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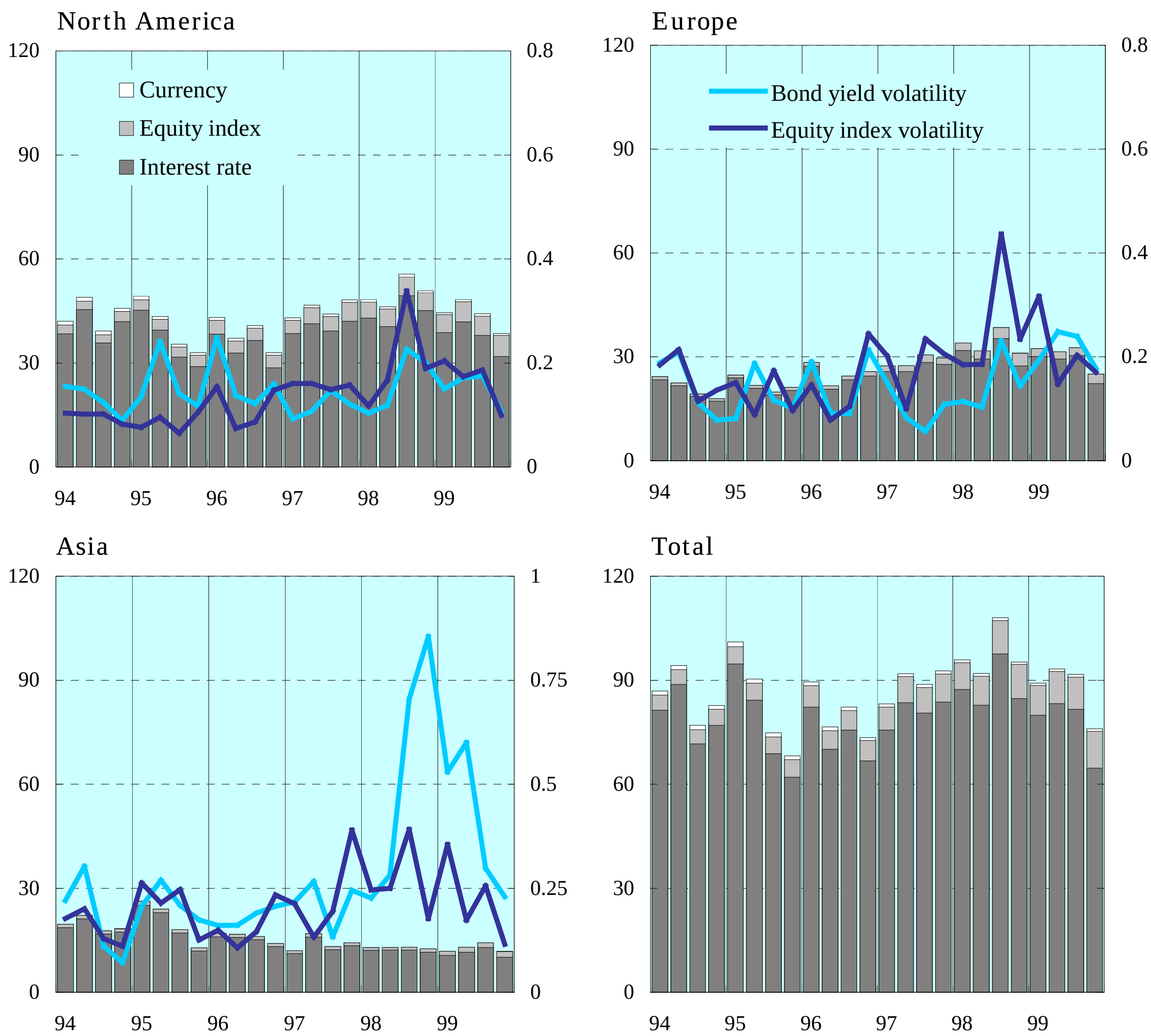
3. Derivatives markets

The fourth quarter of 1999 witnessed a significant slowdown in derivatives activity through organised exchanges. Much of the reduction was related to year-end concerns. In over-the-counter (OTC) markets, data available for the first half of 1999 showed a sharp slowdown relative to the second half of 1998. This largely reflected a return to calmer conditions following the turmoil triggered by the

