495	956	543	584	666	427	886	1,073	600	822	964	607	969	932	533	858
Dec 2000	1,876	910	1,622	1,256	708	1,186	1,071	530	619	788	468	795	1,386	629	876	939	662	900	894	562	931
Jun 2001	1,365	818	1,558	1,211	705	1,350	954	506	618	769	458	826	2,319	691	803	1,279	601	857	934	577	832
Dec 2001	2,266	1,008	1,474	1,270	822	1,041	727	571	642	697	490	828	2,194	801	1,381	979	623	898	1,046	784	1,111
Jun 2002	1,992	949	1,720	1,262	854	1,220	540	503	636	647	497	786	2,095	866	1,665	962	530	1,143	1,070	719	1,239
Dec 2002	2,325	893	2,426	1,594	890	1,441	547	505	558	648	550	685	2,316	895	1,749	938	570	1,148	1,440	757	1,144
Jun 2003	2,000	974	2,695	1,606	835	1,487	555	474	600	576	522	670	2,379	935	1,423	970	569	1,101	1,142	757	991
Dec 2003	1,814	1,018	2,811	1,475	833	1,347	540	478	575	746	547	661	1,803	894	1,383	1,211	602	1,232	978	751	899
Jun 2004	2,118	1,008	2,722	1,348	800	1,691	506	474	605	1,012	723	721	1,463	843	1,158	1,125	651	1,111	791	678	820
Dec 2004	2,218	1,045	3,135	1,401	815	1,634	576	470	649	939	691	845	2,291	792	855	996	664	1,098	625	716	770
Jun 2005	1,815	938	2,333	1,244	932	1,223	661	483	556	977	695	842	3,163	749	871	902	641	1,036	604	682	783
Dec 2005	1,979	978	2,659	1,710	1,043	1,214	679	496	547	1,180	751	870	3,447	706	903	769	650	1,265	703	729	807
Jun 2006	1,698	996	2,686	1,813	1,169	1,296	707	515	557	1,090	756	908	3,841	661	881	771	658	1,830	782	695	979
Dec 2006	1,687	1,007	2,738	2,321	1,229	1,034	819	514	577	1,024	702	890	3,662	646	842	892	654	1,350	884	683	880
Jun 2007	1,321	993	2,437	2,086	1,217	901	700	512	616	936	729	801	2,354	705	972	918	676	1,504	825	672	889
Dec 2007	1,088	945	2,578	2,183	1,176	935	637	542	669	1,003	799	832	2,853	731	814	1,131	744	2,278	916	694	767
Jun 2008	1,322	988	2,719	1,868	1,470	844	642	566	665	1,177	944	813	2,279	748	1,063	1,193	785	1,721	952	764	925
Dec 2008	1,124	1,016	2,825	2,044	1,414	930	554	585	728	1,394	1,167	856	2,730	732	1,029	1,171	857	1,393	960	802	970

¹ Reporters (reporting dealers) are defined as those institutions whose head office is located in the G10 countries and which participate in the semiannual OTC derivatives market statistics; in addition, reporting dealers include all branches and subsidiaries of these entities worldwide; reporting dealers will mainly be commercial and investment banks and securities houses, including their branches and subsidiaries and other entities which are active dealers. ² Forward rate agreements. ³ Interest rate swaps. ⁴ Interest rate options.

Table 6e

**Herfindahl indices for OTC foreign exchange derivatives
contracts between reporters¹**

Period	Forwards, forex swaps and currency swaps	Options
Jun 1998	323	527
Dec 1998	342	517
Jun 1999	385	539
Dec 1999	425	543
Jun 2000	437	550
Dec 2000	430	558
Jun 2001	411	496
Dec 2001	464	614
Jun 2002	444	526
Dec 2002	452	512
Jun 2003	478	538
Dec 2003	463	518
Jun 2004	499	683
Dec 2004	491	700
Jun 2005	493	635
Dec 2005	534	705
Jun 2006	532	656
Dec 2006	523	603
Jun 2007	516	588
Dec 2007	544	634
Jun 2008	557	761
Dec 2008	566	683

¹ Reporters (reporting dealers) are defined as those institutions whose head office is located in the G10 countries and which participate in the semiannual OTC derivatives market statistics; in addition, reporting dealers include all branches and subsidiaries of these entities worldwide; reporting dealers will mainly be commercial and investment banks and securities houses, including their branches and subsidiaries and other entities which are active dealers.

