

Strategic Report

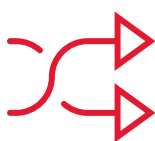
Industry Overview

Overview of the Exchange Industry

Exchanges are organised markets designed to provide centralised facilities for the trading of financial instruments, including securities issued by companies, governments and other entities, as well as commodities and derivatives. Exchanges typically generate core revenue by collecting fees from issuers for the admission to trading of their securities, fees from financial intermediaries who deal in the financial instruments traded on the exchange and the sale of market data and technological solutions.

In many countries, depository, clearing and settlement services are provided by independent organisations, although there is an increasing consolidation trend, with several leading exchanges adopting a vertical structure and integrating most or all of these activities within a single group. Thus, for vertically integrated exchanges, additional revenue streams include, among others, clearing and settlement charges, custody and depository fees and interest income earned from client funds held on the exchange group's balance sheet.

The exchange industry is generally supervised by a financial regulatory agency; in some cases, exchanges may also exercise quasi-governmental authority as a self-regulatory organisation (SRO) responsible for policing their members and affiliated markets.



GLOBAL TRENDS IN FINANCIAL INSTRUMENTS AND EXCHANGE TECHNOLOGIES

One of the key global trends in 2017 was bringing new financial instruments onto exchanges. Recently, the exchange infrastructure encompassing regulated trading and centralized clearing services has been servicing more and more traditional OTC instruments such as swaps, repos, spot currency and bonds. This is driven in part by changes in regulatory regimes that place a burden on the capital of banks dealing with some instruments and introduce a requirement for compulsory centralized clearing for certain instruments and compulsory margin deposits for transactions in others. Additionally, the largest exchanges strive to diversify their businesses and thus aim to launch new

instruments on their own platforms and acquire new marketplaces that can complement their product offerings. For example, they promoted exchange-traded futures contracts imitating OTC derivatives.

It is notable to mention the emergence of cryptocurrencies as an underlying exchange-traded asset. In 2017, two of the largest US exchanges, CME and Cboe, began trading in bitcoin futures contracts.

Exchange technologies have been evolving substantially as well:

- ▶ Exchanges are developing multiple trading technologies within one marketplace to meet the needs of different groups of customers. The continuous auction method remains the predominant trading mechanism; however, discrete auctions, negotiated trading (including RFQ) and dark pools are becoming widespread. Exchanges also widely employ market maker programs.
- ▶ The provision of DMA and SMA services is increasingly becoming standard in the industry, and these services continue to gain popularity among customers. This is representative of a more general trend toward disintermediation.
- ▶ Algorithmic and high-frequency trading trading as well as co-location services continue to evolve.

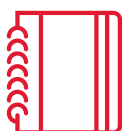
The key changes in clearing include:

- ▶ The expansion of centralized clearing to OTC markets (swaps, repos, etc.) and end clients (segregation, portability, etc.). G20 leaders agreed that standardized OTC derivatives contracts should be processed through CCP clearing. The initiative is aimed at improving stability of the financial markets. A similar regulatory regime has already been introduced in the US, EU, China, Japan and other countries. The regulation requires segregation and portability of end clients' positions. Segregation allows separate maintenance of accounts of clients and clearing members; portability provides the opportunity to transfer, in case of default, client obligations and collateral from one clearing member to another.
- ▶ The improvement of risk management (prevention of systemic risks; portfolio margining; etc.).

Recent settlement trends are:

- ▶ Shortening the settlement cycle. T+2 settlement is becoming the global standard for equity trading.
- ▶ Asset consolidation services for collateral management.
- ▶ Use of Distributed Ledger Technology. Such technologies are mainly at the level of experiments and prototypes at this time; however, the potential to reduce costs make them desirable to both small and large exchanges.

The industry is also seeing a prominent trend to enhance market data offerings with, for example, indices intended for passive investment and tailored to meet the needs of a specific fund. This is due to a growing demand for such products from customers as well as competition between exchanges for non-trade services. Artificial intelligence/machine learning as well as big data analysis are widely used to create market data products. Exchanges are leveraging in-house resources or establishing partnerships and execute M&A transactions.



MOSCOW EXCHANGE COMPETITORS

The key competitors of Moscow Exchange are the London Stock Exchange, the New York Stock Exchange, NASDAQ, EBS FX Platform (ICAP Group), the Chicago Mercantile Exchange (CME Group), Deutsche Börse and the Hong Kong Stock Exchange.

The LSE is both one of the largest global exchange groups and the major overseas venue for trading in global depositary receipts of Russian companies. When a company chooses to join the LSE, it can list shares on the Main Market or the Alternative Investment Market (AIM). The LSE boasts an advanced electronic trading system that supports several market types. The LSE Group also owns Turquoise, a trading platform competing with Moscow Exchange in Russian equities and index derivatives segment stock and index derivatives segment.

