

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

**Turnover in the United States,
April 2019**

Federal Reserve Bank of New York

The Foreign Exchange and Interest Rate Derivatives Markets: Turnover in the United States, April 2019

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 2019. 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. To measure the OTC markets, the dealers that make markets in foreign exchange and interest rate derivatives reported trading volumes for April 2019 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 2019, a total of nineteen dealers in the United States participated in the foreign exchange part of the survey and sixteen in the interest rate derivatives section, down from twenty-three and nineteen participating institutions respectively in 2016. 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), overnight index swaps, other swaps, and interest rate options are then discussed together as the single-currency interest rate derivatives part of the survey.

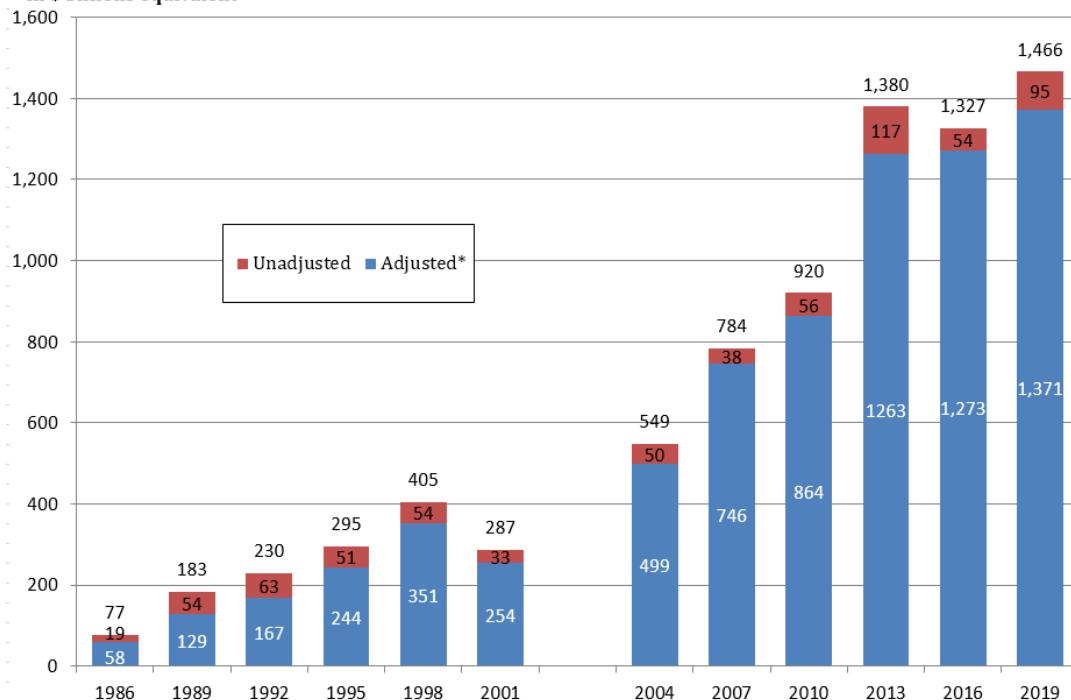
Instruments

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 \$1,371 billion in April 2019, an increase of nearly 8 percent from the 2016 survey. (See Chart 1)

¹ Visit www.bis.org/publ/rpfx19.htm for the BIS report on global turnover and www.newyorkfed.org/markets/foreignex.html for US turnover.

Chart 1 Daily U.S. Foreign Exchange Turnover

In \$ billions equivalent



1986 to 2001 Includes spot, forwards and FX swaps.

