

Reasonable commercial terms for market data services

Response to ESMA consultation

04 September 2014

Summary of main findings

- Market data and trade execution are joint products. Given the general structure of electronic order books and electronic order matching, it is not possible to provide transaction services without generating market data, and it is not possible to generate pre-, or post-, trade data without also supplying a trade execution service. ESMA and other parties have recognised the joint product nature of market data services and trade execution services.
- The implication is that the reasonableness, or otherwise, of the recovery of costs by a trading venue cannot be assessed effectively by the independent analysis of either market data or trade execution services. With joint products, the product costs of the outputs cannot be separated.
- It is often argued that the cost of market data is higher in Europe than in the USA. However, such arguments tend to be based on simple comparisons of the per-user licence fees for specific market data services (typically access to a complete market view of the best bid and offer) and do not take into account the substantial difference in scale between European and US markets. It is widely known that trading fees in the USA are lower than in Europe and that this is partly driven by differences in economies of scale—these same differences also partly account for the difference in market data fees. The more relevant metric, given the fixed-cost nature of trading venues, is total market data services revenue. The total market data revenue generated by the following five European exchanges: Borsa Italiana, Deutsche Börse, Euronext, London Stock Exchange, and SIX Swiss Exchange is around €250m—only 25% more than the revenue generated by Nasdaq’s US market data services on their own. This suggests that it is unlikely that, at an aggregate level, market participants spend more on market data services in Europe than the USA.
- The economic analysis of the current market for market data services and trading services (the joint products) does not provide a justification for any regulation of the pricing of market data services. This is explained in detail in Oxera’s report ‘Pricing of market data services’, published in January. However, MiFID II and MiFIR have been approved, and the European

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Commission has asked ESMA for an interpretation of what constitutes a 'reasonable commercial basis'. This is, therefore, the question at hand.

- This Oxera note shows that competition policy principles provide useful guidance on upper and lower boundaries of prices that, in general, will not be considered unreasonable. The appropriate price can lie anywhere between the incremental cost and stand-alone costs. A price below the incremental cost may indicate potential predatory pricing, and a price above stand-alone costs may indicate excessive profitability.
- ESMA is consulting on the following three options.
 - Imposing transparency requirements and defining general principles against which venues and their customers could judge the reasonableness of data prices.
 - Limiting the share of an exchange's revenues from market data services.
 - Imposing a maximum price, based on a long-run incremental cost plus mark-up (LRIC+) control.

One of the technical challenges that ESMA identifies with applying a LRIC+ control is defining the maximum share of common costs that is appropriate to recover from market data services. Sections 5 and 6 of this note explain how guidance from competition law can be used to inform the level of the maximum share of common costs.

1 Introduction

The European Commission has invited ESMA to provide technical advice on what constitutes a 'reasonable commercial basis' in relation to the provision of data services.

There are five separate provisions in which MiFID II and MiFIR empower the Commission to clarify what constitutes a 'reasonable commercial basis'.¹ ESMA has focused on the provision of equity market data services by trading venues in developing the draft options, since, as ESMA points out, this was the focus of the MiFID Review's consideration of 'reasonable commercial basis', and ESMA notes that 'the Commission is clear that the prices charged by some venues are too high.'²

This note has been prepared in response to ESMA's consultation paper to inform its technical advice.³ Section 2 presents an appropriate economic framework within which the pricing of market data services can be assessed, and section 3 clarifies how the costs of market data services in Europe compare with the costs of market data services in the USA. Section 4 builds on these foundations and sets out the form of regulation that would allow for efficient cost recovery for market data services. Section 5 concludes on what could constitute reasonable commercial terms in relation to the provision of market data services. Section 6 discusses the policy implications.

¹ The other four circumstances relate to the provision of data services by: systematic Internalisers in relation to equities (Article 15 of MiFIR); systematic Internalisers in relation to non-equities (Article 19 of MiFIR); approved Publication Arrangements (Article 64 of MiFID II); consolidated Tape Providers (Article 65 of MiFID II).

² ESMA (2014), Consultation Paper MiFID II/MiFIR, ESMA/2014/549, 22 May, p. 225, para. 36.

³ The note was commissioned by the following stock exchanges: Deutsche Börse, Euronext, Irish Stock Exchange, Nasdaq OMX, Oslo Børs, SIX Swiss Exchange, Wiener Börse.

This note should be read in conjunction with Oxera's report, 'Pricing of market data services' ('Oxera's report'),⁴ which provides additional economic analysis. For example, the report includes empirical analysis on the costs of market data services to end-investors—the market participants that ultimately bear the cost of any market inefficiencies—as well as analysis of the costs of market data services to brokers.

Copenhagen Economics (CE) has also written about this topic (on behalf of the Danish and Swedish Securities Dealers Association), concluding that its 'favoured approach' is direct (maximum) price regulation allowing the recovery of only the incremental costs of providing market data services once a trading venue is functioning (i.e. pure LRIC). However, neither CE's main report—'Regulating access to, and pricing of, equity market data'⁵ ('CE's main report')—nor its two follow-up notes⁶ contain economic analysis that would demonstrate how this approach would create the best outcome from a public policy perspective, and would therefore justify this type of regulatory intervention.

ESMA has already concluded that 'venues should be allowed a mark-up to allow recovery of an appropriate share of common costs,'⁷ and has therefore not proposed a pure LRIC approach, but rather a LRIC+ approach (where the 'plus' refers to a share of the common costs).

2 The economics of market data services

2.1 Market data and trade execution services are joint products

Oxera's report explains that market data and trade execution are joint products. Given the general structure of electronic order books and electronic order matching, it is not possible to provide transaction services without generating market data, and it is not possible to generate trade transaction, or market depth, data without also supplying a trade execution service.

Joint products are an economic concept designed to explain a situation in which the production of one product simultaneously involves the production of one or more other products. This means that (at least part of) the production costs cannot be separated—they are joint costs.

The joint product nature of market data and trade execution services, and the presence of 'joint costs', has also been acknowledged by ESMA in its consultation paper.⁸

In CE's main report, CE also describes market data and trade execution services as joint products,⁹ describing market data services as a by-product—in economic terms, a by-product can be referred to as a form of joint product.

In one of its follow-up notes, CE explicitly states that:

⁴ Oxera (2014), 'Pricing of market data services', report for European stock exchanges, January.

