

The foreign exchange and over-the-counter derivatives markets in the United Kingdom

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In April this year, the Bank of England conducted its triennial survey of turnover in the UK foreign exchange and over-the-counter (OTC) derivatives markets,⁽¹⁾ as part of the latest worldwide survey coordinated by the Bank for International Settlements.⁽²⁾ This article sets out the results of the UK survey and compares them with previous surveys and results for other major centres.

The main findings of the UK survey are:⁽³⁾

- *Average daily spot and forward foreign exchange turnover in April 2001 was \$504 billion per day, 21% lower than the \$637 billion per day recorded in 1998 (equivalent to a fall of 15% at constant 2001 exchange rates). This fall in turnover has taken place against a backdrop of decreasing global activity, which declined by 19% over the same period to \$1,210 billion per day. These results contrast with previous surveys, which had consistently shown a strong increase in foreign exchange business.*
- *The decline in UK activity was more than accounted for by the fall in inter-dealer business from \$530 billion to \$341 billion. This is consistent with the increased role of electronic broking systems, particularly in the spot market where turnover fell by 30%.*
- *Underlying customer business in the foreign exchange market as a whole grew by 52%.*
- *The euro accounted for a larger proportion of the market in London than the Deutsche Mark did in 1998, but less than the sum of all the legacy currencies.*
- *Average daily turnover in OTC currency and interest rate derivatives was \$275 billion, 61% higher than the \$171 billion recorded in the previous survey in April 1998. This was driven by an increase in OTC interest rate swap business, and reflects the increasing importance of swaps as a trading and pricing benchmark. Global OTC derivatives activity also increased, by 53%.*
- *The United Kingdom has retained its position as the world's largest centre for foreign exchange and OTC derivatives business, accounting for 31% and 36% of the global foreign exchange and OTC derivatives markets respectively.*

Introduction

In April this year, central banks and monetary authorities in 48 countries, including the United Kingdom, conducted national surveys of turnover in the

traditional foreign exchange markets—spot, outright forwards and foreign exchange swaps—and in over-the-counter (OTC) currency and interest rate derivatives. These surveys have taken place every three years since 1986.⁽⁴⁾ They are coordinated on a global

(1) The survey covered OTC currency and interest rate derivatives only.

(2) Turnover was reported for the month of April 2001. See the box on survey details and definitions, on pages 424–25, for further details of the survey format.

(3) All comparisons are with the previous survey in 1998 and are based on average daily turnover, unless otherwise stated. Turnover figures published here are adjusted to remove double-counting of trades between UK principals that will have been reported by both parties (local double-counting).

(4) Coverage of OTC derivatives was included for the first time in 1995.

basis by the Bank for International Settlements (BIS), with the aim of obtaining comprehensive and internationally consistent information on the size and structure of the corresponding global markets. The Bank of England conducted the UK survey, which covers the business of institutions operating within the United Kingdom in these markets.

Foreign exchange

Daily turnover

Average daily net turnover⁽¹⁾ during April 2001 was \$151 billion in the spot market and \$353 billion in the forward market (of which 85% represented foreign exchange swap transactions). Total turnover, spot plus forward, was \$504 billion per day. This is 21% lower than the \$637 billion per day recorded in the previous survey in 1998. This fall has taken place against a backdrop of decreasing global foreign exchange activity, which declined by 19% over the same period to \$1,210 billion. These results contrast with previous surveys, which had shown a continuing large increase in foreign exchange business.

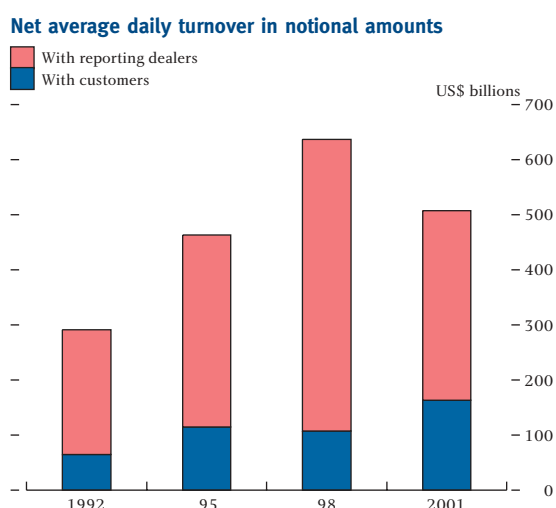
In constant 2001 exchange rate terms, the fall in UK turnover was smaller, at 15%.⁽²⁾ This measurement adjusts for exchange rate movements since 1998; many currencies have fallen against the dollar, so where market participants bought or sold a constant amount of a non-dollar currency in both 1998 and 2001, less would be recorded as dollar-valued turnover in 2001 than in 1998.

70% of firms taking part in the survey thought that their overall level of foreign exchange turnover during the survey period was representative of typical monthly turnover; 7% believed it to be above normal; and 23% below normal. These results are consistent with those reported for the 1998 survey.

Counterparties

Chart 1 shows that the reduction in foreign exchange turnover in the United Kingdom was more than accounted for by the \$189 billion decrease in inter-dealer business, which fell from \$530 billion in April 1998 to \$341 billion in April this year. A decline in inter-dealer business was also the driving factor behind

Chart 1
Foreign exchange turnover by counterparty



the fall in global turnover. This reduction in inter-dealer activity can partly be explained by consolidation in the banking industry, and also by the increased role of electronic broking systems, particularly in the spot inter-dealer market.