Table 6f

Herfindahl indices for OTC equity-linked derivatives contracts between reporters¹

	Europe		Japan		Latin America		Other Asia		United States	
	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options
Jun 1998	1,539	796	4,147	1,042	8,578	2,815	2,964	2,477	1,648	906
Dec 1998	1,192	582	4,424	1,081	4,350	2,127	2,370	2,001	1,154	1,347
Jun 1999	851	725	4,756	1,403	6,230	3,206	6,146	2,386	1,157	1,448
Dec 1999	883	750	2,539	1,316	8,613	6,936	6,097	5,268	1,049	1,796
Jun 2000	694	943	3,614	1,288	4,116	7,398	7,915	2,502	850	975
Dec 2000	938	874	5,209	1,758	5,115	3,433	3,550	1,604	1,136	1,020
Jun 2001	948	834	2,844	908	10,000	3,613	4,962	2,152	2,424	753
Dec 2001	859	912	2,541	924	10,000	4,273	9,879	2,120	1,315	783
Jun 2002	840	737	3,220	1,137	6,242	4,772	9,740	3,290	2,542	765
Dec 2002	753	728	2,435	968	4,863	8,724	5,494	3,678	1,632	951
Jun 2003	639	655	2,225	2,433	5,556	3,090	7,022	3,520	708	1,555
Dec 2003	705	676	2,789	1,698	6,932	7,515	5,918	3,166	889	668
Jun 2004	582	697	1,275	1,127	3,851	5,133	3,675	2,526	800	774
Dec 2004	670	715	2,367	1,102	3,284	4,587	2,467	874	931	762
Jun 2005	618	748	2,068	838	3,387	5,707	2,482	1,000	870	803
Dec 2005	757	779	1,836	5,063	5,729	9,957	2,062	995	787	851
Jun 2006	568	829	1,600	3,606	7,743	1,784	1,924	873	629	1,316
Dec 2006	705	873	1,699	2,216	5,273	3,253	1,189	931	1,118	915
Jun 2007	862	760	1,495	1,218	6,676	3,744	1,819	982	677	884
Dec 2007	1,068	751	1,904	1,147	7,056	2,948	2,114	991	879	765
Jun 2008	797	832	1,335	989	5,350	5,032	1,909	1,159	815	796
Dec 2008	887	1,095	1,291	906	9,659	4,112	1,561	1,218	981	926

¹ Reporters (reporting dealers) are defined as those institutions whose head office is located in the G10 countries and which participate in the semiannual OTC derivatives market statistics; in addition, reporting dealers include all branches and subsidiaries of these entities worldwide; reporting dealers will mainly be commercial and investment banks and securities houses, including their branches and subsidiaries and other entities which are active dealers.

Table 6g

Herfindahl indices for OTC interest rate derivatives contracts between reporters¹ and non-reporters

