

# Agenda

## Advancing economics in business

### What does it cost to trade, clear and settle?

Over recent years there has been a proliferation in trading venues and central clearing counterparties through which equities can be traded and cleared. However, there has been little analysis of the costs of the different channels for trading and post-trading. Based on an active broker's trading profile and venue pricing schedules, what are the relative proportions of trading and post-trading costs across the different channels?

UK equities can nowadays be traded at a number of venues, including the London Stock Exchange (LSE), BATS, Chi-X, Market Plus and Turquoise, and trades can be cleared through different central counterparties (CCPs): LCH.Clearnet, EMCF, EuroCCP, and SIX x-clear.

This article provides some insight into the relative proportions of trading and post-trading costs across these different channels. It assesses the current distribution of trading, clearing and settlement costs for a large broker within different channels and the factors driving the differences in cost distribution. The analysis is based on infrastructure provider pricing schedules during March 2010,<sup>1</sup> and data on actual trading behaviour of large brokers.

#### Trading and post-trading services

The costs of trading and post-trading services are considered at the level of infrastructure providers—costs at other levels in the value chain (eg, custodians and other agents) are not included.<sup>2</sup> At the infrastructure provider level, the activities can be broadly categorised as trading, clearing and settlement.

- Trading is usually initiated when an order is placed and then executed on a trading platform. Platforms include exchanges, multilateral trading facilities and crossing networks. In addition to trade execution, these platforms may provide other services such as order management, market making, and a combination of active and/or passive execution strategies.
- Counterparty risk clearing is provided by CCPs. A CCP can be defined as an entity that interposes itself, directly or indirectly, between the transaction counterparties in order to assume their rights and obligations, acting as the direct or indirect buyer to

every seller and the direct or indirect seller to every buyer. Clearing involves the preparation of a transaction for settlement, and comprises trade netting (bundling multiple transactions into a single settlement order) and settlement instruction (processing the matched and netted trades to be sent for settlement). CCPs also provide fail management and related risk management services.

- Settlement involves pre-settlement positioning (ensuring that the buyer has the monies available and that the seller has the securities available) and the completion of a transaction through the transfer of ownership of assets and monies. Settlement is initiated once the trade has been cleared by the CCP (for trades that are routed via CCPs), or, alternatively, for gross trades that are not cleared by the CCP, once the trade is executed and ready for settlement. These services are usually provided directly by central securities depositories (CSDs) or indirectly by custodians/settlement agents, who maintain accounts with the CSDs. Other services provided by CSDs include (but are not restricted to) stamp assessment, collateral management, netting, and custody and safekeeping-related activities.

#### User profile approach

The approach taken is to design a profile of a large user based on data on the actual trading patterns of large brokers,<sup>3</sup> and to apply this profile to the pricing schedules of the infrastructure providers. This results in an estimate of the costs that are incurred. This is a standard approach for estimating the costs of services when the costs incurred depend on the profile of the user, and has been used in other cost studies of securities trading and post-trading, as well as in studies in other sectors.<sup>4</sup> Some infrastructure providers have also designed user profiles themselves in order to illustrate how their pricing schedules work.

This article is based on the Oxera report 'Costs of Securities Trading and Post-trading—UK Equities', prepared for Euroclear UK & Ireland, April 2010. Available at [www.oxera.com](http://www.oxera.com).

The profile designed is that of a large broker trading in UK equities using the following channels:<sup>5</sup>

- LSE (trading platform), LCH.Clearnet (CCP), and Euroclear UK & Ireland (EUI) (CSD);
- BATS Europe (trading platform), EMCF (CCP), and EUI (CSD);
- Chi-X (trading platform), EMCF (CCP), and EUI (CSD).

Based on data from actual trading behaviour of large brokers, the profile assumes a trading volume of 110,000 trades per day and an average trade size of £8,000 for trading on the LSE and of £6,000 for trading on Chi-X and BATS.

## Pricing schedule

Once the user profile has been designed, it needs to be applied to the relevant pricing schedules. This requires a careful analysis of the services and pricing schedules of infrastructure providers.

Infrastructure providers offer a range of services, some of which are essential for the broker to be able to trade, clear and settle, while others are not strictly necessary but may be used in practice (although typically less frequently than the core trading, clearing and settlement services). For example, some infrastructure providers offer order management services as a separate chargeable service. Although it is technically possible to trade, clear and settle without these services, most brokers are likely to use some of them. A careful assessment was undertaken of the extent to which these services needed to be included in the user profile, and what the impact would be on the total cost of trading and post-trading.<sup>6</sup>

The mix of services available to market participants at the trading and post-trading level varies across infrastructure providers; however, the core services (eg, trade execution at the trading level and netting at the CCP level) have broadly similar characteristics.<sup>7</sup>

This analysis is based on the March 2010 infrastructure provider pricing schedules. In late April the LSE announced a trial for certain changes to its pricing schedule for a specific group of users, and these changes have not been included.

