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## Price synchronicity: The closing call auction and the London stock market

Patricia Chelley-Steeley\*

Finance, Accounting and Law Group, Aston Business School, Aston University, Birmingham B4 7ET, United Kingdom

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### ABSTRACT

In this paper, we consider the impact of the introduction of a closing call auction on market quality of the London Stock Exchange. We employ the market model, RDD and MEC metrics of market quality. These signify substantial improvements to market quality at both the close and open for migrating stocks. We note that these improvements are larger at the open than the close. An important contribution of our paper is that we show that changes to market quality are stronger in those securities that have the lowest liquidity in the pre-call period. In contrast, market quality changes following the introduction of a closing call auction are approximately neutral for high-liquidity securities. We conclude that the implementation of a closing call auction, for high-liquidity securities may not enhance market quality.

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### 1. Introduction

The London Stock Exchange introduced an auction trading system called SETS (Stock Exchange Electronic Trading System) on October 20, 1997, for the constituents of the FTSE 100 index. This change was motivated by a desire to bring greater liquidity and efficiency to the London Stock Exchange. Approximately two-and-a-half years later, the trading system has evolved to include a call auction at the close. This change was important as the trading mechanism has been shown to exert a strong influence on aspects of market quality such as liquidity and volatility.

In general, the literature on call auctions has focused on how they contribute to price discovery, volatility, volume and adverse selection, and have highlighted the important advantages of this trad-

\* Tel.: +44 121 204 3060; fax: +44 121 204 4915.

E-mail address: [p.l.chelley-steeley@aston.ac.uk](mailto:p.l.chelley-steeley@aston.ac.uk).

ing mechanism, see for example, Chelley-Steeley (2001, 2003, 2005). Madhavan (1992) showed how the information aggregation process of a call auction can reduce market failures caused by information asymmetry. Biias et al. (1999) and Cao et al. (2000) showed that traders learn from indicative prices disseminated by the exchange during the pre-open period. This showed that the pre-open period is important for price discovery. Moreover, Schnitzlein's (1996) experimental study indicates that informed traders earn lower profits in call markets and are less able to exploit uninformed traders. This suggests that lower information asymmetries are associated with this trading system.

Amihud and Mendelson (1991) demonstrated that pricing efficiency and volatility are lower in call auctions. In their study of the Japanese market, they observed that returns from the afternoon call auction had the highest efficiency and lowest volatility of the day. These conclusions are supported by a theoretical model introduced by Madhavan (1992) that showed that call auctions lead to higher pricing efficiency and lower volatility and are less inclined to lead to market failures.

More recent studies have universally agreed that a closing call auction improves market quality. Ko et al. (1995) showed that the introduction of a closing call auction on the Korea Stock Exchange decreased stock price volatility and improved price discovery. A closing call introduced at the Paris Bourse was shown by Pagano and Schwartz (2003) to have improved market quality—a finding corroborated by Comerton-Forde et al. (2003) for the Singapore Stock Exchange.

Brooks and Moulton (2004) discovered that the performance of a call auction can spillover to other times of the day. They showed that at the NYSE, there was a strong association between the opening call auction volume and volume at other times of the trading day. Moreover, they found that the previous day's volume was positively related to the subsequent day's opening volume. Important spillovers were also discovered by Pagano and Schwartz (2003), who found that a closing call auction also improved market quality at the following days open. The existing empirical evidence has not established whether these market quality changes are related to the pre-call liquidity levels of participating securities. This is an important issue to examine as it may suggest whether specific securities should be targeted when microstructure changes are considered.

In this paper, we study the impact on market quality of the imposition of a closing call at the London Stock Exchange. We are exploring whether a major, global, high-liquidity market can benefit from a closing call auction. London is also worthy of attention because most of the trading at the open and the close is undertaken through a dealer market that operates alongside the official auction system (see Ellul et al., 2006). This feature of the market may cause the effects of a closing call auction to be muted.

Using the Cohen et al. (1983a,b) methodology, we show that market quality improved for migrating stocks after the closing call auction was introduced in London. In general, our results show that the open benefited more from the imposition of a closing call than the close. We attribute this unusual feature to the specific characteristics and problems associated with the London market at the open. Moreover, more accurate price discovery at the close will reduce subsequent transitory price movements, causing the benefits of the closing call to spillover to the open. A control sample we examined was not characterized by discernable market quality changes in the post-call period.

An important discovery by Muscarella and Piwowar (2001) was to show that frequently traded stocks at the Paris Bourse gained value and liquidity when transferring to continuous trading, but infrequently traded stocks lost value and liquidity when migrating to call trading. This motivated us to study the possible impact of pre-existing liquidity levels on post-call market quality. An important contribution of this paper is to show that low-liquidity securities experience greater improvements to market quality than securities with high pre-call liquidity.

## 2. The London trading system

On October 20, 1997, the London Stock Exchange introduced an electronic auction system called SETS (Stock Exchange Electronic Trading System). For designated stocks, transactions were to be routed through SETS during the official trading day. When the system was introduced only FTSE 100 stocks were transferred to auction trading. In September 1999 the system was extended so that the most active FTSE 250 stocks also migrated.

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