



FX volumes and evolving market structure

2019 Triennial Central Bank Survey

Henry Holden and Vladyslav Sushko, Bank for International Settlements

European Central Bank, 19 November 2019, Frankfurt

BIS runs “Triennial” survey since April 1986

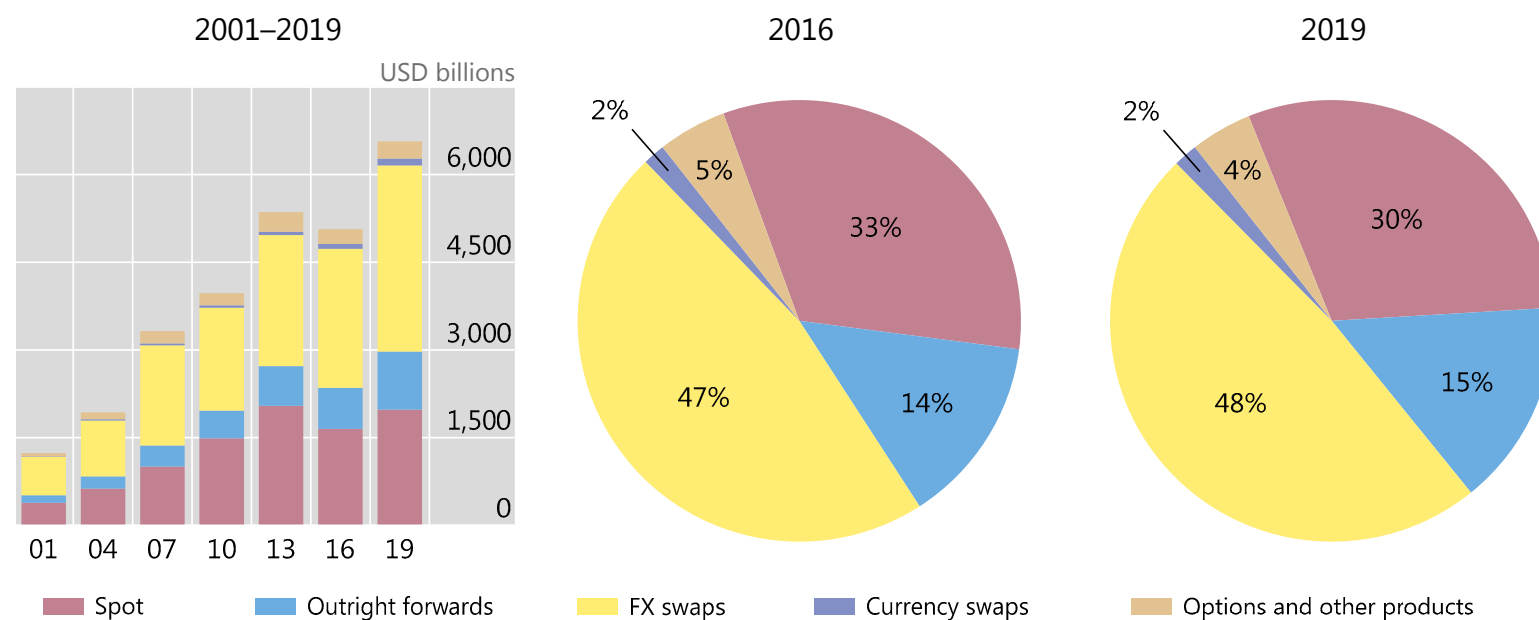
1. Shed light on activity and structure of some of the world’s largest OTC markets
2. Most comprehensive & internationally consistent information on size & market structure
3. Latest edition: April 2019 (12th edition)
 1. Approx. 1,300 reporting institutions across 53 countries, 38 currencies
 2. Key instruments: Spot, FX swaps, Forwards (incl NDF), Options, Currency swaps



Sizing up global FX markets

Daily FX turnover rose to \$6.6 trillion in 2019

- Share of spot in total FX turnover declined steadily from 38% in 2013 to 30% in 2019
- Share of FX swaps reached almost one half of overall FX activity

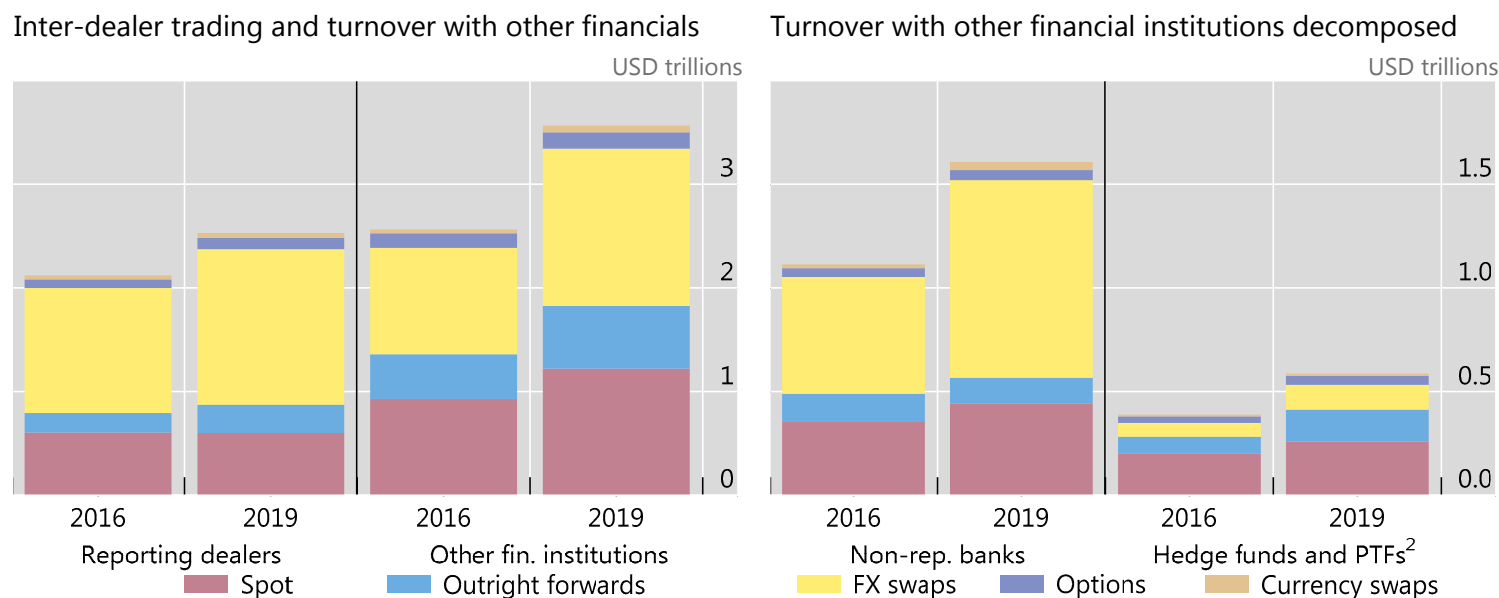


¹ Adjusted for local and cross-border inter-dealer double-counting, ie “net-net” basis. Daily averages in April.

Sources: 2019 Triennial Central Bank Survey; BIS calculations.

