

## Why has FX trading surged? Explaining the 2004 triennial survey<sup>1</sup>

*The 2004 survey shows a surge in traditional foreign exchange trading. This seems to have been driven by momentum trading and carry trades in a global search for yield on the part of institutional investors and leveraged players as well as by hedging activity.*

*JEL classification: F31, C42.*

The 2004 Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity showed a surge in activity in traditional foreign exchange markets.<sup>2</sup> Average daily turnover amounted to \$1.9 trillion in April 2004, a rise of 57% at current exchange rates and 36% at constant exchange rates (Table 1).<sup>3</sup> This increase more than reversed the fall in global trading volumes between 1998 and 2001.<sup>4</sup>

Turnover rose across instruments and types of counterparty. Trading between banks and financial customers increased markedly, pushing its share in total turnover up from 28% to 33% (Table 2).<sup>5</sup> Interbank activity also increased between 2001 and 2004, although its share continued to fall, from 59% in 2001 to 53% in 2004. This is much lower than the 64% share of the interbank market in the mid-1990s. For its part, the share of trading between banks and non-financial customers edged up slightly to 14%.<sup>6</sup>

---

<sup>1</sup> The views expressed in this article are those of the authors and do not necessarily reflect those of the BIS or the Arizona State University. We thank Paola Gallardo, Andrew Jameson, Michela Scatigna, Jhuvesh Sobrun and Karsten von Kleist for research assistance.

<sup>2</sup> The survey was conducted in April this year by 52 central banks and monetary authorities. They collected data on turnover in traditional foreign exchange markets – spot, outright forwards and foreign exchange swaps – and in over-the-counter currency and interest rate derivatives.

<sup>3</sup> The substantial depreciation of the dollar between 2001 and early 2004 explains the large gap between turnover at current and constant exchange rates.

<sup>4</sup> Most market participants had expected turnover to increase (BIS (2004)).

<sup>5</sup> The triennial survey statistics refer to reporting offices rather than banking organisations.

<sup>6</sup> While global turnover and the composition of counterparties changed substantially, the currency composition and the geographical distribution of turnover remained stable.

Some of the forces that were important in understanding changes in turnover in the past continue to have an impact today, although new factors have emerged as more important in explaining the recent increase in turnover. Between 1998 and 2001, foreign exchange market activity declined markedly, arguably because of the advent of the euro, the consolidation in the banking industry, the growth of electronic broking, mergers in the corporate sector, and the events of 1998, characterised by higher risk aversion and a global withdrawal of liquidity. Trends that continue today include consolidation in the banking sector and the growth of electronic broking. Yet these factors are viewed as being relatively less important in 2004 than in 2001.<sup>7</sup>

The surge in market activity between 2001 and 2004 was probably due to several related factors. First, the presence of clear trends and higher volatility in foreign exchange markets led to investments in currencies that experienced a persistent trend of appreciation. These factors also induced an increase in hedging activity, which further supported currency trades. Second, interest differentials encouraged investments in high interest rate currencies financed by short positions in low interest rate currencies if the target currencies, like the Australian dollar, tended to appreciate against the funding currencies, like the US dollar. Such strategies fed back into prices and supported persistence of runs or long swings in exchange rates. In addition, in the context of a global search for yield, so-called “real money managers”<sup>8</sup> and leveraged investors became increasingly interested in foreign exchange as an asset class alternative to equity and fixed income. This special feature analyses the influence of these factors in more detail.

Global foreign exchange market turnover <sup>1</sup>						
Daily averages in April, in billions of US dollars						
	1989	1992	1995	1998	2001	2004
Spot transactions	317	394	494	568	387	621
Outright forwards	27	58	97	128	131	208
Foreign exchange swaps	190	324	546	734	656	944
Estimated gaps in reporting	56	44	53	60	26	107
Total “traditional” turnover	590	820	1,190	1,490	1,200	1,880
<i>Memo:</i>						
<i>Turnover at April 2004 exchange rates<sup>2</sup></i>	<i>650</i>	<i>840</i>	<i>1,120</i>	<i>1,590</i>	<i>1,380</i>	<i>1,880</i>

<sup>1</sup> Adjusted for local and cross-border double-counting. <sup>2</sup> Non-US dollar legs of foreign currency transactions were converted into original currency amounts at average exchange rates for April of each survey year and then reconverted into US dollar amounts at average April 2004 exchange rates.