⁵ Copenhagen Economics (2013), 'Regulating access to and pricing of equity market data', prepared for the Danish and Swedish Securities Dealers Association, 15 October 2012, revised 12 September 2013.

⁶ Copenhagen Economics (2014), 'Financial market data: ways forward for regulation', 6 March; and Copenhagen Economics (2014), 'Regulating market data – Implications for availability, ownership and re-selling', 11 April.

⁷ ESMA (2014), Consultation Paper MiFID II/MiFIR, ESMA/2014/549, 22 May, p. 223, para. 27.

⁸ When discussing market data services in its consultation paper, ESMA refers to 'joint costs' and 'costs that are shared with other services or that were common to the entire undertaking'. See ESMA (2014), Consultation Paper MiFID II/MiFIR, ESMA/2014/549, 22 May, p. 225, para. 20.

⁹ Copenhagen Economics (2013), 'Regulating access to and pricing of equity market data', prepared for the Danish and Swedish Securities Dealers Association, 15 October 2012, revised 12 September 2013, p. 8.

...we agree with the recent analysis by Oxera (2014), 'Pricing of market data services' which states that '...it is not possible to provide transaction services without generating market (transaction) data, and it is not possible to generate transaction or bid and offer data without also supplying a transaction service.'¹⁰

In sum, there is no debate about the joint product nature of market data services and transaction services.

2.2 Implications of the joint product nature of market data and trade execution services

The joint product nature of trade execution and market data services has two important economic implications.

- With joint products, the production costs of the outputs cannot be (fully) separated—i.e. some, if not all, costs are joint costs. This has been well established in the economic literature and regulatory practice. Joint costs are incurred when production facilities simultaneously produce two or more products. Production of the joint products may be in fixed proportions—for example, lamb chops and legs of lamb—and/or where there are fixed costs that have to be incurred to produce either product, but these costs are incurred only once if both products are produced. The latter applies in the case of trade execution and market data services.
- This means that the reasonableness, or otherwise, of the recovery of costs by a trading venue cannot be assessed effectively by the independent analysis of either trade execution services or market data services. The appropriate frame of reference for the analysis of the economically efficient recovery of the costs of the secondary market activities of trading venues is at the level of combined transaction revenues and data revenues.

The economic characteristics of the production of the combined trade execution and market data services are also relevant to an assessment of cost recovery, as are the demand conditions for those services. Trading venues are characterised by high fixed costs and low marginal costs, and significant economies of scale. In industries with these characteristics, the pure competitive outcome—where prices for all outputs are set at forward-looking marginal costs—may not be economically efficient. In particular, marginal cost pricing would not be sufficient to recover the total cost of production, and therefore trading venues would exit the market. (An outcome that would not be in the interests of the users of these services.)

Furthermore, charging the same price to all customers (whether this be the marginal cost of provision or a higher price) would not account for the different valuations of the same services that different types of customers may have. Different market participants often have vastly different valuations of what is essentially the same information. Under these circumstances there are often significant overall welfare gains from recovering more (of the fixed costs) from those who value the service most, and less from those who have a lower willingness to pay. This suggests that, where such price discrimination is possible, charging a single price for all users may not be efficient.¹¹

¹⁰ Copenhagen Economics (2014), 'Financial market data: ways forward for regulation', 6 March, footnote 2.

¹¹ The efficiency of differential pricing in markets where fixed costs are large and there are increasing returns to scale (economies of scale) is well documented in the economic literature. See, for example, H. R. Varian (1996), 'Differential Pricing and Efficiency', *First Monday*, 1:2, 5 August.

This framework for economic analysis is used in section 3, which looks at the way in which trading venues in Europe currently recover their costs through fees for both trade execution and market data services, and in section 4, which assesses the implications for any type of regulatory intervention designed to change this pattern of cost recovery.

3 Cost of market data in Europe

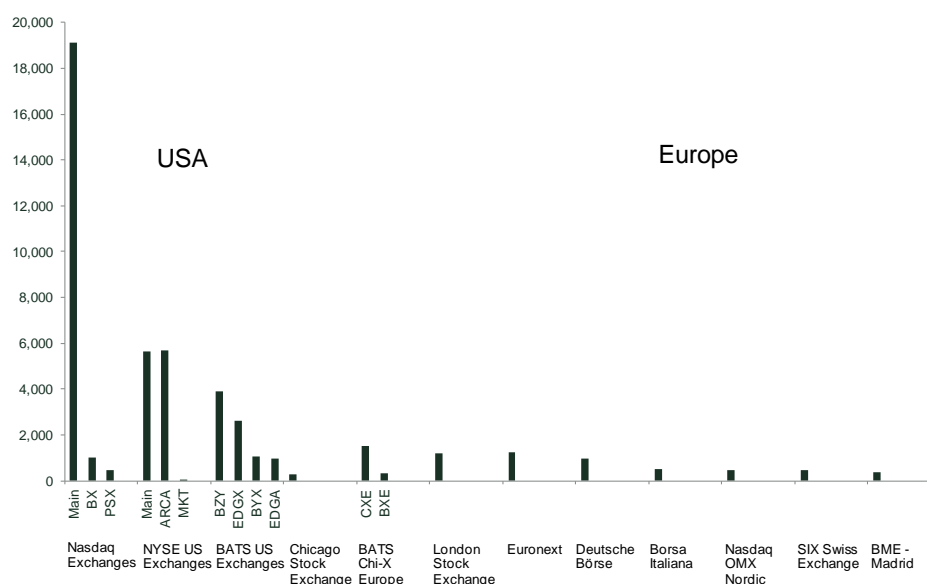
Reflecting the economic characteristics of the provision of market data services set out in section 2, this section considers how the provision of market data services in Europe and the USA compares in terms of total revenues generated (section 3.2), and how market data services revenues compare with trade execution revenues (section 3.4). For completeness, a simple comparison of headline fees paid by professional users is provided in section 3.3. First, section 3.1 sets the scene by summarising the main differences between Europe and the USA in terms of both market and regulatory structure.

