

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 the three-yearly survey of turnover⁽¹⁾ in the UK foreign exchange and over-the-counter (OTC) currency and interest rate derivatives markets, as part of the latest worldwide survey co-ordinated by the Bank for International Settlements (BIS). The results show that the volume of foreign exchange activity in the United Kingdom has increased by nearly 50% since April 2001. Turnover in OTC derivatives has more than doubled in the same period. This article presents the main results of the UK survey and highlights the effects of developments in foreign exchange and OTC derivatives markets on volumes of activity.⁽²⁾ It also provides detailed breakdowns of UK survey data and a comparison with global survey results.

Introduction

In April this year, central banks and monetary institutions in 52 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.⁽³⁾ They are co-ordinated on a global 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.

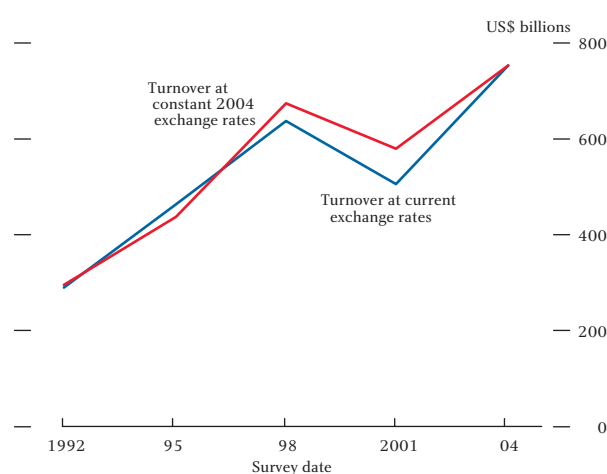
This article concentrates on the UK part of the survey, conducted by the Bank of England and covering the business of 93 institutions (both UK-owned and foreign-owned) within the United Kingdom. A comparison with the global survey is included in the box on page 479.

UK survey results for foreign exchange

Average daily turnover during April 2004 was \$753 billion, 49% higher than in 2001. This growth more than reverses the fall in turnover recorded in the previous survey, and resumes the upward trend of earlier ones. The United Kingdom remains the largest centre of foreign exchange activity, with 31% of reported global market turnover.

It is likely that measured growth of foreign exchange turnover has been inflated by the depreciation of the dollar since the 2001 survey. Data collected for the survey are denominated in dollars, and the dollar depreciated by more than 25% against the euro between April 2001 and April 2004; so the same amount of turnover in other currencies will have a higher dollar value in 2004 than in 2001. Chart 1 shows the effect of fluctuations in exchange rates on the average daily turnover reported in UK surveys since 1992. Growth of foreign exchange turnover was 30% measured at constant 2004 exchange rates compared with 49% at current exchange rates.

Chart 1
Average daily foreign exchange turnover at constant and current exchange rates



(1) 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).

(2) Unless stated otherwise, comparisons in this article are with the previous survey in April 2001.

(3) OTC derivatives were included for the first time in 1995. The survey only covers currency and interest rate derivatives.

Global survey results

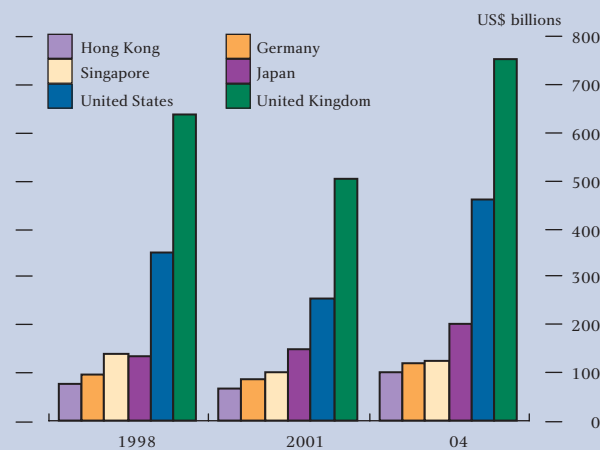
Foreign exchange

Average daily turnover in global foreign exchange markets was \$1,880 billion in April 2004, up by 57% at current exchange rates. The United Kingdom remains the single largest centre of foreign exchange activity with 31.3% of the global share (Chart A), broadly unchanged since 2001.⁽¹⁾

The change in survey method discussed in the main text on pages 474–75 has reduced the United Kingdom's share of the global foreign exchange market. Other data suggest that turnover volumes reported in the United Kingdom would have been up to 15% higher under the original definition of location. Chart A shows that other centres where pricing is passed across to overseas sales desks may have been affected similarly. For example, 'Based on trading desk reporting, the Monetary Authority of Singapore (MAS) estimates that the average daily forex turnover in Singapore reached US\$153 billion in April 2004, a 51% increase over 2001 [compared with a 24% increase under the new measure].⁽²⁾

Chart A

Average daily foreign exchange turnover – United Kingdom and other centres



Trading in sterling increased as a share of the global market. 17% of the volume of turnover involved sterling (up from 13% in 2001), mirroring the rise recorded in the UK survey. This was at the expense of the other major currencies, though the dollar is still on one side of 89% of foreign exchange trades and remains by far the most traded currency (Table 1).