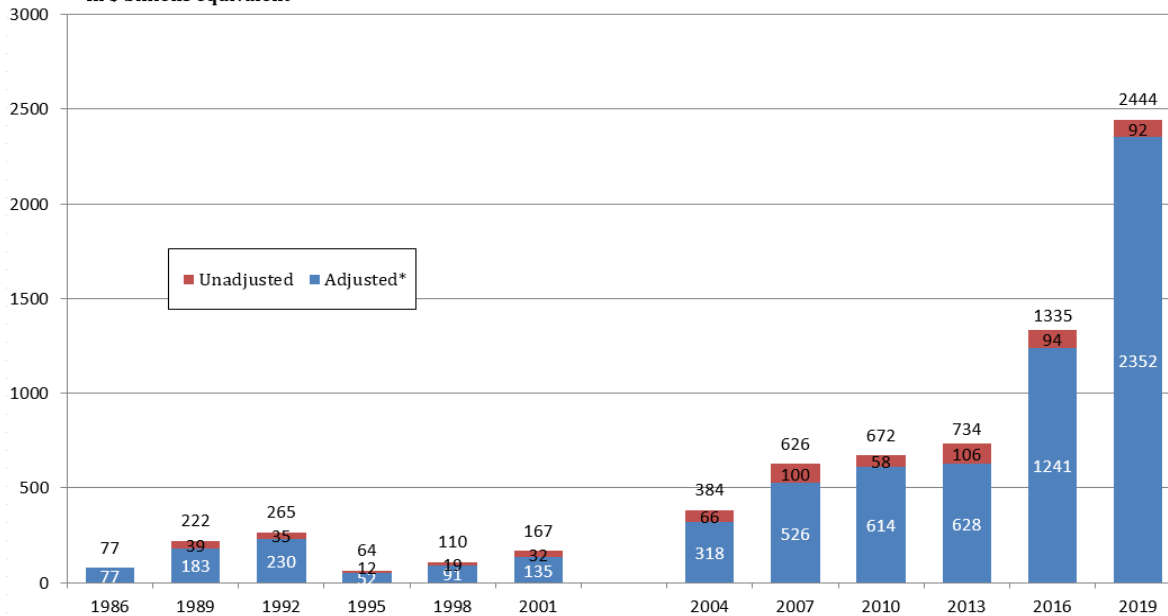
2004 to 2019 Includes spot, forwards, FX swaps, currency swaps, and FX options.

* Adjusted for double reporting by participating dealers

Daily turnover for the other derivatives markets covered by the survey (FRAs, overnight index swaps, other swaps, interest rate options, and other interest rate derivative products) averaged \$2,352 billion, an increase of 90 percent, spread across the majority of reporting institutions.

Chart 2 Daily U.S. Interest Rate Derivatives Turnover

In \$ billions equivalent



1986 to 2001 Includes currency swaps, currency options, FRA's, interest rate swaps and options.