Trading with 'other financial institutions' picks up

- Trading with lower-tier banks rose by 44%, mostly in FX swaps
- Trading with hedge funds and PTFs up by 53%, mostly in FX swaps and forwards

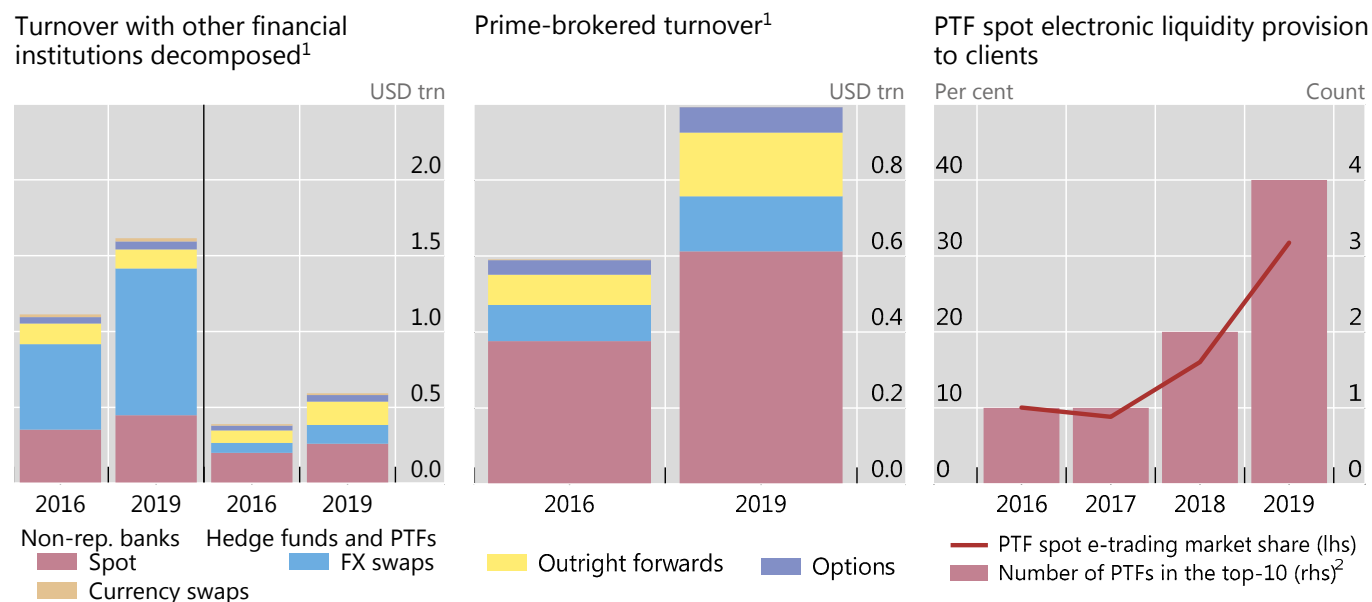


¹ Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis. Daily averages in April. ² Proprietary trading firms.

Source: 2019 Triennial Central Bank Survey; BIS calculations.

Rebound in prime brokerage in all key market segments

- Rise in PB share of turnover coincided with pickup of trading with typical PB clients
- Prime-brokerage (PB) dominates in spot, but share increase across all instruments
- Points at increased footprint of non-bank market makers



¹ Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis; daily averages in April. ² Number of PTFs in the list of top 10 spot electronic liquidity providers by market share in the *Euromoney* league tables.

Sources: BIS Triennial Central Bank Survey; Euromoney Foreign Exchange Survey.

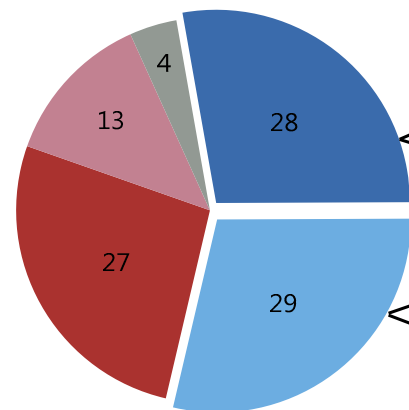


FX trade execution

How were FX trades executed in April 2019?

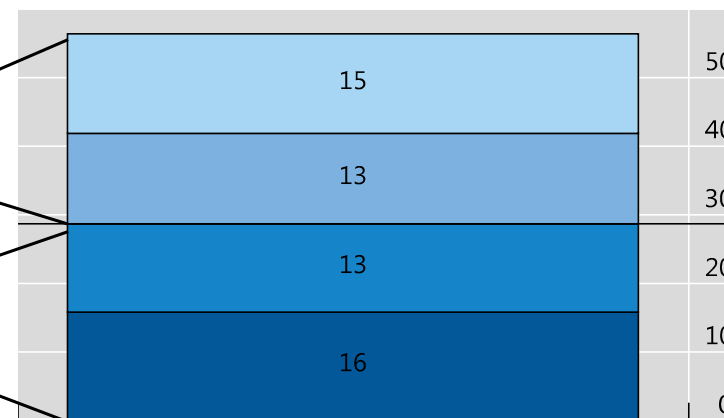
Per cent shares in turnover

Broad voice and electronic execution methods



■ Voice direct¹ ■ Electronic direct¹
■ Voice indirect² ■ Electronic indirect²
■ Undistributed

Breakdown of electronic execution methods



Electronic direct:
■ Single-bank platforms³ ■ Anonymous venues⁵
■ Other⁴ ■ Disclosed venues⁶

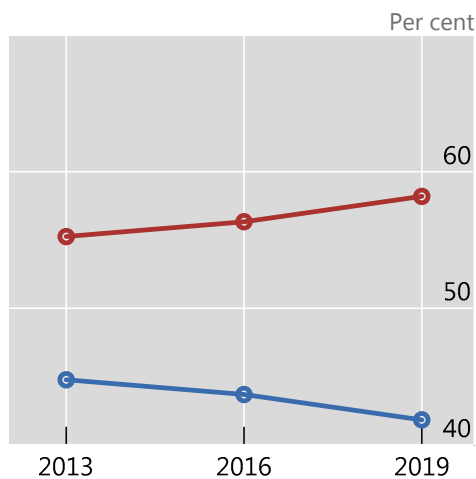
¹ Refers to trades not intermediated by a third party. ² Refers to deals intermediated by a third party – either a voice broker or a third-party electronic platform. ³ Single-bank trading systems owned and operated by a bank for both in-house and external use. ⁴ Other direct electronic trading systems, such as direct electronic price streams. ⁵ Electronic trading platforms geared towards the non-disclosed inter-dealer market (eg Refinitiv Matching, EBS Spot). ⁶ Multi-bank dealing systems that facilitate trading on a disclosed basis or that allow for price discrimination.

Sources: BIS Triennial Central Bank Survey; authors' calculations.