Turnover of exchange-traded options and futures and bond yield and equity index volatilities[1]

In trillions of US dollars (left-hand scale) and percentages (right-hand scale)

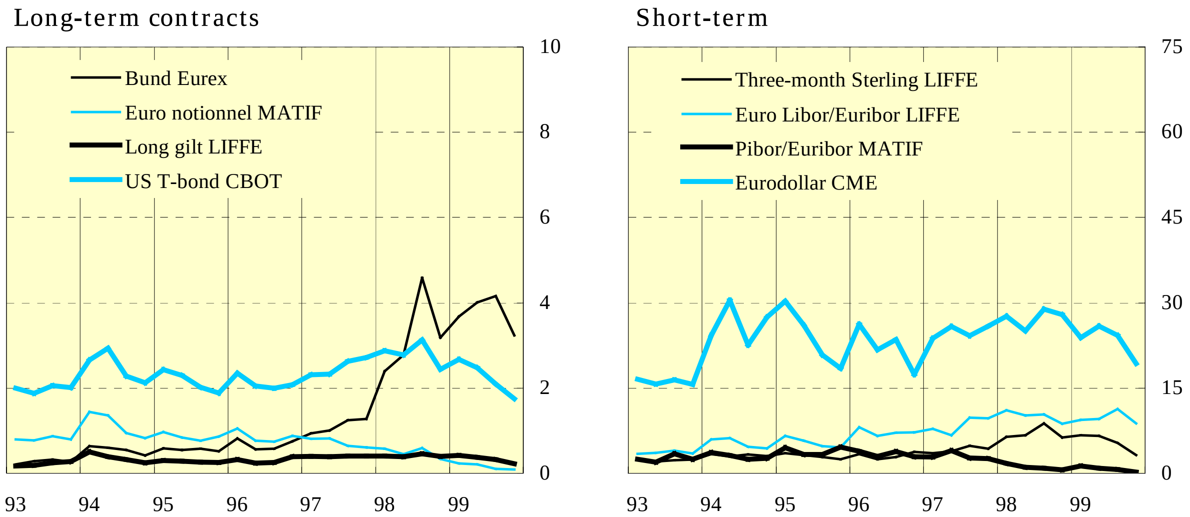


[1] Annualised standard deviation of daily percentage changes in 10-year government bond yields and equity indices of US, German and Japanese markets for North America, Europe and Asia respectively. [2] Including Australia and New Zealand.

Sources: FOW TRADEdata; Futures Industry Association; BIS.

Turnover of major European and North American interest rate futures

Quarterly turnover, in trillions of US dollars



Sources: FOW TRADEdate; Futures Industry Association; BIS.

Russian debt moratorium in August 1998 and the consolidation of business resulting from the introduction of the euro. Partial information for the second half of 1999 indicates a mixed pattern of activity in the OTC market.

Exchange-traded instruments: a slowdown ahead of the new millennium

The aggregate turnover of exchange-traded financial derivatives monitored by the BIS contracted by 17% in the fourth quarter of 1999 (to $76 trillion), the lowest level since the fourth quarter of 1996. There was, however, a marked disparity between the various risk categories, with fixed income and currency business dropping sharply (by 21% and 16%, respectively) and equity-related transactions expanding significantly (by 15%). This contrast does not appear to have reflected changes in the pattern of volatility. In the fixed income and currency markets, the dominant influence appears to have been the willingness of market participants to pare down their positions to a minimum ahead of the new millennium. The cautious attitude of traders was reported to have affected liquidity in some market segments but this effect appears to have been short-lived. In the case of equity-linked transactions, the widespread increase in the value of turnover largely reflected the increase in the level of equity indices.

For the year as a whole, the aggregate value of turnover in exchange-traded financial products monitored by the BIS declined by 10% (to $350 trillion). While the lack of market events comparable to those seen in 1998 (such as the Russian debt moratorium) probably accounted for some of this slowdown, other dampening factors may have been at play, such as reduced activity by highly leveraged entities and the consolidation of interest rate products resulting from the introduction of the euro. Business in equity-related products, particularly options, bucked the overall decline of market activity.