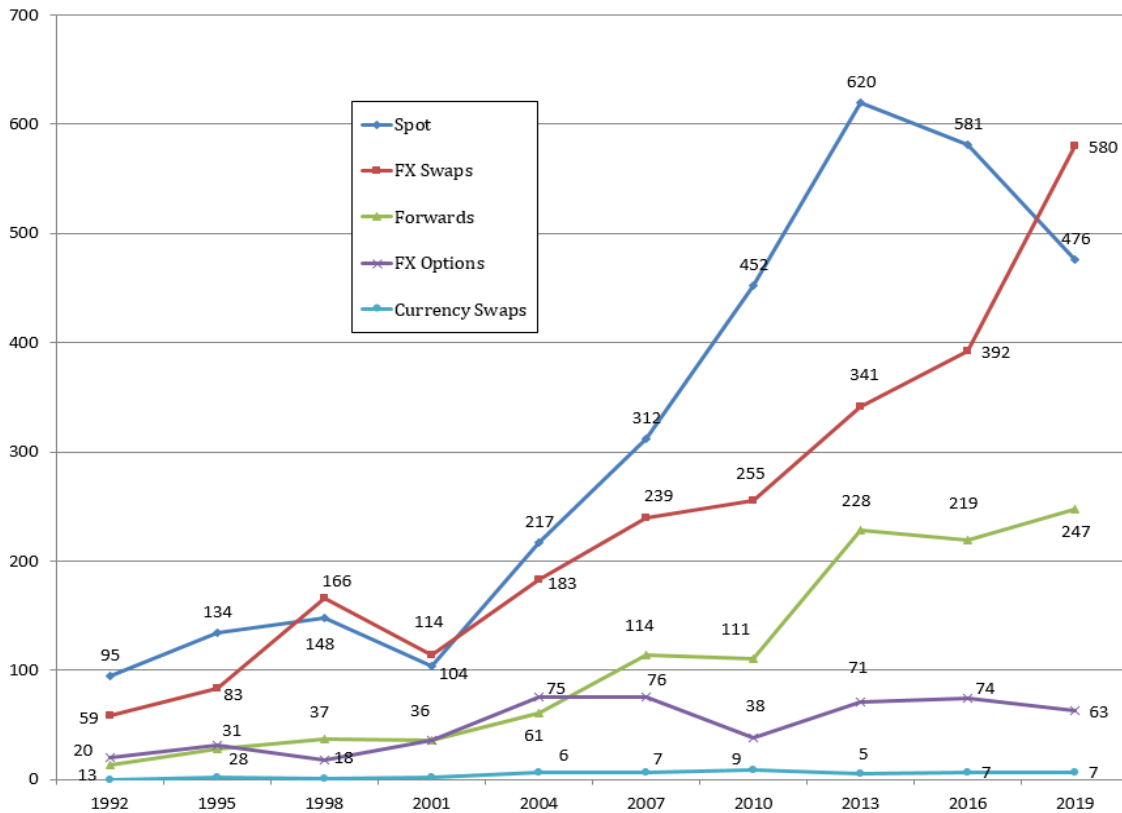
2004 to 2019 Includes FRA's, interest rate swaps and options.

* Adjusted for double reporting by participating dealers

The U.S. Foreign Exchange Market

Spot turnover decreased 18 percent while outright forwards increased 13 percent. FX swaps increased 48 percent and FX options decreased 15 percent. Turnover in currency swaps remained flat as compared to the 2016 survey. Currency swaps make up 1 percent of total foreign exchange turnover. (See Chart 3)

Chart 3 Daily Foreign Exchange Turnover by Instrument
In \$ billions equivalent



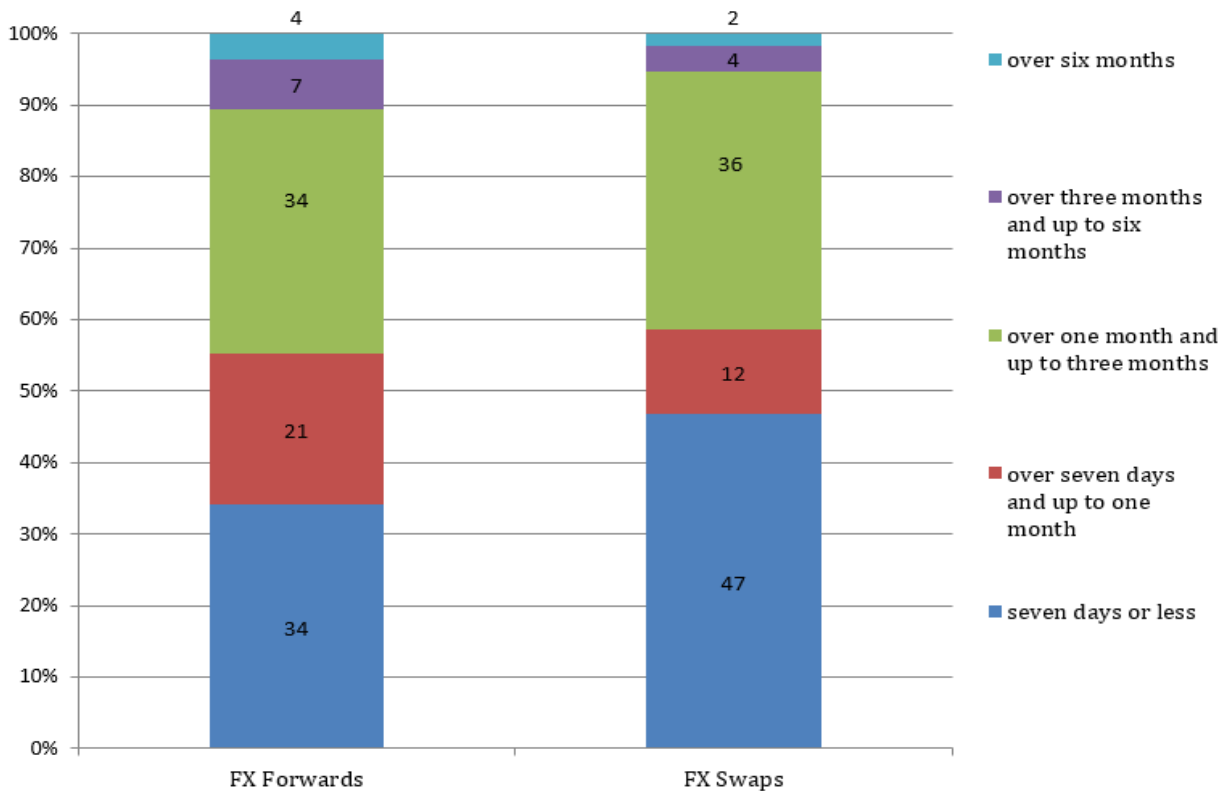
- ❑ Spot trading represented 35 percent of total foreign exchange turnover, down from 46 percent in 2016.
- ❑ FX swaps trading represented 42 percent of turnover, up from 31 percent in 2016.
- ❑ Outright forward transactions represented 18 percent of turnover versus 17 percent in 2016. Participating firms reported \$50 billion turnover in non-deliverable forward contracts or 20 percent of the total volume in forwards.
- ❑ FX options trading represented 5 percent of total foreign exchange turnover compared to 6 percent in 2016.