Uneven pace of electronification

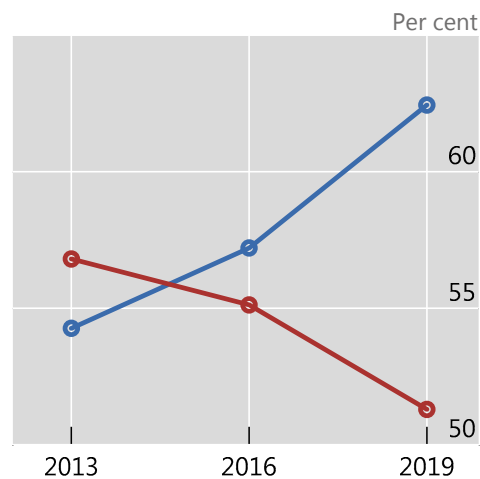
- Share of e-trading in the inter-dealer market falls
- Continued electronification of trading in dealer-customer segment
- Particularly fast growth in e-trading of outright forwards

Share of electronic and voice execution methods in total turnover



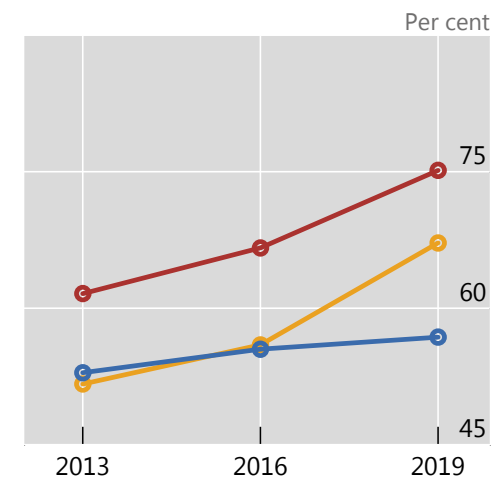
—●— Electronic trading share
—●— Voice trading share

Share of electronic trading in total turnover by counterparty



—●— Dealer-to-dealer trading
—●— Dealer-to-customer trading¹

Share of electronic dealer-to-customer trading, by instrument



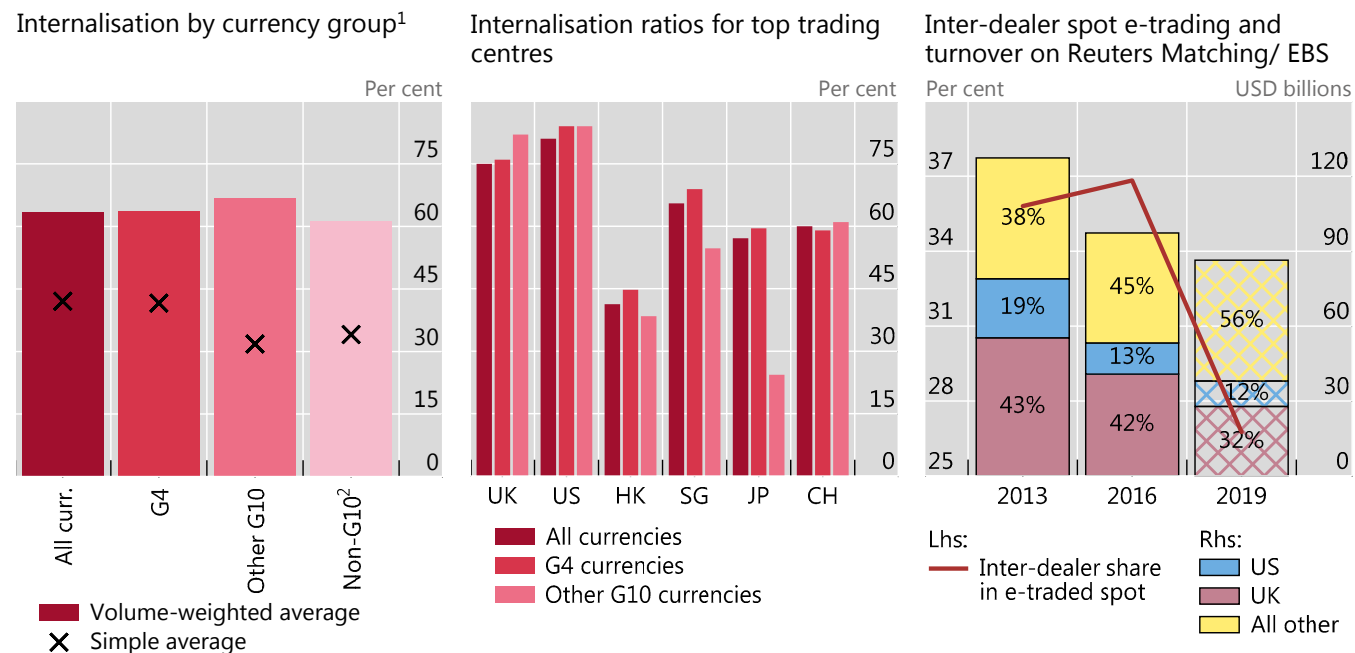
—●— Spot
—●— Outright forwards
—●— FX swaps

¹ The dealer-to-customer group contains trades with other financial institutions and non-financial customers.

Sources: BIS Triennial Central Bank Survey; authors' calculations.

Internalisation and a further decline in inter-dealer e-spot

- UK and US stand out with highest internalisation ratios for spot at around 80%
- Internalisation is associated with falling interdealer spot trading on primary venues

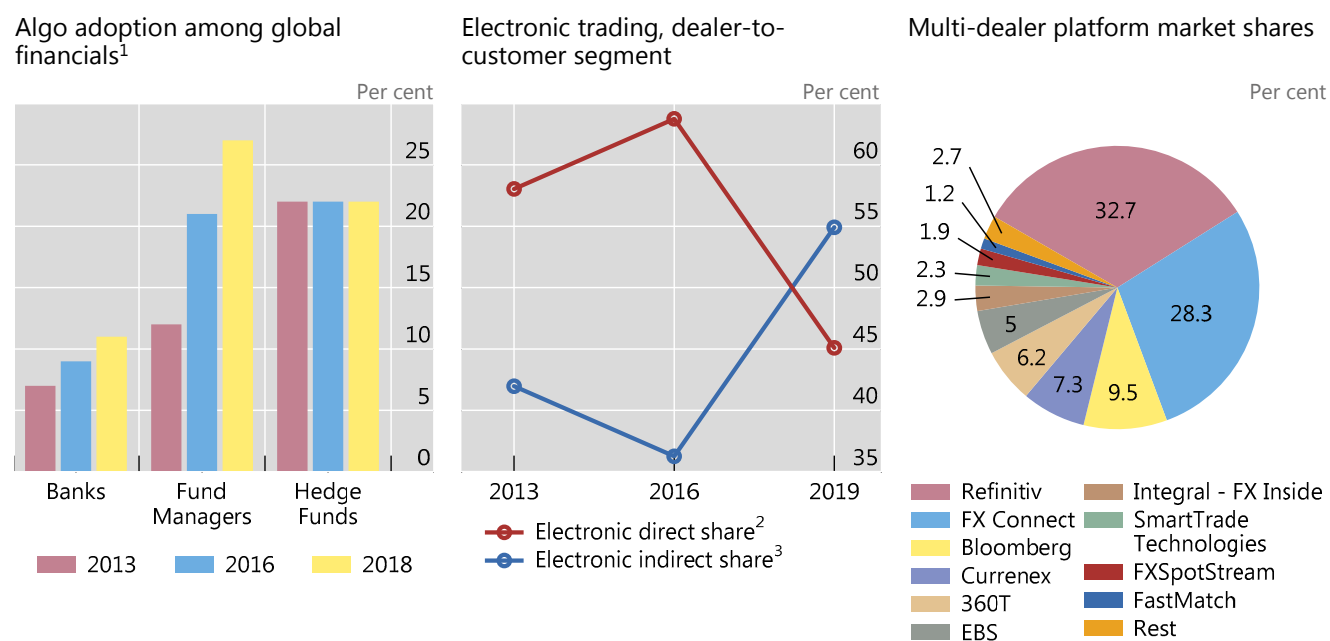


¹ Volume-weighted average calculated by applying the base customer spot turnover reported by each currency group (for countries that did not report the underlying customer spot turnover, their share in total spot turnover was applied). ² Only liquid non-G10 currencies included.