The UK foreign exchange market has become more concentrated since the 1998 survey was conducted. The combined market share of the top ten principals rose from 50% to 58%; and the top twenty's share reached 80%, up from 69% in 1998. The number of firms accounting for more than 1% of total turnover has fallen from 25 in 1998 to 20 in 2001, showing a concentration of business even among the largest institutions. This is partly the result of several mergers of large market players that have been a feature of the banking and securities industries in recent years. This has eliminated deals transacted between the two merged entities and has also left fewer active market participants to trade between each other, leading to a further reduction in activity.

Another influence on inter-dealer business is the increasing importance of electronic broking systems,⁽³⁾ compared with direct dealing and voice broking. Market estimates indicate that more than two-thirds of UK inter-dealer spot activity is now conducted using electronic brokers, compared with around 30% in 1998. Such systems increase the transparency of market prices meaning that deals traditionally executed by phone to facilitate price discovery are no longer necessary, leading

(1) Adjusted to remove local double-counting.

(2) For these purposes each leg of a foreign currency transaction other than the US dollar leg has been converted into original currency amounts at average current April exchange rates and then reconverted into US dollar amounts at average April 2001 exchange rates. A time series of constant exchange rate calculations is shown in Table B.

(3) For example, EBS and Reuters.

Global survey results

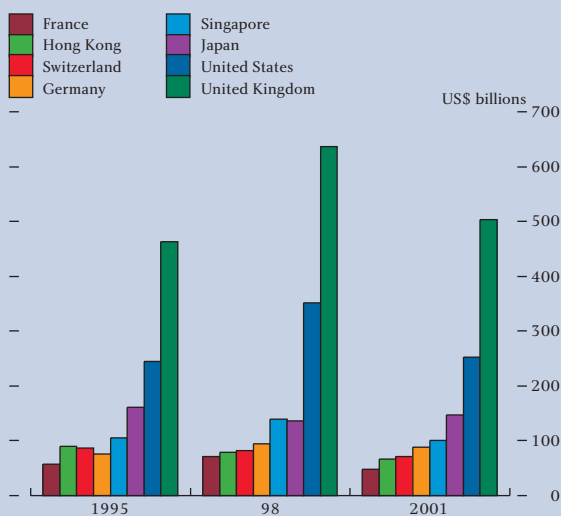
Foreign exchange

Average daily turnover in the global foreign exchange markets was \$1,210 billion⁽¹⁾ in April 2001, a fall of 19% compared with the \$1,490 billion recorded in April 1998.

Most countries saw a fall in foreign exchange turnover. There were, however, a few exceptions. Turnover in both Canada and Sweden rose, boosted by the relaxation of restrictions on institutional investors that have taken place since the 1998 survey. In Japan, the 8% rise in activity was driven by growth in cross-border swap activity. And Australia saw an increase in turnover, largely as the result of an increase in the number of global players centring their Asian time zone business there.

The United Kingdom's global market share has fallen slightly, from 32.5% to 31.1%. But, as Chart A shows, the UK market remained by far the largest in the world; larger than the next three biggest players (United States 16%, Japan 9% and Singapore 6%) combined. The largest euro-area centre is Germany (5½%), with the euro area as a whole accounting for 13½% of the global market, once account is taken of double-counting within the euro area.

Chart A
Foreign exchange turnover—United Kingdom and other centres



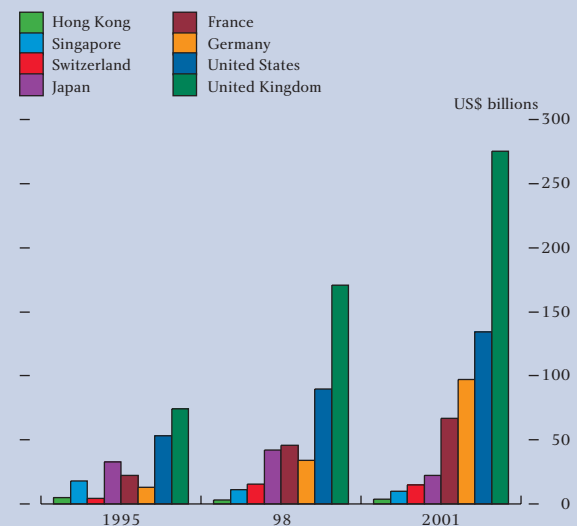
OTC derivatives

In the OTC derivatives markets, average daily turnover in April 2001 was \$580 billion, exceeding that in April 1998 by 53%.

This increase in turnover was reflected in the results of most countries, as shown by Chart B. In particular, Germany saw a 185% rise in OTC derivatives business, likely due to activity in the EONIA swap market. Both Japan and Singapore, however, saw a notable fall in activity compared with 1998.

The United Kingdom's global OTC derivatives market share has remained roughly constant at 36%. As in the foreign exchange market, it has remained the largest in the world. The next-largest market is the United States, which is half the size of the UK market at 18%.

Chart B
OTC derivatives turnover—United Kingdom and other centres



(1) The BIS aggregate global results are adjusted to remove double-counting of trades between participants in surveys reporting to two different central banks that will appear in both national surveys (cross-border double-counting). So the simple aggregation of national results, which are only adjusted for local double-counting, will not equal the global statistics released by the BIS. The data for the euro area have been similarly adjusted.

to a more efficient market, with less opportunities for arbitrage, and an overall fall in foreign exchange turnover.