OTC derivatives

In the OTC derivatives markets, average daily turnover was \$1,220 billion in April 2004, up from \$575 billion in the previous survey. The United Kingdom's share of global activity has increased from 36% to 42.6%, strengthening its position as the largest centre. The next largest centre is

Table 1

Global foreign exchange turnover in sterling and other currencies

	1998	2001	2004
US dollar	87	90	89
EMS/Euro ^(b)	52	38	37
Japanese yen	20	23	20
Pound sterling	11	13	17
Swiss franc	7	6	6
Australian dollar	3	4	6
Canadian dollar	4	5	4
Other currencies	16	21	21
Total	200	200	200

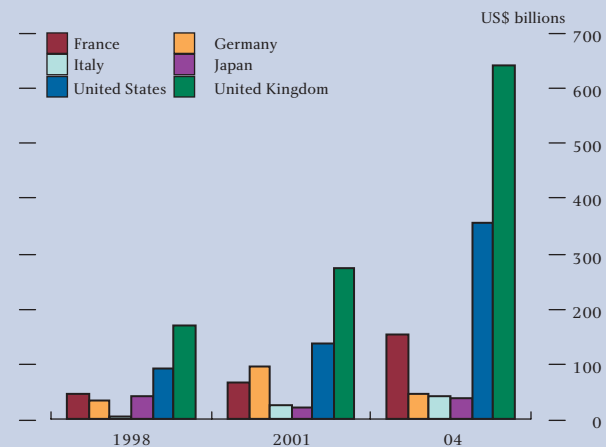
- (a) Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%.
 (b) The percentage for 1998 is the combined share of turnover for the German mark, the French franc, the ECU and all other European Monetary System currencies. Trades between these currencies are included in this figure.

the United States, which recorded a 23.5% global market share.

Most other major centres also recorded an increase in OTC derivatives activity (Chart B). Germany was a notable exception with a 53% fall in turnover volume, resulting in its global share falling to 3% compared with 12.7% in 2001, an effect attributed to the change in reporting method discussed in the main text.⁽³⁾

Chart B

Average daily OTC derivatives turnover – United Kingdom and other centres



The euro remained the most traded currency in OTC interest rate derivatives with 45% of global market turnover, followed by the dollar with 34%. Sterling was the third most actively traded currency, accounting for 8.8% of interest rate derivatives turnover (up from 7.6%).

For OTC currency derivatives, the dollar remained the biggest currency, on one side of 79% of turnover. Sterling was on one side of 11.4% of turnover in April 2004, up from 9% in the previous survey.

(1) The aggregate global results are adjusted to remove double counting of cross-border trades — the reporting of the same deal by two institutions to different central banks. So the published global aggregate is different from the sum of all national aggregates (\$2,408 billion), with the latter used to calculate national shares.
 (2) See the Singaporean Press Release, published at www.mas.gov.sg/mas/mcm/html/index.cfm?pid=0BAB23F6-6295-5312-4248845891A26CCD.
 (3) See the German Press Release, published at www.bundesbank.de/download/presse/presse-notizen/2004/20040928bbk1_en.pdf.

Most reporting institutions considered activity in April 2004 to be normal (Table A). This suggests that the recorded increase in foreign exchange turnover since 2001 after adjustment for exchange rate effects reflects a longer-term trend rather than a short-term effect associated with, for example, the depreciation of the dollar in early 2004.

Table A
Survey participants' estimates of foreign exchange turnover levels

In April 2004	Number of banks	Percentage of turnover
Below normal	7	6
Normal	84	94
Above normal	2	0
In preceding six months	Number of banks	Percentage of turnover
Decreasing	2	0
Steady	72	59
Increasing	19	41

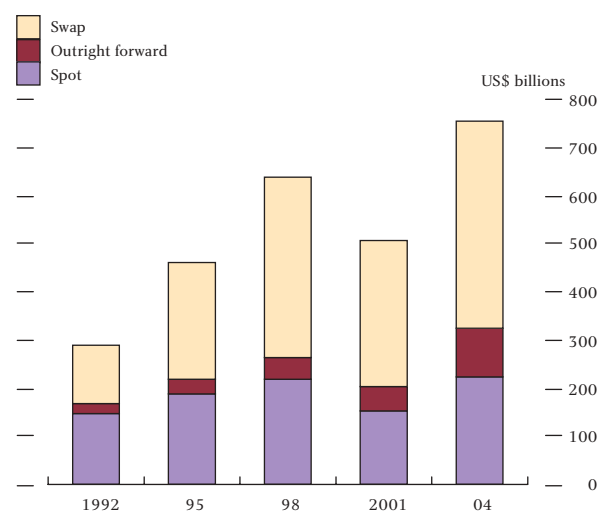
Market turnover had been expected to increase from the 2001 survey, for several reasons. First, market contacts reported an increase in active foreign exchange trading by asset managers, over and above that needed to manage the currency positions arising through bond and equity trading; lower yields in bond and equity markets have made the potential returns more attractive from trading foreign exchange as an asset class in its own right. Second, hedge funds and commodity trading advisers have grown rapidly over the past three years, both in number and funds under management: many funds have entered the foreign exchange market or increased their allocation of funds towards it. Third, the development and acceptance of electronic trading has helped to improve access to liquidity and reduce trading costs, promoting market activity. Finally, the 2001 results could be seen as abnormal, arising from the global economic downturn at that time and the loss of trading between the former currencies in the euro area after the introduction of the euro.

Transaction type

Turnover increased across all transaction types, as illustrated by Chart 2. Foreign exchange swaps remained the most common, accounting for 57% of total foreign exchange turnover. Outright forward business increased from \$53 billion to \$103 billion per day in April 2004 and accounted for 14% of total foreign exchange turnover (up from 11% in the previous survey).

Spot accounted for 29% of total foreign exchange turnover — similar to its share in 2001 — suggesting that the fall in the proportion of foreign exchange turnover conducted via spot transactions has slowed.

Chart 2
Average daily foreign exchange turnover by transaction type



Spot deals accounted for 51% of foreign exchange turnover in 1992, 40% in 1995, 34% in 1998 and 30% in 2001.

Currency composition

The dollar remains the biggest currency, with 90% of all trades having one side denominated in dollars (Table B). Trading in sterling has continued to take on increased market share. The proportion of foreign exchange turnover involving sterling increased from 24% to 28% and the sterling/dollar currency pair now accounts for nearly a quarter of total volumes. But yen trading has declined in the United Kingdom: only 15% of foreign exchange trading volumes were in yen, compared with 17% in April 2001.

