

Pre-trade transparency and market quality[☆]

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Abstract

There is no consensus in the literature on whether an increase in pre-trade transparency results in an improvement or deterioration in market quality. Two discrete changes in pre-trade transparency on the Korea Exchange (KRX), an electronic order-driven market, allow us to address this question. We find that market quality is increasing and concave in pre-trade transparency, with significantly diminishing returns above a certain point. We argue that previous event studies of the effect of transparency have been econometrically flawed, propose a procedure to correct this flaw, and show that this procedure can reverse the result of an event study.

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1. Introduction

Pre-trade transparency in stock markets is generally defined as a measure of the public release of information concerning participants' buy and sell orders before these orders are

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executed.¹ In this paper, we study the effect of pre-trade transparency on market quality using an event study.

Changes in pre-trade transparency have an effect on stock market quality through the following two channels. First, each trader adjusts his/her inferences concerning the true value of the stock and optimal strategy in direct response to the change in the quote disclosure rule. Second, each trader must further adjust his/her optimal strategy in response to the changes in the strategies of other agents; eventually, the market will reach a new equilibrium state in which traders make no further adjustments in their strategies.

The appropriate level of pre-trade transparency is a policy variable that can be freely set by an exchange or by regulators. The fundamental economic question to be addressed in setting this policy variable is whether an increase in pre-trade transparency results in an improvement or a deterioration in market quality.

Because there have been relatively few real-world events in which the disclosure policy changed, there have been relatively few studies of the effects of pre-trade transparency on market quality. Moreover, the few previous studies disagree on whether an increase in pre-trade transparency results in an increase or a decrease in market quality. Madhavan, Porter, and Weaver (2005) analyze pre-trade transparency using real-world data. Analyzing the effects of the event in which the Toronto Stock Exchange (TSX) started to publicly disclose the limit order book of both the floor and the Computer Aided Trading System (CATS), Madhavan, Porter, and Weaver (2005) found that the increase in pre-trade transparency had detrimental effects on market quality. Specifically, they found that the increased transparency resulted in higher trade execution costs and volatility, and that the effects were concentrated in floor stocks where pre-trade transparency was previously low and not in CATS stocks that already featured a high degree of information disclosure. Their analysis controlled for certain relevant variables such as volume and volatility in cross-section, but since these control variables are endogenous, the cross-sectional analysis is misspecified. In contrast, Baruch (2005) developed a theoretical model in which he argued that an increase in pre-trade transparency increases market quality by reducing spreads and increasing the informational efficiency of the price. Using the introduction of NYSE's OpenBook "for payment" in 2002 as an event, Boehmer, Saar, and Yu (2005) found that greater pre-trade transparency of the limit order book is a win-win situation, the opposite to the finding of Madhavan, Porter, and Weaver (2005). Hendershott and Jones (2005a) found that a reduction in the transparency of the order book of the Island ECN, the dominant market for the three most active ETF's, decreased market quality.² Thus, there is no consensus in the literature on whether increasing pre-trade transparency results in an improvement in market quality.

¹The *post-trade* transparency is defined as a measure of the public release of information concerning participants' buy and sell orders after these orders are executed. We distinguish in this paper between pre-trade and post-trade transparency. However, when we refer to previous studies that did not differentiate them or analyzed them together, we use the term "transparency".

²The theoretical studies regarding post-trade transparency are Naik, Neuerberger, and Viswanathan (1999) and Madhavan (1995), while Gemmill (1996) is empirical. Gemmill (1996) examines a change in reporting block trades on the London Stock Exchange (LSE) and argues that less post-trade transparency does not affect spread and the speed of price adjustment. The theoretical studies regarding transparency include Madhavan (1995), Pagano and Roëll (1996), Lyons (1996), Rindi (2002), and others, while the related laboratory experiment studies are Bloomfield and O'Hara (1999, 2000) and Flood, Huisman, Koedijk, and Mahieu (1999).

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