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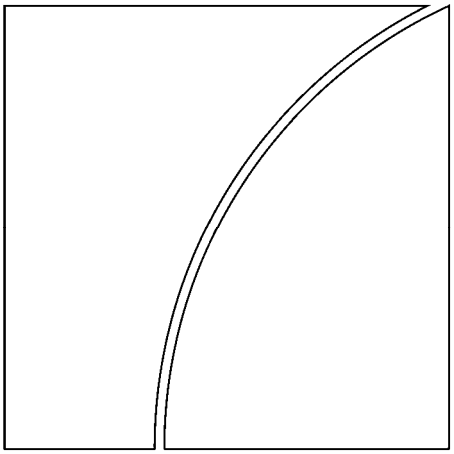

Triennial Central Bank Survey

Foreign exchange and derivatives market activity in April 2010

Preliminary results

Monetary and Economic Department

September 2010

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Notations used in this release

trillion	thousand billion
billion	thousand million
…	not available
.	not applicable
$	US dollar unless specified otherwise

Differences in totals are due to rounding.

Summary of the April 2010 Triennial Central Bank Survey[1]

1. Turnover on the global foreign exchange market

- Global foreign exchange market turnover was 20% higher in April 2010 than in April 2007, with average daily turnover of $4.0 trillion compared to $3.3 trillion. The increase was driven by the 48% growth in turnover of *spot* transactions, which represent 37% of foreign exchange market turnover. Spot turnover rose to $1.5 trillion in April 2010 from $1.0 trillion in April 2007.
- The increase in turnover of *other foreign exchange instruments* was more modest at 7%, with average daily turnover of $2.5 trillion in April 2010. Turnover in outright forwards and currency swaps grew strongly. Turnover in foreign exchange swaps was flat relative to the previous survey, while trading in currency options decreased.
- As regards counterparties, the higher global foreign exchange market turnover is associated with the increased trading activity of "other financial institutions" – a category that includes non-reporting banks, hedge funds, pension funds, mutual funds, insurance companies and central banks, among others. Turnover by this category grew by 42%, increasing to $1.9 trillion in April 2010 from $1.3 trillion in April 2007. For the first time, activity of reporting dealers with other financial institutions surpassed inter-dealer transactions (ie transactions between reporting dealers).
- Foreign exchange market activity became more global, with cross-border transactions representing 65% of trading activity in April 2010, while local transactions account for 35%.
- The percentage share of the US dollar has continued its slow decline witnessed since the April 2001 survey, while the euro and the Japanese yen gained relative to April 2007. Among the 10 most actively traded currencies, the Australian and Canadian dollars both increased market share, while the pound sterling lost ground and the Swiss franc declined marginally. The market share of emerging market currencies increased, with the biggest gains for the Turkish lira and the Korean won.
- The relative ranking of foreign exchange trading centres has changed slightly from the previous survey. Banks located in the United Kingdom accounted for 36.7%, against 34.6% in 2007, of all foreign exchange market turnover, followed by the United States (18%), Japan (6%), Singapore (5%), Switzerland (5%), Hong Kong SAR (5%) and Australia (4%).

2. Turnover in OTC interest rate derivatives

- Activity in *OTC interest rate derivatives* grew by 24%, with average daily turnover of $2.1 trillion in April 2010. Almost all of the increase relative to the last survey was due to the growth of forward rate agreements (FRAs), which increased by 132% to reach $601 billion.

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[1] Preliminary results. The final results will be published in a detailed report in November 2010.

I. Background on the Triennial Central Bank Survey

In April this year, 53 central banks and monetary authorities participated in the eighth Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity ("the triennial survey"). The objective of the survey is to provide the most comprehensive and internationally consistent information on the size and structure of global foreign exchange markets, allowing policymakers and market participants to better monitor patterns of activity in the global financial system.[2] Coordinated by the BIS, participating institutions collect data from 1,309[3] banks and other dealers (so-called reporting dealers) on turnover in foreign exchange instruments and OTC interest rate derivatives. For the survey, each participating institution is requested to collect data from the reporting dealers in its jurisdiction and calculate aggregate national data.[4] These data are then provided to the BIS, which compiles and publishes the global aggregates. The triennial survey has been conducted every three years since April 1989, and has been modified since April 1995 to include OTC interest rate derivatives.

With this release, the BIS is publishing the preliminary global aggregates at the same time as most participating central banks and monetary authorities release their national survey results.[5] The BIS plans to publish a more detailed report for foreign exchange markets in November and a special feature article in the December 2010 *BIS Quarterly Review*. The November report will also include global results from a companion survey, which measures the dollar amounts outstanding of open contracts in OTC derivatives markets at end-June 2010.

Previous triennial surveys have used the expression "traditional foreign exchange markets" to refer to spot transactions, outright forwards and foreign exchange swaps. This expression excludes currency swaps and currency options, which are under OTC instruments. Beginning with the 2010 survey, the expression "global foreign exchange markets" will include all five foreign exchange instruments. The analysis will henceforth distinguish between *spot transactions* and *other related foreign exchange instruments* (outright forwards, foreign exchange swaps, currency swaps, currency options and other foreign exchange products). Turnover on global foreign exchange markets and in interest rate derivatives is analysed in Tables 1 to 5 and in Tables 6 to 9, respectively.

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[2] The triennial survey complements more frequent regional surveys conducted in the following financial centres by local Foreign Exchange Committees: Australia, Canada, Hong Kong SAR, London, New York, Singapore and Tokyo.

[3] 1,260 in 2007.

[4] For detailed information about the methodology and the coverage of the survey, see the statistical notes in Section IV.

[5] National results are adjusted for double-counting between reporting dealers located in the same country (ie "net-gross" basis). Global results are adjusted for both local and cross-border inter-dealer double-counting ("net-net" basis).

II. Results of the triennial survey

1. Global foreign exchange market turnover

The 2010 triennial survey shows another significant increase in global foreign exchange market activity since the last survey in 2007, following the unprecedented rise in activity between 2004 and 2007. Global foreign exchange market turnover was 20% higher in April 2010 than in April 2007 (Table 1). This increase brought average daily turnover to $4.0 trillion (from $3.3 trillion) at current exchange rates. Because euro/dollar exchange rates were very similar in April 2007 and 2010, growth calculated at constant exchange rates was similar at 18%. The 2010 increase in average daily turnover was lower than the 72% growth observed between 2004 and 2007, which – apart from valuation effects – had been driven by factors such as low levels of financial market volatility and of risk aversion, and expansion in the activity of hedge funds.[6]

The higher global foreign exchange market turnover in 2010 is largely due to the increased trading activity of "other financial institutions" – a category that includes non-reporting banks, hedge funds, pension funds, mutual funds, insurance companies and central banks, among others. Turnover by this category grew by 42%, increasing to $1.9 trillion in April 2010 from $1.3 trillion in April 2007. For the first time, activity with other financial institutions surpassed transactions between reporting dealers.