Table 1

<sup>7</sup> For instance, the market share of electronic broking appears to have remained fairly stable since the 2001 survey.

<sup>8</sup> The term “real money managers” refers to those who invest their own money and includes pension funds, insurance companies and corporate treasurers. Leveraged investors, such as hedge funds, borrow a substantial amount of the money they invest.

## Reported foreign exchange market turnover by counterparty<sup>1</sup>

Daily averages in April, in billions of US dollars and per cent

	1995		1998		2001		2004	
	Amount	% share	Amount	% share	Amount	% share	Amount	% share
Total <sup>2</sup>	1,137	100	1,430	100	1,174	100	1,773	100
With reporting dealers	728	64	908	64	689	59	936	53
With other financial institutions	230	20	279	20	329	28	585	33
With non-financial customers	179	16	242	17	156	13	252	14
Local	526	46	657	46	499	43	674	38
Cross-border	613	54	772	54	674	57	1,099	62

<sup>1</sup> Adjusted for local and cross-border double-counting. <sup>2</sup> Excludes the estimated gaps in reporting included in Table 1.

Table 2

## Strategies

The global search for yield favours two key strategies

The surge of activity between banks and financial customers could be a manifestation of the broad search for yield that has characterised financial markets in recent years (BIS (2004)). In their search for yield, both “real money managers” and leveraged players followed two key strategies that targeted the same currencies: one based on interest rate differentials and the other on trends in exchange rates. Extended periods of exchange rate appreciation by higher-yielding currencies in the 2001–04 period attracted investors playing both types of strategies. In the first half of 2004, such strategies ceased to be profitable as the dollar depreciation ended and exchange rates traded in a narrow range without trend.

Carry trades exploiting forward bias ...

The first strategy exploited the forward bias by investing in high-yielding currencies. A popular form of this investment strategy among leveraged players and real money managers was the so-called “carry trade”. In a carry trade, an investor borrows in a low interest rate currency, such as the US dollar, and then takes a long position in a higher interest rate currency, such as the Australian dollar, betting that the exchange rate will not change so as to offset the interest rate differential. While the dollar depreciated and the interest rate differential persisted, such investment strategies were profitable and a likely factor contributing to turnover growth. Reportedly, the three main funding currencies were the US dollar, the yen and the Swiss franc. The main recipients of the borrowed funds included sterling and the Australian and New Zealand dollars, as well as a number of emerging market currencies. This is consistent with a strong increase in turnover in the Australian and New Zealand dollars: by 98% and 152%, respectively. An example of the carry trade link for an important target currency is provided in Graph 1. The graph illustrates the link between the Australian dollar/US dollar interest differential,

the exchange rate and foreign exchange turnover. As the interest differential widened, the Australian dollar appreciated in value and turnover rose steeply.

The second strategy involved momentum trading, where investors took large positions in currencies aimed at exploiting long swings or “runs” in exchange rates. Such trades added support to the ongoing trends. Following the April 2001 survey, there was a strong pattern of dollar depreciation as the price of a dollar in different major currencies fell steadily until early spring 2004. Dollar depreciation ranged from about 15%, against the Canadian dollar and Japanese yen, to more than 30% against the Australian dollar.