Table B
Foreign exchange turnover — currency breakdown

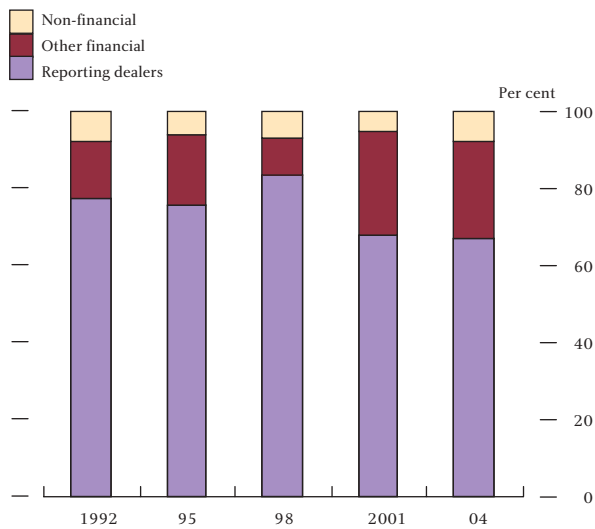
Per cent ^(a)	2001	2004
US dollar	92	90
Euro	41	42
Pound sterling	24	28
Japanese yen	17	15
Swiss franc	6	6
Canadian dollar	4	3
Australian dollar	3	4
Other currencies	13	12
Total	200	200

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

Counterparty

Chart 3 shows the breakdown of foreign exchange turnover by counterparty. Around two thirds of foreign exchange turnover was between reporting dealers, a similar proportion to that in the previous survey. Turnover attributable to non-financial corporations more than doubled in absolute amount, and accounted for 8%

Chart 3
Foreign exchange turnover by counterparty



of turnover compared with 5% in 2001. But the share of turnover attributable to 'other financial institutions' has decreased (to 25%, from 28%). This is perhaps surprising, given that institutions such as hedge funds and commodity trading advisers are widely perceived to be more active in foreign exchange markets than before.

The fall in other financial institutions' share of turnover may reflect the increasing use of prime brokerage rather than be a true indication of changing market activity. Prime brokerage is a service offered by major financial institutions to customers such as hedge funds. The prime broker sets up an arrangement enabling the customer to trade directly with predetermined third-party institutions, but with the prime broker clearing the trades on the customer's behalf. Prime brokerage has increased in popularity, especially for hedged and other managed funds. It allows customers to deal with a variety of counterparties, using the balance sheet and credit assessment facilities of the prime broker, which itself benefits from fee income and economies of scale.

But the third-party institutions will record these trades as being with the prime broker, not the customer, and the survey will therefore capture prime-brokered trades as interdealer business.⁽¹⁾ This will increase the share of transactions recorded between reporting dealers (shaded lilac in Chart 3) at the expense of transactions with other financial institutions (shaded burgundy).

Hence, the increasing participation of hedge funds and other non-bank financial institutions is likely to be understated by the survey results.

Electronic trading⁽²⁾

In 2004, the survey collected detailed information on the volume of turnover across electronic platforms for the first time. Table C contains a summary of these data for the United Kingdom, and includes similar data for the United States (the second largest centre for foreign exchange) for comparison. The box on page 474 provides a brief explanation of these platforms. Trading by UK principals through dealer systems accounted for 66% of spot activity, and a significant volume of business took place on customer platforms. A greater proportion of turnover is via electronic platforms in the United Kingdom than elsewhere.

Table C^(a)
Proportion of total foreign exchange turnover across electronic platforms

	United Kingdom		United States ^(b)	
	Dealer systems	Customer platforms	Dealer systems	Customer platforms
Total foreign exchange	48	7	24	4
Spot	66	10	34	5
Forward and swap	40	6	16	4

(a) All data in the table are based on gross turnover volumes, with no adjustment for local double counting. Some large dealers were unable to report this information. The data should therefore be treated with caution, as the proportions are likely to be underestimated.

(b) See the US Press Release, published at www.newyorkfed.org/markets/triennial/fx_survey.pdf.

Electronic broking was identified as a factor in the lower volume of turnover recorded for the 2001 survey, as it was thought to have led to a decline in the number of traditional deals and dealers in the spot market. It was estimated for the 2001 survey that two thirds of interdealer spot business was conducted through automated order-matching systems; the 2004 survey recorded a similar proportion.

Subsequently, further developments in technology are thought to have facilitated growth in foreign exchange activity. Electronic platforms act as effective liquidity 'pools'. They reduce trading costs and allow participating institutions to increase the frequency of speculative activity. In addition, e-commerce offers greater transparency and access to liquidity for customers.

(1) Prime brokers and third-party liquidity providers will be reporting dealers in most cases, as they are usually active participants in the interdealer market.

(2) Further definitions and explanations of the terms surrounding electronic trading can be found in Bank of England (2003), 'Foreign Exchange Joint Standing Committee e-commerce subgroup report', *Bank of England Quarterly Bulletin*, Summer, pages 235–39.

Types of electronic trading platform

Dealer systems

An *electronic broking system* such as EBS or Reuters has a similar function to a traditional voice broker, but without the need for human intervention. Users of the system — generally large banks and securities houses — enter their foreign-currency requirements anonymously into the system, which matches buyer and seller automatically. Electronic broking systems are primarily used for spot dealing, but are also increasingly popular for forward transactions.

Other dealer systems such as Reuters Dealing provide one-to-one trading applications for participants in the interbank market.

Customer systems

Many institutions have designed *single-bank proprietary systems*, which allow their customers to trade directly with them via a custom-built Internet platform.

