

**The
Foreign Exchange
and
Interest Rate Derivatives
Markets:**

**Turnover in the United States,
April 2013**

Federal Reserve Bank of New York

The Foreign Exchange and Interest Rate Derivatives Markets: Turnover in the United States, April 2013

Background

The Federal Reserve Bank of New York together with over fifty other central banks conducted a survey of turnover in the over-the-counter (OTC) foreign exchange and interest rate derivatives markets for April 2013. This worldwide, cooperative effort is undertaken every three years and is coordinated by the Bank for International Settlements (BIS).

The “triennial survey” is a comprehensive source of information on the size and structure of the OTC foreign exchange and derivatives markets. These markets trade private, bilateral contracts; therefore, no turnover statistics are available, as they are for the organized exchanges. (Data for exchange-traded futures and options are excluded from the survey.)

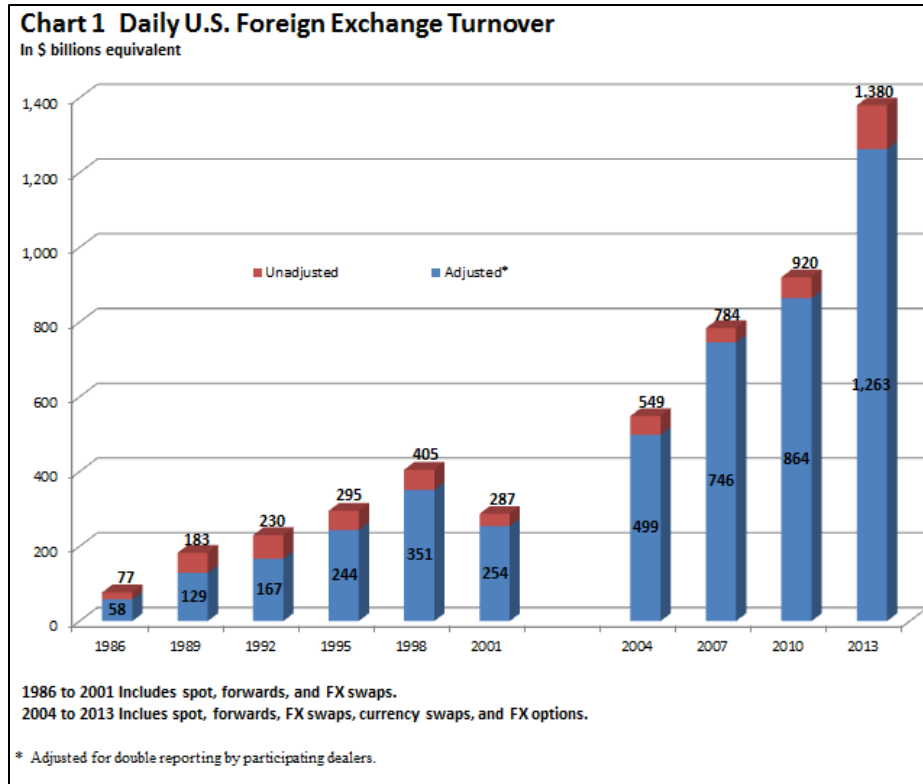
To measure the OTC markets, the dealers that make markets in foreign exchange and interest rate derivatives reported trading volumes for April 2013 to the central banks in the countries where they are located. The participants reported separately the volume of trading they conduct with each other to permit adjustments for double reporting. The central banks then compiled national aggregates from the dealers’ data and the BIS compiled global totals from the central banks’ national data.¹ (See Annex I for a complete description of survey terms and methods.)

In 2013, a total of twenty-four dealers in the United States participated in the foreign exchange part of the survey and eighteen in the interest rate derivatives section, slightly changed from 2010, which had twenty-four and nineteen participating institutions respectively. Participating dealers were commercial banks, U.S. offices of foreign banking organizations, and securities brokers/dealers. These firms were U.S.-owned institutions as well as foreign-owned institutions with dealing operations in the United States. (See Annex II for a list of participating dealers.)

This report discusses turnover in foreign exchange (FX) spot, forwards, FX swaps, FX options, as well as currency swaps as the foreign exchange part of the survey. Trading in forward rate agreements (FRAs), interest rate swaps, and interest rate options are then discussed together as the single-currency interest rate derivatives part of the survey.