3.1 Differences affecting the provision of market data services between the USA and Europe

US exchanges generally operate on a much larger scale than European exchanges. As shown in the figure below, the value traded on the largest US markets is much greater than the value traded on the largest European markets. At an overall market level, domestic market capitalisation in the USA is about 1.5–1.8 times the value in Europe,¹² and the total value of trading is four times that of Europe.¹³

¹² The combined domestic market capitalisation on NYSE and Nasdaq between 2011 and 2013 was €11.2 trillion in 2011, €14.5 trillion in 2012 and €18.7 trillion in 2013. The combined domestic market capitalisation on the LSE, Euronext, Deutsche Börse, SIX Swiss Exchange, Nasdaq OMX, and Borsa Italiana over the same period was €7.6 trillion, €8.7 trillion and €10.2 trillion. Based on statistics from the World Federation of Exchanges and the LSEG (2013), 'Annual report'.

¹³ The total value of trading on NYSE and Nasdaq in 2012 was c. €30 trillion, compared with a total of €7.6 trillion traded on the following European exchanges: BATS Chi-X Europe, LSE, Borsa Italiana, Deutsche Börse, Euronext, SIX Swiss Exchange and Nasdaq OMX.

Figure 3.1 Value traded in each market in 2012 (€ trillion)

Notes: Several organisations operate multiple cash equity exchanges. Where data is available, the value traded on each exchange operated by an organisation has been reported as a separate column.

Source: BATS Global data.

Furthermore, the regulated market micro-structure in the USA (RegNMS) has the effect of imposing a requirement on US brokers to have access to a complete market view of the best bid and offer (BBO). As a result of overall market size and this regulation, the number of subscribers who pay for access to market data services in the USA is much higher than the number of subscribers in Europe. For example, there were between 270,000 and 350,000 professional subscriptions to each of the three US consolidated tapes in 2012.¹⁴ In comparison, the number of data terminals sold by major European exchanges ranged from about 54,000¹⁵ at SIX, to 90,000 at LSE,¹⁶ and many of these will be used by the same traders.

3.2 Revenues generated from market data and trade execution services

The substantial difference in scale in terms of trading volumes and number of market data subscribers, combined with the fixed-cost nature of trading venues, means that it is important to consider total revenue generated from market data services by each trading venue, rather than only unit prices (market data licence fees), which will naturally be higher in markets with fewer units being sold (as is observed in relation to trading and post-trading fees.¹⁷)

Figure 3.2 below presents the total market data revenues and trade execution revenues from the largest European exchanges for which data was available, and from Nasdaq's US operations.

¹⁴ Data from the Consolidated Tape Association.

¹⁵ Data provided by SIX Swiss Exchange.

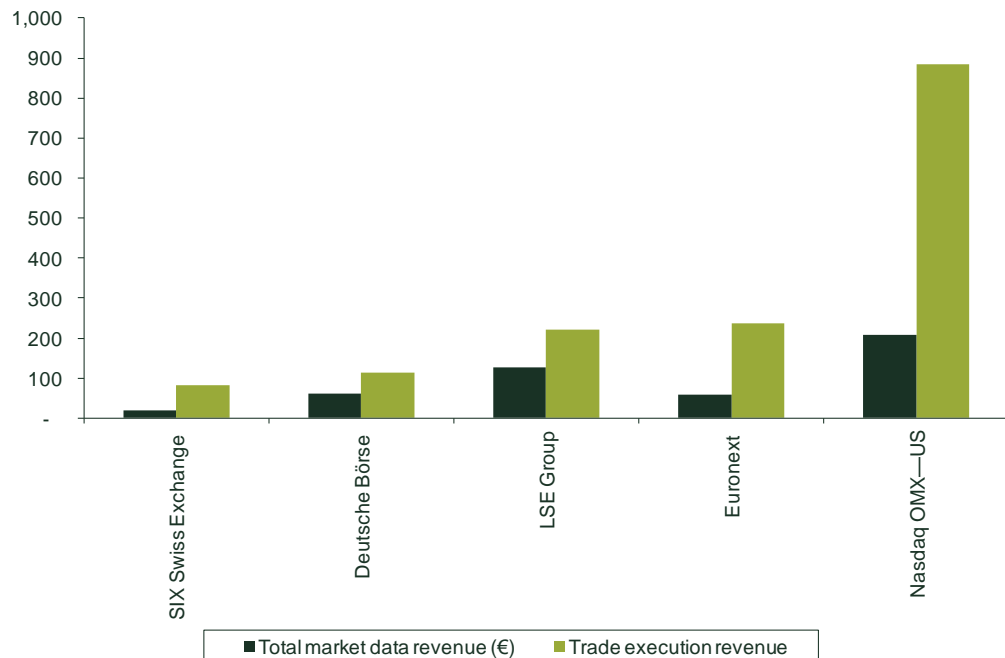
¹⁶ Data from LSE (2012) 'Annual report', p. 27.

¹⁷ See Oxera (2014), 'Global cost benchmarking of cash equity clearing and settlement services', prepared for ASX Clear Pty Ltd and ASX Settlement Pty Ltd, June, p. 16, Figure 3.1a.

Two observations can be made: i) *total* market data revenues are reasonably stable between stock exchanges of various sizes (and are *not* higher in Europe than for Nasdaq's US operations); and ii) total trade execution revenues are several times higher at Nasdaq than at the European exchanges.

Data on cash equity market revenues was not publicly available for the other major US equity markets: NYSE and BATS US. However, for NYSE, market data and trade execution revenues are likely to be comparable with those generated by Nasdaq (and therefore also several times higher than for the European exchanges). This is because the total value traded across the NYSE-operated exchanges and the Nasdaq-operated US exchanges is quite comparable (see Figure 3.1), so trade execution revenues are likely to be of the same order of magnitude. Also, in 2012, 14% of NYSE's combined cash equity trade execution and market data revenues were generated from market data services (see Oxera's report).

Figure 3.2 Market data and trade execution revenues, 2012 (€m)



Notes: The LSE Group includes the London Stock Exchange and Borsa Italiana. Oxera understands that the market data and trading revenues reported for the European exchanges (SIX Swiss Exchange, Deutsche Börse, Euronext, and the LSE Group) reflect the revenues generated from their cash markets and therefore include revenues from non-equity cash instruments as well as equities. Data for Nasdaq has been sourced from its annual report and is understood to only include cash equity revenues.