A. Turnover by instrument, counterparty and maturity

Foreign exchange *spot* turnover rose to $1.5 trillion in April 2010 from $1.0 trillion, an increase of 48% at current exchange rates (Table 1). The increase in spot market turnover accounts for three-quarters of the overall increase in global foreign exchange market activity relative to the previous survey. The higher turnover in spot transactions is largely due to more active trading with other financial institutions, followed by inter-dealer trading (Table 2). Trading with other financial institutions now accounts for over half (51%) of spot turnover, compared to 39% in 2007 (Table 2).

Trading activity in *other related foreign exchange instruments* continued to expand, but at a more moderate pace than in the three years to April 2007. Average daily turnover in these instruments grew by 7% to $2.5 trillion in April 2010 (Table 1). Turnover in *outright forwards* grew by 31% to $475 billion. Trading in *currency swaps* also grew strongly by 39%, albeit from a much lower level, to $43 billion. *Foreign exchange swaps*, which remain the mostly activity traded foreign exchange instrument, were relatively unchanged compared to the prior survey at $1.8 trillion. The distribution of trading across counterparties and maturities was largely unchanged. Foreign exchange swaps are used widely by banks to raise liquidity across money markets denominated in different currencies.[7] Finally the use of *currency options* declined by 2% between surveys with average daily turnover of $207 billion in April 2010.

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[6] For more details on the results of the 2007 Triennial Survey, see G Galati and A Heath, "What drives the growth in FX activity? Interpreting the 2007 triennial survey", *BIS Quarterly Review*, December 2007.

[7] Disruptions to the foreign exchange swap market during the 2007–09 financial crisis attracted considerable attention; see N Baba and F Packer, "From turmoil to crisis: dislocations in the FX swap market before and after the failure of Lehman Brothers", *BIS Working Papers*, no 285, July 2009.

The higher global foreign exchange market turnover in April 2010 reflects the increased trading activity by "other financial institutions" (Table 2). This counterparty category covers financial institutions not classified as reporting dealers, such as non-reporting banks, hedge funds, pension funds, mutual funds, insurance companies and central banks, among others. Foreign exchange market turnover by other financial institutions grew by 42% relative to the April 2007 survey, increasing to $1.9 trillion from $1.3 trillion. For the first time, transactions with other financial institutions surpassed inter-dealer transactions (Table 2). Turnover of spot transactions by other financial institutions increased to $755 billion in April 2010 from $394 billion in April 2007, a growth rate of 92%. Turnover by other financial institutions in outright forwards and foreign exchange swaps also increased, by 60% and 11%, respectively.

Transactions between reporting dealers in the interbank market grew by 11% to $1.5 trillion in April 2010 from $1.4 trillion in April 2007 (Table 2). In dollar terms, the greatest increase was in spot transactions, followed by foreign exchange swaps. By contrast, the share of interbank trading in global foreign exchange market activity continued its steady decline, from 63% in 1998 to only 39% in 2010.

Foreign exchange market transactions with non-financial customers declined by 10%, falling to $533 billion in April 2010 from $593 billion in April 2007 (Table 2). This category includes corporations and governments, and continues to represent around 13% of global foreign exchange market activity. An increase in spot transactions by these counterparties was offset by a decrease in the use of foreign exchange swaps and currency options. The use of outright forwards and currency swaps by non-financial customers was relatively unchanged.

Foreign exchange market activity became more global in April 2010, with the share of cross-border transactions increasing to 65% from 62% in April 2007 (Table 2). Local transactions fell to 35%. Cross-border trading has increased slowly but steadily over the past five surveys.

Turnover of outright forwards, foreign exchange swaps, currency swaps, currency options and other foreign exchange products continues to be many times larger than volumes traded on organised exchanges. Daily turnover for currency instruments on organised exchanges was $166 billion, less than 7% of the $2.5 trillion average daily turnover in those instruments (Table 1).

B. Currency distribution and turnover by currency pair

The *currency composition* of turnover changed only slightly over the past three years, with the relative share of the main currencies diverging somewhat (Table 3).[8] The market share of the top three currencies (the US dollar, euro and Japanese yen) increased by 3 percentage points, with the market share of the top 10 increasing by only 1.4 percentage points. The biggest increases were seen for the euro and Japanese yen, and the biggest decline for the pound sterling. The market share of the 23 emerging market currencies listed in Table 3 increased to 14.0% in April 2010 from 12.3% in April

[8] Because each transaction involves two currencies, the shares add to 200%.

2007. The most significant increases were seen for the Turkish lira and the Korean won, followed by the Brazilian real and the Singapore dollar[9].

The *US dollar* continued a slow retreat from its 90% peak share of all transactions, reached in the 2001 survey just after the introduction of the euro. The share of foreign exchange transactions involving the US dollar has fallen slowly, reaching 85% in April 2010. This decline benefited the *euro*, which gained 2 percentage points in market share since the last survey and accounts for 39% of all transactions. The *Japanese yen* also increased its market share by 2 percentage points to 19%, a recovery relative to the 2007 survey but still below its peak of 23.5% reached in 2001.

The *pound sterling* gave up most of its post-euro gains, with its share returning to the immediate post-euro level of around 13%. Trading in the *Swiss franc* also declined marginally to 6.4% from 6.8% in April 2007. The *Australian* and *Canadian* dollars both increased their share by around 1 percentage point, to 7.6% and 5.3%, respectively.

Turnover by *currency pair* in April 2010 (Table 4) did not show major changes from three years earlier. USD/EUR remained by far the dominant pair (with a 28% share), followed at some distance by USD/JPY with a slight increase to 14% of turnover. The USD/GBP pair continued to retreat from its peak of 2004 to a 9% share or about the level reached in pre-euro 1998.

C. Geographical distribution of turnover

The geographical distribution of foreign exchange trading typically changes slowly over time, and the 2010 results are no exception (Table 5). Banks located in the United Kingdom accounted for 37% of global foreign exchange market turnover, followed by the United States (18%), Japan (6%), Singapore (5%), Switzerland (5%), Hong Kong SAR (5%) and Australia (4%). Japan has recovered its third place ranking, which it lost in the 2007 survey. Singapore has moved up ahead of Switzerland in 2010.

In dollar terms, the greatest increases in trading activity were in the United Kingdom ($371 billion), the United States ($159 billion), Japan ($62 billion) and Hong Kong SAR ($57 billion). Other countries that saw significant growth relative to the 2007 survey include Denmark, France, Singapore, Finland, Turkey and Spain.

2. Global interest rate OTC derivatives market turnover

A. Turnover by instrument and currency

The triennial survey collects data on turnover of OTC interest rate derivatives for three instruments: *forward rate agreements* (FRAs), *interest rate swaps* and *interest rate options*. Trading activity in these instruments has grown by 24% since the last survey, with average daily turnover rising to $2.1 trillion in April 2010 from $1.7 trillion in April 2007 (Table 6). This increase represented a slowing of the rapid growth rate seen over

[9] The shares of some currencies, in particular the Brazilian real and the Korean won, have benefited at the margin from a refinement in the data collection process, which encouraged reporting banks to report turnover for a more comprehensive set of currency pairs. For more details on the set of currencies covered by the survey, see the statistical notes in Section IV.

the previous four surveys: the growth rate between 2007 and 2010 was significantly lower than the 64% growth between 2004 and 2007.