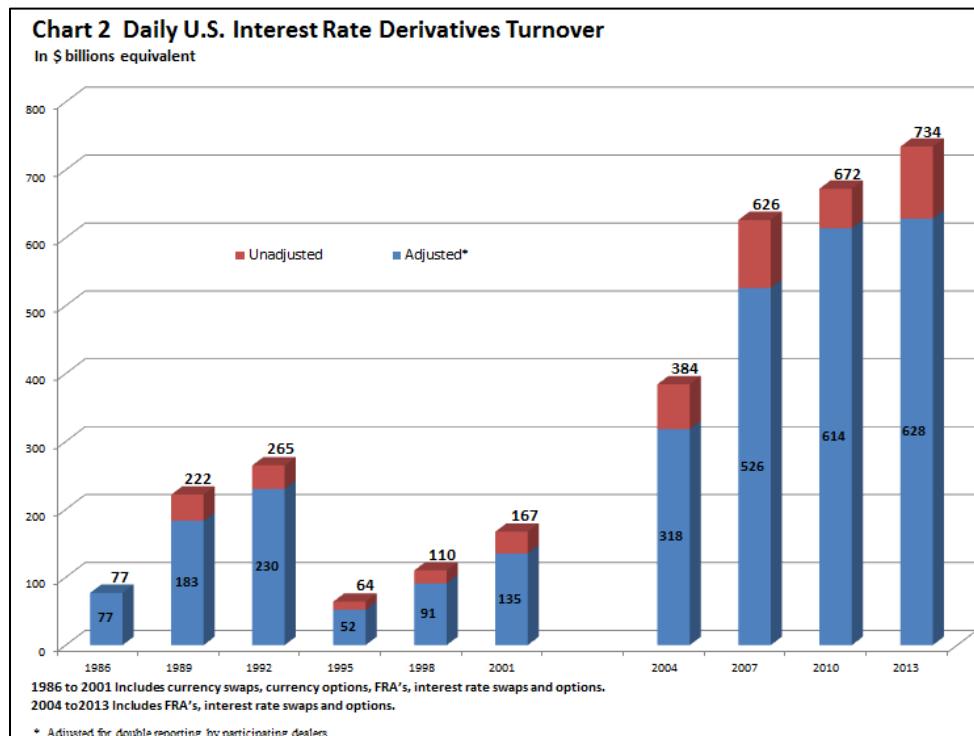
After adjusting for double reporting of trades between participating dealers, daily foreign exchange turnover in the United States (spot, forwards, FX swaps, currency swaps, and FX options) averaged \$1,263 billion in April 2013, an increase of 46 percent from the 2010 survey. (See Chart 1)

¹ Visit www.bis.org/publ/rpfx13.htm for the BIS report on global turnover and www.newyorkfed.org/markets/foreignex.html for US turnover.



Instruments

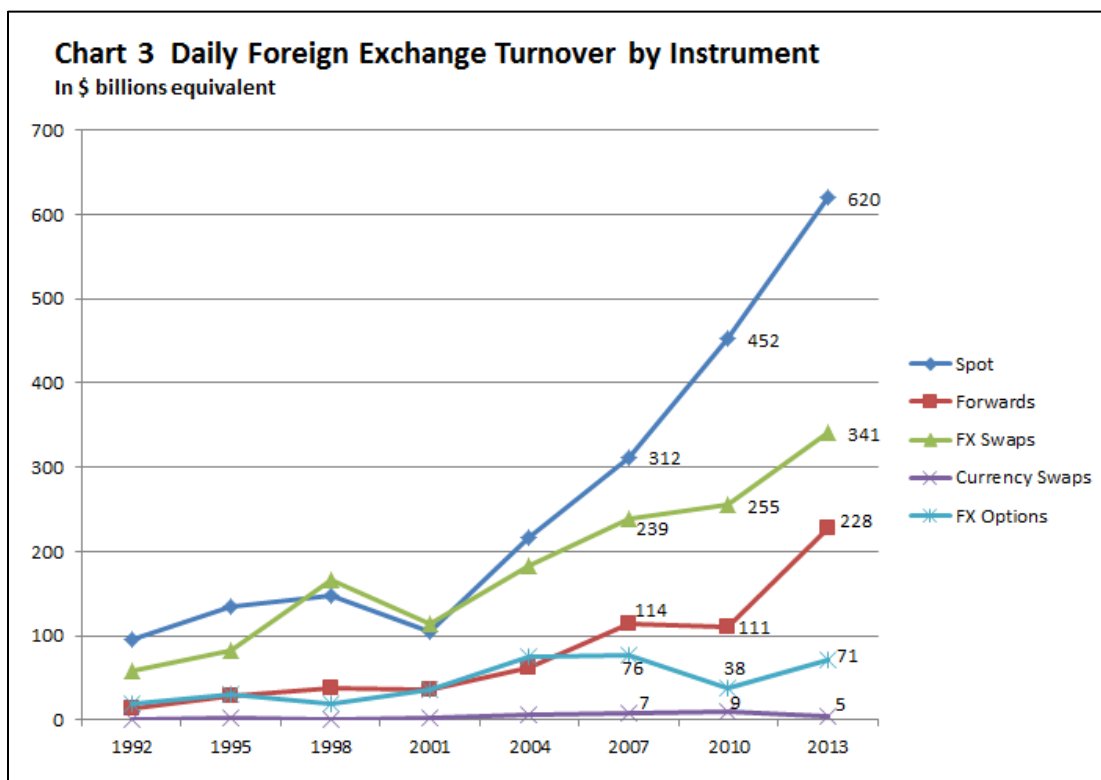
Daily turnover for the other derivatives markets covered by the survey (FRAs, interest rate swaps, interest rate options, and other interest rate derivative products) averaged \$628 billion, an increase of 2 percent. (See Chart 2)



The U.S. Foreign Exchange Market

Daily foreign exchange turnover in the United States increased 46 percent from 2010 to \$1,263 billion,² continuing the strong growth reported in past surveys. Factors contributing to increased turnover included continued growth in market participation, especially through other financial institutions³. The 2013 survey was conducted during a period of steady growth for FX over-the-counter financial instruments.