	Canadian dollar			Swiss franc			Euro			Sterling			Japanese yen			Swedish krona			US dollar		
	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴	FRAs ²	IRS ³	Opts. ⁴
Jun 1998	828	826	1,072	862	820	909	...	...	...	859	561	739	1,033	518	660	1,703	717	1,570	666	512	1,483
Dec 1998	885	786	1,047	1,959	711	731	...	...	...	1,234	521	663	1,709	501	466	1,371	649	1,121	750	501	987
Jun 1999	1,026	885	1,500	1,055	696	936	1,415	645	567	1,372	599	704	3,035	578	2,701	1,272	710	1,100	939	526	980
Dec 1999	1,613	982	1,589	1,063	763	928	999	597	973	754	503	634	3,055	592	688	1,535	799	1,398	883	558	756
Jun 2000	1,567	1,050	1,963	1,961	741	1,361	1,294	557	615	735	541	689	3,153	571	729	1,340	760	1,260	805	545	815
Dec 2000	1,412	1,050	2,065	1,638	725	4,531	1,449	513	541	884	503	717	2,502	632	759	1,341	784	1,444	1,338	574	814
Jun 2001	2,114	1,167	1,917	1,639	703	1,147	1,032	515	543	683	489	704	3,915	575	656	2,073	716	1,209	1,395	538	792
Dec 2001	2,003	1,495	2,111	2,171	951	2,146	1,040	540	578	797	562	766	4,132	625	1,009	1,771	771	1,379	1,978	731	1,275
Jun 2002	1,681	1,568	1,996	2,250	1,082	2,061	831	529	499	773	599	772	4,983	717	946	1,849	751	1,221	1,089	694	1,058
Dec 2002	1,991	1,631	2,451	2,079	1,099	2,254	931	559	607	879	604	719	3,782	739	1,402	1,690	717	1,339	1,319	683	1,018
Jun 2003	1,681	1,374	2,174	1,933	1,261	2,354	814	563	707	1,247	669	797	2,431	767	911	916	707	1,330	1,265	725	1,030
Dec 2003	2,079	1,366	2,269	1,990	1,035	2,140	1,209	551	684	2,928	685	781	2,105	762	802	879	638	1,327	859	674	915
Jun 2004	2,092	1,423	2,448	2,049	1,026	1,929	1,295	565	861	881	546	946	1,692	807	1,008	980	662	1,322	813	661	937
Dec 2004	1,773	1,276	2,632	1,371	1,099	1,496	876	656	943	1,203	583	2,809	1,395	1,077	1,275	908	879	1,104	917	871	933
Jun 2005	1,978	1,235	3,559	1,490	1,074	1,943	859	545	716	1,158	602	2,907	1,503	775	670	1,097	572	1,187	923	702	770
Dec 2005	1,448	1,220	3,339	1,907	1,125	2,054	891	556	632	1,693	687	1,127	1,409	775	732	1,174	611	1,531	928	747	751
Jun 2006	2,003	1,177	2,763	1,744	1,086	1,847	959	570	583	1,741	757	1,285	1,581	736	901	1,459	660	2,240	1,001	757	718
Dec 2006	1,656	1,158	3,167	3,516	1,185	1,644	1,032	685	698	1,449	773	1,144	2,406	734	901	2,006	708	2,065	1,404	765	863
Jun 2007	1,227	1,221	3,108	2,011	1,208	1,598	1,467	852	697	2,149	824	951	4,351	785	1,103	1,737	829	2,426	1,132	794	940
Dec 2007	1,811	1,158	3,137	1,737	1,248	1,498	1,759	779	798	2,995	904	1,409	1,893	822	1,716	1,852	857	2,531	1,289	844	1,745
Jun 2008	1,778	1,127	3,539	1,329	1,282	1,709	1,849	683	888	2,896	965	1,731	1,837	820	3,196	1,801	946	2,344	1,231	891	1,944
Dec 2008	1,529	1,695	3,412	1,491	1,378	1,485	1,224	673	870	3,496	975	1,806	3,600	939	2,049	1,551	843	1,596	1,697	949	2,190

¹ Reporters (reporting dealers) are defined as those institutions whose head office is located in the G10 countries and which participate in the semiannual OTC derivatives market statistics; in addition, reporting dealers include all branches and subsidiaries of these entities worldwide; reporting dealers will mainly be commercial and investment banks and securities houses, including their branches and subsidiaries and other entities which are active dealers. ² Forward rate agreements. ³ Interest rate swaps. ⁴ Interest rate options.