Much of the increase in the trading of OTC interest rate derivatives was due to the growth of *FRAs*, which more than doubled to $601 billion in April 2010 from $258 billion in April 2007 (Table 6). The significant rise in FRAs is mainly due to a tripling of *euro* and *US dollar*-denominated contracts and a surge in turnover for currencies such as the *Swiss franc* and the *Canadian dollar* (Table 8).

In contrast, *interest rate swaps* turnover was mostly unchanged in the major currencies. Turnover in *Canadian dollar*-denominated instruments grew strongly while turnover in contracts denominated in the *Swiss franc* declined to $8 billion from $14 billion in April 2007 (Table 8).

Turnover in OTC *interest rate options* was weaker in most currency denominations, with some clear exceptions (Table 6). Contracts denominated in the *pound sterling* and the *Swedish krona* tripled in April 2010 relative to the previous survey (Table 8). By contrast, turnover in contracts denominated in the *Japanese yen* fell back to the level last seen in 2004 ($8 billion).

Unlike the case in foreign exchange markets, turnover of interest rate derivatives listed on organised exchanges exceeds trading in OTC contracts by a ratio of almost 4 to 1 (Table 6). Trading on organised exchanges grew by 34% over the three-year period, reaching $8.1 trillion in April 2010.

B. Geographical distribution of turnover

Turnover in interest rate derivatives was concentrated in a small number of financial centres, with more than two thirds of turnover taking place in only two countries (Table 9). The United Kingdom continued to be the most active location with a share of 46% of worldwide trading, followed by the United States with a share of 24%, slightly down from 2007. Outside these two centres, trading took place primarily in France (7%) and Japan (3%), both slightly down from 2007, Singapore (3%) and Switzerland (3%), both slightly up. Turnover in Germany almost halved to less than 2% in April 2010 compared with 2007.

III. Statistical tables

Table 1
Global foreign exchange market turnover by instrument[1]

Average daily turnover in April, in billions of US dollars

Instrument	1998	2001	2004	2007	2010
Foreign exchange instruments	**1,527**	**1,239**	**1,934**	**3,324**	**3,981**
Spot transactions[2]	568	386	631	1,005	1,490
Outright forwards[2]	128	130	209	362	475
Foreign exchange swaps[2]	734	656	954	1,714	1,765
Currency swaps	10	7	21	31	43
Options and other products[3]	87	60	119	212	207
Memo:					
Turnover at April 2010 exchange rates[4]	*1,705*	*1,505*	*2,040*	*3,370*	*3,981*
Exchange-traded derivatives[5]	*11*	*12*	*26*	*80*	*166*

[1] Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). [2] Previously classified as part of the so-called "Traditional FX market". [3] The category "other FX products" covers highly leveraged transactions and/or trades whose notional amount is variable and where a decomposition into individual plain vanilla components was impractical or impossible. [4] 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 2010 exchange rates. [5] Sources: FOW TRADEdata; Futures Industry Association; various futures and options exchanges. Reported monthly data were converted into daily averages of 20.5 days in 1998, 19.5 days in 2001, 20.5 in 2004, 20 in 2007 and 20 in 2010.

Table 2

Global foreign exchange market turnover by instrument, counterparty and maturity[1]

Daily averages in April, in billions of US dollars and percentages

Instrument/counterparty/ maturity	1998		2001		2004		2007		2010	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Spot	**568**	**37**	**386**	**31**	**631**	**33**	**1,005**	**30**	**1,490**	**37**
with reporting dealers	347	61	216	56	310	49	426	42	518	35
with other financial institutions	121	21	111	29	213	34	394	39	755	51
with non-financial customers	99	18	58	15	108	17	184	18	217	15
Outright forwards	**128**	**8**	**130**	**11**	**209**	**11**	**362**	**11**	**475**	**12**
with reporting dealers	49	38	52	40	73	35	96	27	113	24
with other financial institutions	34	27	41	31	80	38	159	44	254	54
with non-financial customers	44	35	37	29	56	27	107	30	108	23
Foreign exchange swaps	**734**	**48**	**656**	**53**	**954**	**49**	**1,714**	**52**	**1,765**	**44**
with reporting dealers	511	70	419	64	573	60	796	46	837	47
with other financial institutions	124	17	177	27	293	31	682	40	758	43
with non-financial customers	98	13	60	9	89	9	236	14	170	10
Currency swaps	**10**	**1**	**7**	**1**	**21**	**1**	**31**	**1**	**43**	**1**
with reporting dealers	5	55	4	53	12	58	12	39	20	47
with other financial institutions	2	23	2	21	5	23	13	41	19	45
with non-financial customers	2	22	2	25	3	14	6	20	4	8
FX options and other products[2]	**87**	**6**	**60**	**5**	**119**	**6**	**212**	**6**	**207**	**5**
with reporting dealers	48	55	28	47	49	41	62	29	60	29
with other financial institutions	18	20	15	26	44	37	91	43	113	55
with non-financial customers	21	24	16	27	21	18	59	28	33	16
Total	**1,527**	**100**	**1,239**	**100**	**1,934**	**100**	**3,324**	**100**	**3,981**	**100**
with reporting dealers	961	63	719	58	1,018	53	1,392	42	1,548	39
with other financial institutions	299	20	346	28	634	33	1,339	40	1,900	48
with non-financial customers	266	17	174	14	276	14	593	18	533	13
Local	698	46	525	42	743	38	1,274	38	1,395	35
Cross-border	828	54	713	58	1,185	61	2,051	62	2,586	65
Outright forwards	**128**	**100**	**130**	**100**	**209**	**100**	**362**	**100**	**475**	**100**
Up to 7 days	65	51	51	39	92	44	154	43	219	46
Over 7 days and up to 1 year	57	45	76	58	111	53	200	55	245	52
Over 1 year	5	4	4	3	5	3	7	2	11	2
Foreign exchange swaps	**734**	**100**	**656**	**100**	**954**	**100**	**1,714**	**100**	**1,765**	**100**
Up to 7 days	528	72	451	69	700	73	1,329	78	1,304	74
Over 7 days and up to 1 year	192	26	196	30	242	25	365	21	444	25
Over 1 year	10	1	8	1	10	1	18	1	15	1

[1] Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). Due to incomplete reporting, components do not always add up to totals. [2] The category "other FX products" covers highly leveraged transactions and/or trades whose notional amount is variable and where a decomposition into individual plain vanilla components was impractical or impossible.