The NYSE is one of the world's largest exchange groups and it hosts trading in global depositary receipts of Russian corporate issuers. It has been in competition with Moscow Exchange since 1996, when the NYSE became the first international exchange to list depositary receipts of a Russian company.

MOSCOW EXCHANGE IN THE GLOBAL CONTEXT

Top-10 fixed income exchanges in 2017¹

Exchange	Country	Trading volume, USD bn	Including repo
1 LSE Group	UK	9,196	×
2 Moscow Exchange	Russia	4,818	√
3 BME	Spain	4,804	√
4 Korea Exchange	Korea	2,144	×
5 Johannesburg SE	South African Republic	2,083	√
6 Nasdaq OMX	USA	1,704	√
7 Oslo Borse	Norway	1,041	√
8 Shanghai SE	China	355	×
9 Bolsa de Valores de Colombia	Colombia	312	×
10 Tel-Aviv SE	Israel	241	×

Source: Moscow Exchange, WFE, LSE

Top-13 publicly traded exchanges by market capitalisation²

Exchange	Country	Market capitalisation, USD bn
1 CME	USA	51.8
2 HKEx	Hong Kong	45.7
3 ICE&NYSE	USA	43.6
4 Deutsche Boerse	Germany	23.0
5 LSE Group	UK	17.7
6 Brasil Bolsa Balcão	Brazil	15.2
7 CBOE	USA	14.8
8 Nasdaq OMX	USA	13.4
9 Japan Exchange	Japan	10.0
10 ASX	Australia	8.4
11 SGX	Singapore	6.1
12 Euronext	EU	4.7
13 Moscow Exchange	Russia	4.6

¹ Bond market data may be incomparable across the marketplaces due to difference in methods.

² Market capitalisation of public exchanges as of 31 December 2017 according to Bloomberg.

NASDAQ is one of the leading global exchange groups trading in global depositary receipts of Russian corporate issuers.

The ICAP's **EBS FX Platform** is the world's major inter-dealer broker and one of the global FX trading market leaders. In addition to FX instruments, ICAP also provides venues for other developed and developing market instruments, including commodity derivatives, bonds, shares and depositary receipts as well as interest rate-based derivatives. The EBS is MOEX's main competitor in spot trading of the USD-RUB and EUR-RUB currency pairs.

The **CME** is one of the largest derivative exchanges globally with a wide offering of derivative instruments based on various asset classes, including equity indices, interest rates, FX exchange rates, commodities, and real estate. CME Group provides matching, CCP clearing and settlement services. It is MOEX's primary competitor in the segment of USD-RUB futures and options.

Deutsche Börse, one of the major exchange groups in Europe and globally, is a vertically integrated holding comprising the Xetra trading system, the Clearstream settlement depository and the EUREX derivatives exchange. EUREX offers a trading venue for RDX futures (RDX is an index for depositary receipts issued by the Russian blue chips calculated by Wiener Börse).

HKEx is one of Asia's leading exchange groups. It has been competing with the Moscow Exchange since 2010, when RUSAL (an off-shore company incorporated in Jersey) listed its shares on HKEx.

Warsaw Stock Exchange (WSE) is one of the biggest exchanges in Central and Eastern Europe. It comprises three markets: the Main Market, NewConnect for young and innovative companies and Catalyst for municipal, corporate and mortgage-backed bonds.

Top-10 derivatives exchanges in 2017

Exchange	Country	Trading volume, contracts, mln
1 CME Group	USA	4,089
2 NSE India	India	2,482
3 Brasil Bolsa Balcão	Brazil	1,638
4 Deutsche Boerse	Germany	1,597
5 Moscow Exchange	Russia	1,585
6 CBOE	USA	1,274
7 Nasdaq OMX	USA	1,101
8 Korea Exchange	Korea	1,015
9 ICE&NYSE	USA	742
10 BSE India	India	608

Source: Moscow Exchange, WFE

Top-25 exchanges for equities in 2017¹

Exchange	Country	Market capitalisation, USD bn	Number of issuers	Trading volume, USD bn
1 ICE&NYSE	USA	22,081	2,286	14,535
2 Nasdaq OMX	USA	10,039	3,933	12,138
3 Shenzhen SE	China	3,622	2,089	9,112
4 Shanghai SE	China	5,090	1,396	7,563
5 Japan Exchange	Japan	6,223	3,604	5,813
6 LSE Group	UK	4,455	2,498	2,330
7 HKEx	Hong Kong	4,226	2,118	1,957
8 Euronext	EU	4,371	1,255	1,943
9 Korea Exchange	Korea	1,731	2,134	1,920
10 Deutsche Boerse	Germany	2,245	499	1,482
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25 Moscow Exchange	Russia	619	234	144

Source: Moscow Exchange, WFE

¹ The largest equity exchanges by equity trading volume (EOB only). The data does not include data on BATS (as figures on its market cap and number of companies on the market is not available).