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Does market microstructure matter for corporate finance? Theory and evidence on seasoned equity offering decisions

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ABSTRACT

This study presents a theoretical model and empirical analysis to examine how market microstructure affects Seasoned Equity Offering (SEO) decisions from the perspective of information production associated with market liquidity. We present two sets of new findings. First, the market illiquidity of a firm's stock (measured by price impact and bid-ask spread) has a significantly negative impact on the probability of SEO, as well as on the size of the offering. A decrease of the pre-issue price impact by one standard deviation is associated with an increase of normalized SEO proceeds of 9.7%. The impact of market illiquidity is larger when pre-SEO price is less informative. Second, SEO decision predicts a more informative stock price. Our results are robust to alternative measures of market liquidity, price informativeness and SEO.

1. Introduction

Does market microstructure matter for corporate finance? While existing empirical studies examine the relation between market microstructure, particularly market liquidity, and corporate decisions, they mainly focus on the transactions cost perspective of liquidity.[1] However, transactions cost perspective of liquidity alone may not fully explain how market microstructure affects corporate decisions. Other economic implications of market microstructure on corporate decisions remain understudied. This study provides both theory and empirical evidence that market microstructure influences Seasoned Equity Offering (SEO) decisions from the perspective of information production associated with market liquidity. Our analysis focuses on SEOs, which provide a better economic setting to bridge the gap between market microstructure and corporate finance than other transactions such as private placements and debt offerings. Private placements involve mostly sophisticated investors and do not result in an immediate increase of public float of shares (Wu, 2004), and therefore they are less subject to market liquidity and information asymmetry. Debt offerings are also generally considered as less information-sensitive than equity offerings.[2]

We argue that market microstructure matters for equity offering decisions in two ways. First, Barclay and Hendershott (2003) show that higher market liquidity fosters trades among liquidity and informed traders, and facilitates price discovery. We argue that those benefits will reduce investors' cost of searching information and make SEO more likely. Butler et al. (2005) show that underwriting fee of SEO is lower for a firm with more liquid stocks. Second, an increase in market liquidity encourages insiders to issue equity, because higher market liquidity creates more informative stock prices and ultimately enhances market monitoring and corporate decision making.[3]

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[1] Market liquidity is related to cost of issuance (Butler, Grullon, & Weston, 2005), dividend policies (Banerjee, Gatchev, & Spindt, 2007), stock repurchases (Brockman, Howe, & Mortal, 2008), and capital structure decisions (Lipson and Mortal, 2009).

[2] Faure-Grimaud and Gromb (2004, p. 987) argue that in the choice of securities, "trading essentially safe corporate debt may not generate much information about insider's activity."

[3] See Holmström and Tirole (1993), Durnev, Morck, and Yeung (2004), Fernandes and Ferreira (2009), and Faure-Grimaud and Gromb (2004).

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This study extends Faure-Grimaud and Gromb's (2004) model to examine the impact of market liquidity and price informativeness on SEO decision. In particular, we assume that a firm with no asset in place has an investment opportunity to be funded by raising equity capital. However, the project's quality (good or bad) is unknown but is observable to a market speculator or the large shareholder with a cost.

Our theoretical model generates the following empirical predictions. First, the probability of an SEO increases with stock liquidity. The intuition is that when the stock is more liquid, speculators will find it more profitable to acquire costly information and profit from trading the stock. This leads to more information revealed from trades. As a result, existing shareholders do not need to spend an extra cost to verify the project's quality, and the firm will be more likely to finance a good project. Second, the impact of market liquidity on the SEO decision increases with valuation uncertainty. Market liquidity plays a role in reducing uncertainty by inducing speculators to acquire information.

Empirically, this study examines the effects of market liquidity on SEO decisions. Using a sample of U.S. firms from 1990 to 2002, our study documents the following sets of new findings.

First, market illiquidity is negatively related to the probability of SEOs, as well as the size of SEOs. Importantly, our result shows that the liquidity impact on SEO likelihood/size is *stronger* for firms with *less* informative stock prices. Our results are robust to alternative measures of market illiquidity and price informativeness. A decrease of pre-issue price impact by one standard deviation implies a 9.7% increase of normalized SEO proceeds.

Second, the SEO decision predicts a more informative post-SEO stock price. This suggests that liquidity is an important factor for the production of firm-specific information, and SEO is an important channel that mediates the impact of liquidity on price informativeness.

Overall, our findings provide contributions to the following strands of literature. First, our findings fill a gap in the equity offering literature, which mainly focuses on the impact of equity offerings on liquidity (see, e.g., Eckbo, Masulis, & Norli, 2007, Ch. 6). We explicitly consider informed trading and information production associated with market liquidity – important features in microstructure literature that can provide better understanding of the inner-working of the relation between SEOs and market liquidity as observed by Butler et al. (2005) and others. Our findings reveal that market microstructure has material impact on SEO decisions and can ultimately improve price informativeness, a value-enhancing opportunity that is not well documented by literature. Our results further examine the *joint effect* of liquidity and asymmetric information on corporate financing. O'Hara (2003) suggests that liquidity and price discovery are two important related functions of a market, but each of them can have different influences on asset prices.