Average Maturity

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

- Nearly 90 percent of the FX forward transactions were reported as due in less than 3-months. Specifically, 34 percent was reported in “seven days or less,” 21 percent was reported in “over seven days and up to one month,” and 34 percent was reported in “over one month and up to three months.” (See Chart 4)
- Nearly 95 percent of FX swaps reported were spread across the same three short-term maturity buckets.
- Nearly half (47 percent) of turnover in FX Swaps were reported as due in “seven days or less,” 12 percent was reported in “over seven days and up to one month,” and 36 percent was reported in “over one month and up to three months.” (See Chart 4)

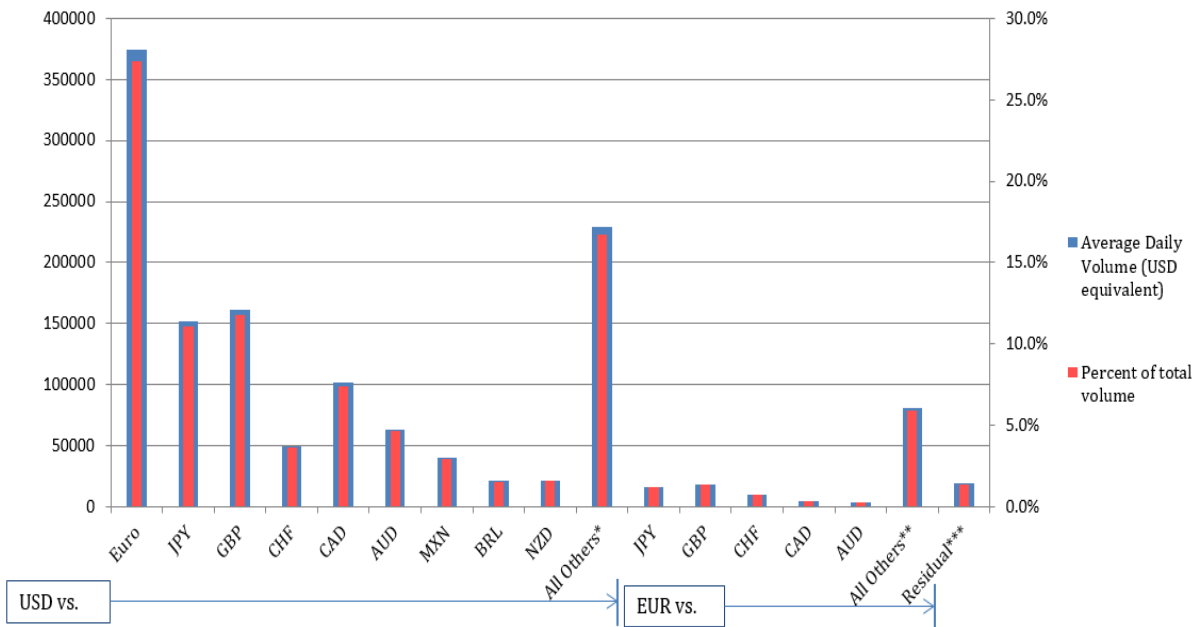
Chart 4 Maturity Distribution of FX Forwards and Swaps In Percent