Underlying customer business increased in absolute terms from \$107 billion to \$163 billion between 1998 and 2001, a rise of 52%; customer business now accounts for 32% of total turnover, compared with 17% in 1998. This was driven by increased trading with financial customers. Market commentary suggests that this reflects the increased activity and sophistication of asset managers in these markets, an effect that has outweighed the decline in activity of hedge funds since the previous survey was conducted.

Business with non-financial institutions remained a small part of the market, at 5% of total turnover. One influence on this figure is likely to have been the volume of cross-border mergers and acquisitions (M&A) activity taking place at the time of the survey. During April 2001, M&A activity was very low, particularly when compared with the much higher levels seen throughout 1999 and 2000. It is therefore possible that the 2001 figure for the business of non-financial institutions is an under-representation of the activity of these counterparties; if the survey had been conducted in a different month, the proportion of non-financial customer business could have been higher.

The proportion of business attributable to cross-border deals rose very slightly since the 1998 survey, from 66% to 67%. The global results show that cross-border deals account for a relatively high proportion of UK turnover compared with other centres. The comparable figure reported by the BIS was 57% of global turnover.

Currency composition

The US dollar remained the dominant currency in the London market, being used on one side of the transaction in 92% of all deals (see Table A). The euro replaced the Deutsche Mark as the second most traded currency, accounting for a larger proportion of the market than the Deutsche Mark did in 1998, but less than the sum of all twelve euro legacy currencies; a trend that was reflected in the global survey.

Euro/dollar was the most actively traded currency pair, capturing 34% of the market. This compares with the 22% market share of dollar/Deutsche Mark in the 1998 survey.

The introduction of the euro, and resultant disappearance of trading between the legacy currencies,

Table A
Foreign exchange turnover—currency breakdown

	Per cent			
	1992	1995	1998	2001
US dollar	81	84	88	92
Euro	-	-	-	41
Deutsche Mark	41	36	32	-
French franc	4	9	5	-
ECU and other				
EMS currencies	17	11	21	-
Pound sterling	24	16	18	24
Japanese yen	15	20	14	17
Swiss franc	8	7	7	6
Canadian dollar	2	2	3	4
Australian dollar	1	2	2	3
Other currencies	7	13	10	13
All currencies	200	200	200	200

Note: Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%.

is likely to have contributed to the reduction in foreign exchange turnover since the 1998 survey. But the extent of this will have differed across financial centres. In the United Kingdom, the proportion of turnover attributable to trading Deutsche Mark against other EMS currencies in the 1998 survey was 3%, and it is estimated that total trading between euro legacy currencies in the United Kingdom accounted for no more than 5% of turnover. So the effect on turnover of the disappearance of intra-legacy currency trading is likely to have been small in the United Kingdom. The effect of the introduction of the euro in other European centres will however have been more significant, as, prior to this, these centres traditionally had a comparative advantage for trading in their national currency. For example, in the 1998 survey, domestic currency trading represented 80% of turnover in Italy, 41% in Belgium and 41% in France. This partly explains the much larger falls in foreign exchange turnover seen in some euro-area centres, compared with the United Kingdom: turnover in Belgium, Italy and France fell by 63%, 39% and 33% respectively.

The UK market's reliance on domestic currency business is relatively modest. The proportion of UK turnover in April 2001 involving sterling rose to 24%, largely reflecting an increase in the market share of sterling/dollar from 14% to 20%. Euro/sterling trading accounted for 3% of the UK market.

The introduction of the euro is also likely to have had an effect on non-legacy currency markets, such as the dollar. It is, for example, no longer necessary to swap legacy currencies using the dollar as a vehicle currency, as was common practice before the introduction of the euro, reflecting better liquidity in the dollar swap market. Dollar/legacy currency swap activity totalled \$185 billion in the 1998 survey, accounting for 50% of the total foreign exchange swap market. Euro/dollar

trading now accounts for 34% of the foreign exchange swap market, with turnover of \$101 billion.

There has also been an increase in the use of 'other currencies' since the 1998 survey. This is largely due to a rise in activity in the Scandinavian currencies, and may be the result of general portfolio diversification following the merging of the twelve euro legacy currencies.

Instruments

The figures in Table B show a further fall in the proportion of foreign exchange business transacted for spot value, from 51% in 1992 to 40% in 1995, 34% in 1998, and 30% in 2001. This again reflects the influence of electronic broking in the spot market discussed earlier. In contrast, turnover in outright forwards has increased by 10% to \$53 billion.

Table B
Foreign exchange turnover by transaction type

Net average daily turnover in notional amounts

US\$ billions; *percentage of total net turnover in italics*

	1992		1995		1998		2001	
Spot transactions	148	<i>51</i>	186	<i>40</i>	217	<i>34</i>	151	<i>30</i>
Outright forwards	20	<i>7</i>	33	<i>7</i>	48	<i>8</i>	53	<i>10</i>
FX swaps	123	<i>42</i>	244	<i>53</i>	372	<i>58</i>	300	<i>60</i>
Total 'traditional' turnover	290		464		637		504	

Memorandum item:

Turnover at April 2001 exchange rates (a)	259	382	592	504
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(a) Each leg of a foreign currency transaction other than the US dollar leg has been converted into original currency amounts at average current April exchange rates and then reconverted into US dollar amounts at average April 2001 exchange rates.

There has been an increase in the market share of foreign exchange swap (FX swap) transactions from 58% to 60%, despite a fall in turnover in value terms from \$372 billion to \$300 billion (19%). This fall can partly be explained by the disappearance of the euro legacy currencies, particularly those deals that involved the dollar as a vehicle currency, as described in the previous section.

