Price formation and market data

An economic analysis of equity trading in Europe

FESE Convention, Dublin

5 June 2019

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Overview

1. Price formation

2. MiFID and the market design for equity trading

3. Market data
Price formation
Core functions of a stock exchange

• stock exchanges create a market in equity instruments

• provision of liquidity/trading
  • enabling traders to easily buy or sell assets

• price formation
  • determining the price of an asset in the market place so participants can make well-informed commercial decisions
  • information-gathering process
Price formation
The price formation process

Exchange activities facilitate the price formation process

Information
Trading strategy
Orders

Meeting place
Connectivity
Participants
Rules-setting
Monitoring + enforcement

Source: Oxera.
Price formation
Benefits of price formation

- More efficient markets
- Fairer markets
- Wider benefits for asset valuation industry
- New business models
- Lower cost of capital for businesses

Source: Oxera.
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MiFID and market design of equity trading
Decline in share of equity trading on primary exchanges

[Diagram showing market share percentage over years for various stock exchanges, with a decline trend in share of trading on primary exchanges from 2009 to 2018. Sources: Cboe.]

Source: Cboe.
MiFID and market design of equity trading

Growth in dark pool market share, 2009–18

MiFID and market design of equity trading
Rise in periodic auction and SI trading following MiFID II

Source: Fidessa Fragmentation Index.
MiFID and market design of equity trading

- MiFID I has resulted in greater choice and lower trading costs
- Key trends over the last ten years have been:
  - Falling share of equity trading on primary exchanges
  - Growth in dark trading (on dark venues and OTC)
  - Growth in algorithmic and high-frequency trading
- MiFID II had a focus on improving transparency and promoting lit trading
- Important to maintain quality of price formation
Overview

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Market data
Price formation and trade execution as joint products

- trade execution and market data are joint products \(\rightarrow\) efficient to generate revenues through fees from both products
Market data
Data products provided by stock exchanges

Full order book
Level 2
Level 1

Pre-trade
All buy and sell orders of a particular security on a trading venue
Market depth data (to varying degree)
Best bid  Best offer  Executed trades

Post-trade
BBO = Best Bid and Offer; APA = approved publication arrangement.

Source: Oxera.
Market data
Value chain overview

- data redistributors
  - aggregation of data from different providers
  - value-added services
- end-users
  - various profiles
- market data offered by stock exchanges accounts for ~15% of the value chain

MTF = multilateral trading facility; APA = approved publication arrangement.

Source: Oxera.
Market data
Value chain – global revenues, USD 2017

Revenue in 2017 (USD bn)

Bloomberg: 9.4
Thomson Reuters: 6.1
S&P Global: 2.5
Moody's: 1.4
ICE: 2.1
IHS Markit: 1.1
MSCI: 0.5
London Stock Exchange: 0.7
Morningstar: 0.9
Venik Analytics: 0.6
Nasdaq: 0.6
SIX: 0.4
CME: 0.4
Factset: 0.4
Deutsche Börse: 0.5
Other analytics providers: 7.0
Other index providers: 4.7
Other rating providers: 1.7
Other exchanges and IDBs: 0.4
Total: 42.1
Independent data provider: 6.5
Independent index/rating firm: 5.4
Exchange: 0.7

Note: This chart estimates the share of total global revenues for vendors offering data redistribution and data analytics services based on 2017 data in USD. This analysis includes data on all financial instruments – i.e. not just equity market data.
Source: Oxera analysis of annual reports of providers. The estimate for Bloomberg is sourced from Burton-Taylor International Consulting.
Market data
Percentage of exchange market data revenues, as share of total combined (trade + market data) revenues

Market data revenues as a share of total combined (trade and market data) revenues* have remained fairly stable, ranging from around 20% to 50% across exchanges in 2018 (31% on average)

* Ratio = \[
\frac{\text{revenue from market data}}{\text{total joint revenue from trade execution and market data}}
\]

Aggregate market data revenues were approximately €245m in 2018

Note: The ratios for BME, Nasdaq and Budapest SE are based on equity-only figures. Wiener Börse, Deutsche Börse and Euronext ratios are cash markets only. Remaining stock exchanges are calculated using total revenues. Ratios are all calculated using revenue attributable to matching products. Luxembourg Stock Exchange is excluded from this analysis due to the very limited share of equity trading in its business model. 2018 data for Oslo Børs is indicative. 2018 data for other exchanges is provisional and unaudited.

Source: Oxera analysis of data provided directly by participating stock exchanges (London Stock Exchange data taken from annual reports).
Market data
Key messages

- Market data offered by stock exchanges accounts for ~15% of a much longer value chain.
- The share of revenues that comes from market data services (as a percentage of the total combined revenues from trade execution and market data) has been relatively stable over the past few years—on average around 30%. The ratio ranges between 20% and 50% across exchanges in Europe.
- Joint unit costs to end-investors were generally lower in 2018 than in 2012.
- The costs to end-investors are small—aggregate market data revenues were approximately EUR 245m in 2018, which represents 0.003% of total assets under management.
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