As in recent quarters, the proliferation of online trading systems continued to be one of the key developments shaping the competitive environment. Prospects for the creation of the Euro-Alliance, a pan-European stock exchange project supported by eight European bourses, became less certain with the announcement by NASDAQ of plans for the creation of an electronic platform in Europe and plans

Global ranking of exchanges[1]

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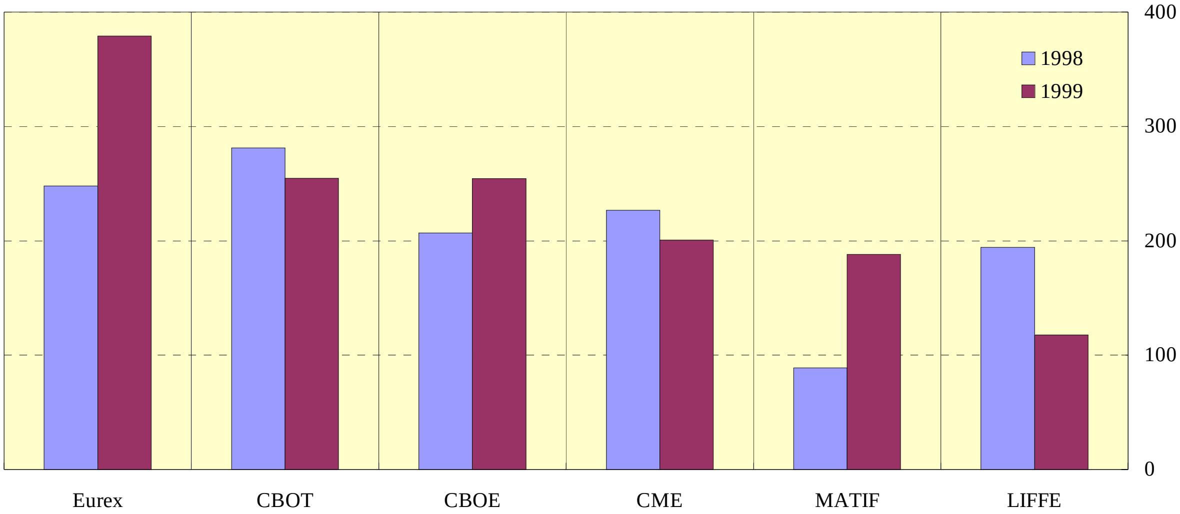
Looking at business on the major market-places, contract turnover on Eurex declined slightly in the fourth quarter, but the exchange remained by far the most active market-place in the world (with 98 million contracts), followed by the CBOE (81 million) and the CBOT (53 million).[2] Eurex has greatly benefited from the introduction of the euro, which has created a large pool of liquidity in German government bond contracts. Meanwhile, there was some recovery in December in the trading of the French government bond contract on the MATIF following efforts by French banks to revive it. By contrast, LIFFE experienced a further contraction of turnover, continuing the downward trend seen since it lost business in bund contracts to Eurex. One of the notable developments in North America was the continuing upsurge in equity option trading on the CBOE, in a context of declining overall activity on the other major US exchanges. In Asia, SIMEX remained the most active market-place, ahead of TIFFE and the TSE. The subdued pace of business in Japan was particularly noteworthy given the rapid increase in recent years in the stock of Japanese government debt.

Viewing 1999 as a whole, Eurex displaced the CBOT for the first time as the most active exchange in the world (379 million contracts compared with 255 million). The rapid increase in the use of equity options enabled the CBOE to become the third most important exchange (254 million). While the ongoing migration of activity in German bond contracts to Eurex had a further negative impact on the fixed income business of LIFFE (118 million), the MATIF managed to stage a recovery, although this was largely the result of a reduction in the nominal size of equity contracts (188 million). It should be noted, however, that the dollar amount of transactions remains much higher on exchanges that trade high-value money market contracts (such as the CME and LIFFE) than on those specialising in longer-term instruments (such as the CBOT and Eurex).

Volumes on major exchanges

In millions of contracts traded



Sources: Futures Industry Association; FOW TRADEdata.