In addition, FX swaps are often used as tools to manage interest rate risk; they are effectively linked to interest rates of two different currencies, with their value determined by movements in those interest rates. Since the 1998 survey, the interest rate derivatives market has seen the development of a range of new, more sophisticated interest rate risk management products. There has also been a large increase in OTC interest rate derivatives market activity (up 93%), as shown below. The fall in FX swap activity could therefore reflect the fact that risk that used to be hedged using FX swaps is

now being managed in the interest rate derivatives market.

A similar trend was evident in the United States, where the value of FX swap turnover fell by 31%, but OTC interest rate swap activity increased by 165%.

Market share of foreign banks

Foreign-owned institutions operating in the London market accounted for 81% of principals' aggregate turnover in London compared with 85% in 1998. North American principals remained the most active, with a 46% market share, followed by non-UK EU principals at 21%. This represents a slight fall in the market share of US institutions and a slight rise in that of non-UK EU institutions. The proportion of turnover transacted by Japanese principals fell from 7% to 3%.

OTC derivatives

Daily turnover

Average daily turnover in the United Kingdom for OTC currency and interest rate derivatives continued to increase. In April 2001, turnover was \$275 billion, 61% higher than the \$171 billion recorded in the April 1998 survey. Within this, the interest rate derivatives market grew by 93%, and the currency derivatives market reduced in size by 22%. Global OTC derivatives turnover also increased, by 53%.

At constant 2001 exchange rates, the change in UK turnover was more pronounced, indicating an 80% increase in OTC derivatives business.

83% of firms taking part in the survey thought that their overall level of OTC derivatives turnover during the survey period was representative of monthly turnover; 2% considered it to be above normal; and 15% below normal.

Instruments

The fall in size of the OTC currency derivatives market to \$37 billion was largely driven by a 22% decrease in the use of currency options, which account for 89% of the market. This was less than the fall in activity in these instruments reported by other centres; turnover in OTC currency options in the United States fell by 42%, and in Germany by 44%.

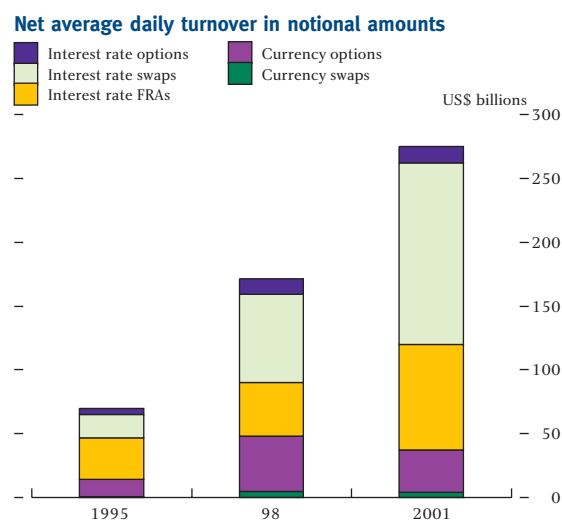
A significant part of the decrease in the United Kingdom can be attributed to a fall in euro-related trades.

Currency option transactions involving euro legacy currencies totalled \$23 billion in 1998. In 2001, euro transactions had fallen to \$16 billion, a decline of \$7 billion. This is consistent with both the disappearance of the euro legacy currencies and the fact that trading in these instruments was unusually high in the 1998 survey as they were used to hedge risk in advance of the announcement of euro parity rates in May of that year. Market commentators also suggest that pricing practices in the currency options market are now more consistent than in 1998, which might have had the effect of reducing trading opportunities between dealers.

A major contribution to the increase in interest rate derivatives turnover was a 106% growth in the interest rate swap market, as can be seen from Chart 2. This follows the development of a range of new instruments in this category and reflects the increasing importance of swaps as a trading and pricing benchmark. In particular, the use of euro overnight index average (EONIA) swaps—which exchange cash flows based on a fixed interest rate and a variable EONIA-based rate—is estimated to have increased sharply over the volumes seen for the previous national currencies in 1998. They are used, among other things, for position-taking and for hedging short-term interest rate risk, including on repo transactions. Interest rate swaps represent the biggest segment of all the derivatives survey's instruments, accounting for more than half of the total OTC market (60% of the interest rate derivatives market).

Turnover in forward-rate agreements (FRAs) has also expanded substantially, by 96%, maintaining their 35%

Chart 2
OTC derivatives turnover by transaction type



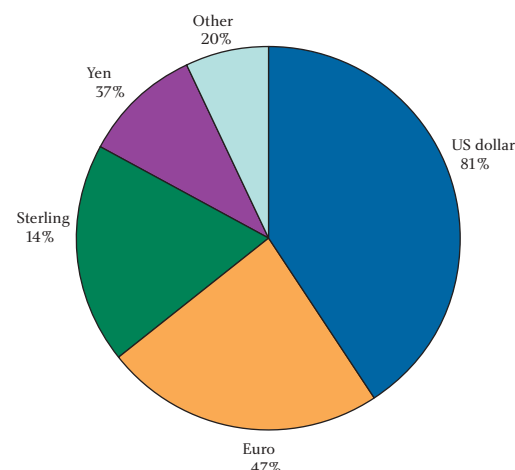
share of the interest rate derivatives market. Activity in interest rate options showed a more modest increase of 10%, with market share of these instruments declining from 10% to 5%.