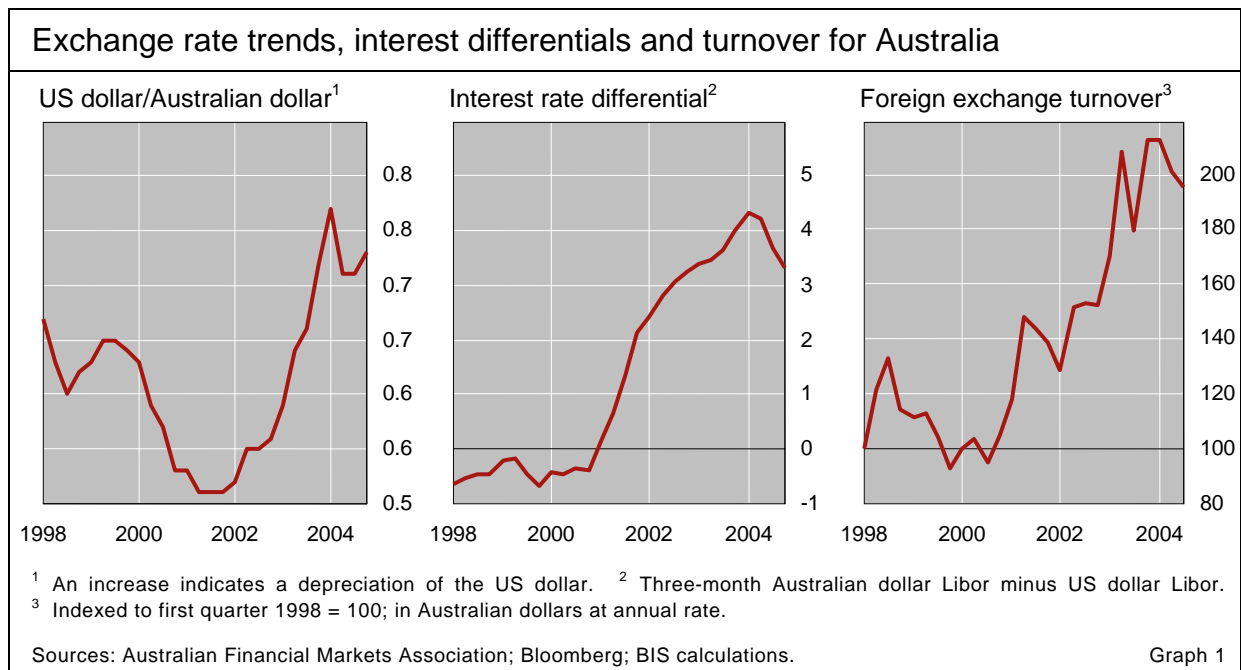
... and momentum trading exploiting runs

To test the hypothesis that interest differentials and exchange rate trends may have played an important role in explaining the growth of turnover, we conducted a statistical analysis using the major traded currencies and 1992–2004 survey data. The results show that turnover growth rises with increases in the interest differentials of major currencies against the US dollar and with the magnitude of exchange rate changes against the US dollar in the year prior to each survey.<sup>9</sup>