Table 3

Currency distribution of global foreign exchange market turnover[1]

Percentage shares of average daily turnover in April

Currency	1998	2001	2004	2007	2010
US dollar	86.8	89.9	88.0	85.6	84.9
Euro	...	37.9	37.4	37.0	39.1
Deutsche mark	30.5	...	...	...	...
French franc	5.0	...	...	...	...
ECU and other EMS currencies	16.8	...	...	...	...
Slovak koruna[2]	...	0.0	0.0	0.1	...
Japanese yen	21.7	23.5	20.8	17.2	19.0
Pound sterling	11.0	13.0	16.5	14.9	12.9
Australian dollar	3.0	4.3	6.0	6.6	7.6
Swiss franc	7.1	6.0	6.0	6.8	6.4
Canadian dollar	3.5	4.5	4.2	4.3	5.3
Hong Kong dollar[3, 4]	1.0	2.2	1.8	2.7	2.4
Swedish krona[5]	0.3	2.5	2.2	2.7	2.2
New Zealand dollar[3, 4]	0.2	0.6	1.1	1.9	1.6
Korean won[3,4]	0.2	0.8	1.1	1.2	1.5
Singapore dollar[3]	1.1	1.1	0.9	1.2	1.4
Norwegian krone[3]	0.2	1.5	1.4	2.1	1.3
Mexican peso[3]	0.5	0.8	1.1	1.3	1.3
Indian rupee[3,4]	0.1	0.2	0.3	0.7	0.9
Russian Rouble[3]	0.3	0.3	0.6	0.7	0.9
Polish zloty[3]	0.1	0.5	0.4	0.8	0.8
Turkish new lira[2]	...	0.0	0.1	0.2	0.7
South African rand[3, 4]	0.4	0.9	0.7	0.9	0.7
Brazilian real[3, 4]	0.2	0.5	0.3	0.4	0.7
Danish krone[3]	0.3	1.2	0.9	0.8	0.6
New Taiwan dollar[3]	0.1	0.3	0.4	0.4	0.5
Hungarian forint[3]	0.0	0.0	0.2	0.3	0.4
Chinese renminbi[4]	0.0	0.0	0.1	0.5	0.3
Malaysian ringgit[2]	0.0	0.1	0.1	0.1	0.3
Thai baht[3]	0.1	0.2	0.2	0.2	0.2
Czech koruna[3]	0.3	0.2	0.2	0.2	0.2
Philipine peso[2]	0.0	0.0	0.0	0.1	0.2
Chilean peso[2]	0.1	0.2	0.1	0.1	0.2
Indonesian rupiah[2]	0.1	0.0	0.1	0.1	0.2
Israeli new shekel[2]	...	0.1	0.1	0.2	0.2
Colombian peso[2]	...	0.0	0.0	0.1	0.1
Saudi Riyal[2]	0.1	0.1	0.0	0.1	0.1
Other currencies	8.9	6.5	6.6	7.6	5.3
All currencies	**200.0**	**200.0**	**200.0**	**200.0**	**200.0**

[1] Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%. Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). [2] Data previous to 2007 cover local home currency trading only. [3] For 1998, the data cover local home currency trading only. [4] Included as main currency from 2010. For more details on the set of new currencies covered by the 2010 survey, see the statistical notes in Section IV. [5] For 1998, the data cover local home currency trading only. Included as main currency from 2007.

Table 4

Global foreign exchange market turnover by currency pair[1]

Daily averages in April, in billions of US dollars and percentages

Currency pair	1998		2001		2004		2007		2010	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
USD/EUR	.	.	372	30	541	28	892	27	1,101	28
USD/DEM	309	20	.	.	.	.	.	.	.	.
USD/FRF	60	4	.	.	.	.	.	.	.	.
USD/XEU	17	1	.	.	.	.	.	.	.	.
USD/OthEMS	178	12	.	.	.	.	.	.	.	.
USD/JPY	292	19	250	20	328	17	438	13	568	14
USD/Oth	140	9	152	12	251	13	498	15	445	11
USD/GBP	122	8	129	10	259	13	384	12	360	9
USD/AUD	44	3	51	4	107	6	185	6	249	6
USD/CAD	52	3	54	4	77	4	126	4	182	5
USD/CHF	82	5	59	5	83	4	151	5	168	4
EUR/JPY	.	.	36	3	61	3	86	3	111	3
EUR/GBP	.	.	27	2	47	2	69	2	109	3
EUR/Oth	.	.	17	1	35	2	83	2	102	3
USD/HKD[2]	14	1	19	2	19	1	51	2	85	2
EUR/CHF	.	.	13	1	30	2	62	2	72	2
USD/KRW[2]	2	0	8	1	16	1	25	1	58	1
JPY/Oth	9	1	4	0	11	1	43	1	49	1
USD/SEK[3]	3	0	6	0	7	0	57	2	45	1
USD/INR[2]	1	0	3	0	5	0	17	1	36	1
EUR/SEK[3]	.	.	3	0	3	0	24	1	35	1
USD/CNY[2]	0	0	.	.	1	0	9	0	31	1
USD/BRL[2]	3	0	5	0	3	0	5	0	26	1
USD/ZAR[2]	6	0	7	1	6	0	7	0	24	1
JPY/AUD[2]	1	0	1	0	3	0	6	0	24	1
EUR/CAD	.	.	1	0	2	0	7	0	14	0
EUR/AUD	.	.	1	0	4	0	9	0	12	0
JPY/NZD[2]	0	0	0	0	0	0	0	0	4	0
DEM/JPY	30	2	.	.	.	.	.	.	.	.
DEM/GBP	36	2	.	.	.	.	.	.	.	.
DEM/CHF	21	1	.	.	.	.	.	.	.	.
DEM/FRF	10	1	.	.	.	.	.	.	.	.
DEM/XEU	3	0	.	.	.	.	.	.	.	.
DEM/OthEMS	37	2	.	.	.	.	.	.	.	.
DEM/Oth	22	1	.	.	.	.	.	.	.	.
OthEMS[4]	4	0	.	.	.	.	.	.	.	.
Other pairs	30	2	23	2	36	2	90	3	72	2
All currency pairs	1,527	100	1,239	100	1,934	100	3,324	100	3,981	100

[1] Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). [2] Included as main currency pair from 2010. For more details on the set of currency pairs covered by the 2010 survey, see the statistical notes in Section IV. [3] Included as main currency pair from 2007. [4] OthEMS/OthEMS: the data cover local home currency trading only.

Table 5

Geographical distribution of global foreign exchange market turnover[1]