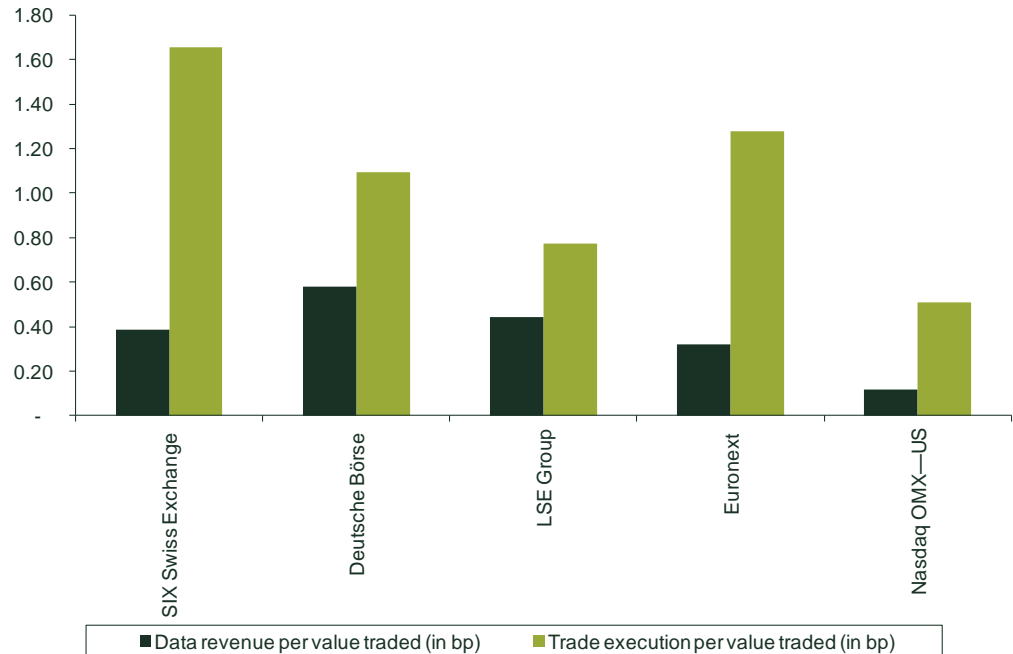
Source: Oxera analysis of data provided directly by participating exchanges (SIX Swiss Exchange, Deutsche Börse and Euronext), and annual report data (Nasdaq and the LSE Group).

Both of the observations set out above are consistent with the fixed-cost, strong-economies-of-scale characteristic of the operation of trading systems. Although trade execution revenues increase for the larger US exchanges, the increase is less than the increase in value traded. One possible reason for the US stock exchanges generating higher trade execution revenues than smaller markets is that each operates multiple cash equity markets, which may result in duplications of the fixed costs of operating as an exchange.

Figure 3.3 below presents market data and trade execution revenues as a proportion of value traded in each market. Given the economies of scale that

trading venues achieve, the 'unit' revenues (for both trade execution and market data services) are higher for the exchanges recovering their costs from a smaller base.

Figure 3.3 Market data and trade execution revenues as a proportion of value traded, 2012 (basis points)



Source: Oxera analysis of data provided directly by participating exchanges and annual report data.

3.3 Comparison of headline market data licence fees

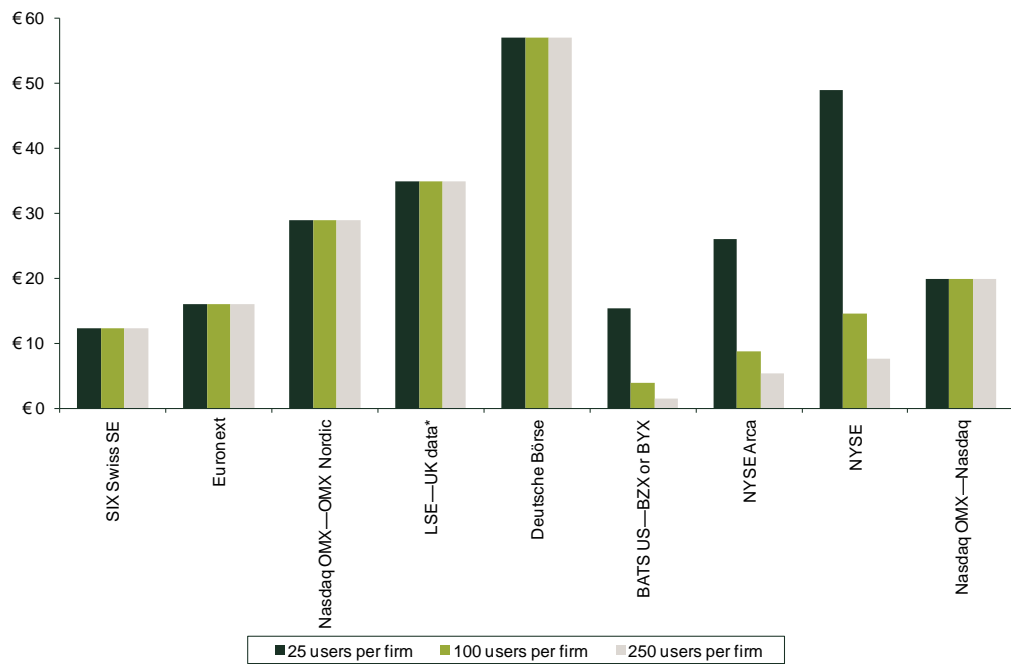
Figure 3.4 and Figure 3.5 below set out the 'effective' per-user monthly licence fee for a selection of European and US exchanges' level 1 and level 2 market data products. The 'effective' per-user monthly licence fee takes into account access fees as well as per-user (device) fees. The access fees are apportioned equally to the assumed number of data users in each firm.

There is a greater difference between the licence fees charged by European and US exchanges (particularly for level 1 data) compared with the average revenue analysis presented in Figure 3.3. The main reason for this is that Figure 3.4 and Figure 3.5 present only the fees charged for proprietary data products, while US exchanges also benefit from revenues from the consolidated tape, which can be substantial. For example, revenues from the consolidated tapes accounted for 44% of Nasdaq's market data revenues in 2012.¹⁸

Figure 3.4 also shows that, according to the number of data users within a firm, the 'effective' per-user cost of market data services can be higher for some firms in the USA than in Europe. This is particularly the case for NYSE, owing to the \$5,000 monthly access fee. Given that brokers often require level 2 market data, a comparison of level 2 market data costs is arguably more relevant for this group of market participants than level 1 market data costs.