Sources: 2019 Triennial Central Bank Survey; BIS calculations.

Sophisticated customers spread e-trading across venues

- Use of execution algos and smart order routing
- Indirect (brokered) D2C e-trading surpasses direct (eg SDPs)



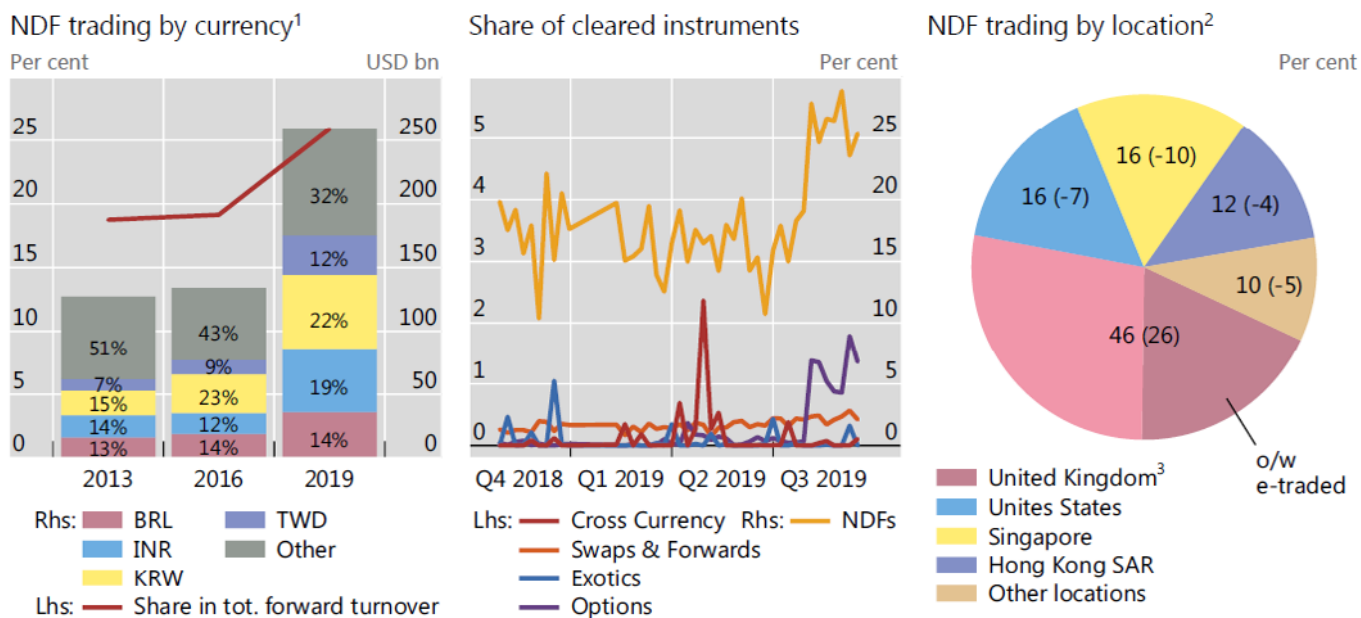
¹ Based on responses from 710 top-tier financials FX users. ² Trading executed via single-dealer platforms or other direct electronic execution methods, such as API. ³ Electronic trading intermediated by a third party such as via an electronic broking system or electronic communication network.

Source: BIS Triennial Central Bank Survey; Euromoney Foreign Exchange Survey 2019; Greenwich Associates 2018 Global Foreign Exchange Study.

E-trading and central clearing supports NDF volumes

- Robust growth in NDF trading and concentration in London
- The only FX derivative with a meaningful centrally cleared share

Evolution of NDF trading by currency and location, and central clearing Graph A



¹ Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis; daily averages in April. ² Change since the 2016 Triennial Survey in percentage points indicated in brackets. ³ Share of electronic trading (electronic broking and trading systems) for the UK calculated based on London Foreign Exchange Joint Standing Committee (FXJSC) April 2019 survey data.

Sources: BIS Triennial Central Bank Survey; CFTC Swap Reports; FXJSC survey; authors' calculations.

Some takeaways for FX volumes and execution methods

1. Trading in FX swaps and forwards plus the rise in PB volumes key drivers of growth
2. Share of “visible” FX trading continues to fall, as dealers internalise customer flow
3. Electronification in dealer-customer trading and indirect forms of e-trading on the rise

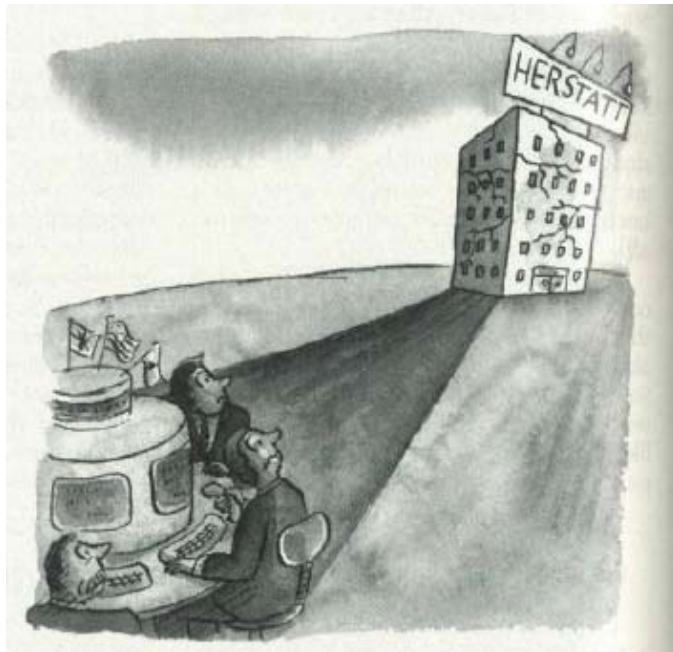


FX settlement risk

Introduction

1. What is FX settlement risk?
2. Why are we talking about it today?
3. What are we doing about it?

Herstatt



this credit or payment is subject to recall within two working days since dollar payments received by us in new york since july 1st have been subject to the following clause:

quote
in accordance with special procedures ordered by newyork clearing house association for july first second third and fifth above credits are subject to recall until 1 pm new york time of following business day
unquote