Daily averages in April, in billions of US dollars and percentages

Country	1995		1998		2001		2004		2007		2010	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Argentina	…	…	2.2	0.1	…	…	0.7	0.0	1.1	0.0	1.6	0.0
Australia	40.5	2.5	48.3	2.3	54.0	3.2	107.1	4.1	176.3	4.1	192.1	3.8
Austria	13.5	0.8	11.8	0.6	8.4	0.5	14.6	0.6	18.8	0.4	19.5	0.4
Bahrain	3.2	0.2	2.6	0.1	3.0	0.2	2.7	0.1	3.2	0.1	4.5	0.1
Belgium	28.5	1.7	27.3	1.3	10.4	0.6	20.8	0.8	50.1	1.2	32.5	0.6
Brazil[2]	…	…	5.1	0.2	5.5	0.3	3.8	0.1	5.8	0.1	14.2	0.3
Bulgaria	…	…	…	…	…	…	…	…	0.5	0.0	0.9	0.0
Canada	30.7	1.9	37.9	1.8	44.2	2.6	59.3	2.3	64.0	1.5	61.9	1.2
Chile	…	…	1.3	0.1	2.3	0.1	2.5	0.1	4.0	0.1	5.5	0.1
China[3]	…	…	0.2	0.0	0.0	0.0	0.6	0.0	9.3	0.2	19.8	0.4
Chinese Taipei	…	…	4.9	0.2	4.8	0.3	9.5	0.4	15.5	0.4	18.0	0.4
Colombia	…	…	…	…	0.4	0.0	0.8	0.0	1.9	0.0	2.8	0.1
Czech Republic	…	…	5.1	0.2	2.1	0.1	2.4	0.1	5.0	0.1	5.1	0.1
Denmark	31.8	1.9	28.0	1.3	23.8	1.4	42.1	1.6	88.2	2.1	120.5	2.4
Estonia	…	…	…	…	…	…	0.2	0.0	1.3	0.0	1.1	0.0
Finland	5.4	0.3	4.4	0.2	1.6	0.1	1.8	0.1	8.3	0.2	31.3	0.6
France	61.5	3.8	77.2	3.7	49.6	2.9	66.5	2.6	126.8	3.0	151.6	3.0
Germany	79.2	4.8	99.6	4.7	91.5	5.4	120.4	4.6	101.4	2.4	108.6	2.1
Greece	3.3	0.2	7.2	0.3	4.8	0.3	4.3	0.2	5.0	0.1	5.2	0.1
Hong Kong SAR	90.9	5.6	79.9	3.8	68.4	4.0	106.0	4.1	181.0	4.2	237.6	4.7
Hungary	…	…	1.4	0.1	0.6	0.0	2.8	0.1	6.9	0.2	4.2	0.1
India	…	…	2.4	0.1	3.4	0.2	6.9	0.3	38.4	0.9	27.4	0.5
Indonesia	…	…	1.8	0.1	3.9	0.2	2.3	0.1	3.0	0.1	3.4	0.1
Ireland	4.9	0.3	10.7	0.5	8.7	0.5	7.5	0.3	11.4	0.3	14.6	0.3
Israel	…	…	…	…	1.5	0.1	5.0	0.2	8.4	0.2	10.0	0.2
Italy	24.2	1.5	28.6	1.4	17.6	1.0	23.5	0.9	37.6	0.9	28.6	0.6
Japan	167.7	10.3	146.3	7.0	152.7	9.0	207.4	8.0	250.2	5.8	312.3	6.2
Korea	…	…	3.6	0.2	9.8	0.6	20.5	0.8	35.2	0.8	43.8	0.9
Latvia	…	…	…	…	…	…	2.0	0.1	2.6	0.1	2.2	0.0
Lithuania	…	…	…	…	…	…	1.0	0.0	1.0	0.0	1.2	0.0
Luxembourg	19.2	1.2	22.7	1.1	13.1	0.8	14.6	0.6	43.9	1.0	33.4	0.7
Malaysia	…	…	1.1	0.1	1.4	0.1	1.7	0.1	3.5	0.1	7.3	0.1
Mexico	…	…	8.7	0.4	8.6	0.5	15.3	0.6	15.3	0.4	17.0	0.3
Netherlands	26.6	1.6	42.8	2.0	30.5	1.8	52.1	2.0	24.8	0.6	18.3	0.4
New Zealand	7.2	0.4	7.0	0.3	4.0	0.2	7.0	0.3	12.8	0.3	8.8	0.2
Norway	7.6	0.5	8.9	0.4	0.0	0.0	14.5	0.6	32.1	0.7	22.2	0.4
Peru	…	…	…	…	0.2	0.0	0.3	0.0	0.8	0.0	1.4	0.0
Philippines	…	…	0.8	0.0	1.1	0.1	0.7	0.0	2.3	0.1	5.0	0.1
Poland	…	…	2.7	0.1	5.1	0.3	6.5	0.3	9.2	0.2	7.8	0.2
Portugal	2.4	0.1	4.4	0.2	1.7	0.1	1.9	0.1	4.3	0.1	3.7	0.1
Romania	…	…	…	…	…	…	…	…	2.5	0.1	3.2	0.1
Russia	…	…	6.9	0.3	9.6	0.6	29.8	1.1	50.2	1.2	41.7	0.8
Saudi Arabia	…	…	2.4	0.1	2.1	0.1	2.1	0.1	4.5	0.1	5.3	0.1
Singapore	107.3	6.6	144.9	6.9	103.7	6.1	133.6	5.1	241.8	5.6	266.0	5.3
Slovakia	…	…	…	…	0.8	0.0	1.6	0.1	3.5	0.1	0.4	0.0
Slovenia	…	…	…	…	0.1	0.0	0.1	0.0	0.3	0.0	…	…
South Africa	5.2	0.3	8.9	0.4	9.9	0.6	9.8	0.4	14.0	0.3	14.4	0.3
Spain	18.4	1.1	20.0	1.0	8.1	0.5	13.9	0.5	17.1	0.4	29.3	0.6
Sweden	20.4	1.2	16.1	0.8	24.9	1.5	31.9	1.2	43.9	1.0	44.8	0.9
Switzerland	88.4	5.4	91.6	4.4	76.3	4.5	85.3	3.3	253.6	5.9	262.6	5.2
Thailand	…	…	3.1	0.1	1.9	0.1	3.1	0.1	6.3	0.1	7.4	0.1
Turkey	…	…	…	…	1.0	0.1	3.5	0.1	4.1	0.1	16.8	0.3
United Kingdom	478.8	29.3	685.2	32.6	541.7	32.0	835.3	32.0	1,483.2	34.6	1,853.6	36.7
United States	265.8	16.3	383.4	18.3	272.6	16.1	498.6	19.1	745.2	17.4	904.4	17.9
Total	**1,632.7**	**100.0**	**2,099.4**	**100.0**	**1,691.7**	**100.0**	**2,608.5**	**100.0**	**4,281.1**	**100.0**	**5,056.4**	**100.0**

[1] Adjusted for local inter-dealer double-counting (ie "net-gross" basis). Tables 1, 2, 3 and 4 are expressed on a "net-net" basis. Estimated coverage of the foreign exchange market ranged between 90% and 100% in most countries. [2] Data for 1998 only cover spot transactions. [3] Data from 1998 to 2004 only cover spot transactions.

Table 6

Global OTC interest rate derivatives market turnover by instrument[1]

Average daily turnover in April, in billions of US dollars

Instrument	1998	2001	2004	2007	2010
Interest rate instruments[2]	**265**	**489**	**1,025**	**1,686**	**2,083**
FRAs	74	129	233	258	601
Swaps	155	331	621	1,210	1,275
Options and other products[3]	36	29	171	217	208
Memo:					
Turnover at April 2010 exchange rates[4]	*310*	*640*	*1,085*	*1,680*	*2,083*
Exchange-traded derivatives[5]	*1,381*	*2,188*	*4,524*	*6,099*	*8,142*

[1] Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). [2] Single currency interest rate contracts only. [3] The category "other interest rate products" covers highly leveraged transactions and/or trades whose notional amount is variable and where a decomposition into individual plain vanilla components was impractical or impossible. [4] 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 2010 exchange rates. [5] Sources: FOW TRADEdata; Futures Industry Association; various futures and options exchanges. Reported monthly data were converted into daily averages of 20.5 days in 1998, 19.5 days in 2001, 20.5 in 2004, 20 in 2007 and 20 in 2010.