Multi-bank e-trading portals are set up by individual institutions or by consortia. A number of different banks quote exchange rates and provide liquidity to the system for end-users.

Market concentration

Concentration in the UK foreign exchange market increased slightly since April 2001, though not as much as in previous surveys (Table D). The combined market share of the ten institutions with the highest level of turnover increased from 57% to 61%, and the top 20's share from 79% to 80%. Merger activity did not affect market concentration unduly: several of the top 20 institutions from 2001 (of which 16 were still in the top 20 in 2004) were involved in mergers, but not among themselves.

Table D
Market share of the largest principals in the UK survey

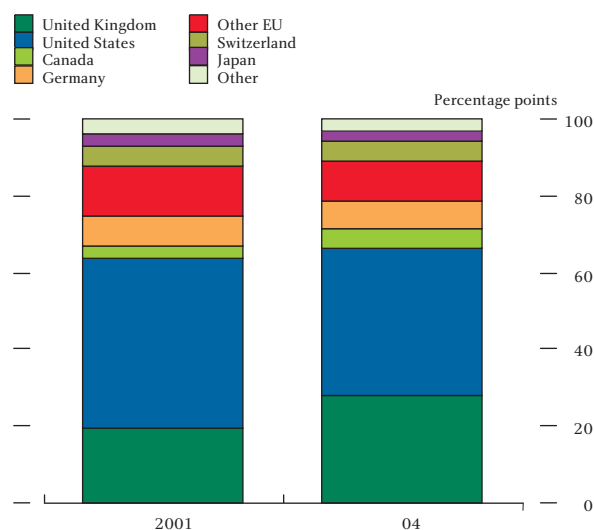
Per cent	1995	1998	2001	2004
Ten largest	44	50	57	61
Twenty largest	68	69	79	80

The number of firms individually accounting for more than 1% of total turnover has increased from 21 in 2001 to 25 in 2004. This slight diversification may be because fewer reporting dealers completed the survey than before (discussed further in the box on pages 478–79). It may also reflect the influence of 'white labelling', a process whereby a smaller bank uses an e-platform to allow its customers to trade at prices quoted by a larger bank. In this way, smaller or 'white-label' banks — some of which were survey reporters — are able to provide foreign exchange services to end-users, but pass the associated risk to larger, more liquid third-party banks.

Market share by nationality

UK-owned principals' share of the foreign exchange market in the United Kingdom increased from 19% to 28% of aggregate turnover, due to strong growth in foreign exchange activity by several UK-owned survey participants. US-owned institutions' market share was 39%, compared with 44% in the previous survey, and turnover attributed to other European-owned institutions was lower than previously. Chart 4 illustrates these results.

Chart 4
Foreign exchange turnover in the United Kingdom by nationality of bank ownership



The changes in UK market share by nationality of ownership may be in part the result of a difference in reporting method for the 2004 survey. Survey participants were asked to identify the location of a

trade by location of the sales desk rather than of the price-setting dealer, as in previous surveys. Foreign-owned institutions that price deals out of their London offices will nevertheless maintain sales desks elsewhere, possibly having a negative effect on their share of UK business under the new definition of location.

UK survey results for OTC derivatives

Average daily turnover for OTC currency and interest rate derivatives in the United Kingdom has more than doubled since the 2001 survey. Turnover during April 2004 averaged \$643 billion per day, compared with \$275 billion recorded in 2001. Within this total, turnover in interest rate instruments increased from \$238 billion to \$563 billion per day, and in currency instruments from \$37 billion to \$80 billion. As a result, the United Kingdom's share of the global OTC derivatives market increased from 36% to nearly 43%.

Depreciation of the US dollar has possibly inflated measured growth of currency and interest rate derivatives, as it did with foreign exchange turnover. Estimated growth was over a third lower at constant 2004 exchange rates than at current exchange rates, in line with constant exchange rate growth in the previous survey.

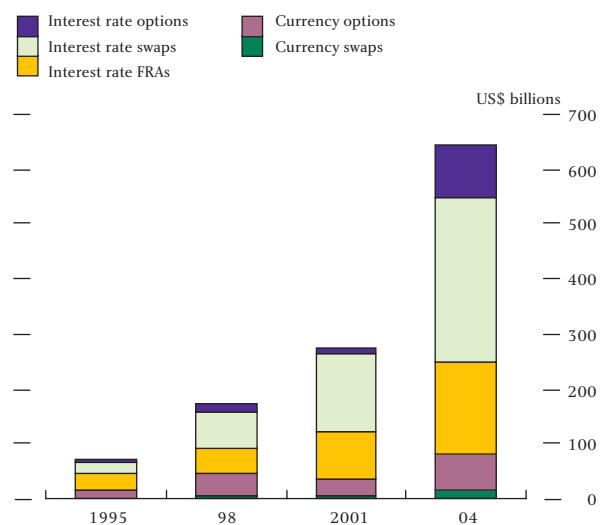
The growth in turnover since 2001 is consistent with other data sources, notably the semi-annual survey of the global OTC derivatives markets published by the BIS.⁽¹⁾ Reasons cited for the increase in market activity include: increased use for risk management; increased position taking; increased use by other financial institutions; and greater use of more complex products such as options.

Central counterparty clearing services,⁽²⁾ for example LCH SwapClear, may also have contributed to growth in turnover. Such services are likely to increase the volumes of business recorded, as they offer reductions in credit risk, operational risk and transaction costs. SwapClear currently deals with interest rate swaps of up to ten years maturity, but its scope is widening to include longer maturities, cross-currency swaps and options.