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 36 percent of all trades in the U.S. market, up from 31 percent in April 2016.
- ❑ The dollar/euro pair accounted for the largest share of U.S. market turnover at 27 percent, up from 26 percent in April 2016.
- ❑ The dollar/yen currency pair accounted for 11 percent of U.S. market turnover, down from 19 percent in 2016. (See Chart 5)

**Chart 5 Daily FX Volume by Currency Pair
In \$ millions equivalent**



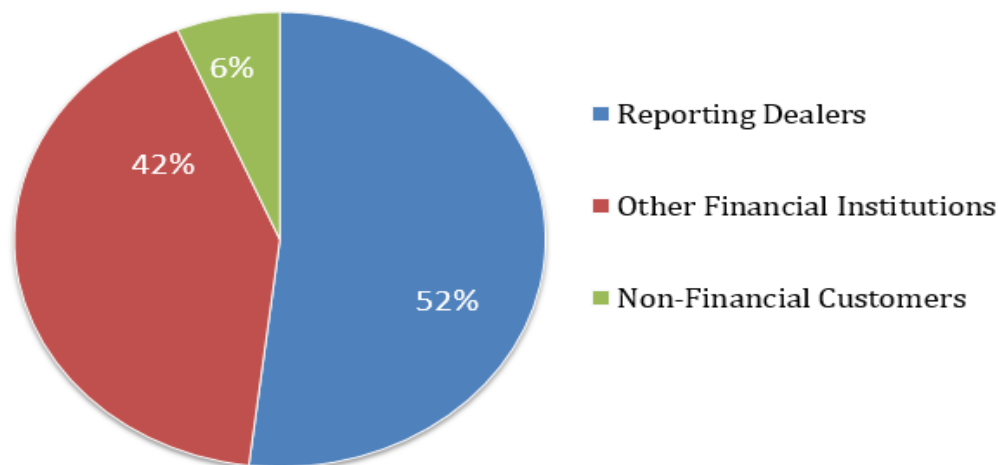
All Others includes:
 *For USD vs.: CNY, HKD, INR, KRW, NOK, PLN, RUB, SEK, SGD, TRY, TWD, ZAR, Other
 **For All others includes EUR vs.: CNY, DKK, HUF, NOK, PLN, SEK, TRY, Other ; and JPY vs. AUD, BRL, CAD, NZD, TRY, ZAR, Other
 ***Residual trades are those not involving USD, EUR, or JPY.

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 reporting dealers at 52 percent, while 42 percent were conducted with other financial institutions and the remaining 6 percent were with non-financial customers. (See Chart 6)

**Chart 6 Foreign Exchange Trading by Counterparty
Percent of Total**



- ❑ Counterparty Location: Highlighting the international nature of foreign exchange trading, 75 percent of FX turnover was conducted with market participants outside the United States, down slightly from 73 percent in 2016.

Execution Method

Survey participants were also asked to categorize reported FX turnover during April 2019 by four basic categories of execution method².

