



Trade size clustering and the cost of trading at the London Stock Exchange

Thanos Verousis*, Owain ap Gwilym

Bangor Business School, Bangor University, Bangor, LL57 2DG, UK

ARTICLE INFO

Article history:

Received 8 February 2012
 Received in revised form 4 July 2012
 Accepted 7 August 2012
 Available online 18 September 2012

JEL classification:

G20
 G12

Keywords:

Trade-size clustering
 Transaction costs
 Price impact
 LSE

ABSTRACT

For the London Stock Exchange, this paper investigates differences in trading costs between market maker (off-book) and order book trades, in the context of clustering in trade sizes and prices. We report several substantial findings. Even after controlling for differences in trade size, the realised spread measure is lower for off-book trades. For the order book, trade size clustering is not associated with differences in transaction costs nor with differences in the information content of trades. For the off-book market, trades in clustered (popular) sizes carry significantly more information than non-clustered trades. Despite the significant differences in the price impact estimates between the order book and off-book, we show that traders placing large orders off-book are still better off than trading via the order book as they benefit from a large discount from the current midpoint price. Additionally, we highlight that price and size clustering tend to occur simultaneously rather than being substitutes in this market setting.

© 2012 Elsevier Inc. All rights reserved.

1. Introduction

The magnitude and significance of trade size clustering in financial markets have recently attracted attention (see Alexander & Peterson, 2007; Moulton, 2005). Hodrick and Moulton (2009) demonstrate that liquidity has three dimensions: (1) price, (2) timing and (3) quantity. Therefore, investors not only need to focus on the price–time substitution effect, but also need to consider optimal traded quantities. That is, to the extent that investors fail to accommodate size in their optimal trade allocation decisions, their costs will increase. In particular, while previous studies focus on the extent of size clustering as well as the interaction of price clustering with size clustering, we extend this literature by examining the trade direction of size-clustered trades separately for liquidity demanders and liquidity providers. The latter allows us to study effective transaction costs and information flows separately for buy and sell orders and to establish to what extent the tendency of size clustering is linked to differences in market structure.

This paper focuses on trading costs at the London Stock Exchange (LSE). The unique structure of the LSE provides a further motivation for this study. In particular, although the main market at the LSE is a hybrid market, its market structure differs from the NYSE in relation to the interaction between market makers and order-book participants.¹ At the LSE, the downstairs market (the order book) is independent of the

upstairs (off-book) market (involving market-makers), which implies that the market makers have no obligation to offer quotes on the order book. In addition, there is limited interaction between the upstairs market and the order book. Trades in the LSE upstairs market are privately negotiated and as a result there are no minimum tick restrictions. The latter also implies that the time priority rule is not relevant, as upstairs market participants are able to front-run other investors by applying a very small incremental price improvement (see also Harris, 1991).

The upstairs market facilitates large trade sizes, as these trades would cause an adverse price effect in the order-book (see Bessembinder & Venkataraman, 2004).² When controlling for trade size differences, the information content of trades is greater for trades executed on the downstairs element of the London Stock Exchange Trading System (SETS) than for trades executed on the upstairs market (see Jain, Jiang, McInish, & Taechapiroontong, 2010).³ The latter finding is also confirmed by Gajewski and Gresse (2007) for the order books of Euronext Paris and the LSE, suggesting that informed trades are routed to the downstairs market. Further, Gajewski and Gresse (2007) show that small and medium-sized trades pay lower execution costs on the LSE order book than do same-size trades conducted in the upstairs market. We extend this literature in several respects. First, we provide

* Corresponding author. Tel.: +44 1248 388393.

E-mail address: t.verousis@bangor.ac.uk (T. Verousis).

¹ At the NYSE, dealers are obliged to trade on the order book and are generally considered an integral part of the order book.

² Transparency is important in upstairs markets. Bernhardt, Dvoracek, Hughson, and Werner (2004) show that market participants that trade outside the order book tend to receive substantial discounts (price improvements) for larger trades when trading with a smaller number of dealers.

³ SETS is the main electronic order book market in the LSE and the main trading platform for the most liquid securities.

evidence on trade execution cost net of the price impact component of trades, separately for the downstairs and the upstairs markets of the LSE. Related to this, we study execution costs separately for liquidity demanders and liquidity providers. Second, we examine execution cost differences on the LSE in light of the findings of Alexander and Peterson (2007) and Moulton (2005) that there are significant differences in execution and price impact costs between trades in popular sizes and those in non-clustered sizes. Hence, our primary aim is to study differences in transaction costs across different market structures with regard to their relationship to trade size clustering.

Overall, we investigate three main hypotheses. First, we hypothesise that in a setting like SETS at the LSE, in which the minimum tick size is applied to the order book but not for the upstairs market, market participants in the latter market anchor their prices to the established minimum tick size applied on the order book. Second, we investigate the hypothesis that clustered trades (i.e. popular sizes) are associated with higher price impact than non-clustered trades. Third, we test the hypothesis that price clustering and size clustering are determined endogenously. A significant part of the contribution lies in the fact that we study the above hypotheses separately for liquidity providers and liquidity demanders.