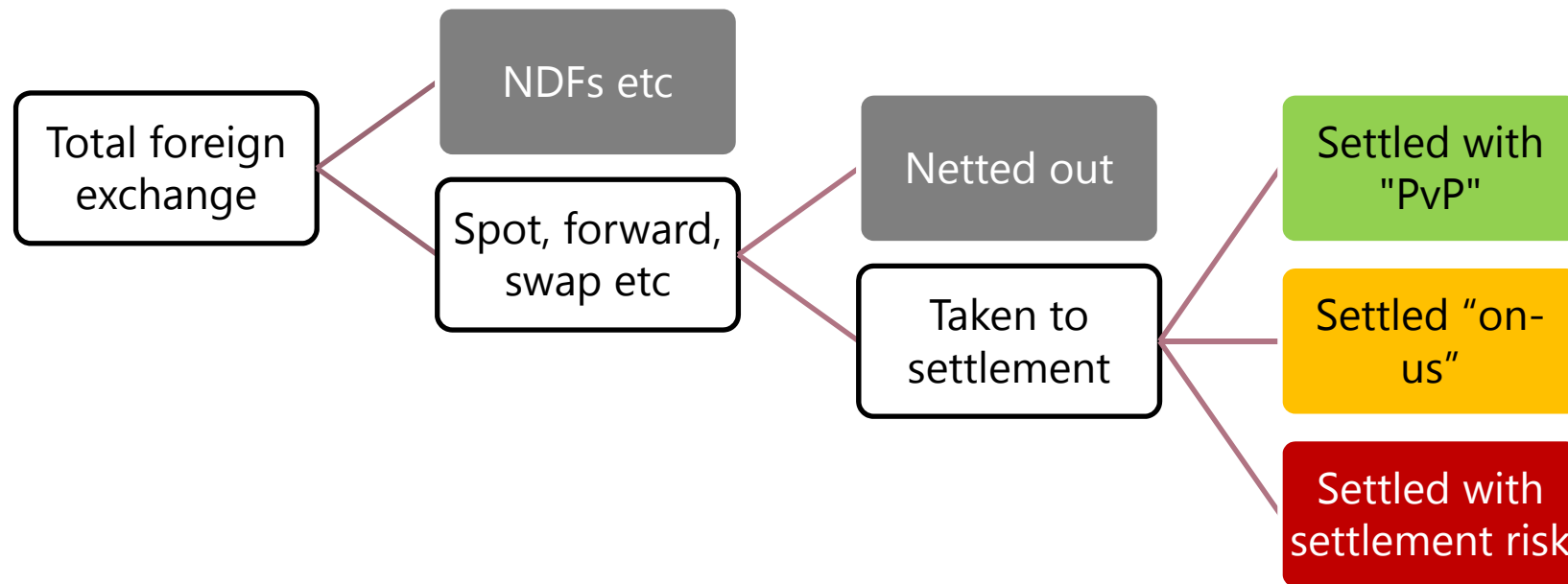
SWISS BANK CORPORATION
ZURICH

Background



- 2002 – CLS born
- 2008 – a good (?) financial crisis for FX
- 2013 – BCBS Supervisory Guidance
- 2017 – Implementation monitoring
- 2019 – Settlement data included in Triennial

Triennial data



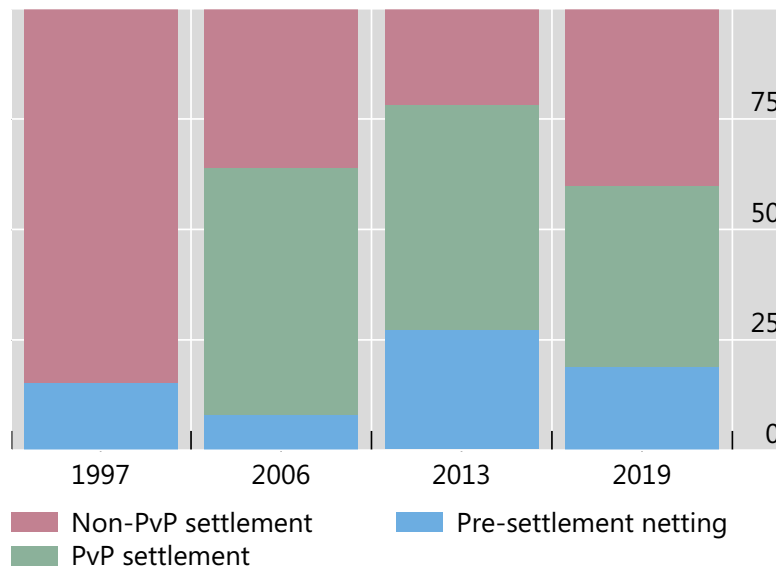
Triennial data in context

FX settlement risk

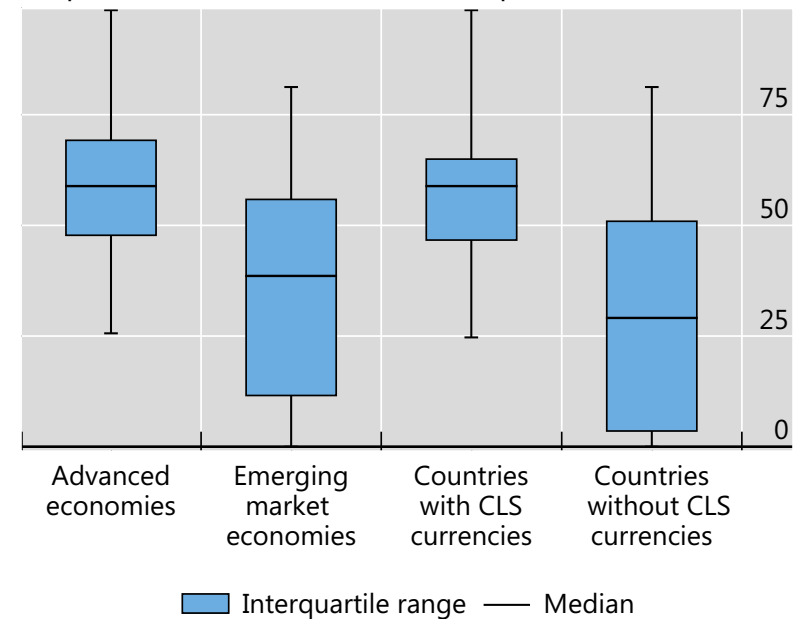
In per cent

Graph Number

FX settlement methods¹



Proportion of settlements with PvP protection²



¹ "PvP settlement" includes settlement through systems like Hong Kong's CHATS. ² The median value is represented by a horizontal line, with 50% of the values falling in the range shown by the box. The highest and lowest values are represented by the upper and lower end points of the vertical lines.

Sources: CPSS (2008); Kos and Levich (2016); IMF Financial Soundness Indicators; 2019 Triennial Central Bank Survey; BIS calculations.