Instruments

As Chart 5 shows, interest rate swaps remained the most highly traded product, accounting for nearly half of the volume of OTC derivatives turnover in April 2004. But growth was strongest in options products. Interest rate options turnover increased from \$13 billion to \$94 billion and they accounted for 15% of OTC derivatives activity, up from 5% in 2001. Turnover in OTC currency derivatives increased from \$37 billion to \$80 billion. Currency derivatives — consisting of currency swaps and currency options — accounted for only a 12% share of OTC derivatives turnover.

Chart 5
Average daily OTC derivatives turnover by instrument



Currency composition

The euro was the most traded currency in the OTC interest rate derivatives market, accounting for 58% of total turnover (up from 48%). The euro accounted for a greater proportion of interest rate derivatives turnover than the combined currencies it replaced did in 1998 (Table E). The proportion of turnover denominated in sterling fell from 17% to 14%.

As with traditional foreign exchange, the dollar remained the most traded currency in the OTC currency derivatives market. 78% of turnover involved the dollar, down from 81% in 2001. The proportion of turnover involving the euro increased slightly to 49%, as did the proportion involving sterling (16%), but the proportion involving the yen fell to 29% (from 37% in 2001), reflecting a decrease in dollar/yen trading.

(1) The BIS data, which show notional amounts and gross market values outstanding, are available at www.bis.org/publ/otc_hy0405.htm.

(2) Where a single entity becomes the counterparty to registered and cleared transactions in OTC instruments, thus replacing bilateral netting arrangements with multilateral netting.

Table E
OTC interest rate derivatives turnover by currency

Per cent

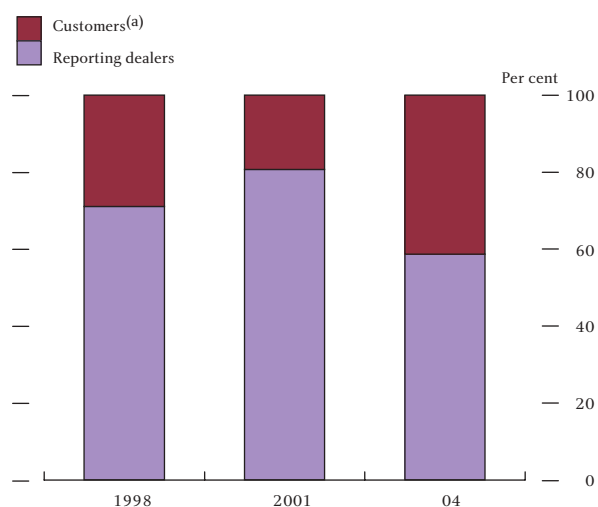
	1998	2001	2004
US dollar	16	26	21
EMS/Euro ^(a)	57	48	58
Japanese yen	4	3	2
Pound sterling	13	17	14
Other currencies	10	6	5
Total	100	100	100

(a) The percentage for 1998 is the combined share of turnover for the German mark, the French franc, the ECU and all other European Monetary System currencies. Trades between these currencies are included in this figure.

Counterparty

In OTC interest rate derivatives, the proportion of the market accounted for by trades involving non-reporting dealers increased substantially, from 19% to 42% (Chart 6). This was driven by strong growth in business conducted with 'other financial institutions'. In the OTC currency derivatives market the increase was less pronounced, but customer business accounted for a significant proportion of turnover — 38% compared with 32% in 2001.

Chart 6
OTC interest rate derivatives by counterparty



(a) Includes other financial institutions and non-financial institutions.

The increase in business with other financial institutions may reflect the activities of mutual funds, hedge funds and insurance companies in the OTC derivatives markets. The number of hedge funds in particular has grown rapidly in the past three years. Many of these have entered the OTC derivatives markets or diverted a larger allocation of funds to that area. Hedge funds are reported to have been trading volatility via the options markets, which may have contributed to the increased proportion of OTC derivatives activity accounted for by options discussed earlier.

Electronic trading

The survey data about the use of electronic trading are summarised in Table F. Use of e-commerce is not as well established for OTC derivatives as for traditional foreign exchange. This may be due to the greater complexity of the instruments involved. But market commentary suggests it was increasing in importance, particularly in the United Kingdom. April 2004 survey results show that 39% of turnover was conducted via electronic systems. Nearly a third of this was across customer platforms, further evidence of a widening range of participants in OTC derivatives markets.

Table F
Proportion of OTC derivatives turnover across electronic platforms^(a)

Per cent

	United Kingdom		United States ^(b)	
	Dealer systems	Customer platforms	Dealer systems	Customer platforms
OTC derivatives	27	12	8	1
Currency instruments	28	21	22	3
Interest rate instruments	26	11	7	1

(a) All data in the table are based on gross turnover volumes, with no adjustment for local double counting. Some large dealers had difficulty in reporting this information accurately, particularly the location and identity of the counterparty. It should therefore be treated with caution, as the proportions are likely to be underestimated.

(b) See the US Press Release, published at www.newyorkfed.org/markets/triennial/fx_survey.pdf.

Market concentration

Market concentration in the United Kingdom has continued to increase (Table G). The ten largest institutions accounted for 80% of total reported turnover in April 2004, compared with 74% in 2001; the top 20 accounted for 94% (up from 89%). A smaller number of participants undertook currency derivatives business than interest rate derivatives business, but the number of firms individually accounting for more than 1% of turnover was higher for the former (17) than the latter (14).