Of the five instruments comprising foreign exchange turnover, forwards trading increased the most, by 105 percent. Turnover in FX options rose 87 percent, while spot transactions increased 37 percent, and FX swaps increased 34 percent. Turnover in currency swaps dropped 44 percent from the 2010 survey but this decline may have been at least partially due to a less than full participation rate by respondents to this category. (See Chart 3)



- Spot trading represented 49 percent of total foreign exchange turnover, down from 52 percent in 2010.
- FX swaps trading represented 27 percent of turnover, down from 29 percent in the prior survey.
- Outright forward transactions increased to 18 percent of turnover, from 13 percent in the 2010 survey. New to the 2013 survey, participating firms reported \$35 billion

² This total is adjusted for the double reporting of transactions between participating dealers in the U.S.

³ Including hedge funds, pension funds, mutual funds, and insurance companies.

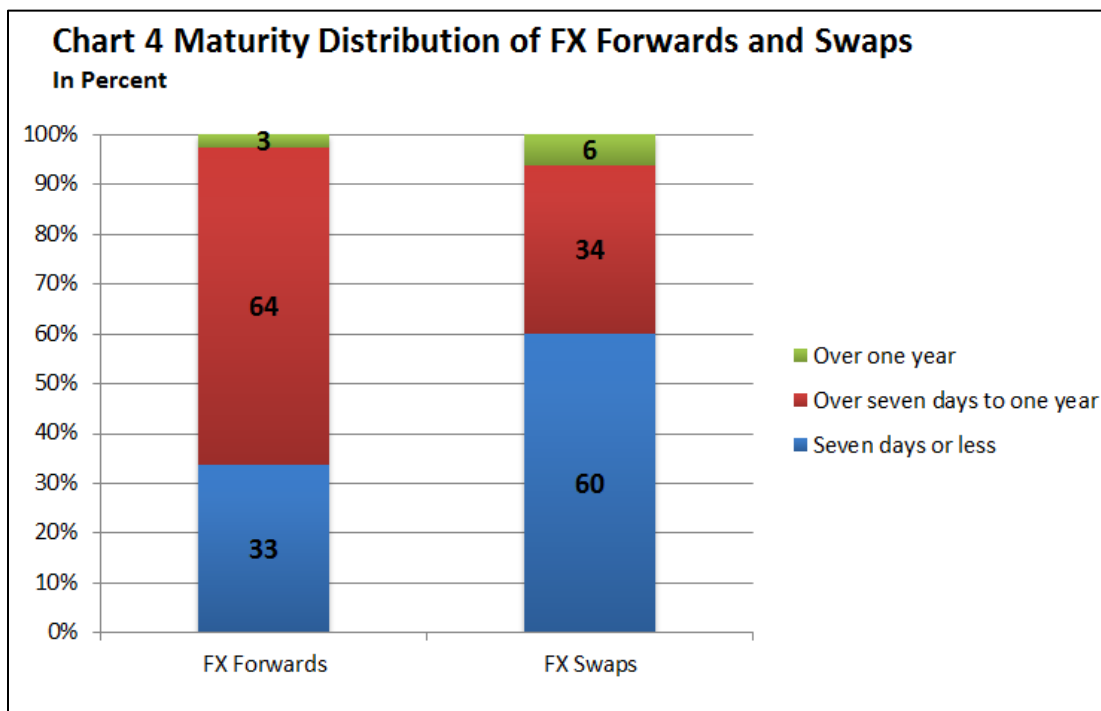
turnover in non-deliverable forward contracts or 15 percent of the total volume in forwards.

- FX options trading held 6 percent of total foreign exchange turnover, up from 4 percent in 2010.
- Currency swaps made up less than 1 percent of turnover, down from 1 percent in 2010.

Average Maturity

FX swaps and forwards were reported by original term to maturity, with three categories of maturity buckets (seven days or less, over seven days and up to one year, and over one year).