Currency composition

As Chart 3 shows, the dollar remained the most traded currency in the currency derivatives market. 81% of deals now involve the dollar on one leg, up from 76% in 1998. As in the foreign exchange market, the euro accounted for a greater proportion of turnover than the Deutsche Mark did in 1998 (entering 47% of deals on one side compared with 42% in 1998) but less than the sum of all the legacy currencies (57% in 1998). Sterling was involved in 14% of currency derivative transactions, down from 17% in 1998.

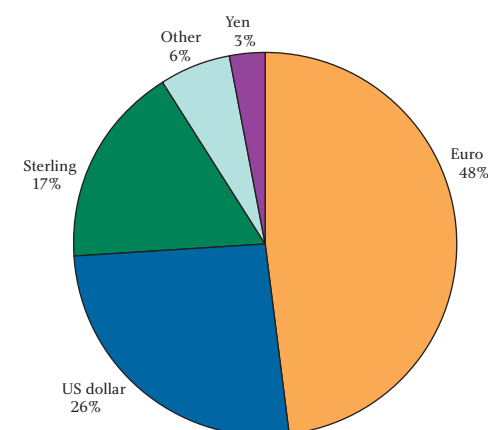
The euro was the dominant currency in the UK interest rate derivatives market (see Chart 4), accounting for 48% of total turnover, the same proportion as in the

Chart 3
OTC currency derivatives—currency breakdown



Note: Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%.

Chart 4
OTC interest rate derivatives—currency breakdown



global market as a whole, down from 56%⁽¹⁾ in 1998. However, the value of transactions conducted in euro increased in absolute terms from \$69 billion⁽²⁾ to \$113 billion, possibly reflecting the increase in the size of the EONIA swap market described in the previous section. Both sterling and the US dollar increased their market shares, from 13% and 16%, to 17% and 26% respectively.

Counterparties

In the currency derivatives market, there was a substantial decrease in the proportion of the market accounted for by inter-dealer business, and an equivalent rise in the proportion accounted for by customer business, from 20% to 32% (see Table C). Customer business also rose in absolute terms, from \$10 billion to \$12 billion, driven by an increase in business with non-financial institutions.

Table C
OTC derivatives turnover by counterparty
Net average daily turnover in notional amounts

US\$ billions

	Total		Currency derivatives (a)		Interest rate derivatives (b)	
	1998	2001	1998	2001	1998	2001
Reporting dealers	126	217	38	25	87	192
Local	43	65	12	6	29	59
Cross-border	84	153	26	19	58	134
Other financial institutions	36	45	6	6	30	39
Local	18	27	1	2	17	25
Cross-border	18	19	5	4	13	15
Non-financial customers	10	12	4	6	6	6
Local	3	3	1	1	2	2
Cross-border	7	9	3	5	4	4
Total	172	561	48	37	123	238

(a) Currency swaps and options.
(b) Single-currency contracts only.

By contrast, inter-dealer interest rate derivatives business grew strongly, accounting for 81% of turnover in April 2001 compared with 71% in 1998. This is consistent with the fact that, unlike in the foreign exchange spot market, electronic broking has yet to make significant inroads into the OTC interest rate derivatives market. Although customer business fell in terms of market share, there was an absolute increase in the value of customer contracts entered into, from \$36 billion to \$45 billion.

Cross-border business continued to account for roughly two-thirds of currency and interest rate derivatives turnover in the United Kingdom, compared with 58% on a global basis.

Market concentration

Overall, the results show that the OTC derivatives market in London has become more concentrated since 1998. The top ten's combined market share rose from 67% to 74% and the top twenty's rose from 82% to 89%.

A smaller number of participants undertook currency derivatives business than interest rate derivatives business during April 2001, although there appears to be little difference in market concentration between the two markets. Activity in currency derivatives was reported by 77 firms. Nineteen firms had 1% or more of the market; 12 had between 1% and 5%; and 7 had more than 5%. Activity in interest rate derivatives during April 2001 was reported by 132 firms. Nineteen firms had 1% or more of the market; 14 had between 1% and 5%; and 5 had more than 5%.

(1) Based on the sum of all the euro legacy currencies in 1998.
(2) Based on the sum of all the euro legacy currencies in 1998.

Survey details and definitions

Participants

257 banks and securities houses participated in the UK survey. As in previous years, the Bank of England asked all banks active in the United Kingdom, and some non-bank financial firms believed to be active principals in the wholesale markets, to participate in the survey. Other institutions, active in the markets covered, did not take part directly, but their transactions with participating principals will have been reported by those institutions. It is reasonable to assume that little trading took place between non-participating entities.

The questionnaire

Survey participants were requested to complete a questionnaire prepared by the Bank of England, based on a standard format produced by the Bank for International Settlements (BIS) and agreed with other central banks. Participants were asked to provide details of their gross turnover for the 19 business days in April 2001. Gross turnover (measured in nominal values) is defined as the absolute total value of all deals contracted; there was no netting of purchases against sales. Data were requested in terms of US dollar equivalents, rounded to the nearest million. The basis of reporting was the location of the trade, regardless of where it was booked. The questionnaire asked for data broken down by currency, instrument and type of counterparty.