BCBS-CPMI initiatives to date

2018

- Pilot supervisory reviews
- Practical training for supervisors

2019

- Roll-out of full supervisory reviews
- Joint action plan
- Governor support

Pilot supervisory findings

- Reporting to management was missing/inadequate
- Exposures were under-measured
- Not treated equivalently with other credit
- PvP not used

Next steps

1. Rolling out full supervisory reviews in 2020
2. Education and further awareness
3. Industry engagement and data collection

Close

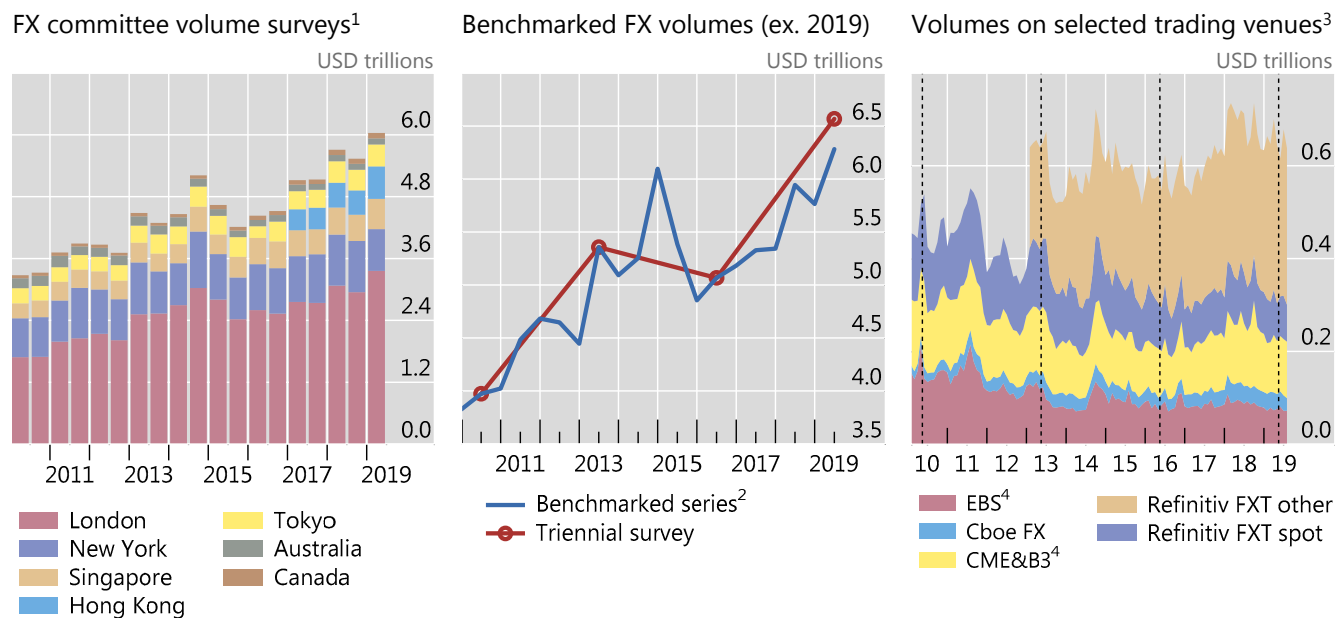
1. FX settlement risk is a financial stability issue
2. It is vast and growing
3. The BCBS and CPMI have an action plan to reduce it



Supplementary Material

Average daily FX trading activity

- Higher FX turnover in 2019 reflects steady market growth since the lows in April 2016
- Platform and exchange data confirm growth in derivatives and stagnation of spot



¹ Semi-annual data, referring to April and October. Additional increase in the stacked bar is due to the inclusion of the Hong Kong Treasury Markets Association survey, which was first published in April 2017. ² The benchmarking technique allows to assess the evolution of FX trading volumes between Triennial surveys. For a description, see Bech M. "FX volume during the financial crisis and now", BIS Quarterly Review, March 2012. ³ Cboe FX, Refinitiv FXT spot and EBS figures refer to spot transactions only. CME&B3 is the sum of transactions in currency futures and options traded on the CME and B3 (Brazil) exchanges, where most of the FX derivatives are traded. ⁴ Seasonally adjusted.

Sources: BIS; EBS; Cboe FX; FXC surveys; Refinitiv; 2019 Triennial Central Bank Survey; BIS calculations.

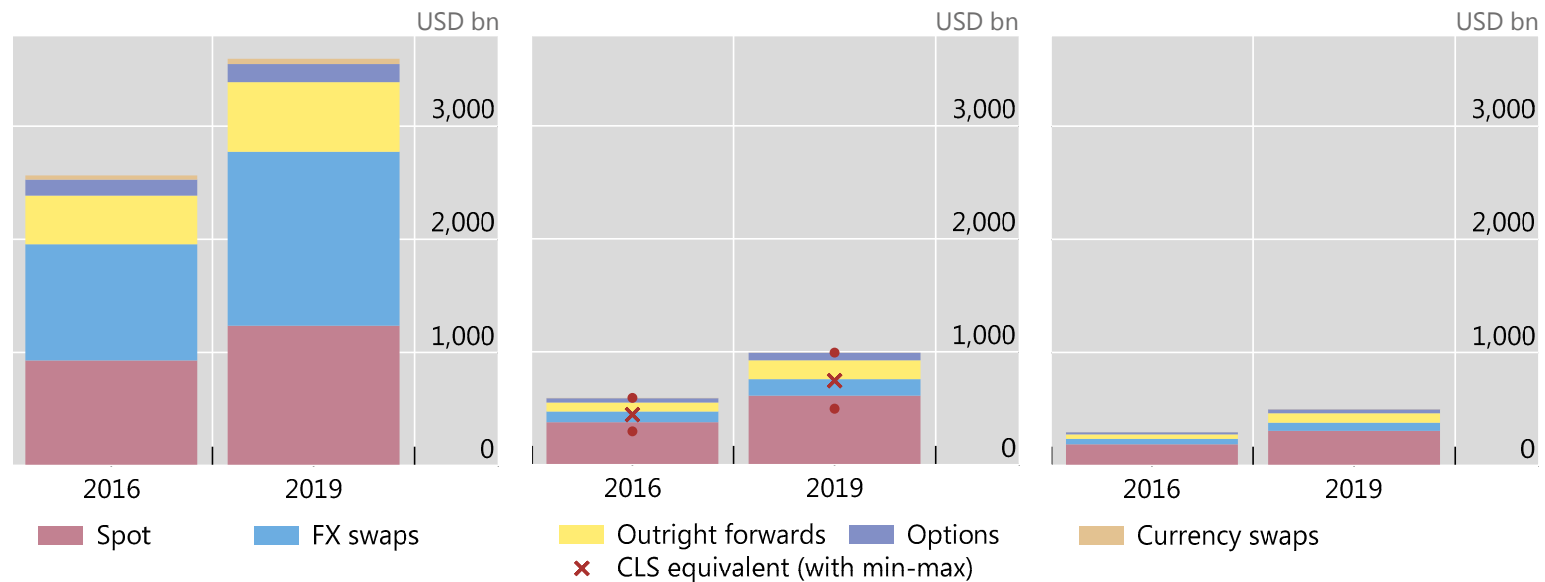
FX prime brokerage implications for turnover volumes

