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The adverse selection cost component of the spread of Brazilian stocks

Gustavo Silva Araújo [1], Claudio Henrique da S. Barbedo [*,2], José Valentim M. Vicente [3]

Central Bank of Brazil, Brazil
IBMEC Business School, Brazil

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ABSTRACT

This study analyzes the adverse selection cost component embedded in the spreads of Brazilian stocks. We show that it is higher than in the U.S. market and presents an intraday U-shape pattern (i.e., higher at the beginning and at the end of the day). In addition, we investigate the relationships of the adverse selection cost with a firm's characteristics. We find that stocks listed in the highest corporate governance levels do not have the lowest costs. On the other hand, the liquidity of shares, the trade size and the market value of the firm are directly correlated with this cost.

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1. Introduction

Classic economic theory treats asset prices as a result of Walrasian equilibrium between demand and supply. For financial assets, however, differences in fundamental prices can occur in the short term due to issues related to market microstructure. These issues affect the bid–ask spread of asset prices. In this paper, we study aspects of the adverse selection component embedded in the bid–ask spread of stocks traded in the Brazilian market. In particular, our contribution is to examine the relationship of this component with the size and the time of the trade and to investigate how the connection is between spread and the adverse select component with a firm's characteristics. Finally, we analyze whether stocks

* Corresponding author at: Av. Presidente Wilson, 118 – CEP. 20030-020 - Centro - Rio de Janeiro - RJ, Brazil.
E-mail addresses: 00araujogs@gmail.com (G.S. Araújo), claudio.barbedo@bcb.gov.br (C.H.S. Barbedo), jose.valentim@bcb.gov.br (J.V.M. Vicente).
[1] Tel./fax: +55 2121895503.
[2] Tel.: +55 2121895565; fax: +55 2121895503.
[3] Tel.: +55 2121895672; fax: +55 2121895503.

listed in premium corporate governance segments of the Brazilian stock exchange (BM&FBovespa — São Paulo Mercantile, Future and Stock Exchange) have a lower adverse selection cost.

The bid–ask spread is the difference between the highest price that a buyer is willing to pay for an asset (bid price) and the lowest price for which a seller is willing to sell it (ask price). This difference can be seen as a transaction cost to execute an order. In general, the fundamental price of the asset is within this range. There are two classes of models for estimating the bid–ask spread. The first approach, initially proposed by Roll (1984), uses properties of the serial covariance of asset returns. In the second group, the analysis of the spreads relies on regressions in which the independent variable is the trading indicator. This indicator identifies whether the transaction is initiated by a buyer or a seller (Glosten and Harris, 1988). Although the covariance models can be used to determine the spread and its components (see, for example, George et al., 1991 and Stoll, 1989), the methodology based on the direction of the trade is best suited for this purpose.[4]

The bid–ask spread can be attributed to three components: inventory, adverse selection and order processing costs. The inventory cost represents the cost seen by a market maker to provide liquidity to the market. Pioneering work on microstructure, such as Stoll (1978) and Ho and Stoll (1981), consider only the inventory cost in the analysis of the spread. However, other studies point out that the existence of the spread is also due to the adverse selection costs arising with asymmetric information among market participants (see, for example, Glosten and Milgrom, 1985; Lin et al., 2012, and Riordan et al., 2013; Bleaney and Li, 2014 and Li and Xu, 2014). Finally, there are order processing costs such as equipment and personnel (Roll, 1984). Huang and Stoll (1997, HS hereafter) generalize the model based on the trading indicator of Glosten and Harris (1988) by including these three components in the spread. Madhavan et al. (1997) work in the same line, but they do not include the inventory cost.

In this paper, we estimate the components of the bid–ask spread of the major stocks traded on the Brazilian market using the first version of the HS model.[5] In addition, we employ an extension of the HS model to study the patterns of spreads and adverse selection costs as a function of the size and time of the trade. Finally, we implement an extensive research through a series of regressions in order to determine the characteristics of the companies that are correlated with the adverse selection component and the spread. In particular, we analyze the relationship between the adverse selection and corporate governance levels.

In general, corporate governance indexes only take into account aspects of the firms. An innovation of this paper is to study the information asymmetry of the companies (the adverse selection cost), which is a proxy for corporate governance, through the lens of investors' demand rather than using the firm's characteristics. Thus, we can compare the information asymmetry perception of investors with measures of corporate governance built on firm's characteristics.

The sample consists of 52 stocks traded on the BM&FBovespa with data from October 2007 to April 2008. The Brazilian stock exchange had a daily average turnover of $ 3.9 billion in June 2008, which places it as one of the largest stock markets in the world and the largest in Latin America. In order to provide robustness to our results, we split the database in two parts. The first part covers the period from October 18, 2007 to January 18, 2008 and the second is from January 28 to April 24, 2008.

The stock market in Brazil is an order-driven market that has an interesting feature. Although the presence of market makers is allowed and even encouraged, firms with liquid stocks do not have this specialist.[6] Therefore, we limit our study to the stocks without market makers, which represent most of the trading volume.[7] In markets without market makers, the cost of inventory can be neglected. Thus, the two versions of the HS are exactly the models of Glosten and Harris (1988) and Madhavan et al. (1997).

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[4] Smith and Whaley (1994) show that the estimates of the spread based on the serial covariance are negatively biased. In addition, Gwilym and Thomas (2002) argue that these estimates may be biased due to noise in the data.

[5] In their article, Huang and Stoll (1997) propose two models known as the first and second models of Huang and Stoll. The difference between the two models is the treatment of the trade autocorrelations.

[6] Market makers on the Brazilian Stock Exchange have the commitment of being in the market daily with firm buy and sell offers for a given number of assets. By registering the offers, they set publicly quoted prices.

[7] The shares in our sample represent 88.5% of Ibovespa, the main index of Brazilian stock Exchange. The stocks that integrate Ibovespa's theoretical portfolio represent more than 80% of the financial value and the number of trades on BM&FBovespa.