The survey distinguished the following types of transaction:

Foreign exchange

- *Spot transaction:* Single outright transaction involving the exchange of two currencies at a rate agreed on the date of the contract for value or delivery (cash settlement) within two business days. The spot legs of swaps and swaps that were for settlement within two days (ie 'tomorrow/next day' swap transactions) were excluded from this category.
- *Outright forward:* Transaction involving the exchange of two currencies at a rate agreed on the date of the contract for value or delivery (cash settlement) at some time in the future (more than two business days later). Also included in this category were forward foreign exchange agreement transactions (FXA), non-deliverable forwards, and other forward contracts for differences.
- *Foreign exchange swap:* Transaction involving the actual exchange of two currencies (principal amount only) on a specific date at a rate agreed at the time of the conclusion of the contract (the short leg), and a reverse exchange of the same two currencies at a date further in the future at a rate (generally different from the rate applied to the short leg) agreed at the time of the conclusion of the contract (the long leg). Short-term swaps carried out as 'tomorrow/next day' transactions are included in this category.

OTC currency derivatives

- *Currency swap:* Contract that commits two counterparties to exchange streams of interest payments in different currencies for an agreed period of time and to exchange principal amounts in different currencies at a pre-agreed exchange rate at maturity.
- *Currency option:* Option contract that gives the right to buy or sell a currency with another currency at a specified exchange rate during a specified period. This category also includes currency swaptions, currency warrants and exotic foreign exchange options such as average rate options and barrier options.

Single-currency OTC interest rate derivatives

- *Forward-rate agreement (FRA)*: Interest rate forward contract in which the rate to be paid or received on a specific obligation for a set period of time, beginning at some time in the future, is determined at contract initiation.
- *Interest rate swap*: Agreement to exchange periodic payments related to interest rates on a single currency. Can be fixed for floating, or floating for floating, based on different indices. This category includes those swaps whose notional principal is amortised according to a fixed schedule independent of interest rates.
- *Interest rate option*: Option contract that gives the right to pay or receive a specific interest rate on a predetermined principal for a set period of time. Included in this category are interest rate caps, floors, collars, corridors, swaptions and warrants.

Reporting institutions were asked to distinguish between transactions with *reporting dealers*, *other financial institutions* (all categories of financial institution other than reporting dealers) and *non-financial institutions*. In each case they were asked to separate local and cross-border transactions (determined according to the location, rather than the nationality of the counterparty) to permit adjustment for double-counting.

The aggregate responses (adjusted for double-counting) for the main sections of the questionnaire are reproduced in Tables D, E and F (on pages 426–30). The BIS intends to publish an analysis of the global survey results in early 2002. A survey of global outstanding positions in the derivatives markets (measured at the end of June 2001) is also being undertaken and global results for this survey will be released by the BIS in due course.

Table D
Average daily net-gross foreign exchange turnover^(a)

US\$ millions (rounded to the nearest million)

	US dollar against:						Sterling against:						
	Euro	¥	SwFr	Can\$	Aus\$	Other	US\$	Euro	¥	SwFr	Can\$	Aus\$	Other
Spot													
Reporting dealers	35,858	18,496	4,225	5,186	3,646	9,504	12,910	5,457	270	60	17	28	128
Local	9,263	3,697	952	293	735	1,520	4,706	1,778	97	12	2	9	47
Cross-border	26,595	14,799	3,272	4,893	2,911	7,984	8,204	3,679	173	49	15	18	81
Other financial institutions	12,939	8,243	1,686	1,142	729	2,885	4,589	1,869	200	43	26	26	136
Local	5,285	3,643	620	531	367	1,325	2,508	1,030	100	34	14	16	111
Cross-border	7,654	4,600	1,066	611	363	1,560	2,081	839	100	8	12	10	25
Non-financial institutions	2,389	864	310	170	195	324	1,183	703	103	19	7	26	100
Local	615	177	89	71	55	72	620	432	25	12	4	21	40
Cross-border	1,774	687	221	99	140	252	563	271	79	7	4	5	60
Sub-total	51,185	27,603	6,221	6,498	4,570	12,713	18,683	8,030	573	122	50	80	364
Outright forward													
Reporting dealers	10,936	3,107	864	310	1,648	4,913	6,128	1,377	84	27	9	22	90
Local	2,953	643	278	89	239	808	2,268	398	40	5	2	5	54
Cross-border	7,983	2,464	586	221	1,410	4,106	3,860	979	45	22	7	17	36
Other financial institutions	4,927	2,377	869	375	699	1,485	2,570	1,107	190	43	16	19	243
Local	2,358	954	502	243	545	516	1,826	746	143	12	8	16	172
Cross-border	2,570	1,443	367	131	154	970	744	361	47	31	7	3	71
Non-financial institutions	1,826	687	162	122	211	337	767	601	151	26	8	49	123
Local	561	210	27	78	68	85	479	351	46	9	6	31	66
Cross-border	1,265	477	135	45	143	251	287	250	105	17	1	18	57
Sub-total	17,690	6,170	1,895	807	2,558	6,735	9,465	3,086	425	96	32	90	455
Foreign exchange swaps													
Reporting dealers	70,680	27,576	9,644	7,304	6,422	25,994	50,020	3,214	220	31	6	18	49
Local	15,809	5,492	2,400	1,090	1,964	5,175	18,148	968	76	12	1	5	8
Cross-border	54,871	22,084	7,243	6,215	4,458	20,819	31,872	2,247	144	18	5	13	41
Other financial institutions	27,206	11,555	5,696	3,363	2,638	10,706	21,046	1,326	291	41	34	28	77
Local	13,957	5,169	2,641	2,343	1,755	6,640	10,551	878	186	21	31	22	58
Cross-border	13,250	6,386	3,055	1,020	882	4,066	10,495	448	106	20	2	6	19
Non-financial institutions	3,279	1,478	462	264	169	861	2,939	1,449	156	61	68	57	170
Local	977	719	89	108	127	383	2,024	960	135	30	56	53	83
Cross-border	2,302	759	373	156	42	478	915	488	21	31	12	4	88
Sub-total	101,166	40,609	15,801	10,932	9,228	37,561	74,005	5,989	668	132	108	103	297
Total	170,041	74,382	23,917	18,237	16,357	57,009	102,153	17,104	1,666	350	190	273	1,116
Maturity of forwards; per cent (b)													
Seven days or less	68	68	76	78	80	72	71	36	24	32	28	39	43
Over seven days	31	31	23	21	19	27	28	62	75	67	72	59	57
Over one year	1	1	1	1	1	2	1	2	1	0	0	1	1

(a) Adjusted for local double-counting.