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

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 trading systems, other direct electronic means, anonymous venues, and disclosed venues.

For spot turnover, 55 percent was conducted via electronic methods (42 percent via electronic-direct and 13 percent via electronic-indirect methods). Voice-direct accounted for 36 percent of reported turnover.

For FX swaps turnover, 37 percent was conducted via electronic methods (21 percent via electronic-direct and 16 percent via electronic-indirect methods). Voice methods accounted for 61 percent of FX swaps turnover.

² Execution Method percentages based on unadjusted data.

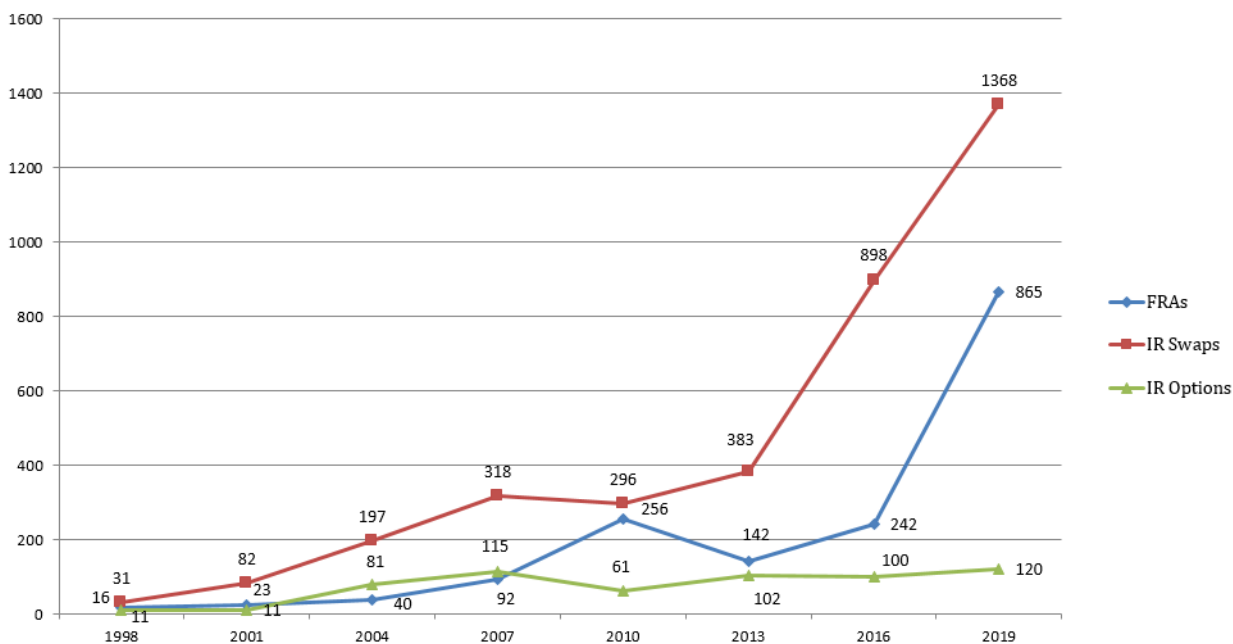
Execution of forwards turnover was 62 percent electronic (electronic-direct was 37 percent and electronic-indirect was 25 percent). Voice methods accounted for 32 percent of forwards activity.

**Single
Currency
Interest Rate
Derivatives
Markets**

Daily turnover in single-currency interest rate derivatives markets increased significantly since the prior survey. Turnover in these instruments, including forward rate agreements (FRAs), interest rate swaps, and interest rate options averaged \$2,352 billion per day in the United States during April 2019. (See Chart 2)

- Daily turnover for interest rate swaps was \$1,368 billion, an increase of 52 percent since the last survey. (See Chart 7)
- Turnover in FRAs increased by 257 percent to \$865 billion per day, up \$623 billion since the 2016 survey while remaining the second most active trading instrument among these contracts. Turnover in interest rate options increased to \$120 billion per day from \$100 billion three years ago.