Second, our study provides an empirical counterpart to theoretical studies by Faure-Grimaud and Gromb (2004) and Holmström and Tirole (1993). Our findings provide evidence that a liquid market can create more informative stock price, an important condition to create proper incentives for insiders and reduce large shareholders' cost of monitoring managerial decisions.[4]

Third, our findings shed light on the relations between financial markets and corporate decisions. Previous studies investigate whether stock market can affect corporate decisions through the channels of information production (Dow & Gorton, 1997; Morck, Shleifer, & Vishny, 1990; Subrahmanyam & Titman, 1999), and equity valuation (Baker & Wurgler, 2000; Baker, Stein, & Wurgler, 2003; Lee, 1997; Polk & Sapienza, 2009; Stein, 1996). This study opens a window on market microstructure dimension of stock market that could be related to corporate decisions.

The remainder of the paper is organized as follows: Section 2 provides a theoretical model of SEO decisions and hypotheses. Section 3 discusses the data and sample. Section 4 discusses the empirical framework and findings. Section 5 concludes.

2. Theoretical motivation and model: market microstructure impact on SEO decisions

In this section, we present a theoretical model to understand the impact of market liquidity on equity offering decisions, and the implications of such decisions on price informativeness. We modify Faure-Grimaud and Gromb's (2004) model of public trading, with shareholders' cost of information acquisition. Our model provides empirically testable predictions about offering decisions. The model has four periods, $t = 1$, 2, 3 and 4, and for simplicity the model has no discounting.[5] To examine the microstructure's impact on SEO decisions, we modify Faure-Grimaud and Gromb's (2004) model of public trading, with shareholders' cost of information acquisition. The model has a number of new features. First, we assume that a firm that has no asset in place, has an investment opportunity (project) that will be funded by issuing new equity. Therefore, gross firm value, which is also the project's expected payoff in the model, depends solely on the project's quality (good or bad) as given by nature, as well as the manager's effort. The project's quality is observable to the speculator with a cost. Second, as opposed to Faure-Grimaud and Gromb, our setup allows for an endogenous SEO decision that depends on the existence of a good project, which is revealed by the trading activity or by the large shareholder's additional cost to observe the project's quality. Third, the large shareholder sets up a market-value linked incentives contract after the equity offering and the manager chooses his effort according to the contract. The manager's compensation is linked to the value added by her effort.

At $t = 1$, a fraction (α) of an all-equity firm is held by a large shareholder who makes financing decision at $t = 3$, and the remaining $(1 - \alpha)$ by dispersed shareholders including: (i) a speculator who profits by collecting and trading on information about the firm, (ii) liquidity traders who trade randomly, and (iii) the market maker who makes a zero expected profit. All agents are risk-neutral.[6]

The firm has no assets in place.[7] A project is available to the firm, with quality unknown. The nature determines the quality of

[4] For example, as the result of more informative stock prices, the firm is more likely to make more efficient investment decisions (Ferreira and Laux, 2007).

[5] Holmström and Tirole (1993) and Faure-Grimaud and Gromb (2004) propose similar assumption. It turns out that the assumption of any discount factor r (>1) will not affect the model result. It can be observed that if we discount all the future payouts by r, and assume the project requires an investment of $(V^L + 0.5\Delta V)/r$, the condition (1) will be unchanged, and conditions (2) and (3) are simply scaled by the factor r. However, the scaling effects will be canceled out and therefore the condition (4) and conditions (5) and (6) will be unchanged.

[6] In general, a close-form solution does not exist if we assume risk-aversion of agents. We follow Faure-Grimaud and Gromb (2004) to assume all agents are risk neutral. Besides, assuming risk neutrality of all agents can allow us to clearly disentangle the information-revelation effect from other effects of trading on the SEO decision. For example, it is expected that risk-averse investors are willing to pay a premium for liquid shares because liquidity can alleviate the execution risk and transaction cost of trading. Empirical studies such as Amihud (2002), among others, also have widely documented that more liquid stocks earn a lower future return. Therefore, investors are benefit from stock liquidity because liquidity reduces risk, and firms are more likely to issue equity if their stocks are more liquid because investors are willing to pay a high price for the shares. The contribution of our study is that even managers, shareholders, and speculators do not care about risk, they should still care about liquidity because liquidity will affect speculators' and shareholders' incentives to search for information.

[7] The conclusion will be the same if we assume the firm has assets in place with a fixed value.