## Main findings

Application of the user profile to the pricing schedules of infrastructure providers results in a benchmark of the costs of trading and post-trading. Table 1 presents a summary of the costs across the three channels.

- The costs of trading and post-trading using the LSE (together with LCH.Clearnet and EUI) amount to

28.5p per transaction, and using BATS Europe or Chi-X (together with EMCF/EUI) totals 7.3p per transaction.

- For trades conducted on the LSE/LCH.Clearnet/EUI, trading costs represent 83% of total transaction costs, while 17% of costs are attributable to post-trading services. CCP costs account for 15% (with 2% allocated to EUI)—which includes trade netting, CCP clearing and CCP settlement fees—and CSD costs represent 2% (also reflecting EUI services).
- For trades conducted on BATS Europe/EMCF/EUI and Chi-X/EMCF/EUI, 41% of transaction costs are incurred at the trading level, while 59% are attributable to post-trading costs. CCP costs account for 54% (including 16% associated with services provided by settlement agents), while 5% arise at the CSD level.
- Post-trading costs for trades conducted on the LSE are nearly the same as those for trades executed on BATS Europe and Chi-X. The slight differences are primarily attributable to costs incurred at the CCP level.
- There are significant differences when examining trading costs, with trading fees charged by the LSE amounting to 23.8p per transaction compared with 3p when the same trade is executed on either BATS Europe or Chi-X. This does not consider implicit trading costs—eg, the bid–ask spread or market impact. In general, since the liquidity levels on the LSE are likely to be higher than those on BATS Europe and Chi-X, implicit trading costs associated with trading on the LSE are likely to be lower than those on BATS and Chi-X.

While the cost distribution between trading and post-trading is clear, the cost distribution at the CCP and CSD levels depends to some extent on where the line is drawn between CCP and CSD services, and therefore needs to be interpreted with caution.

## Costs per value traded

The costs of trading and post-trading services can also be measured in terms of the value of transactions (see Table 2), which is a useful measure, particularly from an end-user (fund manager/investor) perspective.

Expressed on this basis, the total infrastructure-related direct trading and post-trading costs are equal to 0.35bp when using the LSE/LCH.Clearnet/EUI channel, and 0.09bp when using the BATS/EMCF/EUI and Chi-X/EMCF/EUI channels.

**Table 1 Trading and post-trading costs (pence per transaction)**

	LSE, LCH.Clearnet, EUI	BATS, EMCF (and settlement agent), EUI	Chi-X, EMCF (and settlement agent), EUI
<b>Trading platforms</b>			
Transaction fee	23.8	3.0	3.0
<b>CCPs</b>			
CCP fee	3.8	2.6	2.6
Fail management fee	–	0.1	0.1
Netting fee (service provided and charged for by EUI)	0.2	–	–
CCP clearing fee (pass-through from EUI)	0.1	–	–
CCP settlement fee (pass-through from EUI)	0.1	–	–
CCP settlement fee (pass-through from settlement agent)	–	1.1	1.1
<b>CSDs</b>			
Settlement fee	0.3	0.4	0.4
Stamp assessment fee	0.3	–	–
Non-settling own account transfer fee (stamp-related)	–	0.03	0.03
Direct input	0.03	0.03	0.03
<b>Total post-trading costs</b>	<b>4.8</b>	<b>4.3</b>	<b>4.3</b>
<b>Total trading and post-trading costs</b>	<b>28.5</b>	<b>7.3</b>	<b>7.3</b>

**Table 2 Trading and post-trading costs (as a proportion of value of transaction, bp)**

	LSE, LCH.Clearnet, EUI	BATS, EMCF (and settlement agent), EUI	Chi-X, EMCF (and settlement agent), EUI
<b>Trading platforms</b>			
Transaction fee	0.30	0.04	0.04
<b>CCPs</b>			
CCP fee	0.05	0.03	0.03
Fail management fee	–	<0.01	<0.01
Netting fee (service provided and charged for by EUI)	<0.01	–	–
CCP clearing fee (pass-through from EUI)	<0.01	–	–
CCP settlement fee (pass-through from EUI)	<0.01	–	–
CCP settlement fee (pass-through from settlement agent)	–	0.01	0.01
<b>CSDs</b>			
Settlement fee	<0.01	<0.01	<0.01
Stamp assessment fee	<0.01	–	–
Non-settling own account transfer fee (stamp-related)	–	<0.01	<0.01
Direct input	<0.01	<0.01	<0.01
<b>Total trading and post-trading costs</b>	<b>0.35</b>	<b>0.09</b>	<b>0.09</b>

Source: Oxera.

## Concluding remarks

The purpose of the analysis was to provide an understanding of the relative proportions of trading and post-trading costs. It was not the purpose to provide a comprehensive assessment of the attractiveness of individual infrastructure providers; for such an assessment, brokers would need to consider a wider range of factors than just transaction-related costs. For example, the analysis measures the explicit transaction-related costs incurred when using infrastructure providers only. Other types of cost are not included, such as access and membership fees, and brokers' costs associated with holding margin collateral at CCPs. Similarly, implicit trading costs (such as market impact costs) and other aspects of the service offering of infrastructure providers are not included in the analysis.