¹⁸ Based on data from 2012 Nasdaq SEC filings.

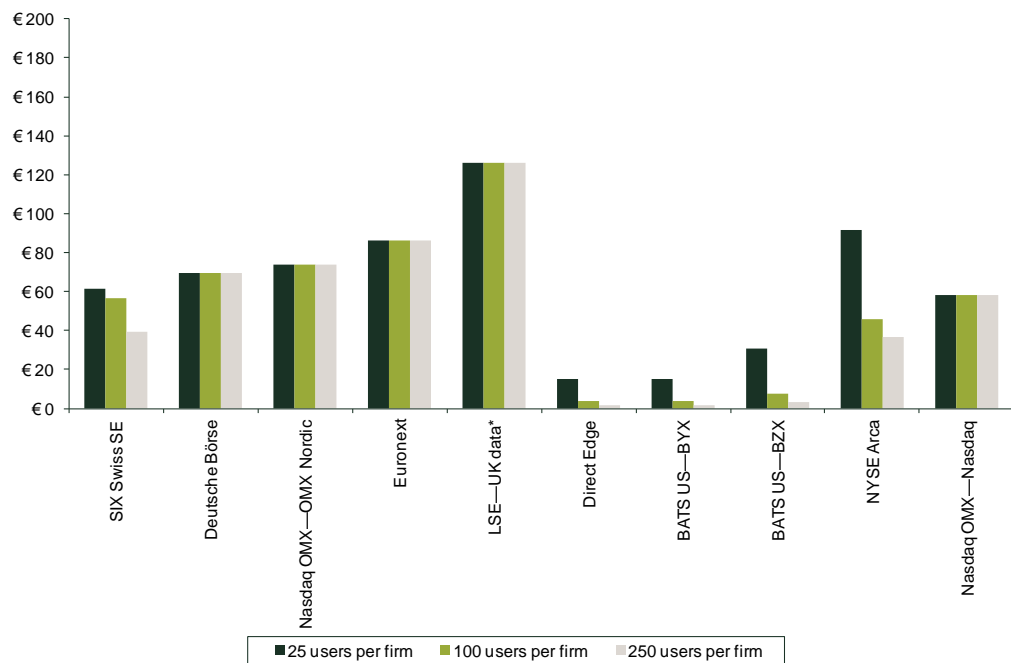
Figure 3.4 Effective per-user monthly licence fee for level 1 products (€)



Note: The level 1 product includes the last price and BBO. SIX Swiss Exchange and Deutsche Börse only provide an overall cash market data service including non-equity data. Licence fees for these exchanges therefore encompass market data for non-equity cash market products such as exchange-traded funds and fixed-income securities.

Source: Oxera analysis of the most recent available stock exchange pricing schedules.

Figure 3.5 Effective per-user monthly licence fee for level 2 products (€)



Note: The level 2 product is at least the 20 BBOs, but typically the full order book. The SIX Swiss Exchange and Deutsche Börse provide an overall cash market data service and so license fees for these exchanges encompass market data for non-equity cash market products such as exchange traded funds and fixed income securities.

Source: Oxera analysis of the most recent available stock exchange pricing schedules.

3.4 Balance of revenues between market data and trade execution services

When comparing the cost recovery of European and US exchanges, another metric to consider is what proportion of the revenues of the joint products of market data and trade execution is derived from market data services. Table 3.1 shows that despite the differences in regulation of market data prices (i.e. no regulation in Europe, and limited degree of regulation in the USA), there is not much variation in the proportion of trading and market data revenues generated from market data revenues between US and European exchanges.

Table 3.1 Relationship between market data service revenue and trade execution service revenue (2012)

Trading venue	Market data revenues as a proportion of total revenues (i.e. market data and trade execution revenues)
Deutsche Börse	35%
Nasdaq OMX—OMX market	28%
Euronext	20%
SIX Swiss Exchange	19%
Nasdaq OMX—Nasdaq market	23–29%
NYSE	14%

Note: The market data revenues presented in the table focus on the revenues from the sale of equity market data, and generally exclude revenues from technology services, index licensing, sales of non-equity data products, and the selling of news and other non-market data-type information. In the case of SIX Swiss Exchange and Deutsche Börse (where equity, exchange-traded funds and fixed-income market data are sold as an overall cash market product) and Nasdaq (where revenues data was sourced from the annual report), market data revenues include revenues from the selling of non-equity data products. Trade execution revenues include trading fees and membership fees and are net of transaction-based rebates (e.g. where the trading venue offers rebates to liquidity providers). In the case of SIX Swiss Exchange, Deutsche Börse and Nasdaq OMX, where market data revenues include revenues from non-cash equity data sales, transaction revenues from the relevant asset classes were also included.

Source: For the following exchanges, market data revenues and trade execution revenues were provided directly by the exchange and verified against annual reports: Deutsche Börse, Euronext and SIX Swiss Exchange. Data for Nasdaq OMX was sourced from annual reports.

3.5 Conclusion

It is often argued that the cost of market data is higher in Europe than in the USA. However, such arguments tend to be based on simple comparisons of the per-user licence fees for specific market data services (typically access to a complete market view of the BBO and executed trades) and do not take into account the substantial difference in scale between European and US markets.

Given the fixed-cost nature of trading venues and the much greater number of market data subscribers and trading volumes in the USA than in Europe, it is not surprising that unit prices are higher in Europe. What is more relevant from an economic-efficiency perspective is a comparison of total market data revenues generated by each exchange, which, as shown in Figure 3.2, are relatively stable across both Europe and the USA.

In fact, the total market data revenue generated by the following five European exchanges:¹⁹ Borsa Italiana, Deutsche Börse, Euronext, London Stock Exchange, and SIX Swiss Exchange is around €250m—only 25% more than the revenue generated by Nasdaq on its own. This suggests that it is unlikely that, at an aggregate level, market participants spend more on market data services in Europe than the USA.

Per-user licence fees for proprietary data products are also often lower at US exchanges than European exchanges. This is because the former can recover some of their fixed costs through the consolidated tape market revenues. For some US exchanges these revenues can be particularly substantial. As mentioned above, for example, consolidated tape revenues accounted for 44% of Nasdaq's total market data revenues in 2012.²⁰ Interestingly, when level 2 market data licence fees are compared, there is not much difference between the fees charged by Nasdaq, NYSE and most European exchanges (as shown in Figure 3.4).