Table G
OTC derivatives market share of the largest principals in the UK survey

Per cent

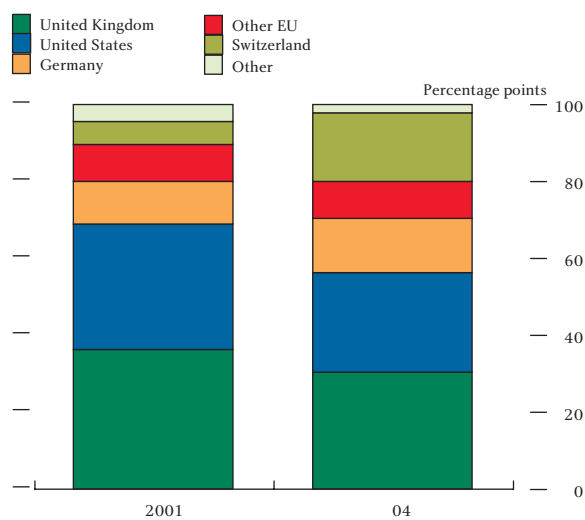
	1995	1998	2001	2004
Ten largest	52	67	74	80
Twenty largest	74	82	89	94

17 of the 20 largest institutions with the highest level of total OTC derivatives turnover from 2001 remained in the top 20. But the identity of the largest participants in 2004 varied between currency and interest rate derivatives; institutions most active in interest rate derivatives markets were not necessarily active in currency derivatives.

Market share by nationality

UK-owned institutions' share of the UK market fell to 30% from 37% in 2001, as shown in Chart 7. Here, the change in the survey's reporting method (to the location of the sales desk rather than that of the price-setting dealer) had the opposite effect to that seen in foreign exchange. Several large European-owned banks have moved their OTC derivatives sales desks to London within the past three years, increasing their volume of turnover relative to that recorded in the 2001 UK survey, and their share of the UK market.⁽¹⁾

Chart 7
OTC derivatives turnover in the United Kingdom by nationality of bank ownership



(1) Effects of the change in method are also evident in the global results for OTC derivatives, summarised in the box on page 471.

Survey details and definitions

Participants

93 institutions (mainly commercial and investment banks) completed the 2004 UK survey. This was fewer than in other survey years (for example, 257 completed the 2001 survey), but this should not have affected coverage given the concentration of the markets in the United Kingdom. Only firms that are active in the interdealer market and/or in business with large customers were asked to participate by the Bank of England. Other institutions, active in the relevant markets, did not take part directly but participating principals will have reported transactions with them.

The questionnaire

Survey participants completed a questionnaire prepared by the Bank of England, based on a standard format agreed with other central banks and produced by the Bank for International Settlements (BIS). Participants provided details of their gross turnover for the 20 business days in April 2004, broken down by instrument, currency and counterparty type. Gross turnover (measured in nominal values) was defined as the absolute total value of all deals contracted; there was no netting of purchases against sales. The questionnaire requested data in terms of US dollar equivalents, rounded to the nearest million. The location of a trade was identified by the location of the sales desk, rather than that of the price-setting dealer as in previous surveys.

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 that involves 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*: Transaction involving the actual exchange of two currencies on a specific date at a rate agreed at the time of the conclusion of the contract, and an agreement to exchange streams of interest payments in the currencies for an agreed period, followed by a reverse exchange 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 principal 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. 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 UK questionnaire are reproduced in Tables H, I and J (at the end of this article). The BIS intends to publish an analysis of the global survey results in early 2005. National central banks also conducted surveys of global outstanding positions in the derivatives markets (measured at the end of June 2004) and the BIS has released aggregate results on its website at www.bis.org/publ/rpfx04.htm.

Table H
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	57,387	18,753	5,950	3,835	5,201	10,916	19,632	7,774	478	194	103	93	101
Local	12,430	4,051	1,431	808	1,326	2,896	5,969	2,472	69	49	50	17	31
Cross-border	44,957	14,703	4,520	3,027	3,874	8,019	13,663	5,303	409	145	54	76	70
Other financial institutions	21,973	6,820	2,147	1,632	1,752	6,140	9,334	3,052	245	144	76	73	169
Local	4,877	1,321	463	261	369	440	3,451	1,512	103	74	19	32	137
Cross-border	17,096	5,499	1,685	1,370	1,383	5,700	5,883	1,540	142	70	57	40	33
Non-financial institutions	8,192	1,926	402	393	394	429	2,177	954	49	56	13	17	81
Local	4,516	275	63	185	70	101	923	349	21	17	9	10	49
Cross-border	3,676	1,651	339	209	324	328	1,254	605	28	40	4	7	32
Subtotal	87,552	27,500	8,500	5,860	7,347	17,485	31,143	11,780	773	395	192	182	351
Outright forward													
Reporting dealers	21,818	10,107	1,438	1,469	1,523	8,863	8,634	1,911	139	117	8	42	57
Local	3,049	1,523	220	232	297	1,876	2,213	426	22	24	0	3	13
Cross-border	18,768	8,584	1,218	1,237	1,226	6,986	6,421	1,485	117	93	7	39	44
Other financial institutions	7,314	3,327	774	764	609	2,752	6,346	1,813	250	145	23	37	90
Local	2,390	1,036	153	190	217	597	4,592	1,065	145	74	19	22	60
Cross-border	4,923	2,291	621	574	392	2,155	1,755	748	105	71	4	15	29
Non-financial institutions	6,700	1,860	369	448	246	630	1,874	1,148	141	71	18	36	103
Local	4,771	647	89	246	65	207	1,111	625	94	28	9	15	63
Cross-border	1,929	1,213	280	202	181	423	763	523	46	44	9	21	40
Subtotal	35,831	15,294	2,581	2,681	2,378	12,245	16,853	4,872	530	333	49	114	249
Foreign exchange swaps													
Reporting dealers	86,755	32,415	14,647	9,839	12,710	41,202	93,109	4,282	614	159	50	134	183
Local	25,324	10,146	3,306	2,590	4,558	8,973	40,208	1,211	498	57	39	23	51
Cross-border	61,431	22,270	11,341	7,249	8,152	32,229	52,900	3,071	117	102	11	111	131
Other financial institutions	33,156	9,303	3,439	3,046	4,020	11,037	29,076	2,896	1,051	91	74	73	92
Local	12,574	3,081	755	1,353	1,124	3,255	15,753	1,634	132	33	38	62	65
Cross-border	20,583	6,222	2,684	1,694	2,896	7,782	13,324	1,262	920	57	37	11	28
Non-financial institutions	6,631	3,005	1,004	601	613	1,096	4,105	2,551	2,679	97	44	54	239
Local	2,233	978	95	199	182	345	1,987	1,142	2,651	52	36	43	125
Cross-border	4,398	2,028	909	402	431	751	2,118	1,409	28	46	9	11	113
Subtotal	126,543	44,724	19,090	15,486	17,342	53,334	126,290	9,728	4,344	347	169	261	514
Total foreign exchange turnover	249,925	87,518	30,171	22,028	27,067	83,064	174,286	26,381	5,646	1,075	409	557	1,113
Maturity of forwards; per cent^(b)													
Seven days or less	74	68	80	78	78	79	73	49	10	49	48	33	45
Over seven days	26	31	20	21	21	20	26	49	89	50	51	67	54
Over one year	1	1	0	0	1	2	1	2	0	0	1	0	1