Table 6h

**Herfindahl indices for OTC foreign exchange derivatives
contracts between reporters¹ and non-reporters**

Period	Forwards, forex swaps and currency swaps	Options
Jun 1998	330	691
Dec 1998	357	640
Jun 1999	401	596
Dec 1999	432	646
Jun 2000	438	566
Dec 2000	444	576
Jun 2001	453	646
Dec 2001	516	675
Jun 2002	469	638
Dec 2002	468	603
Jun 2003	460	592
Dec 2003	443	995
Jun 2004	445	670
Dec 2004	518	638
Jun 2005	454	672
Dec 2005	461	645
Jun 2006	475	659
Dec 2006	484	635
Jun 2007	492	632
Dec 2007	533	673
Jun 2008	530	744
Dec 2008	562	697

¹ Reporters (reporting dealers) are defined as those institutions whose head office is located in the G10 countries and which participate in the semiannual OTC derivatives market statistics; in addition, reporting dealers include all branches and subsidiaries of these entities worldwide; reporting dealers will mainly be commercial and investment banks and securities houses, including their branches and subsidiaries and other entities which are active dealers.

Table 6i

Herfindahl indices for OTC equity derivatives contracts between reporters¹ and non-reporters

	Europe		Japan		Latin America		Other Asia		United States	
	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options	Forwards and swaps	Options
Jun 1998	1,158	995	2,508	1,236	5,291	3,715	1,468	812	1,227	1,700
Dec 1998	1,187	1,254	2,691	912	2,883	4,570	1,487	1,357	1,260	941
Jun 1999	802	892	1,877	2,028	3,093	7,075	3,134	1,680	1,304	1,450
Dec 1999	900	945	4,186	1,909	9,277	4,538	2,677	1,527	2,277	1,774
Jun 2000	706	743	2,616	1,822	6,919	7,794	3,734	1,346	1,290	884
Dec 2000	841	1,312	2,359	918	5,051	6,875	1,645	1,702	1,228	1,023
Jun 2001	733	1,962	1,924	1,412	5,524	4,945	1,848	1,146	1,321	851
Dec 2001	831	1,541	2,494	1,108	6,324	8,829	1,676	1,352	1,288	955
Jun 2002	824	2,235	2,059	1,096	7,932	8,324	2,256	1,059	1,390	1,212
Dec 2002	947	1,327	2,458	2,110	7,526	9,561	2,088	2,443	1,229	812
Jun 2003	984	1,788	2,910	2,132	8,863	9,622	1,273	2,454	1,265	809
Dec 2003	857	1,863	5,520	1,988	4,353	7,604	1,485	6,074	1,419	1,457
Jun 2004	879	2,227	3,114	4,446	3,839	6,678	1,536	6,013	1,276	1,063
Dec 2004	761	832	2,209	1,932	4,681	4,072	1,667	2,207	1,246	1,213
Jun 2005	837	794	2,330	1,583	7,270	4,623	1,313	1,616	929	852
Dec 2005	767	814	3,014	2,080	7,122	5,481	1,431	6,399	1,187	962
Jun 2006	803	721	1,942	3,099	6,857	3,971	1,240	7,619	1,234	1,612
Dec 2006	748	1,140	1,645	4,896	7,330	3,953	1,189	7,309	1,709	896
Jun 2007	822	1,073	1,582	4,599	8,167	3,842	1,549	1,513	1,415	924
Dec 2007	603	965	1,316	2,197	7,603	4,487	1,483	5,167	1,028	861
Jun 2008	949	918	1,217	1,786	6,809	6,529	1,207	1,841	1,014	836
Dec 2008	744	1,065	1,026	2,499	4,747	5,063	1,091	1,260	807	1,043

¹ Reporters (reporting dealers) are defined as those institutions whose head office is located in the G10 countries and which participate in the semiannual OTC derivatives market statistics; in addition, reporting dealers include all branches and subsidiaries of these entities worldwide; reporting dealers will mainly be commercial and investment banks and securities houses, including their branches and subsidiaries and other entities which are active dealers.