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Order aggressiveness as a metric to assess the usefulness of accounting information

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Abstract

Motivated by the availability of high-frequency data on trading activity, this paper proposes the use of order aggressiveness as a metric to evaluate the usefulness of accounting information. I test, through an analysis of order aggressiveness, whether earnings announcements of firms listed on the Italian Stock Exchange limit order book have information content. I estimate an ordered probit relating order aggressiveness to unexpected earnings and to three market determinants of aggressiveness. Consistent with the theory on the choice between limit and market orders, I find that order aggressiveness increases with the absolute value of unexpected earnings. The results provide evidence on the extent to which the information contained in earnings is used by traders.

Jel classification: M41; G14
Keywords: Decision usefulness metrics; Market response to accounting information; Traders' strategies; Order aggressiveness; Earnings announcements; Ordered probit

1. Introduction

The vast body of literature on decision usefulness of accounting information examines the market response to the disclosure of financial statements items (recent critical surveys are contained in Fields, Lys, & Vincent, 2001, September & Kothari, 2001). Most contributions, drawing their foundations in the seminal works of Ball and Brown (1968) and Beaver (1968), analyze the reaction of stock prices and trading volume. A group of works also compares

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price-based metrics and volume-based metrics as methods to test the market response (Rohrbach & Chandra, 1989; Bamber & Cheon, 1995; Cready & Ramanan, 1991, 1995; Cready & Hurtt, 2002). The availability of high-frequency data on orders and transactions makes it possible to enrich the results of this branch of research. Accordingly, I propose the use of order aggressiveness as a complementary metric to evaluate the usefulness of accounting information. Ranking orders according to aggressiveness is a classification, first introduced by Biais, Hillion and Spatt (1995), used by a number of empirical studies examining the order flow. Stock prices and trading volume are determined by order submission strategies, which are described by the aggressiveness classification. Thus, order aggressiveness provides a metric of the market reaction to information more primitive than measures based on stock prices and trading volume. Further advantages exist in the method I propose with respect to the traditional metrics: the effect of unfilled orders is taken into account, an intraday dataset can be exploited, and results can be segmented by characteristics of orders (therefore by categories of traders). As pointed out by Lev (1989), the traditional approach to evaluate decision usefulness maintains that when individuals act as if they use information, then such information can be considered useful. Following this approach, I suggest that analyzing order submission strategies provides evidence on the extent to which accounting information is useful for market participants. Different actors can be motivated to understand whether accounting information is found to be useful through an analysis of order aggressiveness. As implied by many works in this literature (see, for example, Scott, 2003), accountants are interested in understanding how market participants perceive the information they release, and standard setters are interested in investigating if accounting methods are appropriate to convey information. Moreover, the observation of traders' reactions helps investors to revise their evaluation of the stocks and to better estimate trading costs.

This paper studies the usefulness of earnings announcements of firms listed on the Italian Stock Exchange limit order book by examining the reaction of order aggressiveness to unexpected earnings. I estimate an ordered probit that relates order aggressiveness to the absolute value of unexpected earnings and to the main market determinants of aggressiveness identified by previous literature (the bid-ask spread, the depth of the order book, and price volatility). In line with the predictions of microstructure models on the choice between market and limit orders, I find that aggressiveness of both buy and sell orders increases with the absolute value of unexpected earnings. I interpret the existence of this relationship as evidence that traders actually use the information contained in earnings. Consistently, abnormal trading volume and abnormal volatility signal a market reaction to the information disclosure. Nevertheless, when examining abnormal returns, a clear indication that market behavior is affected by earnings announcements does not emerge.

The analysis presents an empirical application of the metric I propose, and it aims to provide a methodological contribution to the decision usefulness research. The research design can be employed with data from the other exchanges to test the effect of different forms of information disclosures. It should be noted that examining order aggressiveness entails an informational advantage with respect to observing stock prices and trading volume, but it requires a greater amount of data. Potentially interesting areas of application of the metric I derive concern the reaction of different types of traders (e.g., buyers vs. sellers, institutionals vs. individuals) to the information release.