To conclude, it is widely known that trading fees in the USA are lower than in Europe and that this is driven partly by differences in economies of scale—these same differences partly account for the difference in market data fees. The more relevant metric, given the fixed-cost nature of trading venues, is total revenues. These are relatively stable between Europe and the USA, where exchanges can add to revenues from proprietary market data products with revenue from the consolidated tapes that RegNMS has the effect of requiring all US brokers to license.

4 How can the costs of the joint product of market data services and trading services be recovered?

4.1 CE's view

CE states that trading venues should have to recover all joint costs through the fees for trade execution services and not (either wholly or partly) through the fees for market data services.²¹ It does not give an explicit reason for this, beyond the following statements:

The reason is that these costs would have been held even without the market data business in place, as they are held to service the financial trading business.²²

The basic transaction of a trade implies a two way flow of market data. Orders are provided from the customer to the trader to the trading venue and a flow is moving in the other direction, quantities purchased, price obtained etc. This is an integrated package. Then based on all the individual transactions – requiring the trading venue to create a data management system of ingoing and outgoing data streams – a pool of raw data is created which can then be transformed into alternative data packages and sold to the market. Our basic premise is then that the costs associated with the actual transformation of the individual transaction based data to a raw pool of data must be seen as sunk costs associated with the venues ability to carry out trades in the first place. The additional costs of making

¹⁹ These European stock exchanges were selected on the basis that they operate some of the largest European equity markets and data on their cash market data revenues was available.

²⁰ Based on 2012 Nasdaq SEC filings.

²¹ Copenhagen Economics (2013), 'Regulating access to and pricing of equity market data', prepared for the Danish and Swedish Securities Dealers Association, 15 October 2012, revised 12 September 2013, p. 22 (under the section on 'monopoly pricing').

²² Ibid., p. 22.

such raw data available to the market *in addition* to the parties to the transaction, is then what needs to be measured.²³

CE considers trading services to be the primary product, with market data services representing a by- or ancillary product, and seems to suggest that this automatically means that all joint costs should be recovered from the primary product only. In addition, CE suggests that it would not be appropriate for a trading venue to recover any of its joint costs through the fees of the services for which there are any elements of monopoly supply and for which firm-level demand is less elastic.²⁴

CE provides its own opinion on this issue, but does not provide an economic (or public welfare) analysis to show how this conclusion is based on achieving an outcome that is better (from a public policy perspective) than outcomes where the recovery of joint costs is shared between the relevant joint services.

4.2 Implications of the joint product nature of market data services—economic analysis

In addition to the general analysis of the implications of different patterns of the recovery of joint costs, the specific question of how to recover the costs of market data services has been discussed in the economic literature. For example, an issue considered in the late 1990s was how to apportion the costs of a trading venue between trading services and market data services when assessing whether the venue is making an unreasonable profit in the production and sale of its information, and cross-subsidising trading (or vice versa).

Two paradigms were proposed at the time.²⁵ In the first, trade execution services were viewed as the primary service, with the production of market data services seen as an incidental result of delivering the primary service and the cost of producing market data seen as being marginal. The second paradigm was that a trading venue might be viewed as an organisation for making prices and, as such, the cost of producing the market data was the total cost of running the exchange.

In his book, *What is an Exchange?*, Ruben Lee clarified that neither of these approaches was necessarily correct:

The attempt to apportion costs, on the one hand to production of trading services, or on the other to the production of information, is flawed. The allocation of joint operating expenses cannot be made on anything other than an arbitrary basis, given that information and trading services are joint products.²⁶

From an economic viewpoint, the recovery of joint costs can be considered from an overall welfare perspective, or, more narrowly, from a competition policy perspective. In the first instance, the objective would be to maximise overall economic welfare; in the second, to identify what patterns of joint cost recovery would be deemed anti-competitive.

In 2003, Oxera analysed the relationship between cost recovery and competition analysis for the Office of Fair Trading (now merged into the Competition and Markets Authority), and identified that, in many cases, the appropriate price can

²³ Copenhagen Economics (2014), 'Financial market data: ways forward for regulation', 6 March, p. 3.

²⁴ Copenhagen Economics (2013), p. 22. CE confirmed this view during a conference call with Oxera.

²⁵ For a discussion of these paradigms, see Lee, R. (1999), *What is an Exchange? The Automation, Management, and Regulation of Financial Markets*, Oxford University Press, p. 275.

²⁶ *Ibid.*, p. 275.

lie anywhere between the incremental cost and stand-alone costs.²⁷ A price below the incremental cost may indicate potential predatory pricing, and a price above stand-alone costs may indicate excessive profitability.

In the context of price regulation, identifying the specific price(s) that maximises overall welfare may require a more definitive allocation of the joint costs to the various outputs. Here, costs are often allocated according to demand factors, such as consumers' willingness to pay. One variant is to allocate costs using the Ramsey pricing principle. This states that it is economically efficient (and overall welfare-maximising) to recover a relatively larger part of fixed or joint costs from those customers whose demand is relatively more inelastic (i.e. less sensitive to price). This is the exact opposite to what CE suggests—that trading venues should recover all joint costs through the fees for trade execution services (see quotes in section 4.1). The efficiency of Ramsey pricing lies in the fact that it generally leads to higher total output, and hence generates higher total surpluses for consumers.

To assess fully whether, from a public policy point of view, it would be appropriate to recover the joint costs wholly or partly through the fees for market data services would require an assessment of the impact of different ways of recovering the joint costs on market outcomes. Such an analysis is not provided by CE, but is by Oxera. In fact, this is the main focus of Oxera's report, which assesses the impact of different ways of recovering the joint costs on market outcomes, such as volume of trading and market efficiency, and also analyses any potential distributional effects.²⁸

Oxera's report shows that there are variations in how trading venues currently recover their joint costs through fees for trade execution services and/or fees for market data services, but that, within quite wide limits, how they actually do this is unlikely to have a significant impact on the functioning of the trading market for end-investors.