Net-net basis,¹ daily averages in April

Trading with Other financial institutions

Of which: prime-brokered (D3/PB & Client C)²

Give-up trades between D3 and D4

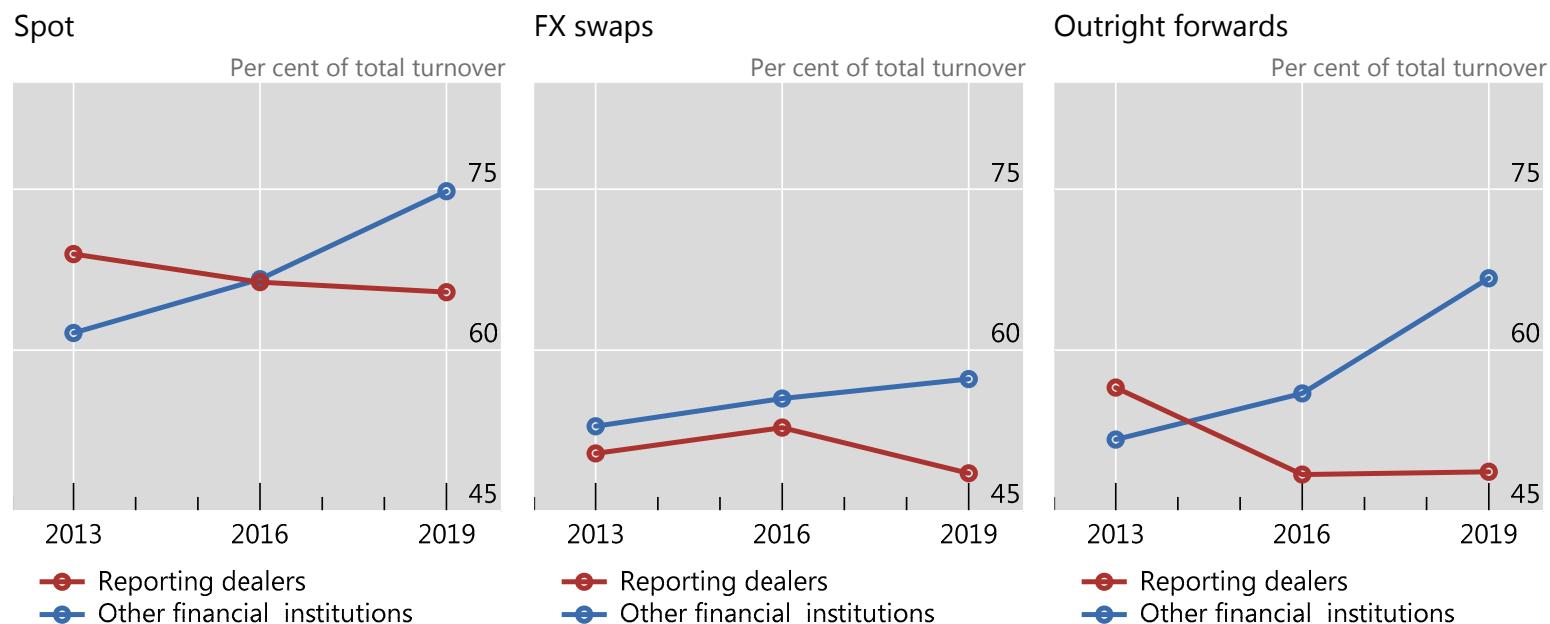


¹ Adjusted for local and cross-border inter-dealer double-counting. ² If two prime brokered clients face each other, then this volumes will overstate the volume that goes to CLS because of double-counting.

Sources: BIS Triennial Central Bank Survey; authors' calculations.

Shares of e-trading by instrument and counterparty

- Electronification in interdealer spot markets has stagnated
- Further electronification in dealer-customer trading across instruments
- Growth of e-trading in outright forwards with other financial institutions accelerated



¹ Calculated as the share of both direct and indirect electronic execution methods in the total turnover (electronic and voice) of each instrument, excluding turnover not distributed to any execution method.

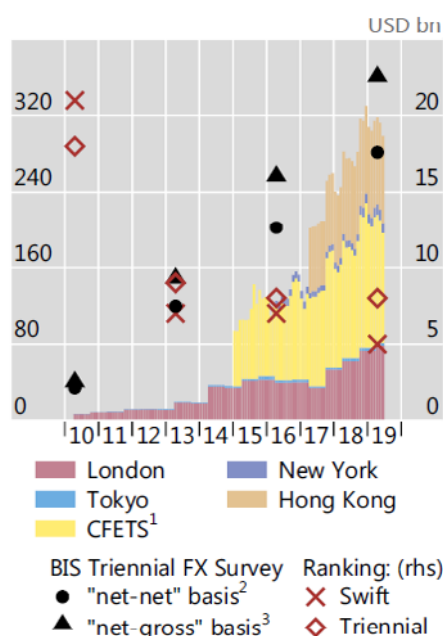
Sources: 2019 Triennial Central Bank Survey; BIS calculations.

Renminbi turnover and offshore trading

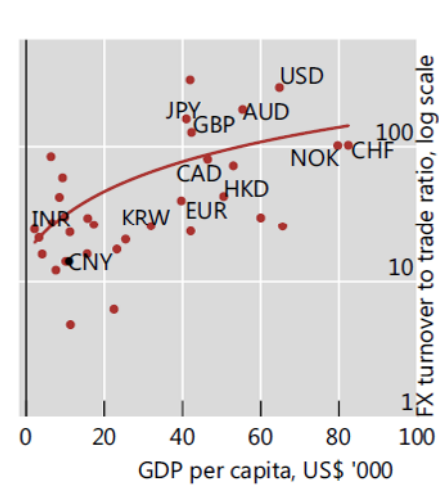
Renminbi turnover and offshore trading

Graph B1

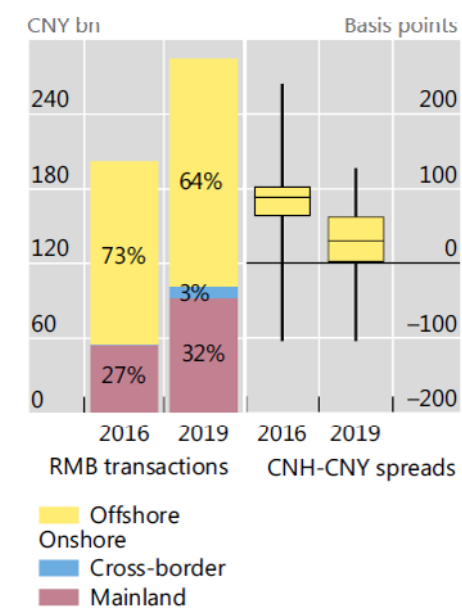
Average RMB daily transaction volume



Ratio of foreign exchange turnover to trade and GDP per capita, 2019



RMB transaction by locations and spread between on shore and off shore rate



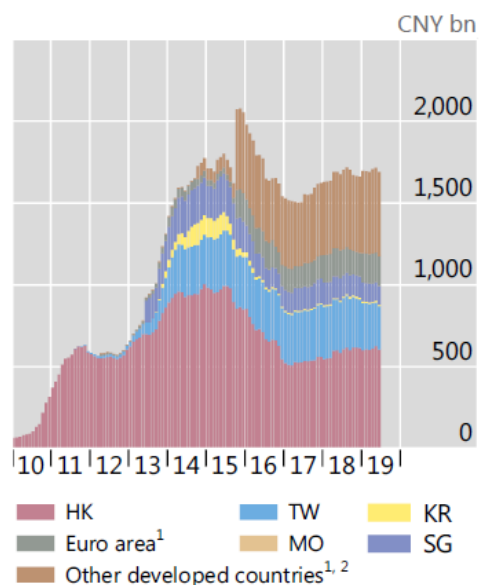
¹ Monthly volume is converted to average daily volume by dividing the monthly figures by number trading days each month. ² Adjusted for local and cross-border inter-dealer double-counting. ³ Adjusted for local inter-dealer double-counting (ie "net-gross" basis); more comparable to the sum of the semi-annual FX committee turnover, which are also net gross.
 Sources: Bloomberg; FOW TRADEdata; Futures Industry Association; London, FXC; New York FX Committee; Tokyo Foreign Exchange Market Committee; Treasury Markets Association; Wind; IMF, *World Economic Outlook*; BIS Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity.