Table 7

Gobal OTC interest rate market turnover by instrument, counterparty[1]

Daily averages in April, in billions of US dollars and percentages

Instrument/counterparty	1998		2001		2004		2007		2010	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
FRAs	**74**	**28**	**129**	**26**	**233**	**23**	**258**	**15**	**601**	**29**
with reporting dealers	46	61	88	68	112	48	143	55	296	49
with other financial institutions	21	29	37	28	113	48	89	34	267	44
with non-financial customers	7	10	5	4	8	3	27	10	37	6
Swaps	**155**	**58**	**331**	**68**	**621**	**61**	**1,210**	**72**	**1,275**	**61**
with reporting dealers	87	56	219	66	325	52	552	46	537	42
with other financial institutions	56	36	98	30	241	39	574	47	585	46
with non-financial customers	11	7	14	4	55	9	85	7	154	12
Options and other products[2]	**36**	**14**	**29**	**6**	**171**	**17**	**217**	**13**	**208**	**10**
with reporting dealers	17	46	16	55	57	34	106	49	87	42
with other financial institutions	12	32	7	26	96	56	85	39	90	43
with non-financial customers	8	21	5	18	16	9	24	11	30	14
Total	**265**	**100**	**489**	**100**	**1,025**	**100**	**1,686**	**100**	**2,083**	**100**
with reporting dealers	150	56	323	66	494	48	800	47	920	44
with other financial institutions	89	34	142	29	450	44	747	44	942	45
with non-financial customers	27	10	25	5	79	8	136	8	221	11
Local	133	50	207	42	414	40	564	33	762	37
Cross-border	132	50	282	58	609	59	1,120	66	1,321	63

[1] Adjusted for local and cross-border inter-dealer double-counting (ie “net-net” basis). Due to incomplete reporting, components do not always add up to totals. [2] The category "other interest rate products" covers highly leveraged transactions and/or trades whose notional amount is variable and where a decomposition into individual plain vanilla components was impractical or impossible.

Table 8

Global OTC interest rate derivatives turnover by currency[1]

Daily averages in April, in billions of US dollars

Currency	1998	2001	2004	2007	2010
FRAs	**74**	**129**	**233**	**258**	**601**
US dollar	23	39	59	98	282
Euro	.	48	116	66	202
Japanese yen	3	9	0	4	2
Pound sterling	8	12	25	42	53
Swiss franc	4	2	2	4	12
Canadian dollar	3	1	2	1	9
Australian dollar	2	4	5	3	8
Swedish krona	1	4	9	18	10
Other	31	10	16	22	22
Swaps	**155**	**331**	**621**	**1,210**	**1,275**
US dollar	36	100	195	322	302
Euro	.	173	288	528	562
Japanese yen	14	16	35	110	114
Pound sterling	8	23	59	124	142
Swiss franc	5	4	7	14	8
Canadian dollar	3	4	5	12	38
Australian dollar	1	4	7	14	28
Swedish krona	0	1	4	13	7
Other	87	5	20	74	73
Options and other products[2]	**36**	**29**	**171**	**217**	**208**
US dollar	12	12	93	113	96
Euro	.	11	57	62	70
Japanese yen	10	2	10	23	8
Pound sterling	1	2	6	6	19
Swiss franc	0	0	1	0	0
Canadian dollar	1	1	1	3	1
Australian dollar	0	0	1	1	1
Swedish krona	0	0	0	1	4
Other	11	0	1	6	8
Total	**265**	**489**	**1,025**	**1,686**	**2,083**
US dollar	71	152	347	532	680
Euro	.	232	461	656	835
Japanese yen	27	27	46	137	124
Pound sterling	17	37	90	172	214
Swiss franc	9	6	10	19	21
Canadian dollar	7	6	8	15	48
Australian dollar	3	8	12	19	37
Swedish krona	2	5	13	33	20
Other	129	16	38	102	103

[1] Adjusted for local and cross-border inter-dealer double-counting (ie “net-net” basis). Single currency interest rate contracts only. [2] The category "other interest rate products" covers highly leveraged transactions and/or trades whose notional amount is variable and where a decomposition into individual plain vanilla components was impractical or impossible.

Table 9

Geographical distribution of global interest rate derivatives turnover[1]

Daily averages in April, in billions of US dollars and percentages

Country	1998		2001		2004		2007		2010	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Argentina	0.0	0.0	…	…	…	…	0.0	0.0	0.0	0.0
Australia	2.8	0.8	9.8	1.5	12.8	1.0	22.7	1.0	40.6	1.5
Austria	3.3	1.0	4.2	0.6	13.5	1.0	4.9	0.2	4.8	0.2
Bahrain	0.2	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Belgium	4.9	1.4	14.1	2.1	30.5	2.3	21.6	1.0	10.0	0.4
Brazil	…	…	0.3	0.0	0.9	0.1	0.1	0.0	7.5	0.3
Bulgaria	…	…	…	…	…	…	0.0	0.0	0.0	0.0
Canada	6.4	1.9	9.9	1.5	12.1	0.9	20.6	0.9	41.7	1.5
Chile	…	…	…	…	0.0	0.0	0.0	0.0	0.2	0.0
China	…	…	…	…	…	…	0.0	0.0	1.5	0.1
Chinese Taipei	0.1	0.0	0.1	0.0	1.5	0.1	1.5	0.1	1.6	0.1
Colombia	…	…	…	…	…	…	0.0	0.0	0.0	0.0
Czech Republic	…	…	0.2	0.0	0.6	0.0	0.7	0.0	0.3	0.0
Denmark	4.2	1.2	5.8	0.9	10.8	0.8	10.0	0.5	16.4	0.6
Estonia	…	…	…	…	…	…	0.0	0.0	0.0	0.0
Finland	2.1	0.6	0.5	0.1	0.3	0.0	3.0	0.1	1.3	0.0
France	40.6	11.8	65.1	9.6	151.3	11.4	176.1	8.1	193.3	7.2
Germany	29.1	8.5	94.0	13.9	42.8	3.2	90.2	4.2	48.5	1.8
Greece	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.2	0.0
Hong Kong SAR	2.4	0.7	2.6	0.4	11.3	0.8	17.3	0.8	18.5	0.7
Hungary	0.0	0.0	0.0	0.0	0.2	0.0	0.8	0.0	0.2	0.0
India	…	…	0.1	0.0	0.7	0.1	3.4	0.2	3.5	0.1
Indonesia	…	…	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Ireland	1.8	0.5	5.8	0.9	12.4	0.9	7.2	0.3	7.1	0.3
Israel	…	…	…	…	…	…	0.0	0.0	0.0	0.0
Italy	4.1	1.2	23.7	3.5	37.9	2.8	29.8	1.4	27.3	1.0
Japan	31.6	9.2	15.7	2.3	30.9	2.3	76.4	3.5	89.9	3.3
Korea	0.0	0.0	0.1	0.0	0.9	0.1	5.4	0.2	10.7	0.4
Latvia	…	…	…	…	…	…	0.0	0.0	0.0	0.0
Lithuania	…	…	…	…	0.0	0.0	0.1	0.0	0.0	0.0
Luxembourg	2.0	0.6	4.5	0.7	7.3	0.6	3.4	0.2	2.4	0.1
Malaysia	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	1.0	0.0
Mexico	0.2	0.1	0.4	0.1	1.4	0.1	2.9	0.1	1.4	0.1
Netherlands	3.5	1.0	24.2	3.6	18.8	1.4	27.0	1.2	61.3	2.3
New Zealand	0.4	0.1	0.3	0.0	1.3	0.1	2.8	0.1	1.5	0.1
Norway	2.8	0.8	2.9	0.4	5.2	0.4	6.6	0.3	11.9	0.4
Peru	…	…	…	…	…	…	0.0	0.0	0.0	0.0
Philippines	0.0	0.0	…	…	0.0	0.0	0.0	0.0	1.1	0.0
Poland	…	…	0.4	0.1	1.0	0.1	2.7	0.1	1.6	0.1
Portugal	1.0	0.3	0.3	0.0	0.7	0.1	0.8	0.0	0.7	0.0
Romania	…	…	…	…	…	…	0.0	0.0	0.0	0.0
Russia	0.0	0.0	…	…	…	…	0.0	0.0	0.0	0.0
Saudi Arabia	0.2	0.1	0.1	0.0	0.1	0.0	0.3	0.0	0.1	0.0
Singapore	5.3	1.6	3.2	0.5	8.6	0.6	57.4	2.6	77.9	2.9
Slovakia	…	…	0.0	0.0	…	…	0.0	0.0	0.0	0.0
Slovenia	…	…	…	…	…	…	0.0	0.0	…	…
South Africa	0.7	0.2	0.6	0.1	3.0	0.2	4.5	0.2	6.0	0.2
Spain	2.9	0.8	20.5	3.0	11.9	0.9	16.8	0.8	30.7	1.1
Sweden	3.6	1.0	3.2	0.5	7.4	0.6	12.3	0.6	18.2	0.7
Switzerland	5.9	1.7	9.6	1.4	12.0	0.9	60.7	2.8	78.8	2.9
Thailand	…	…	0.0	0.0	0.1	0.0	0.4	0.0	0.7	0.0
Turkey	…	…	…	…	0.0	0.0	0.1	0.0	0.0	0.0
United Kingdom	122.9	35.8	237.8	35.2	563.0	42.3	957.1	44.0	1234.9	45.8
United States	58.4	17.0	115.7	17.1	317.4	23.8	525.0	24.2	641.8	23.8
Total	**343.6**	**100.0**	**676.0**	**100.0**	**1331.1**	**100.0**	**2173.2**	**100.0**	**2697.5**	**100.0**