Statistical evidence

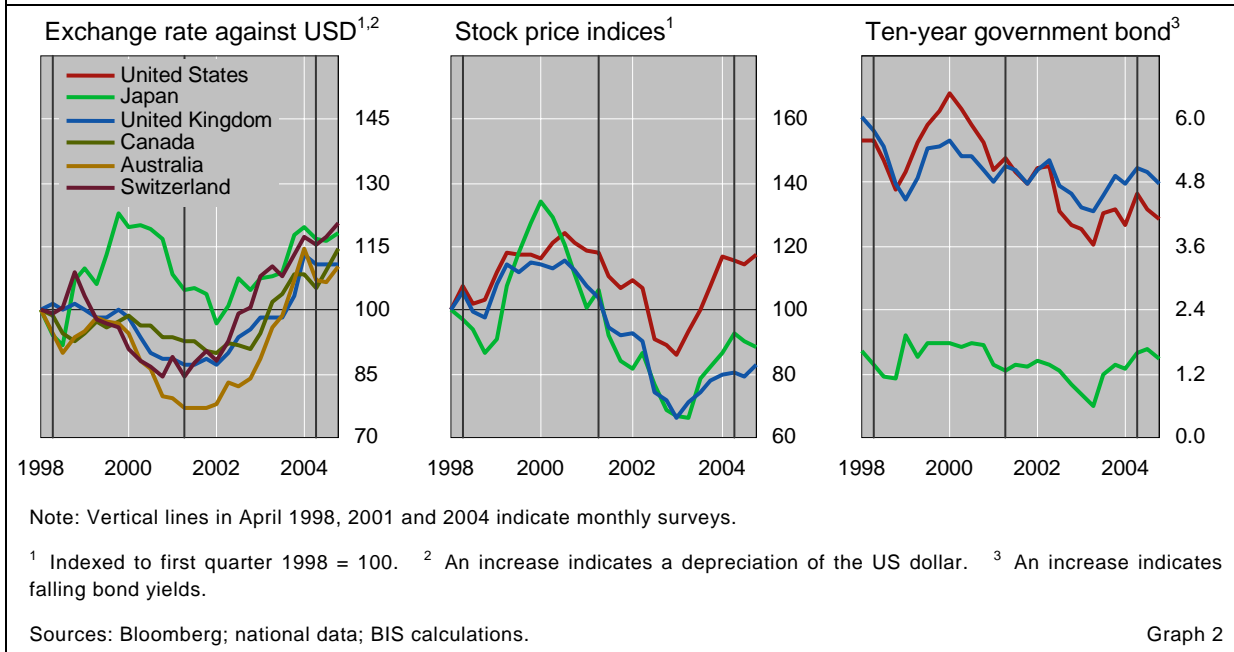
Beyond the position-taking related to profit opportunities associated with exchange rate trends, such runs may also be associated with growth in hedging-related turnover. Multinational firms face greater incentives to hedge in

Growth in hedging activity



<sup>9</sup> A regression analysis was conducted using time series data over the 1992–2004 surveys pooled across the following currencies: Australian dollar, Canadian dollar, euro, pound sterling, Japanese yen and Swiss franc. A pooled time series, cross section regression was estimated with the percentage growth in turnover between surveys as the dependent variable and with two independent variables: the interest differential of each currency versus the US dollar over each survey period, and the percentage change in the US dollar price of each currency over the year prior to each survey. White heteroskedasticity-consistent standard errors were estimated. Coefficient estimates were as follows: interest differential, 0.042 (p-value = 0.00); exchange rate change, 0.796 (p-value = 0.01). Adjusted R-squared = 0.41. Statistical analysis also reveals a link between turnover and lagged volatility, but turnover appears to be more strongly related to interest differentials and large swings in exchange rates.

## Foreign exchange, stock and bond prices



the face of long swings in currencies in order to minimise losses associated with currency positions. For instance, the European exporter invoicing in dollars in the midst of a long run of dollar depreciation has an incentive to hedge against further depreciation. The activities of banks and currency overlay managers (COMs) in providing hedging services have also contributed to turnover growth. The growth in outright forwards between 2001 and 2004, as reported in Table 1, could reflect heightened interest in hedging.

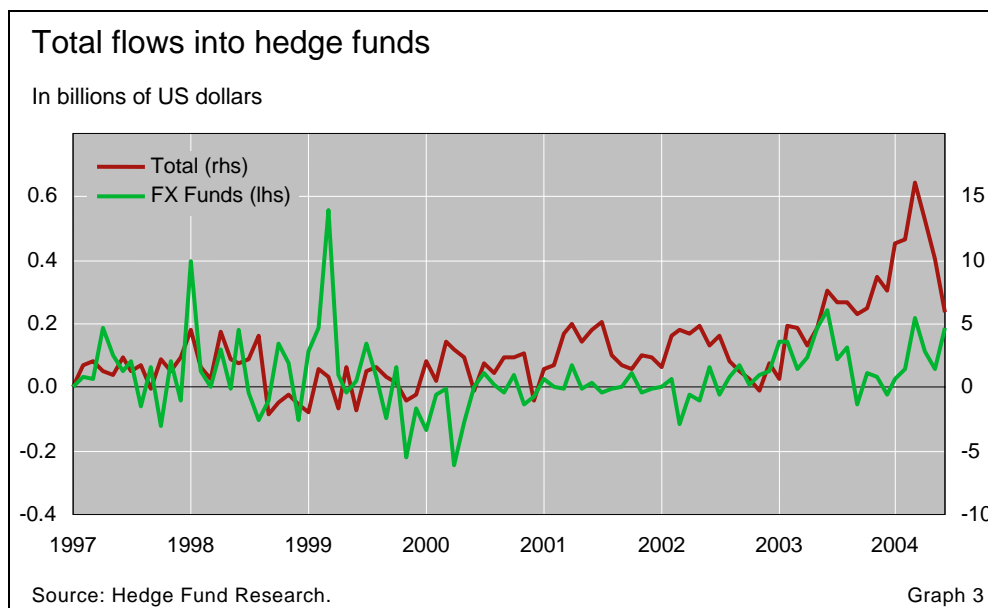
Attractiveness of FX compared to stocks and bonds