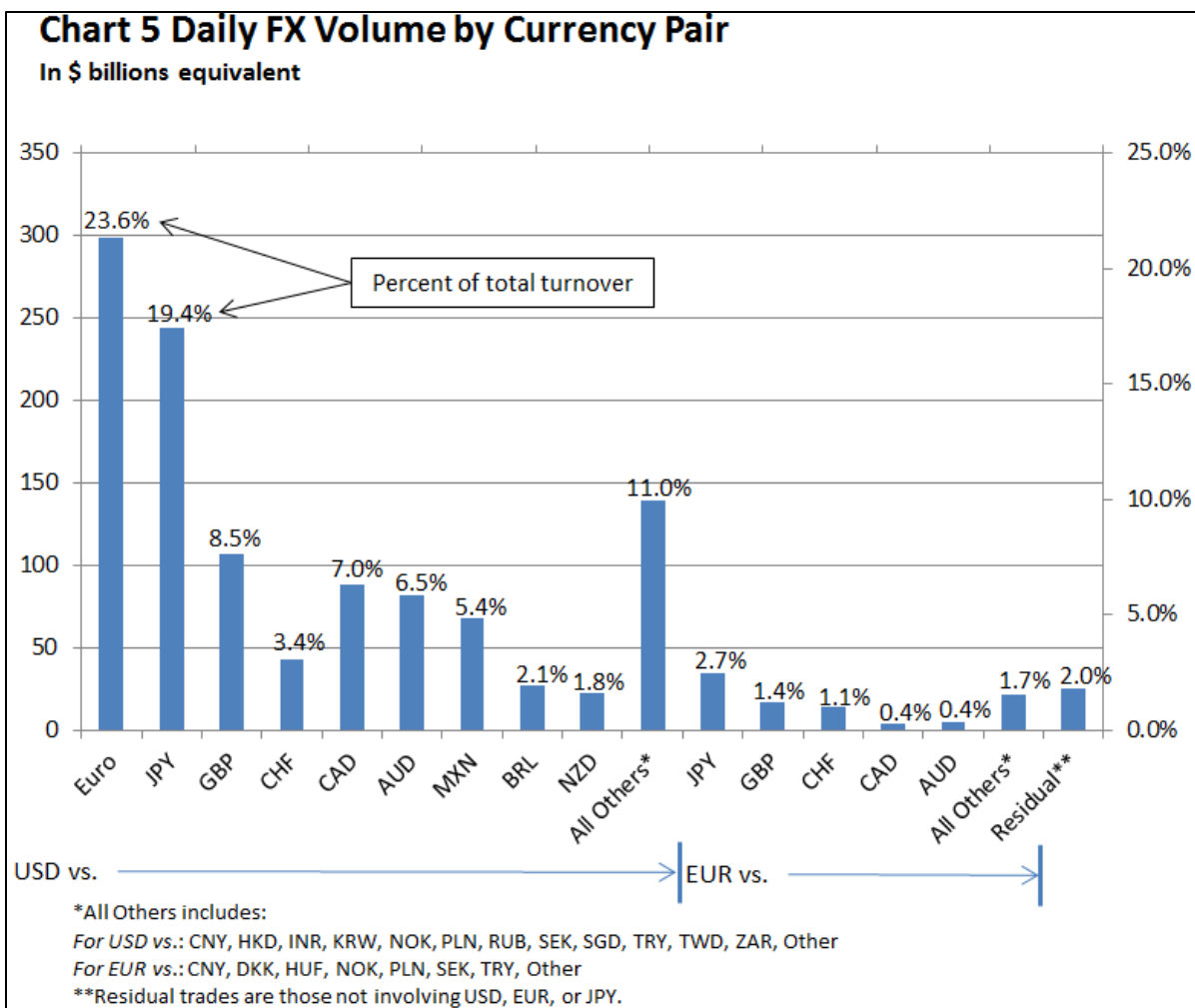
- More than 97 percent of the outright forward transactions were reported in the one-year-or-less maturity buckets. The majority of reported outright forward transactions, 64 percent, had an original maturity of more than seven days but no more than one year. (See Chart 4)
- Nearly 94 percent of the FX swaps reported in the survey were arranged with a maturity of less than one year. The majority of foreign exchange swaps, 60 percent, were reported within the seven-days-or-less maturity bucket. (See Chart 4)



Currencies

- The U.S. dollar was traded in 89 percent of all transactions, up from 87 percent in the last survey.