We use the effective half spread and its components as a measure of trading costs. We show that even after controlling for differences in trade size, the realised spread measure (which is net of the adverse selection costs) is lower for the off-book trades. Most importantly however, we investigate the level of trading costs and the informational content of trades that are associated with the optimal price/optimal size trading decisions. We do so in a setting that allows us to study market maker trades separately from non-exchange member trades. We document extensive size clustering in both markets, which persists when controlling for trade sizes. For the downstairs market, while the majority of assets trade in multiples of 500 shares, trade size clustering is not associated with differences in transaction costs nor with differences in the informational content of trades. For the upstairs market, trades in the clustered (popular) sizes carry significantly more information than non-clustered trades. We also show that traders placing large orders via the upstairs market are still better off than trading via the order book. The latter finding holds mainly for buy orders and the benefits derived from trading in the upstairs market are greater for larger trade sizes.

In a second layer of analysis, we use a 2-stage least squares (2SLS) model to study whether price clustering and size clustering are substitutes or complements. We show that pricing in the upstairs market follows the notional minimum tick size rules (these are only binding for the downstairs market), hence, prices cluster in multiples of the minimum tick size. The intraday distributions of price and size clustering exhibit a high correlation coefficient and this finding is validated with a multivariate model. We show that when trading frequency increases, market participants trade at clustered prices and clustered sizes, which supports the hypothesis that in busy trading periods, maximising liquidity comes at the expense of maximising utility from trading at exact prices and trade sizes. The latter is also confirmed at the end-of-quarter periods and is in contrast with the findings of Moulton (2005).

The remainder of this paper is organised as follows. Section 2 discusses the literature on size and price clustering. Section 3 outlines the data and Section 4 discusses the methodology. Section 5 presents the results and discusses the findings, and Section 6 concludes the paper.

2. Literature review and positioning of the paper

In an ideal world, an investor is able to trade at the exact desired price, the exact desired size and at an exact time (see Harris, 2003, p. 398). Theoretically, Hodrick and Moulton (2009) demonstrate that deviations from the optimum trade price and optimum trade size impose shadow costs on

portfolio managers. Moulton (2005) further argues that investors who are not able to optimize all three dimensions of liquidity need to consider the trade-offs regarding substituting the optimum price with the optimum size. To date, the literature is mainly concerned with deviations from the optimum price and offers little evidence on the costs faced by investors when there exist trade-offs in substituting optimum prices with optimum sizes.

Previous studies on price clustering have mainly focused on the motivation of market participants to concentrate their terms of trading in specific prices. Four theories have been widely cited as potential explanations for the clustering of final digits. Firstly, the negotiation theory (Harris, 1991) states that investors tend to reduce their terms of trading when there is an increased need to execute trades. The negotiation hypothesis implies that price clustering will increase in periods of abnormally heavy trading. Secondly, the price resolution hypothesis (Ball, Torous, & Tschoegl, 1985) proposes that there is a difference between the “true” price of the asset and its observable price which is determined by the amount of information about that asset, its price level and variability. As a result, the greater the level of information, the larger the available price set should be. Thirdly, Goodhart and Curcio (1991) trace behavioural elements in price clustering, which might reflect a general tendency to use round numbers. Fourthly, Christie and Schultz (1994) and Christie, Harris, and Schultz (1994) attribute price clustering at NASDAQ to the anticompetitive behaviour of dealers who implicitly colluded to increase market making revenues. Numerous empirical studies document price clustering in the equity, derivatives and foreign exchange markets (see Ahn, Cai, & Cheung, 2005; ap Gwilym & Verousis, 2010; Chung & Chiang, 2006; Narayan, Narayan, Popp, & D’Rosario, 2011; Sopranzetti & Datar, 2002).

A second stream of literature is generally consistent with the view that trade prices and trade sizes are determined simultaneously. Moulton (2005) shows that investors demonstrate an increased need to trade in exact quantities at year ends. Also, when investors choose to trade at exact quantities, the price impact of trades is greater, which reflects an increased need to trade at exact quantities rather than an increase in the available size set. The price–size substitution effect documented by Moulton (2005) for the foreign exchange market is not supported by the findings of Alexander and Peterson (2007) for stocks trading at the NYSE and NASDAQ markets. These authors show that price and size clustering are supplements hence occur simultaneously, which is consistent with the negotiation hypothesis of price clustering (Harris, 1991). The latter hypothesis is partially examined in ap Gwilym and Meng (2010), who report that size clustering in the FTSE100 futures market is inversely related to transaction frequency and is influenced by similar determinants to those identified in the price clustering literature. Finally, Blau, Van Ness, and Van Ness (2012) show that short sellers’ single aim is to exploit information inefficiencies, hence they are less concerned with the indirect negotiation and adverse price movement costs. The authors report that short selling positions demonstrate less size clustering and price clustering than non-short selling trades, which confirms the hypothesis that short sellers are more focussed on private information than negotiation costs.

In light of this literature, we study three main themes. The first theme investigates to what extent differences in market structure affect price and size clustering. Previous literature has documented price clustering on the order book (see Ahn et al., 2005) and on a dealer market (see Christie & Schultz, 1994). However, the market structure of the LSE allows us to compare clustering of prices and sizes at downstairs and upstairs markets for the same assets. We hypothesise that in a setting like the main trading platform of the LSE, in which the minimum tick size is applied to the order book (SETS) but not for the upstairs market, market participants in the latter market anchor their prices to the established minimum tick size applied on the order book. Our second theme relates to the findings of Alexander and Peterson (2007) and Moulton (2005) regarding differences in the effective cost and price impact of clustered trades (i.e. in popular sizes) versus non-clustered

Download English Version:

<https://daneshyari.com/en/article/5085093>

Download Persian Version:

<https://daneshyari.com/article/5085093>

[Daneshyari.com](https://daneshyari.com)