Offshore RMB deposits, trading by location, use in reserves

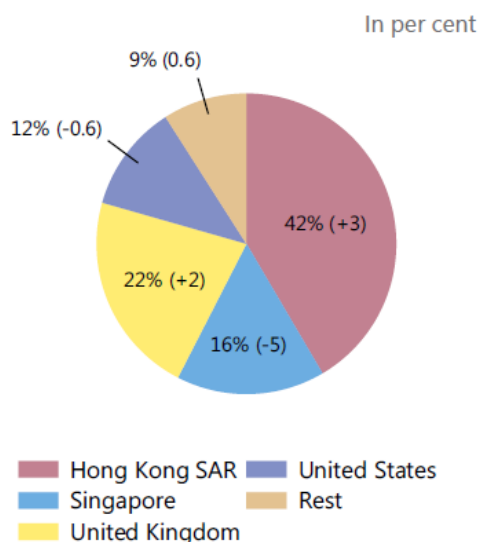
Offshore RMB deposits, trading by location and share in official reserves

Graph B2

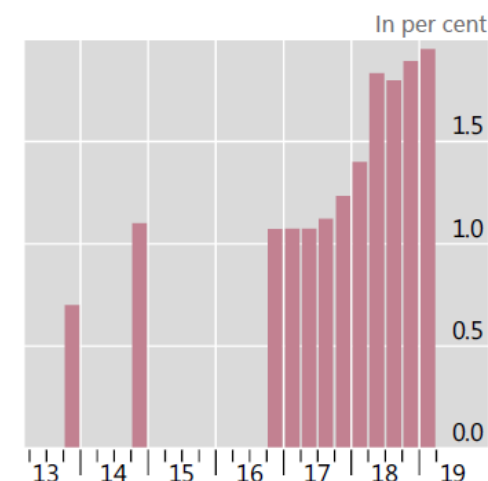
Offshore deposits



Location of trading, 2019³



Share of global foreign exchange reserves in renminbi

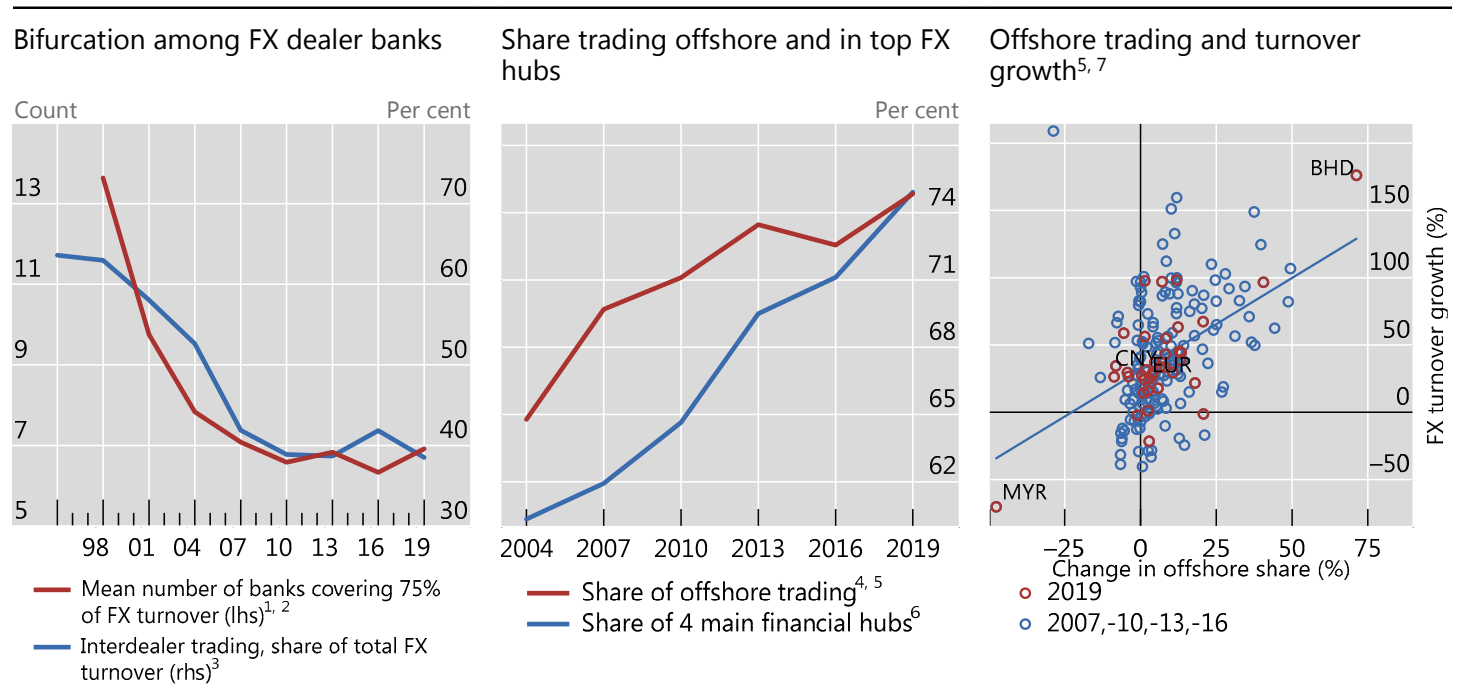


HK = Hong Kong SAR; TW = Chinese Taipei; MO = Macao SAR; KR = Korea; SG = Singapore.

¹ Data are available from Q2 2012 (as a part of CGFS enhancements) and the coverage is partial. ² Australia, Canada, Denmark, Japan, Norway, Sweden, Switzerland, the United Kingdom and the United States. ³ As a total of CNY trading without China.

Sources: People's Bank of China; CEIC; BIS location banking statistics by residence, Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity.

FX trading concentration and offshore trading



¹ Across the following jurisdictions: Australia, Brazil, Denmark, France, Germany, Hong Kong SAR, Japan, Singapore, Sweden, Switzerland, the United Kingdom and the United States. ² Spot, outright forwards and FX swaps. ³ Adjusted for local and cross-border interdealer double-counting, ie "net-net" basis; daily averages in April. ⁴ Turnover-weighted average. ⁵ Intra-euro area transactions are classified as offshore in the calculation of the EUR offshore share. ⁶ The four main financial hubs are United Kingdom, United States, Singapore and Hong Kong SAR. ⁷ The FX turnover growth between each Triennial Survey is calculated in logarithmic terms.

Sources: BIS Triennial Central Bank Survey; authors' calculations.