(a) Adjusted for local double counting.

(b) Gross maturities data cannot be adjusted accurately for local double counting. Figures in this table are unadjusted, given as a percentage of gross outright forward and foreign exchange swap turnover, and may not sum to 100% due to rounding.

Euro against:					Residual	Total, all currencies
¥	Swfr	Can\$	Aus\$	Other		
5,614	5,498	126	200	5,709	1,156	146,772
1,368	1,366	53	46	842	265	35,539
4,245	4,132	73	154	2,867	891	111,182
2,754	1,446	63	71	982	340	59,192
507	421	12	17	276	31	14,322
2,228	1,025	51	53	707	309	44,870
402	590	34	36	365	85	16,592
82	71	2	14	46	5	6,809
321	519	32	22	317	77	9,783
8,750	7,534	224	306	5,054	1,578	222,506
1,842	854	38	74	608	313	59,852
321	168	8	21	146	36	10,597
1,521	686	31	53	462	277	49,255
1,328	702	90	89	773	297	27,521
314	180	48	42	315	81	11,539
1,015	522	43	47	457	216	15,982
782	314	45	73	345	111	15,312
434	46	9	32	81	19	8,589
348	268	36	42	264	92	6,723
3,952	1,870	174	236	1,726	720	102,685
2,404	314	153	452	536	846	300,802
1,111	25	55	169	87	300	98,730
1,294	289	98	283	449	546	202,072
3,921	381	52	96	533	150	102,487
1,113	69	22	33	145	21	41,260
2,807	312	30	63	388	129	61,227
324	396	63	211	581	234	24,529
90	91	20	165	167	116	10,717
234	304	43	46	413	118	13,812
6,649	1,091	268	758	1,650	1,230	427,818
19,350	10,495	665	1,301	8,429	3,529	753,009
42	43	30	36	34	57	72
56	56	65	63	65	42	27
2	1	5	1	1	1	1

Table I
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	4,213	1,590	1,056	23	530	389	2,528	591	72	1	4	0	0
Local	2,999	107	778	0	121	216	1,483	355	0	0	4	0	0
Cross-border	1,214	1,484	258	23	409	173	1,045	236	72	1	0	0	0
Other financial institutions	779	219	36	8	12	87	379	595	153	0	0	0	26
Local	112	64	15	0	0	0	86	189	75	0	0	0	2
Cross-border	667	155	21	8	12	87	293	406	77	0	0	0	24
Non-financial institutions	1,000	244	4	23	4	53	155	213	5	0	6	1	12
Local	10	3	0	0	0	0	46	83	5	0	0	1	12
Cross-border	990	241	4	23	4	53	109	130	0	0	6	0	0
Subtotal	5,992	2,053	1,076	54	546	529	3,062	1,399	229	1	10	1	38
OTC options sold													
Reporting dealers	5,412	4,494	421	655	1,128	785	1,802	555	27	59	5	14	2
Local	1,343	1,220	85	196	255	267	648	182	6	13	1	3	1
Cross-border	4,069	3,274	338	459	873	518	1,153	373	21	46	4	12	1
Other financial institutions	3,001	2,318	303	343	536	569	827	299	12	30	1	16	11
Local	1,077	492	138	106	158	154	316	123	6	20	0	5	9
Cross-border	1,924	1,826	165	236	378	415	511	177	6	10	1	11	3
Non-financial institutions	910	322	87	70	105	131	193	160	3	8	2	0	23
Local	96	40	4	0	1	23	77	44	0	0	0	0	16
Cross-border	814	283	83	70	103	108	116	62	3	8	2	0	6
Subtotal	9,324	7,134	811	1,068	1,769	1,485	2,821	960	42	97	8	30	36
OTC options bought													
Reporting dealers	5,494	4,503	453	605	1,222	990	1,782	542	31	84	14	32	14
Local	1,392	1,190	96	189	246	261	660	185	2	12	2	5	1
Cross-border	4,102	3,313	358	417	976	729	1,122	357	29	72	12	27	13
Other financial institutions	3,026	2,274	233	446	551	544	1,080	278	8	39	0	13	14
Local	747	517	76	96	143	122	407	124	4	29	0	0	12
Cross-border	2,278	1,756	157	349	408	422	673	154	3	9	0	13	1
Non-financial institutions	953	529	93	61	97	122	275	147	3	22	2	0	23
Local	63	40	3	1	18	9	61	52	2	1	0	0	20
Cross-border	889	489	89	60	79	112	215	94	1	21	2	0	3
Subtotal	9,473	7,306	779	1,112	1,870	1,655	3,137	968	42	144	16	45	51
Total OTC options	18,796	14,440	1,590	2,180	3,639	3,139	5,958	1,928	84	241	24	75	86
Total	24,788	16,492	2,666	2,233	4,185	3,668	9,020	3,327	313	242	34	76	124

(a) Adjusted for local double counting.