(b) Gross maturities data cannot be adjusted accurately for local double-counting. The figures here are gross (unadjusted), given as a percentage of gross outright forward and foreign exchange swap turnover.

Euro against:					Residual	Total, all currencies
¥	SwFr	Can\$	Aus\$	Other		
6,656	2,025	43	47	2,156	347	107,061
3,255	349	3	5	355	48	27,128
3,401	1,676	40	42	1,801	300	79,933
1,288	580	34	31	683	91	37,221
433	222	5	7	291	37	16,579
855	359	29	25	393	53	20,642
330	111	9	14	171	88	7,116
167	41	3	3	74	51	2,571
163	70	5	11	97	37	4,544
8,274	2,716	86	93	3,011	526	151,397
755	237	35	33	228	210	31,012
195	36	18	4	70	33	8,137
559	200	16	29	158	178	22,875
509	161	37	43	239	149	16,059
230	59	21	26	96	74	8,526
279	102	17	17	143	75	7,532
151	60	12	35	92	208	5,628
40	29	6	13	47	125	2,276
111	31	6	22	45	83	3,352
1,415	458	84	111	559	567	52,698
1,141	299	41	39	185	214	203,097
218	21	17	9	33	25	51,471
923	279	23	30	152	189	151,627
600	135	101	57	140	101	85,141
206	72	79	38	38	58	44,742
395	63	22	19	102	43	40,399
219	166	50	16	129	103	12,097
105	49	16	11	51	20	5,994
114	117	35	5	78	83	6,103
1,960	601	191	112	454	418	300,336
11,649	3,775	361	316	4,024	1,511	504,431
37	42	35	38	32	32	69
62	58	64	60	67	67	30
1	0	1	2	1	1	1

Table E
Average daily net-gross OTC currency derivatives turnover^(a)

US\$ millions (rounded to the nearest million)

	US dollar against:						Sterling against:						
	Euro	¥	SwFr	Can\$	Aus\$	Other	US\$	Euro	¥	SwFr	Can\$	Aus\$	Other
Currency swaps													
Reporting dealers	624	875	41	5	93	211	810	129	6	3	1	3	3
Local	147	398	23	1	8	107	438	52	6	0	0	0	3
Cross-border	477	477	18	5	85	104	372	77	0	3	1	3	0
Other financial institutions	91	189	8	0	15	32	111	14	3	0	0	0	3
Local	19	69	0	0	1	20	24	5	3	0	0	0	3
Cross-border	72	120	8	0	14	12	86	9	1	0	0	0	0
Non-financial institutions	245	43	3	2	48	22	161	8	10	3	0	0	0
Local	50	18	0	0	20	0	141	0	10	0	0	0	0
Cross-border	194	26	3	2	28	22	20	8	0	3	0	0	0
Sub-total	960	1,107	52	8	157	265	1,081	151	19	6	1	3	5
OTC options sold													
Reporting dealers	3,652	2,951	262	328	696	420	708	386	54	4	0	2	19
Local	904	594	75	30	50	132	161	133	6	0	0	0	3
Cross-border	2,748	2,358	188	298	645	289	547	253	47	4	0	2	16
Other financial institutions	896	845	125	39	72	143	297	110	29	8	0	2	4
Local	271	297	50	5	12	39	110	55	11	8	0	0	2
Cross-border	625	548	75	34	59	103	187	55	18	1	0	2	2
Non-financial institutions	540	430	48	160	339	31	234	160	8	2	0	1	2
Local	101	98	2	111	8	6	110	51	1	0	0	0	0
Cross-border	439	331	46	49	331	25	124	109	7	2	0	1	2
Sub-total	5,088	4,226	435	527	1,107	594	1,239	656	91	15	1	5	25
OTC options bought													
Reporting dealers	3,556	3,278	291	381	780	608	698	412	82	10	2	2	61
Local	919	655	82	76	71	190	162	133	4	0	0	0	12
Cross-border	2,636	2,623	209	305	709	418	536	279	78	10	2	2	49
Other financial institutions	917	794	119	20	75	142	210	122	12	3	0	5	3
Local	298	243	54	0	18	53	105	58	0	3	0	0	0
Cross-border	620	551	65	20	56	89	105	64	12	0	0	5	3
Non-financial institutions	586	409	29	204	29	85	167	164	8	0	1	1	1
Local	66	77	2	118	3	3	77	36	2	0	0	0	0
Cross-border	520	333	28	86	26	82	90	128	6	0	1	1	1
Sub-total	5,059	4,481	439	606	884	835	1,075	698	102	14	3	9	65
Total OTC options	10,147	8,706	874	1,132	1,990	1,429	2,314	1,354	193	28	3	14	89
Total	11,106	9,813	926	1,140	2,147	1,694	3,395	1,506	212	34	5	17	95

(a) Adjusted for local double-counting.