Where joint costs are incurred in other parts of the competitive economy, there is no set pattern of common cost recovery that would translate into any particular product being restricted to recovering a particular share of that joint cost. (The textbook example is that butchers are not restricted in having to recover a particular proportion of joint costs from either the popular cuts or the unpopular cuts.) Combined with the analysis set out above, this implies that there is a wide range of patterns of joint cost recovery that would satisfy the criteria of a 'reasonable commercial basis'. In setting any limits on joint cost recovery from market data services, this wide range of patterns of cost recovery that would fall into a 'reasonable commercial basis' needs to be taken into account.

4.3 ESMA's options for consultation

ESMA acknowledges that the production of market data and trade execution services are joint products and that it is appropriate for venues to be able to recover some of the joint costs from market data services, ruling out average variable cost pricing, and average avoidable cost pricing, which would not allow for this:

²⁷ Oxera (2003), 'Assessing profitability in competition policy analysis', Economic Discussion Paper 6, report prepared for the Office of Fair Trading, July.

²⁸ Oxera (2014), 'Pricing of market data services', report for European stock exchanges, January, section 4.

Either of these measures would mean that a venue would be unable to recover joint costs of providing data and would in effect have to recover these costs from the sale of other products.²⁹

ESMA has also rejected mandating that market data be provided for free:

Requiring data to be published for free is clearly not a 'reasonable commercial basis'.³⁰

Indeed, as explained below, prices below a certain level of costs can be considered unreasonable from a competition law perspective.

In ruling out quantitative price caps, in addition to the practical challenges involved in calibrating such price caps, ESMA explains that 'regulator-imposed prices would not be commercial.'³¹

Instead, ESMA is consulting on the following three options.

- Imposing transparency requirements and defining general principles against which venues and their customers could judge the reasonableness of data prices.
- Limiting the share of an exchange's revenues from market data services.
- Imposing a maximum price, based on a LRIC+ control.

One of the technical challenges that ESMA identifies with applying a LRIC+ control is defining the maximum share of common costs that is appropriate to recover from market data services.

As explained above, there are two common approaches to addressing this question: an overall welfare-maximisation approach—in which careful analysis is required to determine the proportion that maximises economic welfare; or a (more narrow) competition law perspective—which would focus on identifying the patterns of joint cost recovery that would be deemed anti-competitive.

Competition policy principles suggest that, in many cases, the boundaries of a 'fair price' will relate to: a lower boundary that is set at the incremental cost—recovery of less than this may indicate potential predatory pricing; and an upper boundary that is the stand-alone cost—recovery above this may indicate excessive profitability.³²

As explained above, when taking a welfare-maximisation objective, consumer welfare is likely to be maximised when costs are allocated (i.e. recovered from regulated prices) based on demand factors, such as consumers' willingness to pay (or price elasticity).

Also of relevance when assessing changes in consumer welfare is the potential for the change in the pattern in cost recovery to actually have an impact on customers' behaviour. The analysis presented in Oxera's report showed that market data fees are less than 2% of total annual costs incurred by end-investors in Europe, or less than 0.02% of assets under management.³³

²⁹ ESMA (2014), Consultation Paper MiFID II/MiFIR, ESMA/2014/549, 22 May, p. 225, para. 20.

³⁰ ESMA (2014), Consultation Paper MiFID II/MiFIR, ESMA/2014/549, 22 May, p. 220, para. 10.

³¹ *Ibid.*

³² Oxera (2003), 'Assessing profitability in competition policy analysis', Economic Discussion Paper 6, report prepared for the Office of Fair Trading, July.

³³ Oxera (2014), 'Pricing of market data services', report for European stock exchanges, January, pp. 23–26.

This suggests that changes in market data fees are unlikely to have a significant impact on end-investors.

The analysis presented in Oxera's report also considered the implications of an extreme change in the balance of cost recovery by trading venues. Under the extreme scenario where *all* joint costs are recovered through market data services, one could expect some consolidation among brokerage firms, as the fixed costs of operating as a brokerage or trading firm would increase. However, simultaneously, trade execution fees would fall, resulting in more marginal transactions and potential market efficiency improvements.³⁴

Overall, the main effect of a shift in balance of cost recovery from market data fees to trading fees is likely to be distributional, with firms operating more data-intensive business models finding their competitive position improving relative to their peers with less-intensive data requirements, since more costs are recovered from trading than from market data fees. There are no certain benefits for all groups, as competitive pressure from multiple trading venues helps to ensure that the total revenues recovered are in line with the costs incurred over the longer term.

The option of a revenue share cap, also being considered by ESMA, can deliver a similar outcome to a LRIC+, since, ultimately, both the LRIC+ approach and the revenue share cap come down to determining the appropriate allocation of joint costs to recover from market data services.

5 'Reasonable commercial basis'

Economic analysis of the current market for market data services and trading services (the joint products) does not provide a justification for any regulation of the pricing of market data services. However, MiFID II and MiFIR have been approved, and the European Commission has asked ESMA for an interpretation of what constitutes a 'reasonable commercial basis'. This is, therefore, the question at hand.

As explained in section 4, in these circumstances of joint products, competition policy principles provide useful guidance on upper and lower boundaries of prices that, generally, will not be considered unreasonable. (However, even these boundaries are not absolute, and in some specific circumstances, prices outside these boundaries would not be considered abusive under competition law.) Prices inside these boundaries are unlikely to found to be abusive. For market data services, these competition law boundaries are:

- upper—the stand-alone cost of providing market data services;
- lower—the incremental cost of providing market data services.

To define these boundaries, one needs to identify the types of cost in relation to market data services and trade execution services.

³⁴ Although there is some assessment in the economic literature of the impact on market efficiency of charging or not charging for market data services, there is not sufficient evidence from these models to draw a robust conclusion that there is a relationship between the efficiency of markets and the pricing of market data. Some papers find that, in theory, charging for market data can have a negative effect on price formation—see, for example, Easley, D., O'Hara, M. and Yang, L. (2013), 'Differential Access to Price Information in Financial Markets', Johnson School Research Paper Series no. 11-2011. However, this conclusion is sensitive to assumptions in the authors' theoretical model, and changing the assumptions can reverse the conclusion, as shown in another academic paper—see Cespa, G. and Foucault, T. (forthcoming), 'Sale of Price Information in Financial Exchanges: Does it Promote Price Discovery?', *Management Science*, available at: <http://www.esrc.ac.uk/my-esrc/grants/RES-000-22-4653/outputs/Download/bb740b1f-acd6-4586-8f7e-14c08ef24730>.