[1] Adjusted for local inter-dealer double-counting (ie “net-gross” basis). Tables 6, 7 and 8 are expressed on a "net-net" basis.

IV. Statistical notes

The objective of the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity is to obtain the most comprehensive and internationally consistent information on the size and structure of foreign exchange and over-the-counter (OTC) interest rate derivative markets. The purpose of the statistics is to increase market transparency and thereby help central banks, other authorities and market participants to better monitor patterns of activity in the global financial system. The latest triennial survey covered turnover in April 2010, as reported by 1,309 market participants in 53 countries and financial centres[10] on a gross and unconsolidated basis. The format of the 2010 survey included the following main refinements and clarifications of reporting procedures as compared with the previous survey:

- The list of currency pairs has been expanded in order to capture transactions involving currencies typically used in carry trade strategies, namely AUD/JPY, NZD/JPY, USD/ZAR and USD/HKD. In addition, trades in the Brazilian real, Chinese renminbi, Indian rupee and Korean won against USD were also collected.
- A more detailed counterparty breakdown for each instrument has been collected for identification of execution method in order to include a distinction between "with reporting dealers, local" and "with reporting dealers, cross-border".

Despite these changes, the data presented here can be considered as being largely comparable with those of the previous triennial survey in 2007, notwithstanding the different structure of the results (see Section I). Weighted average coverage of foreign exchange markets in reporting countries increased from 96% in 2007 to 97% in 2010.

1. Coverage

The triennial survey collects data on the following foreign exchange instruments: spot transactions, outright forwards, foreign exchange swaps, currency options and currency swaps.

The survey also collects data on the following interest rate derivatives: forward rate agreements (FRAs), interest rate swaps and interest rate options.

2. Turnover data

Turnover data provide a measure of market activity, as well as an indication of market liquidity. Turnover was defined as the absolute gross value of all new deals entered into during the month of April 2010, and was measured in terms of the nominal or notional amount of the contracts.

[10] Slovenia did not participate in 2010.

No distinction was made between sales and purchases (ie a purchase of $5 million against sterling and a sale of $7 million against sterling would amount to a gross turnover of $12 million). Direct cross-currency transactions are counted as single transactions; however, cross-currency transactions passing through a vehicle currency are recorded as two separate deals against the vehicle currency. The gross amount of each transaction was recorded once, and netting arrangements and offsets are ignored. For turnover of transactions with variable nominal or notional principal amounts, the nominal or notional principal amount on the transaction date was reported.

The basis for reporting was in principle the location of the sales desk of any trade, even if deals entered into in different locations are booked in a central location. Thus, transactions concluded by offices located abroad are not reported by the country of location of the head office, but by that of the office abroad (insofar as the latter was a reporting institution in one of the other 52 reporting countries). Where no sales desk was involved in a deal, the trading desk was used to determine the location of deals.

In all cases, transactions are reported to the BIS in US dollar equivalents, with non-dollar amounts generally converted into US dollars using the exchange rate prevailing on the date of the trade.

As in the previous triennial foreign exchange market surveys, turnover data are collected over a one-month period, the month of April, in order to reduce the likelihood that very short-term variations in activity might contaminate the data. The data collected for the survey reflected all transactions entered into during the calendar month of April 2010, regardless of whether delivery or settlement was made during that month.

In order to allow a comparison across countries, daily averages of turnover are computed by dividing aggregate monthly turnover for the country in question by the number of days in April on which the foreign exchange and derivatives markets in that country were open. The number of trading days ranged from 18 to 22 in April 2010, with the exception of Saudi Arabia (30 days) and Bahrain (24 days).

3. Instruments

The definitions used for foreign exchange market instruments are the following:

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.

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). This category also includes forward rate agreement (FRA) transactions, non-deliverable forwards and other forward contracts for differences.

Foreign exchange swap: transaction which 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 contract (the long leg).

Currency swap: contract which commits two counterparties to exchange streams of interest payments in different currencies for an agreed period of time and usually 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 exotic currency options such as average rate options and barrier options.

The definitions used for OTC single-currency interest rate derivatives are the following:

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 group 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.

4. Counterparties

Following the methodology of the previous triennial central bank surveys, reporting institutions were requested to provide for each instrument a breakdown of contracts by counterparty as follows: *reporting dealers*, *other financial institutions* and *non-financial customers*, with separate information on *local* and *cross-border* transactions. The distinction between local and cross-border had to be determined according to the location of the counterparty and not its nationality.

"Reporting dealers" are defined as those financial institutions that actively participate in local and global foreign exchange and derivatives markets. These are mainly large commercial and investment banks and securities houses that (1) participate in the *inter-dealer* market and/or (2) have active *business with large customers*, such as large corporate firms, governments and other non-reporting financial institutions; in other words, *reporting dealers* are institutions that are actively buying and selling currency and OTC derivatives both for their own account and/or to meet customer demand. In practice, *reporting dealers* are often those institutions that actively or regularly deal through electronic platforms, such as EBS or Reuters dealing facilities. The category of reporting dealers also includes the branches and subsidiaries of institutions operating in multiple locations that have sales desks, but not necessarily trading desks, which conduct active business with large customers.