Euro against:					Residual	Total, all currencies
¥	Swfr	Can\$	Aus\$	Other		
64	30	6	31	71	168	11,347
5	1	0	0	14	2	6,085
59	29	6	31	57	166	5,262
108	6	5	59	33	30	2,534
5	0	1	0	3	0	552
103	6	4	59	31	30	1,982
15	21	15	6	27	79	1,879
0	0	0	0	0	1	160
15	21	15	6	27	78	1,719
186	57	26	95	131	276	15,760
1,690	632	19	86	485	322	18,592
510	178	7	21	162	90	5,185
1,180	454	12	65	322	231	15,407
825	447	17	80	279	399	10,312
195	165	0	32	110	135	5,236
630	285	17	47	169	266	7,076
373	151	7	7	64	46	2,608
4	1	0	1	5	16	329
369	151	7	6	59	30	2,279
2,888	1,230	45	173	827	767	31,512
1,897	828	32	74	626	385	19,606
573	207	14	27	192	88	5,341
1,324	621	18	47	434	297	14,265
936	549	20	95	279	419	10,602
264	67	3	27	97	176	2,912
672	282	18	67	182	243	7,690
351	57	4	11	80	82	2,910
8	5	0	3	1	6	295
344	52	4	9	80	75	2,618
3,184	1,233	56	179	985	885	33,118
6,072	2,464	99	352	1,811	1,652	64,630
6,258	2,520	126	447	1,945	1,928	80,390

Table J
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
FRA												
Reporting dealers	17,012	19,907	40,300	147	1,131	156	521	524	8	3,904	5,667	89,276
Local	6,864	5,777	8,861	31	371	73	9	51	3	723	657	23,421
Cross-border	10,147	14,130	31,438	116	759	83	512	473	5	3,181	5,011	65,856
Other financial institutions	6,525	6,799	63,667	17	155	28	145	59	1	502	303	78,220
Local	4,089	3,637	55,986	12	78	0	4	22	1	163	44	64,036
Cross-border	2,436	3,162	7,681	5	77	28	141	37	0	339	259	14,164
Non-financial institutions	810	1,157	216	0	2	0	11	0	0	6	27	2,227
Local	118	875	3	0	0	0	0	0	0	0	2	998
Cross-border	691	282	213	0	2	0	11	0	0	6	25	1,229
Subtotal	24,346	27,862	104,182	164	1,288	184	677	582	9	4,411	5,997	169,703
Swaps												
Reporting dealers	29,707	42,133	107,602	7,906	2,535	1,195	1,828	228	1,017	1,590	2,103	197,845
Local	11,110	9,387	22,569	1,358	657	106	207	37	108	308	255	46,102
Cross-border	18,597	32,747	85,033	6,547	1,878	1,089	1,621	192	909	1,282	1,849	151,743
Other financial institutions	15,629	11,954	52,547	2,898	960	215	765	99	139	803	572	86,579
Local	6,634	1,885	20,483	515	180	20	19	13	45	222	52	30,067
Cross-border	8,996	10,068	32,064	2,383	780	193	747	86	93	581	521	56,512
Non-financial institutions	2,550	3,655	8,106	109	127	0	34	7	3	80	53	14,723
Local	1,218	1,626	4,352	67	35	0	0	0	0	2	2	7,302
Cross-border	1,332	2,028	3,754	42	91	0	34	7	3	78	51	7,420
Subtotal	47,886	57,742	168,255	10,913	3,621	1,408	2,628	334	1,159	2,472	2,728	299,146
OTC options sold												
Reporting dealers	1,178	7,324	9,892	976	185	0	323	0	21	6	56	19,962
Local	287	1,268	2,485	153	85	0	3	0	4	6	6	4,296
Cross-border	891	6,056	7,407	823	100	0	320	0	18	1	51	15,667
Other financial institutions	409	6,981	15,510	337	324	0	50	0	135	34	34	23,814
Local	172	995	3,068	27	8	0	11	0	1	19	23	4,323
Cross-border	237	5,986	12,442	310	316	0	39	0	134	16	11	19,491
Non-financial institutions	310	1,983	624	60	0	0	0	0	0	3	5	2,985
Local	295	282	15	56	0	0	0	0	0	0	0	647
Cross-border	15	1,701	609	5	0	0	0	0	0	3	5	2,338
Subtotal	1,897	16,288	26,026	1,373	509	0	372	0	156	43	95	46,761
OTC options bought												
Reporting dealers	1,104	9,826	10,195	445	140	0	334	2	188	31	85	22,349
Local	328	1,467	2,464	95	23	0	12	0	8	11	4	4,412
Cross-border	777	8,359	7,732	350	117	0	322	2	179	20	81	17,937
Other financial institutions	2,845	2,291	14,899	250	159	2	12	1	2	18	46	20,524
Local	107	612	2,266	6	1	0	3	0	0	10	45	3,050
Cross-border	2,739	1,679	12,633	244	158	2	9	1	2	8	1	17,474
Non-financial institutions	154	2,388	1,615	16	21	0	0	0	0	0	32	4,226
Local	79	410	10	0	2	0	0	0	0	0	19	519
Cross-border	75	1,978	1,605	16	20	0	0	0	0	0	13	3,707
Subtotal	4,104	14,505	26,709	711	320	2	346	2	190	49	162	47,099
Total OTC options	6,001	30,793	52,735	2,084	829	2	718	2	346	92	257	93,860
Total OTC interest rate derivatives	78,233	116,397	325,172	13,161	5,738	1,594	4,023	919	1,514	6,976	8,982	562,710

(a) Adjusted for local double counting.