CE identifies the following cost types:

1) Incremental costs associated with producing market data:

additional services are provided by the venue in order to collect the information, repackage, and distribute the information with a very low latency. The incremental cost associated with market data is the costs associated with this additional value added, e.g. hardware and software capable of delivering the collection, repackaging and distributing service.³⁵

2) Costs associated with the provision of trade execution and market data services:

The costs associated with running a trading platform, which essentially generates the market data through trade executions and order flow should not be considered incremental costs. The reason is that these costs would have been held even without the market data business in place, as they are held to service the financial trading business.³⁶

Oxera agrees that these types of cost are relevant. There may also be a third cost category: the incremental costs of providing trade execution services.

The upper bound suggested by competition policy—the stand-alone costs of market data services—refers to the sum of the two costs identified by CE: incremental costs specific to the provision of market data; *and* the (joint) costs associated with the provision of trade execution services and market data services. Importantly, stand-alone costs do not include the incremental costs of providing trade execution services.

This means that, from a competition law perspective, the upper boundary for the price of market data services would be equivalent to the total costs for market data services and trade execution services minus the incremental costs associated with trade execution services.

Neither CE's main report and follow-up notes nor Oxera's report quantify the incremental costs associated with the provision of trade execution—the costs to be excluded—but these can be expected to be low. Suppose that the incremental costs associated with trade execution services were equivalent to around 5% of the total combined costs associated with market data services and trade execution services. In this case, the upper boundary for the price of market data services would be 95% of the combined revenues. If incremental costs associated with trade execution services were 10% (which is likely to be much higher than the level of incremental costs in practice), this would result in an upper boundary of 90%.

On the basis of the economic analysis underpinning competition law, an approach that set the upper boundary on the proportion of the total costs recovered from market data services at 90% would be likely to ensure that unreasonably high prices for market data services could not be applied in EU markets.

A consumer welfare-maximising approach would be much more complex to calculate. However, if a maximum limit approach were adopted, and the objective were to set this limit somewhere reasonably close to, but definitely not below, the (unknown) optimal point (which in any case is likely to vary from

³⁵ Copenhagen Economics (2013), 'Regulating access to and pricing of equity market data', prepared for the Danish and Swedish Securities Dealers Association, 15 October 2012, revised 12 September 2013, p. 22.

³⁶ Copenhagen Economics (2013), 'Regulating access to and pricing of equity market data', prepared for the Danish and Swedish Securities Dealers Association, 15 October 2012, revised 12 September 2013.

exchange to exchange), then it is unlikely that this level would be below 50% of common costs (see box below). Indeed, given the potential nature of demand where the demand for data services may well be less elastic than the demand for trading services, until the pattern of elasticities is established, an upper boundary considerably in excess of 50% would be prudent in order to avoid regulation forcing the industry to adopt welfare-destroying pricing structures.

In addition, it is unlikely that the limits of a pattern of joint cost recovery that would satisfy the welfare-maximising outcome would precisely match those that could be considered as meeting a 'reasonable commercial basis' test. Commercial negotiations between willing buyers and sellers in fully competitive markets do not *necessarily* have a welfare-maximising outcome as a result of, among other factors, minor market failures of one form or another. This suggests that, in setting limits on the pattern of joint cost recovery based on achieving a 'reasonable commercial basis', the upper boundary would be above the strict welfare-maximising level (assuming that this could be calculated accurately).

Using a welfare approach to establish the upper boundary of the recovery of joint costs from market data services also implies that the upper boundary would be high, and considerably in excess of 50%.

In both the competition law approach and the welfare-maximising approach, these limits can be expressed in any of the three options set out by ESMA.

Box 5.1 Upper boundary based on welfare-maximising principles

Notwithstanding the difficulty of the precise calculation of the welfare-maximising pattern of joint cost recovery, there are some characteristics of the consumption of market data and trade execution services that would suggest that the price elasticity for market data services would be lower than that for trading:

- market data services are generally licensed on a per-trader basis, while trading services are consumed on a trade-by-trade basis;
- in many cases, the device/trader will require access to market data services to undertake any trading or to undertake their main activity (e.g. fund management), while marginal trading decisions are taken in the expectation of marginal trading profitability;
- many of those who are relatively price-sensitive to market data services (i.e. those for whom market data services are not as valuable as they are to others) choose not to purchase real-time market data, and rely on the information that is available for free after 15 minutes.

In this context, this suggests that applying Ramsey pricing principles could be expected to result in market data prices recovering more than 50%, and possibly as high as 80–90%, of the combined market data and trade execution costs.

6 Policy implications

As explained above, competition policy principles provide useful guidance on upper and lower boundaries of prices that, in general, will not be considered reasonable—any prices within these boundaries will be considered reasonable.

This guidance can potentially be operationalised within a regulatory framework in several ways. One way would be to provide more transparency and state the

general competition policy principles of what would be considered reasonable. Venues and their customers could then judge the reasonableness of data prices against this (and, since competition law already applies, seek a competition law remedy.)

Given that there is no economic justification for regulating the prices of market data services, there would be no need to go beyond this option of transparency. If, however, ESMA wanted to go further, it would also be possible to operationalise the guidance from competition policy in the form of LRIC+ pricing or a revenue ratio. As explained, from a competition law perspective, the upper boundary for the price of market data services would be equivalent to the total costs for market data services and trade execution services minus the incremental costs associated with trade execution services. The incremental costs associated with the provision of trade execution—the costs to be excluded—can be expected to be low. Suppose that the incremental costs associated with trade execution services were equivalent to around 5% of the total costs associated with market data services and trade execution services. In this case, the upper boundary for the price of market data services would be prices that generated 95% of the combined revenues. If incremental costs associated with trade execution services were 10% (which is likely to be much higher than the level of incremental costs in practice), this would result in an upper boundary of 90%.

Exactly the same approach could be adopted with respect to a welfare-maximising approach, but with the caveat that, to refine the upper boundary, (much) more analysis would be required to establish the relative relevant price elasticities of users of market data services and transaction services. As indicated, this boundary is likely to be lower, but possibly not that much lower, than the upper boundary established under competition law, given the nature of the demand for these services.