Euro against:					Residual	Total, all currencies
¥	SwFr	Can\$	Aus\$	Other		
114	11	1	0	22	7	2,959
29	6	0	0	4	1	1,221
85	5	1	0	18	7	1,738
20	6	0	0	4	3	500
3	5	0	0	0	0	152
17	1	0	0	4	3	348
78	0	0	0	56	2	681
0	0	0	0	0	0	240
78	0	0	0	56	2	441
212	18	2	0	81	13	4,141
906	153	0	4	122	180	10,847
257	72	0	1	18	7	2,443
648	81	0	2	103	173	8,404
182	112	0	1	67	44	2,976
56	68	0	0	12	0	996
126	45	0	1	55	44	1,980
135	39	0	7	49	2	2,189
24	6	0	0	7	0	526
111	33	0	7	42	2	1,662
1,222	305	1	12	238	226	16,011
914	180	1	10	112	106	11,483
156	73	0	1	15	9	2,559
758	107	0	9	97	97	8,924
252	66	0	0	63	27	2,829
75	30	0	0	16	11	964
177	36	0	0	47	16	1,865
1,095	16	0	2	5	2	2,805
20	0	0	0	0	0	402
1,076	15	0	2	5	2	2,404
2,261	261	1	12	180	135	17,118
3,484	566	2	24	418	361	33,129
3,696	583	4	24	499	374	37,270

Table F
Average daily net-gross OTC interest rate derivatives turnover^(a)

US\$ millions (rounded to the nearest million)

	£	US\$	Euro	¥	SwFr	Can\$	Aus\$	Dkr	HK\$	Skr	Other	Total
FRAs												
Reporting dealers	10,916	20,848	27,256	2,427	735	38	211	2,051	169	1,481	1,748	67,880
Local	4,530	4,401	12,576	154	421	7	89	360	56	317	280	23,191
Cross-border	6,387	16,447	14,679	2,272	314	31	122	1,692	113	1,164	1,468	44,689
Other financial institutions	1,952	3,682	6,813	198	156	61	197	761	11	283	332	14,445
Local	1,655	2,715	6,038	130	156	61	193	374	0	217	162	11,701
Cross-border	297	967	775	68	0	0	4	387	11	65	171	2,744
Non-financial institutions	333	108	175	39	0	0	0	22	0	20	143	840
Local	149	22	100	0	0	0	0	0	0	0	0	271
Cross-border	184	86	74	39	0	0	0	22	0	20	143	569
Sub-total	13,201	24,639	34,244	2,663	891	99	407	2,834	179	1,784	2,223	83,165
Swaps												
Reporting dealers	20,970	26,691	59,836	3,090	1,270	329	1,616	611	409	516	833	116,171
Local	9,133	4,101	19,256	458	138	46	142	159	54	153	223	33,862
Cross-border	11,837	22,589	40,580	2,632	1,132	283	1,474	451	355	363	611	82,308
Other financial institutions	3,473	8,432	9,707	717	216	34	73	33	32	157	111	22,984
Local	1,923	4,399	4,733	273	49	15	28	14	0	128	78	11,638
Cross-border	1,550	4,033	4,974	443	168	19	45	19	32	30	33	11,346
Non-financial institutions	915	348	958	49	95	1	164	1	1	38	13	2,583
Local	551	77	170	18	0	0	139	0	0	6	0	961
Cross-border	364	271	788	32	95	1	26	1	1	32	13	1,623
Sub-total	25,358	35,470	70,501	3,856	1,582	364	1,853	645	442	711	957	141,738
OTC options sold												
Reporting dealers	436	683	3,127	98	136	8	1	4	0	23	12	4,529
Local	139	87	500	16	124	0	0	1	0	9	3	880
Cross-border	297	596	2,627	83	12	8	1	2	0	14	9	3,649
Other financial institutions	205	315	751	13	10	0	0	0	0	10	0	1,306
Local	118	258	556	2	8	0	0	0	0	5	0	948
Cross-border	87	56	196	11	1	0	0	0	0	5	0	357
Non-financial institutions	35	360	927	143	1	0	0	2	0	3	2	1,474
Local	32	317	136	23	0	0	0	0	0	0	1	509
Cross-border	3	43	791	120	1	0	0	2	0	3	1	965
Sub-total	677	1,358	4,806	255	146	8	1	6	0	36	14	7,308
OTC options bought												
Reporting dealers	447	305	2,869	96	135	8	1	4	2	21	13	3,899
Local	97	41	451	9	123	0	0	1	0	6	6	735
Cross-border	350	264	2,417	86	12	8	0	3	2	15	7	3,165
Other financial institutions	164	152	394	34	3	0	0	0	0	5	0	753
Local	108	111	257	7	2	0	0	0	0	5	0	491
Cross-border	56	41	137	27	1	0	0	0	0	0	0	263
Non-financial institutions	49	144	626	71	2	0	0	2	0	3	0	898
Local	42	81	67	28	0	0	0	0	0	0	0	219
Cross-border	7	63	559	43	2	0	0	2	0	3	0	679
Sub-total	660	601	3,889	201	140	9	1	6	2	28	13	5,551
Total OTC options	1,337	1,959	8,695	456	286	17	2	12	2	64	28	12,859
Total OTC interest rate derivatives	39,896	62,068	113,439	6,975	2,760	479	2,263	3,491	623	2,560	3,208	237,762

(a) Adjusted for local double-counting.