[1] Exchanges referred to in this box: CBOE: Chicago Board Options Exchange; CBOT: Chicago Board of Trade; CME: Chicago Mercantile Exchange; LIFFE: London International Financial Futures and Options Exchange; MATIF: Marché à Terme International de France; SIMEX: Singapore International Monetary Exchange; TIFFE: Tokyo International Financial Futures Exchange; TSE: Tokyo Stock Exchange. [2] Comparisons of activity between exchanges are usually made in terms of numbers of contracts traded. A more accurate basis for comparison would be the aggregate value of transactions by exchange, but such data are not widely available. The analysis in this box relies therefore on the aggregate turnover of financial contracts (including options on single equities) and non-financial products (largely on commodities).

by Deutsche Börse for the online listing of top European stocks.[9] These initiatives, and a number of other competing ones already under development, are threatening the niches of established exchanges in domestic stocks and derivatives, and are likely to hasten the creation of a pan-European stock market.

However, breaking into European markets could prove more difficult than has been the case in North America since most European exchanges have already developed fairly cost-efficient electronic trading platforms. In the United States, competition from online systems further encouraged stock and derivatives exchanges to list new electronically traded contracts and to consider changing from mutual-owned status to a more market-oriented governance structure. Derivatives exchanges now realise that, despite these measures, greater efforts will be required to ensure their survival. Such efforts are likely to focus on the exploitation of profit opportunities in areas where inefficiencies remain, such as in the integrated trading and clearing of cash and derivative instruments. Exchanges will also try to capitalise on the strength of their credit standing to attract business from lower-rated counterparties in OTC markets.

OTC instruments: calmer conditions and the euro dampen growth in the first half of 1999

In November 1999, the BIS released its semiannual statistics on positions in the global OTC derivatives market for end-June 1999. These statistics constitute the third set of data released under a new regular reporting framework on OTC market activity. They include the notional amounts and gross market values outstanding of the worldwide consolidated OTC derivatives exposure of major banks and dealers in the G10 countries (see the table on page 31 and Annex Tables 18 to 21).[10] After adjustment for double-counting resulting from positions between reporting institutions, the total estimated notional amount of outstanding OTC contracts stood at $81.5 trillion at end-June 1999, a 1% increase over the $80 trillion reported for end-December 1998.

The most striking development was a sharp reduction in foreign exchange contracts, a segment that had already begun to decline in the second half of 1998. At the same time, interest rate contracts continued to grow, albeit at a slower pace. Equity-linked contracts expanded modestly, while commodity contracts recovered following a contraction in the second half of last year. Interest rate instruments remain by far the largest component of the OTC market (66%), followed by foreign exchange products (18%) and those based on equities and commodities (with 2% and 0.5% respectively).

The slowdown in the growth rate of interest rate contracts (with growth of 8% compared with 18% in the previous period) was accounted for largely by swaps. In contrast, activity in FRAs and interest rate options accelerated. The expansion in business in the second half of 1998 appears to have been related to the unwinding of leveraged positions through offsetting contracts after the financial turbulence associated with the Russian debt moratorium.[11] If so, the reduced rate of growth seen in the first half of 1999 could be attributed to this unwinding having run its course. However, it also reflected the

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9 Eurex was also considering an extension of its reach outside Germany and Switzerland by allowing remote clearing membership. Under such an arrangement, market participants would no longer have to operate through a German or Swiss clearing member. This initiative would further undermine the Euro-Alliance project.

10 The notional amount, which is generally used as a reference to calculate cash flows under individual contracts, provides a comparison of market size between related cash and derivatives markets. Gross market value is defined as the sum (in absolute terms) of the positive market value of all reporters' contracts and the negative market value of their contracts with non-reporters (as a proxy for the positive market value of non-reporters' positions). It measures the replacement cost of all outstanding contracts had they been settled on 30 June 1999. The use of notional amounts and gross market values produces widely divergent estimates of the size of the overall market and of the various market segments.

11 In the OTC market, while positions may be unwound by assignment or termination of the original contract, it is more common for this to be done through new contracts with the opposite positions.