"Other financial institutions" are defined as those financial institutions that are not classified as *reporting dealers*. Thus, they mainly cover all other financial institutions, such as smaller commercial banks, investment banks and securities houses, and in addition mutual funds, pension funds, hedge funds, currency funds, money market funds, building societies, leasing companies, insurance companies, financial subsidiaries of corporate firms and central banks.

"Non-financial customers" are defined as any counterparty other than those described above, ie mainly non-financial *end users,* such as corporations and governments.

5. Currency and other market risk breakdowns

In order to obtain consistent data on turnover in principal currency segments of the foreign exchange market, reporting institutions are asked to report turnover data on foreign exchange contracts and to identify the main currency pairs. Thus, data should be provided separately for trading in the domestic currency, the US dollar and the euro against each other and against the individual currencies listed below.

JPY: Japanese yen

GBP: pound sterling

CHF: Swiss franc

CAD: Canadian dollar

AUD: Australian dollar

SEK: Swedish krona

Other currencies

Due to the importance of carry trade activities, data were also collected for transactions involving certain combination of currencies that – not being explicitly listed in the main currency pairs above – are typically present in carry trade strategies, namely: USD/ZAR, USD/HKD, AUD/JPY and NZD/JPY. In addition, data on trades in the Brazilian real, Chinese renminbi, Indian rupee and Korean won against USD were also collected.

Moreover, given the increasing interest in the identification of turnover in all reporting countries' currencies, reporting dealers were requested to provide supplementary information on total turnover for the following currencies:

Argentine peso, Australian dollar, Bahraini dinar, Brazilian real, Bulgarian lev, Canadian dollar, Swiss franc, Chilean peso, Chinese renminbi, Colombian peso, Czech koruna, Danish krone, Estonian kroon, pound sterling, Hong Kong dollar, Hungarian forint, Indonesian rupiah, Israeli new shekel, Indian rupee, Japanese yen, Korean won, Latvian lats, Lithuanian litas, Malaysian ringgit, Mexican peso, Norwegian krone, New Zealand dollar, Peruvian new sol, Philippine peso, Polish zloty, Romanian leu, Russian rouble, Saudi riyal, Singapore dollar, Swedish krona, New Taiwan dollar, Thai baht, Turkish lira and South African rand.

6. Maturities

Transactions in outright forwards and foreign exchange swaps are to be broken down between the following maturity bands: seven days or less; over seven days and up to one year; over one year.

7. Elimination of double-counting

Double-counting arises because transactions between two reporting entities are recorded by each of them, ie twice. In order to derive meaningful measures of overall market size, it is therefore necessary to halve the data on transactions between reporting dealers. To permit this, reporters are asked to distinguish deals contracted with other reporters (dealers). The following methods of adjustment are applied: data on local deals with other reporters are firstly divided by two, and this figure is subtracted from total gross data to arrive at so-called "net-gross" figures, ie business net of local inter-

dealer double-counting. In a second step, data on cross-border deals with other reporters are also divided by two, and this figure is subtracted from total "net-gross" data to obtain so-called "net-net" figures, ie business net of local and cross-border inter-dealer double-counting.

8. Intertemporal comparisons

Intertemporal comparisons are complicated by changes in coverage and definition, and by the movement of exchange rates over the three-year periods separating the surveys in the participating countries.

Changes in coverage might have been of two kinds. First, within national markets the coverage of dealers active in national markets might have changed. An increase in the number of reporting institutions, for example, does not necessarily denote greater coverage. If institutions which were not active before, and were therefore not covered in earlier reports, began to deal on a substantial scale, it is legitimate to compare the total turnover of the larger number of reporting institutions with the total turnover of the smaller number reporting their transactions in the previous period. The same applies, of course, in the case of a decrease in the number of reporting institutions due to a reduction or the transfer to another country of their activity, and to their relative importance in the market.

The second type of change in coverage relates to the inclusion of a larger number of countries and of new features since the inception of the survey in 1986. For instance, in 1995 the coverage of market activity was significantly expanded to include most financial derivatives. In 1998 the number of reporting countries increased from 28 to 43 and the coverage of derivatives market activity was further expanded to include separate data on credit-linked derivatives. In 2001, 2004 and 2007 the number of reporting countries increased further to 48, 52 and 54, respectively, while in 2010 the number of participating countries dropped to 53. For all these periods the coverage of market segments remained the same as in 1998.

While the additional information provided by new reporting countries is valuable, not all of it relates to transactions that were not captured before. The bulk of these countries' cross-border transactions with dealers can be presumed to have been included in the reports of their counterparties in earlier years. In new reporting countries, the business not captured before therefore relates to local inter-dealer transactions and those with non-reporting financial institutions and customers.

Another complication involves changes in definitions. Most changes in definitions reflect improvements in compilation procedures. In particular, greater effort has been made following the 1992 survey to classify counterparties accurately and a finer counterparty breakdown has been used. As a result, it is now possible to arrive at more accurate estimates of double-counting and to compile net figures on turnover for all items.

However, intertemporal comparisons have to be interpreted carefully. The current procedure introduces biases to the extent that the share of inter-dealer business has changed over time. In 2004, an effort was made to clarify the concept of reporting dealers, in order to better distinguish between inter-dealer and customer transactions. In addition, the reporting basis for the location of trades was further clarified as being, in principle, that of the *sales desk* of any reporting institution. See Section 4 of these statistical notes for more details.

The extension of the currency breakdown in 2010, to ensure a finer identification of the turnover in all participating countries' currencies, is another factor to be considered when analysing movements in a particular currency.

9. Data at constant exchange rates

Another question often raised with intertemporal comparisons is the impact on aggregate turnover of movements in exchange rates vis-à-vis the US dollar from one reporting date to the next. For instance, turnover in the Japanese yen/pound sterling sector might have remained unchanged from one reporting period to the next in terms of these currencies. But if the dollar rises against both currencies, total turnover in the segment reported in dollar terms will be lower, thus signalling a decline where none has in fact taken place. Even in currency pairs involving the dollar, exchange rate movements will impact on turnover. For example, if a trade for a fixed amount of yen against US dollars is transacted, the trade will enter the aggregates with a smaller or larger US dollar amount, depending on how the yen moves against the dollar from one reporting date to the next. To provide some guidance on the impact of actual exchange rate movements on total reported aggregates, pre-2010 totals have been provided additionally recalculated at constant exchange rates, replacing historical exchange rates by average April 2010 exchange rates. All transactions in a given currency, say the yen, are converted into original currency terms at the historical exchange rate and then recalculated using the average April 2010 dollar/yen exchange rate, as appropriate. In the case of foreign exchange transactions, the dollar side of transactions remains unchanged, since the exchange rate for dollar amounts is constant (and equal to one) over time. The sums of all recalculated transactions are divided by two. This takes account of the joint contribution of two currencies to each foreign exchange transaction.