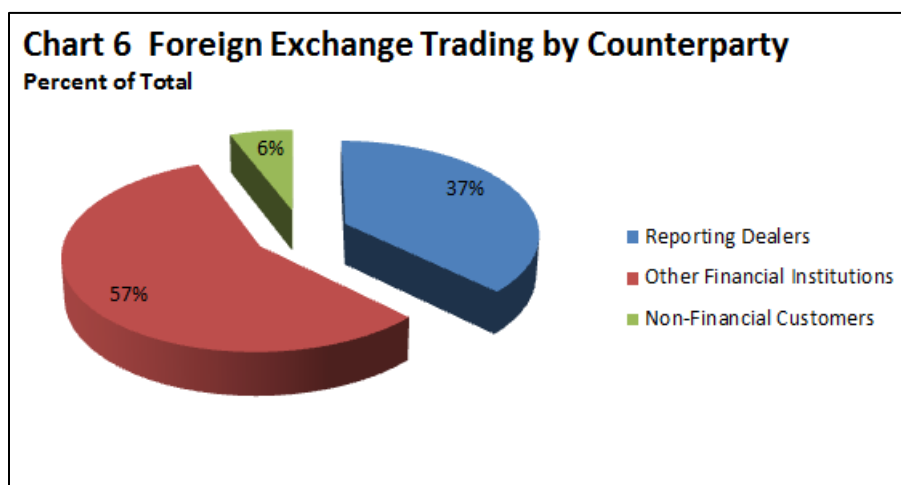
- The euro was the second most actively traded currency and was on one side of 31 percent of all trades in the U.S. market, down from 42 percent in April 2010. The dollar/euro pair accounted for the largest share of U.S. market turnover at 24 percent, down from 31 percent in April 2010.
- Trading activity in the Japanese yen was notably higher than in the April 2010 survey, rising from 16 percent in 2010 to 24 percent in 2013. The dollar/yen currency pair accounted for 19 percent of U.S. market turnover, compared to 13 percent in 2010. (See Chart 5)
- British pound trading was 10 percent of U.S. market turnover and the fourth most actively traded currency. (See Chart 5)



Market Structure

Participating dealers also reported their trading activity according to type and location of counterparties.

- Counterparty Type: Over half of all reported trades were undertaken with other financial institutions at 57 percent, while 37 percent were conducted with other reporting dealers and the remaining 6 percent were with non-financial customers. (See Chart 6)



- Counterparty Location: Highlighting the international nature of foreign exchange trading, 61 percent of FX turnover was conducted with market participants outside the United States.
- Market Share Concentration: Continuing the trend from earlier surveys, the relative market shares of the largest foreign exchange dealers remained high.
 - In the spot market, the market share of the ten firms reporting the highest volumes in the U.S. market increased from the previous survey results, totaling 98 percent in 2013 compared to 91 percent in 2010. The five largest firms accounted for 80 percent of turnover, up from 74 percent in 2010.
 - The top ten dealers in the foreign exchange swaps market accounted for 80 percent of market share, while the share of the top five firms accounted for 52 percent, a 9 percent decline from the previous survey.
 - In the forward market, the market share of the top ten dealers had no change from the previous survey at 88 percent.

- The currency swap market, was highly concentrated, while the FX options market was less concentrated than the spot market, with the top five dealers accounting for 66 percent of reported turnover compared to 70 percent in 2010.

Execution Method

Survey participants were also asked to categorize reported FX turnover during April 2013 by four basic categories of execution method.

- Voice-Direct
- Voice-Indirect
- Electronic-Direct
- Electronic-Indirect

This new breakdown for 2013 disentangles execution methods from counterparty types and makes the definition of execution methods more in line with current market practices. To continue to capture turnover on different types of electronic platforms, the latter two categories are further broken down into additional sub-categories; single-bank proprietary systems, other direct electronic means, Reuters Matching/EBS, Other electronic communications networks (ECNs), and Other.

For spot turnover, 74 percent was conducted via electronic methods (47 percent via electronic-direct and 27 percent via electronic-indirect methods). Voice-direct accounted for 22 percent of reported turnover.

For FX swaps turnover, 60 percent was conducted via electronic methods (split evenly between electronic-direct and electronic-indirect methods). Voice methods accounted for 38 percent of FX swaps turnover.

Execution of forwards turnover was 66 percent electronic (electronic-direct was 39 percent and electronic-indirect was 27 percent). Voice execution accounted for 33 percent of forwards activity..

Differences between the BIS Triennial Survey and the Foreign Exchange Committee's Semi-Annual Survey of North American Foreign Exchange Volume

Since October 2004, the Federal Reserve Bank of New York has collected and published foreign exchange turnover data on a semi-annual basis on behalf of the Foreign Exchange Committee (FXC), an industry trade group comprised of representatives from leading foreign exchange dealers and sponsored by the Bank.

The reporting panel for the BIS triennial survey is slightly larger than the FXC survey's panel: twenty-five dealers compared with twenty-four. The FXC survey captures turnover in all of North America, including Canada and Mexico; by comparison, the U.S. results in the BIS survey are limited to U.S.-based transactions. However, the specified currency pairs collected in the FXC survey are significantly narrower than those in the BIS survey.

The most notable difference between the two surveys is the reporting basis. For the BIS survey, reporting is determined by the location of the sales desk. In contrast, reporting in the FXC survey is determined by the location of the trading desk.

Data collected in the FXC survey are limited to spot, outright forwards, foreign exchange swaps, and total foreign exchange options. Currency swaps and single-currency interest rate derivatives are excluded. In addition, the FXC survey expressly excludes related-party trades, while certain related-party trading is captured in the BIS survey and identified in aggregate. Other differences include:

- the content of maturity bucket information,
- the absence of maturity data for options in the FXC survey,
- separate reporting of options bought and options sold in the BIS survey,
- the absence of local/cross-border reporting in the FXC survey.