**Chart 7 Daily Interest Rate Derivatives Turnover by Instrument
In \$ billions equivalent**



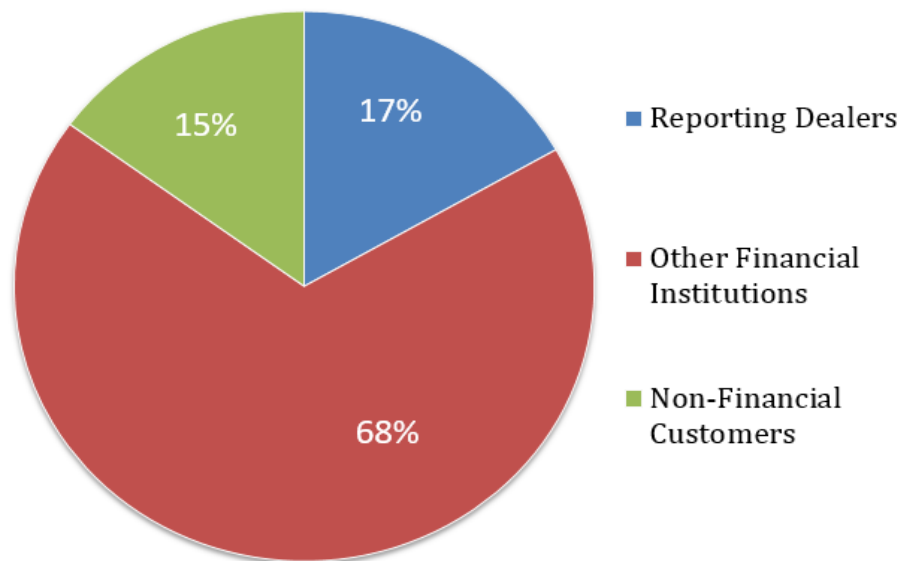
U.S.-dollar-denominated contracts accounted for 91 percent of the month's turnover in these instruments, down from 94 percent in 2016.

- U.S. dollar contracts represented 90 percent of single-currency interest rate swaps, down from 92 percent in 2016. Trading in the Euro, Canadian dollar, and Mexican peso combined for 6 percent of the total.

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

- ❑ Counterparty location: For all contracts, 75 percent of trading during April was conducted with market participation outside the United States. Among instruments, this percentage varied between 54 percent for interest rate options, 76 percent for interest rate swaps, and 76 percent for FRAs.
- ❑ Counterparty type: Similar to 2016, the 2019 survey showed that a significant majority of all reported trades (68 percent) were with other financial institutions, with reporting dealers making up 17 percent and non-financial customers making up the remaining 15 percent. (See Chart 8)

Chart 8 Single Currency Interest Rate Derivative Trading by Counterparty
Percent of Total



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. The 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.
- ❑ Most dealers viewed turnover business as steady.

Survey
Terms and
Methods

1. Turnover

- a) *Turnover* is the volume of transactions during April 2019 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 2019.
- e) Turnover for *non-U.S.-dollar transactions* was reported in U.S. dollar equivalents using exchange rates at the time of the transactions.

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 nineteen dealers participated in the foreign exchange part of the survey (see Annex II), down from twenty-three dealers in 2016. For the single currency interest rate derivatives part of the survey a total of sixteen dealers participated, down from nineteen dealers in 2016. 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.

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.

ANNEX I

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 Mellon
Barclays Capital
BNP Paribas
Citigroup
Crédit Agricole Corporate and Investment Bank
Credit Suisse
Deutsche Bank AG
Goldman Sachs & Co.
HSBC Bank USA
JP Morgan Chase Bank
Morgan Stanley
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 Mellon
Barclays Capital
BNP Paribas
Citigroup
Crédit Agricole Corporate and Investment Bank
Credit Suisse
Deutsche Bank AG
Goldman Sachs & Co.
HSBC Bank USA
JP Morgan Chase Bank
Morgan Stanley
Société Générale
Standard Chartered
UBS Bank
Wells Fargo Bank N.A.