In their search for yield, investors' interest in currencies as an asset class was reinforced by disappointing yields associated with equity and bond markets. A comparison of returns in stock and bond markets with those experienced by foreign exchange reveals a contrasting picture. As returns on stocks and bonds waned, investors found currency strategies to be quite profitable over the 2001–04 period. Graph 2 plots data since the 1998 survey for exchange rates, stock prices and bond yields. Following the 2001 survey, there was a long run of dollar depreciation that was actively exploited by investors. However, both stocks and bonds presented less attractive investment opportunities. It can be seen that, in general, equity markets were falling well into 2003 before beginning an upward run that lasted less than a year. Bond yields were low and fairly flat over the period. So the strong trend in the foreign exchange market offered an attractive alternative to stocks and bonds.

### Market players

Key role of trading between banks and financial customers

The strategies described above suggested a surge in trading between banks and financial customers. Such activity grew by 78% between 2001 and 2004 (Table 2). According to market participants, it involved a wide range of financial players: institutional investors (such as pension funds and insurance



companies), hedge funds, commodity trading advisers (CTAs), proprietary trading desks of large commercial banks and COMs.

The increase in activity by institutional investors seemed to reflect both structural and conjunctural factors. Pension funds, insurance companies, mutual funds and other institutional investors have played an increasingly important role in financial markets in general, and in FX markets in particular, since the early 2000s.<sup>10</sup> In some countries, investment offshore by investment funds has been following a strong upward trend. In Australia, for example, superannuation funds raised the proportion of their assets held offshore from around 15% in the late 1980s to close to 30% in 2002 (Battellino (2002)). This may explain in part the 65% increase in turnover in Australian dollars, raising its share of global turnover by 2 percentage points. In several countries, changes to pension fund regulations have relaxed restrictions on foreign exchange exposures,<sup>11</sup> opening the way to sizeable purchases of foreign assets by domestic investors.

Institutional investors continue to be very active

Hedge funds have grown markedly over the 2001–04 period in terms of both number and overall size (see Graph 3).<sup>12</sup> Market commentary indicates that both momentum players, who exploit trends in asset prices, and macro funds, which typically take directional positions in the light of more fundamental factors influencing currency markets, played an important role.<sup>13</sup> These trends are in contrast with the previous three-year period, when market sources had suggested a reduction in the number and activity of hedge funds in FX markets,

Increasing role of hedge funds ...

<sup>10</sup> See CGFS (2001) for an analysis of institutional investors' activity in financial markets and Galati (2001) for a discussion of their weight in the 2001 survey.

<sup>11</sup> For instance in Sweden in 2000 (BIS (2003)).

<sup>12</sup> One difference between the players that are currently active and those dominant in the 1990s is that the newly active hedge funds are typically much smaller and have a shorter horizon.

<sup>13</sup> For a discussion of the different investment strategies followed by the hedge fund community, see Tsatsaronis (2000).

and in particular of macro hedge funds, following the collapse of LTCM and the withdrawal from the market of Tiger and Quantum.

... CTAs ...