Despite these differences, reported changes in aggregates for the two surveys, conducted simultaneously in April, were similar:

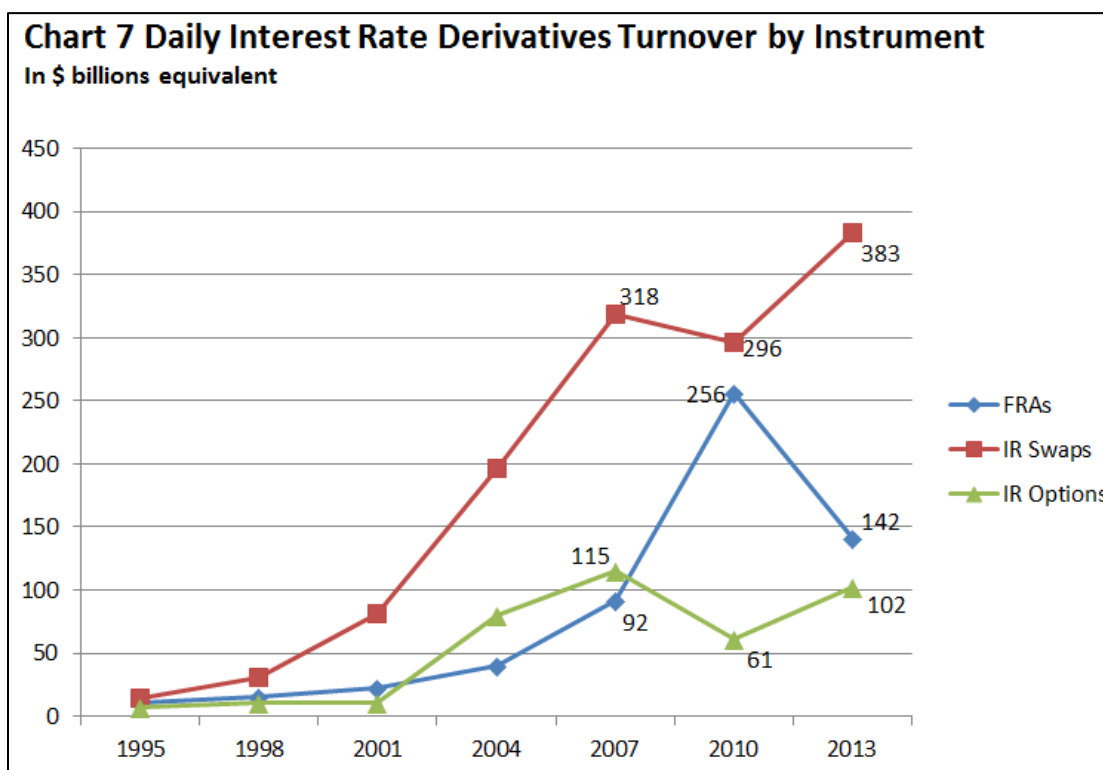
Instrument	BIS Survey	FXC Survey	Difference
Spot	619	519	100
Outright forwards	227	179	48
Foreign exchange swaps	341	257	84
Options	71	52	19

Note: Figures are daily averages reported in billions of U.S. dollars.

Single Currency
Interest Rate
Derivatives Markets

Daily turnover in single-currency interest rate derivatives markets increased. Turnover in these instruments, including forward rate agreements (FRAs), interest rate swaps, and interest rate options averaged \$628 billion per day in the United States during April 2013. (See Chart 2)

- Daily turnover for interest rate swaps was \$383 billion, an increase of 29 percent since the last survey. (See Chart 7)
- Turnover in FRAs decreased by 45 percent to \$142 billion per day, the first decline since the survey began while remaining the second most active trading instrument among these contracts. Turnover in interest rate options increased to \$102 billion per day from \$61 billion three years ago.



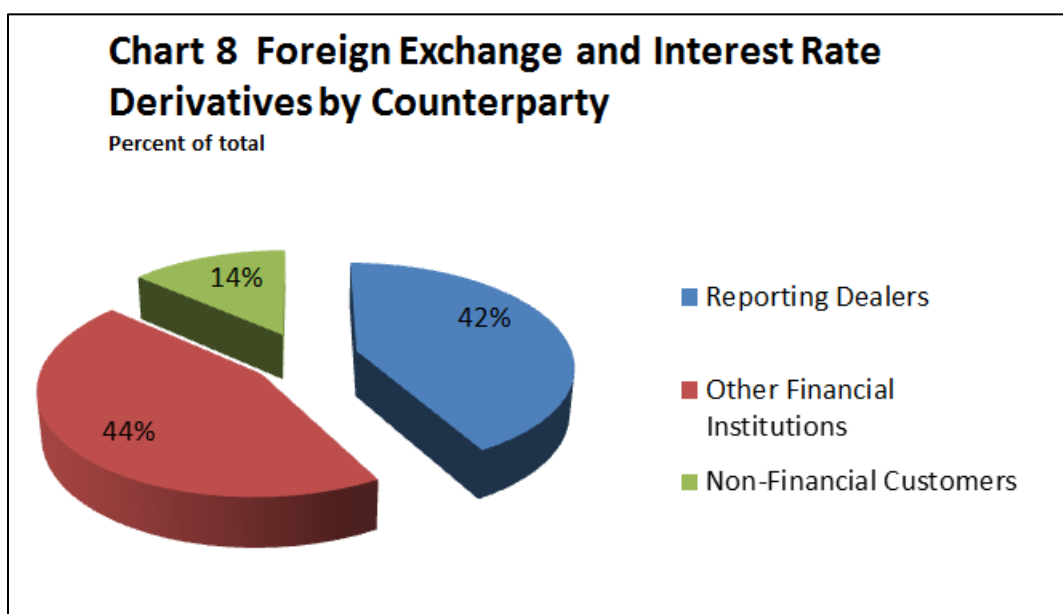
U.S.-dollar-denominated contracts accounted for 87 percent of the month's turnover in these instruments, compared with 83 percent in 2010.