The global over-the-counter (OTC) derivatives markets[1]

Amounts outstanding, in billions of US dollars

	Notional amounts			Gross market values		
	End-June 1998	**End-Dec. 1998**	**End-June 1999**	**End-June 1998**	**End-Dec. 1998**	**End-June 1999**
A. Foreign exchange contracts	**18,719**	**18,011**	**14,899**	**799**	**786**	**582**
Outright forwards and forex swaps	12,149	12,063	9,541	476	491	329
Currency swaps	1,947	2,253	2,350	208	200	192
Options	4,623	3,695	3,009	115	96	61
B. Interest rate contracts[2]	**42,368**	**50,015**	**54,072**	**1,160**	**1,675**	**1,357**
FRAs	5,147	5,756	7,137	33	15	12
Swaps	29,363	36,262	38,372	1,018	1,509	1,222
Options	7,858	7,997	8,562	108	152	123
C. Equity-linked contracts	**1,274**	**1,488**	**1,511**	**190**	**236**	**244**
Forwards and swaps	154	146	198	20	44	52
Options	1,120	1,342	1,313	170	192	193
D. Commodity contracts[3]	**451**	**415**	**441**	**38**	**43**	**44**
Gold	193	182	189	10	13	23
Other	258	233	252	28	30	22
Forwards and swaps	153	137	127	..	..	..
Options	106	97	125	..	..	..
E. Other[4]	**9,331**	**10,388**	**10,536**	**393**	**492**	**400**
Grand total	**72,143**	**80,317**	**81,458**	**2,580**	**3,231**	**2,628**
Gross credit exposure[5]				**1,203**	**1,329**	**1,119**
Memorandum item: Exchange-traded contracts[6]	*14,256*	*13,549*	*15,501*	..	..	..

[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] Single-currency contracts only. [3] Adjustments for double-counting estimated. [4] For end-June 1998: positions reported by institutions participating in the triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity but not in the semi-annual surveys; for subsequent periods: estimated positions of these 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.

introduction of the euro. The expansion of euro zone instruments slowed sharply relative to the previous reporting period (to 6% from 21%) as the introduction of the single currency eliminated interest rate arbitrage activity between the various legacy currency segments.

The pronounced contraction of activity in currency instruments (with the stock of open positions dropping by 17%) was accounted for by outright forwards and forex swaps and options. Again, the introduction of the euro was a determining factor. The stock of contracts involving euro area currencies declined by 35% in the first half of 1999. The reduction in historical and implied volatility in the dollar/yen currency pair, which had experienced unprecedented swings in the second half of 1998, was associated with a decline in contracts involving these two currencies. The main exception to this pattern of decline occurred in the area of cross-currency swaps, which increased modestly. This rise may have been related to strong primary market activity in global securities markets.

Calmer market conditions were reflected in a 19% drop in estimated gross market values in the first half of 1999 (to $2.6 trillion). Taking into consideration the increase in the overall stock of transactions, market values dropped from 4% to 3% of reported notional amounts. Such values exaggerate actual credit exposure since they exclude netting and other risk reducing arrangements. Allowing for netting, the derivatives-related credit exposure of reporting institutions was much smaller (at $1.1 trillion).

The absence of more recent statistical data makes it difficult to assess activity in the second half of 1999. Data released by the US Office of the Comptroller of the Currency (US OCC) on third quarter holdings of derivatives by US banks (largely made up of OTC contracts) showed an 8% increase in the notional value of contracts (to $36 trillion).[12] This largest increase since the third quarter of 1998 may have reflected banks' attempt to reduce vulnerability to uncertain conditions in the fourth quarter of the year. The fact that much of the growth took place at the short end of the yield curve would support this presumption. Credit derivatives experienced an even more pronounced expansion in the third quarter, rising by 11% ($234 billion). The rapid increases seen in recent years in that relatively new market segment have been attributed to progress made in the management of credit risk portfolios and the growing use of credit derivatives in securitisation. It should be noted, however, that activity in credit derivatives remains highly concentrated, with one bank accounting for almost 60% of the notional value of outstanding US contracts.

Anecdotal evidence concerning fourth quarter OTC activity paints a somewhat mixed picture. Although there was demand for millennium-related fixed income hedges and speculative trading strategies, most market operators probably pared down their positions ahead of the New Year. In the foreign exchange segment, concerns about Y2K are likely to have exacerbated the usual year-end slowdown.

[12] The series published by the US OCC are not fully comparable with those produced by the BIS because of differences in reporting methodologies.