According to market reports, the rise in trading between banks and financial customers observed between 2001 and 2004 was also due to the increasing activity in foreign exchange markets of CTAs. CTAs were originally companies that advised clients on purchases of futures contracts, typically for bonds and equities. However, over time they have come to behave like other types of fund managers and in recent years have also become active in FX markets. To give an idea of their size, a market analyst suggests that in 2003 a large CTA would have an estimated \$3–5 billion of assets, with very low leverage. This compares to some \$7–10 billion of overall assets, and high leverage, for a large hedge fund. CTAs are currently viewed as being mostly trend followers, like momentum players, and typically have a very short investment horizon, ranging from intraday to one week.

... and COMs

COMs also contributed to the fast growth in turnover between banks and financial customers.<sup>14</sup> Currency overlay is the process by which investors manage their foreign exchange positions more actively and manage their currency exposures separately. COMs treat foreign exchange as a separate asset class. Their growing importance appears to reflect both an increase in underlying investment demand and the fact that COMs' financial models have become more accepted by the industry.

## Conclusion

Investors' interest in FX markets may not last

The 2001–04 period was marked by interest differentials and extended trends in exchange rates that encouraged speculative strategies as well as greater hedging activity. Both contributed to the observed increase in foreign exchange turnover between 2001 and 2004. More recently, the lack of a trend in exchange rates may have been working in the opposite direction. The recent losses experienced by those using trend-following strategies have led to shifts into other investment vehicles. Market observers remark that macro hedge funds may have begun to shift away from currencies towards commodities or domestic short-/long-term interest rate carry trades. In addition, should US interest rates rise further, this could reduce the attractiveness of carry trade strategies and hence turnover in the foreign exchange market. So while the evidence supports the relative attractiveness of foreign exchange as an asset class, the level of investor interest in currencies is not certain to persist in the future.

From a longer-term perspective, some factors associated with the surprising drop in foreign exchange turnover reported in the 2001 survey continue to exercise an influence today – in particular, bank consolidation and the growth of electronic broking in the interbank market. Table 3 reports the number of banks accounting for 75% of turnover in major economies for the last four surveys. It is clear that the pattern of consolidation continues. While

---

<sup>14</sup> Market analysts estimate assets under management at the few dominant COMs (eg Putnam, Pareto and JPMorgan) at around \$25–30 billion in 2003.

Concentration in the banking industry				
Number of banks covering 75% <sup>1</sup>				
	1995	1998	2001	2004
United Kingdom	20 <sup>2</sup>	24	17	16
United States	20 <sup>3</sup>	20	13	11
Japan	24	19	17	11
Singapore	25	23	18	11
Germany	10	9	5	4
Switzerland	5	7	6	5
Hong Kong SAR	13–22 <sup>4</sup>	26	14	11

<sup>1</sup> For 2004, upper bound subject to revision. <sup>2</sup> 68%. <sup>3</sup> 70%. <sup>4</sup> Depending on the market segment. Table 3

these factors work to reduce turnover, there are also trends in the industry that may affect turnover. One such factor is Continuous Linked Settlement (CLS), which started operating in 2002, and whose market share has reportedly increased steadily. Another is multibank electronic trading platforms aimed at bank customers – such as FX Connect, Currenex and FXall – that increase efficiency and lower the cost of implementing investment strategies for non-bank customers. As seen in the recent survey period, these long-term structural factors may be overwhelmed by short-term currency trading incentives such as exchange rate trends and interest differentials.

## References

Bank for International Settlements (2003): *73rd Annual Report*, Basel, June.

——— (2004): *74th Annual Report*, Basel, June.

Battellino, R (2002): “Australia as a capital exporter”, address to conference on “The impact of an Australia–US free trade agreement: foreign policy challenges and economic opportunities”, Canberra, 29 August.

Committee on the Global Financial System (2001): “Structural aspects of market liquidity from a financial stability perspective”, *CGFS Discussion Notes*, no 1, June.

Galati, G (2001): “Why has global FX turnover declined? Explaining the 2001 triennial survey”, *BIS Quarterly Review*, December.

Tsatsaronis, K (2000): “Hedge funds”, *BIS Quarterly Review*, November.