Currencies

- U.S. dollar contracts represented 83 percent of single-currency interest rate swaps, up from 74 percent in 2010, as turnover in many non-dollar contracts retracted from non-dollar contract trading seen in 2010. Trading in the euro, Canadian dollar, and Brazilian real combined for 12 percent of the total.
- The U.S. dollar was the currency in 94 percent of forward rate agreements and 93 percent of interest rate options.

There was variability across the three instruments in terms of location and type of counterparty.

- Counterparty Location: For all contracts, 68 percent of trading during April was conducted with a market participant outside the United States. Among instruments, this percentage varied between 59 percent for interest rate options, 69 percent for interest rate swaps, and 72 percent for FRAs. This distribution is close to the 2010 results when 69 percent of turnover was conducted cross-border.
- Counterparty Type: A near split for majority of all reported trades was undertaken with other financial institutions and reporting dealers at 44 and 42 percent respectively. Non-financial customers made up the remaining 14 percent. See Chart 8.



- Trading in the interest rate derivatives market is generally more concentrated than trading in the foreign exchange market.
 - For the three single-currency derivative instruments, the share of reported turnover accounted for by the top ten firms accounted for more than 98 percent of the reported total.

As in the foreign exchange side of the survey, there are variations in dealer rankings from instrument to instrument and survey to survey. Similar to 2010, a total of ten different dealers ranked in the top five in trading in at least one instrument type.

**Additional
Information**
**Recent Trend
in Turnover**

Since the survey only covers one month every three years, dealers are also asked about the trading patterns and trends of their business. Their responses help to assess whether the survey month's turnover should be considered normal and whether turnover had been increasing or decreasing over the previous six months.

- ❑ Most dealers considered turnover during the month as normal, though some indicated that activity was above normal.
- ❑ Nearly all dealers viewed their business as steady or increasing over the prior six months.

Survey Terms
and Methods

1. Turnover

- a) *Turnover* is the volume of transactions during April 2013 in U.S. dollar equivalents. The amount of each transaction is reported before the effects of any netting arrangements. In the case of swap transactions, only one leg is reported.
- b) The survey covered three types of counterparties:
- 1) *reporting dealers* participating in the survey,
 - 2) *other financial institutions*, and
 - 3) *non-financial customers*.

Each type of counterparty was further identified as either *local* or *cross-border*, resulting in a total of six categories for counterparties.

Other financial institutions for FX turnover only is further broken down into six sub-categories: *non-reporting banks*, *institutional investors*, *hedge funds and proprietary trading firms*, *official sector financial institutions*, *others*, and *undistributed*.

- c) *Market totals*. Transactions between two participating dealers were reported twice, once by each dealer. Survey figures for market totals are therefore adjusted to avoid double reporting of such trades. *Adjusted* figures are market totals after adjusting for double reporting by participating dealers. *Unadjusted* figures are gross totals without adjusting for double reporting. The data in this report are adjusted figures unless otherwise noted.
- Since transactions between *local reporting dealers* were reported twice, the total of local dealer transactions is divided by two for the *adjusted total*.
- d) *Average daily turnover* was obtained by dividing total volume by twenty-two trading days in April 2013.
- e) Turnover for *non-U.S.-dollar transactions* was reported in U.S. dollar equivalents using exchange rates at the time of the transactions.
- f) *Changes in exchange rates* from one survey period to the next affect the ability to directly compare turnover survey results over time. Since 2010, the performance of the dollar has weakened. The dollar declined 1 percent against the euro and rose 4 percent against the yen. When measured against a trade-weighted basket of major currencies the dollar declined by 1 percent.

2. Location

Trade versus book location. Transactions were reported on the basis of the location of the dealer agreeing to conduct the transaction. For example, a dealer in New York might engage in a trade that is booked at a London affiliate. In this case, the trade location is New York and the book location is London. This transaction would be included in the turnover figures in the U.S. survey. If a trader in London entered into a trade but the trader's firm booked the trade in its New York affiliate, the transaction would be included in the institution's survey report to the Bank of England.