Furthermore, it should be noted that due to the high degree of variation in the profiles of actual brokers, the user profile approach does not allow for the entire industry to be captured. Each user is unique: the profiles of individual brokers are determined by the profile of their own trades and of their underlying clients, and cannot be easily summarised in one user profile.

To ensure that the findings are robust to plausible changes in the user profile, the assessment was complemented by a sensitivity analysis, which considered how the distribution of costs between different layers and between the three channels change depending on characteristics of brokers.

The sensitivity analysis suggests that the findings in relation to the differences in the trading and post-trading costs are robust to plausible changes in assumptions about, for example, the size of activity and the mix of aggressive and passive trades.

Smaller brokers are likely to incur higher trading and post-trading costs per transaction. For example, for brokers that have trading activity that is 50% of the defined 'large broker', total trading and post-trading

costs associated with the LSE/LCH.Clearnet/EUI channel would be 37.2p compared with 28.5p for a large broker, and costs associated with the other two channels would be unchanged at 7.3p. However, the relative proportion of trading and post-trading costs for a small broker is more or less the same as for a large broker.

Similarly, a broker's mix of aggressive and passive trades has an effect on the costs of trading and post-trading. For brokers with a high proportion of passive trades (effectively, liquidity providers on a given platform), the costs of trading on platforms that provide rebates for passive trades can be considerably lower than those of brokers that predominantly execute aggressive trades.

A 50/50 split between aggressive and passive trades was assumed for the 'large broker' modelled in the main analysis. Assuming that a broker executes 75% of its trades on a passive basis, the rebates it would receive from BATS and Chi-X actually exceed the costs associated with the broker's aggressive trades. At the same time, for a broker that executes 75% of its trades on an aggressive basis, trading on BATS and Chi-X becomes comparatively more expensive than for brokers with an equal proportion of aggressive and passive trades.

Overall, given that there are differences in charging between aggressive and passive trades on BATS and Chi-X, an increase in the proportion of passive trades reduces the costs of the BATS/EMCF/EUI and Chi-X/EMCF/EUI channels relative to the LSE/LCH.Clearnet/EUI channel. An increase in the proportion of active trades increases the cost of the BATS/EMCF/EUI and Chi-X/EMCF/EUI channels relative to the LSE/LCH.Clearnet/EUI channel.

In sum, although the level of trading and post-trading costs varies by type of broker, the main findings about the relative proportions of trading and post-trading costs are valid for a broad range of brokers.

<sup>1</sup> This analysis differs from Oxera's price monitoring study for the European Commission, which focuses on changes over time in the average costs across the entire industry (see Oxera (2009), 'Monitoring Prices, Costs and Volumes of Trading and Post-trading Services', July, [www.oxera.com](http://www.oxera.com)). The analysis presented in this article does not make use of any confidential data from the Oxera study for the European Commission.

<sup>2</sup> An analysis of the costs of trading and post-trading along the entire value chain is provided in Oxera (2009), op. cit.

<sup>3</sup> The user profile is informed by, among other factors, actual data from Euroclear UK & Ireland on (large) brokers trading in UK equities.

<sup>4</sup> See, for example, EuroCCP (2008), 'The Clearing Industry in Europe: Cost Comparison'. In this study the user profile approach is used to estimate an average price across the entire industry. For an example of the user profile approach outside the area of securities trading and post-trading, see Oxera (2006), 'The Price of Banking: An International Comparison', prepared for the British Bankers' Association', November, [www.oxera.com](http://www.oxera.com).

<sup>5</sup> Other trading platforms (eg, Turquoise) and CCPs (eg, EuroCCP and SIX x-clear) are not included in the analysis. In principle, the analysis could be extended at a later stage to include these and other infrastructure providers.

<sup>6</sup> For example, although order management is a separate chargeable service in the case of some trading platforms (eg, on the LSE), the extent to which it is used is generally relatively small and therefore unlikely to affect the distribution of trading and post-trading costs significantly. For this reason, the user profile does not include order management services.

<sup>7</sup> Although the core services offered by infrastructure providers and included in the analysis (eg, trade execution at the trading level and netting at the CCP level) have broadly similar characteristics, there may be differences in the definition of these services. A degree of consistency is provided by taking into account work on the definition of services (eg, by the European Commission and the task forces set up by FESE and ECSDA), but no further adjustments are made to harmonise the definition of services. See European Commission (2006), 'Draft Working Document on Post-trading Activities', May; CESAME Sub-Group on Definitions (2005), 'Commission Services Working Document on Definition of Post-trading Activities', MARKT/SLG/G2(2005)D15283; ECSDA (2007), 'Glossary—Definitions of Services Relevant to the Code of Conduct', December; FESE, EACH, ECSDA (2006), 'European Code of Conduct for Clearing and Settlement', November.

**If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email [g\\_niels@oxera.com](mailto:g_niels@oxera.com)**

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