3. Participating firms

A total of twenty-four dealers participated in the foreign exchange part of the survey (see Annex II). Twenty-four dealers participated in this part of the survey in 2010 and thirty-three in 2007. For the single currency interest rate derivatives part of the survey a total of eighteen dealers participated, compared with nineteen in 2010, and twenty-eight in 2007. The dealers included U.S. institutions as well as foreign institutions with dealing operations in the United States. Participation is voluntary.

Dealers were asked to participate based on several criteria, including participation in the last BIS triennial survey or in the Foreign Exchange Committee's semi-annual survey; the firm's outstanding contracts reported in bank call reports; or, in the case of non-banks, outstanding contracts reported in published financial statements. Private surveys and articles in the financial press were also used to identify foreign banks that may book contracts outside the United States and non-bank dealers that do not publicly report their contracts.

4. Instrument definitions

In each risk category, OTC derivatives were broken down into three types of plain-vanilla instruments (forwards, swaps, and options). Plain-vanilla instruments are those traded in generally liquid markets using standardized contracts and market conventions. If a transaction comprised several plain-vanilla components, dealers were asked to report each one separately. Foreign exchange spot and OTC derivatives transactions should be defined as follows:

Spot transaction

Single outright transaction involving the exchange of two currencies at a rate agreed upon on the date of the contract for value or delivery (cash settlement) within two business days. The spot legs of swaps do not belong to spot transactions but are to be reported as swap transactions even when they are for settlement within two days (that is, spot transactions should exclude "tomorrow/next-day" transactions).

Outright forward

Transaction involving the exchange of two currencies at a rate agreed upon 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 foreign exchange agreement transactions, non-deliverable forwards, and other forward contracts for differences.

Foreign exchange swap

Transaction involving the actual exchange of two currencies (principal amount only) on a specific date at a rate agreed upon 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 upon at the time of the contract (the long leg). Both spot/forward and forward/forward swaps should be included. For *turnover*, only the forward leg should be reported as such. The spot leg should not be reported at all, that is, neither as spot nor as foreign exchange swap transactions. Short-term swaps carried out as "tomorrow/next-day" transactions should also be included in this category.

Currency swap

Contract that commits two counterparties to exchange streams of interest payments in different currencies for an agreed-upon period of time and to exchange principal amounts in different currencies at an agreed-upon 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 foreign exchange options such as average rate options and barrier options.

Currency swaption

OTC option to enter into a currency swap contract.

Currency warrant

OTC option; long-dated (over one year) currency option.

Forward rate agreement

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 amortized 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.

Interest rate cap

OTC option that pays the difference between a floating interest rate and the cap rate.

Interest rate floor

OTC option that pays the difference between the floor rate and a floating interest rate.

Interest rate collar

Combination of cap and floor.

Interest rate corridor

1) A combination of two caps, one purchased by a borrower at a set strike and the other sold by the borrower at a higher strike to, in effect, offset part of the premium of the first cap. 2) A collar on a swap created with two swaptions – the structure and participation interval is determined by the strikes and types of swaptions. 3) A digital knockout option with two barriers bracketing the current level of a long-term interest rate.

Interest rate swaption

OTC option to enter into an interest rate swap contract, purchasing the right to pay or receive a certain fixed rate.

Interest rate warrant

OTC option; long-dated (over one year) interest rate option.

Forward contracts for differences (including non-deliverable forwards)

Contracts in which only the difference between the contracted forward outright rate and the prevailing spot rate is settled at maturity.

Turnover Survey Participants: Foreign Exchange Dealers

Bank of America
Bank of Montreal
The Bank of New York
Bank of Tokyo-Mitsubishi
Barclays Capital
BNP Paribas
Citigroup
Canadian Imperial Bank of Commerce
Crédit Agricole Corporate and Investment Bank
Credit Suisse
Deutsche Bank AG
Goldman Sachs & Co.
HSBC Bank USA
JP Morgan Chase Bank
Mizuho Corporate Bank
Morgan Stanley
Royal Bank of Scotland
Skandinaviska Enskilda Bank
Société Générale
Standard Chartered
State Street Corporation
Sumitomo Mitsui Banking Corporation
UBS Bank
Wells Fargo Bank N.A.

Turnover Survey Participants: Interest Rate Derivatives Dealers

Bank of Montreal
The Bank of New York
Bank of Tokyo-Mitsubishi
Barclays Capital
BNP Paribas
Crédit Agricole Corporate and Investment Bank
Citigroup
Credit Suisse
Deutsche Bank AG
Goldman Sachs & Co.
HSBC Bank USA
JP Morgan Chase Bank
Mizuho Corporate Bank
Morgan Stanley
Royal Bank of Scotland
Société Générale
Standard Chartered
Sumitomo Mitsui Banking Corporation