



Liquidity and firm investment: Evidence for Latin America [☆]

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ABSTRACT

This paper explores the relationship between firms' investment and stock market liquidity. Using a panel of Latin American firms, I find evidence that a higher trading volume and a higher industry-adjusted trading volume are associated with higher firm investment (PPE, Total Assets, and Inventory). This relationship is higher in episodes where the firm decides to issue shares, and it is also greater for firms with tighter financial constraints and better investment opportunities. This evidence is consistent with a mispricing channel, where firms issue and invest the proceeds to take advantage of low cost of capital, or with a cost channel, where liquidity is associated with lower issuance costs. Also, it is less related with an informational channel, where a liquid market helps a manager to take more efficient decisions, since this channel does not necessarily predict an increase in investment, but only more efficient investment.

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1. Introduction

The study of liquidity in the stock market has attracted much attention in empirical and theoretical literature in recent years. Most recently, there has been a growing interest in studying the relationship that may exist between liquidity in the stock market and the real economy. At a macroeconomic level, works such as Kaul and Kayacetin (2009), Beber et al. (2010), and Naes et al. (2011) show evidence at the aggregate and industry level of a positive relationship between stock market liquidity and real variables such as GDP and investment. At the microeconomic level, the relationship between liquidity and the decisions of firms has been studied using factors such as the issuance of shares (Butler et al., 2005; Gilchrist et al., 2005; Lipson and Mortal, 2009), leverage (Bharath et al., 2009; Lesmond et al., 2008), and the performance of the firms (Fang et al., 2009). However, a study centered on the relationship between firm real investment and stock market liquidity has not been previously done.

Specifically, works such as those of Butler et al. (2005) and Lipson and Mortal (2009) study the relationship between liquidity and equity issuance decision, finding that firms with greater liquidity have lower issuance costs, thus using more funding through the issue of shares. In this manner, firms with higher liquidity tend to have lower levels of leverage. Moreover, Lesmond et al. (2008) find firms that increase their level of leverage increase the bid-ask spread (reduced liquidity). Similarly, Bharath et al. (2009) show that firms that use a higher percentage of financing through debt, have lower liquidity in the stock market. Fang et al. (2009) focuses on the relationship between liquidity and firm performance, finding that firms with greater liquidity have a better performance measured as the market-to-book ratio of assets.

Gilchrist et al. (2005) finds that greater variance in the predictions of stock market analysts predicts greater actual investment and equity issuance, which is literature that is more related to my findings. Similarly, Polk and Sapienza (2009) find, using firm

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level data for the US, that the investment is larger when the shares are overvalued, using discretionary accruals as a proxy for mispricing.¹ Fang et al. (2012) studies the relation between stock market liquidity and firm innovation (which is related with long-term investment). They find that an increase in liquidity leads to a higher level of institutional ownership by transient and quasi-indexers which reduces innovation. Thus, they found a negative relationship between innovation (long-term investment) and stock market liquidity.

This paper seeks to provide a novel evidence in this direction, contributing to the small growing literature that studies the relationship between stock market liquidity and firms decision. Specifically, I study this relationship using a panel of firms listed on stock exchanges in four Latin American countries (Argentina, Brazil, Chile, and Mexico), using quarterly data from 1990 to 2010. I estimate an instrumental variable fixed effects panel model that corrects for endogeneity problems in the Tobins' Q and includes country-quarter fixed effects, finding a positive and significant relationship between firms' investment and stock market liquidity, which is robust to the use of different measures of liquidity (trading volume and firm trading volume over industry trading volume) and investment (PPE, Total Assets, and Inventory). Furthermore, I found that this relationship is increased in episodes of share issuance.

This evidence is consistent with a mispricing channel, where firms issue and invest to take advantage of low cost of capital (Gilchrist et al., 2005), or with a cost channel, where liquidity is associated with lower issuance costs although in a rational market (Butler et al., 2005). It is also related, although less, with a mispricing channel without equity issuance (Polk and Sapienza, 2009) and with a channel based on agency problems and information of stock prices, where more liquid markets help the manager to make better investment decisions (Admati and Pfleiderer, 2009; Edmans, 2009; Edmans and Manso, 2011; Khanna and Sonti, 2004; Maug, 1998). These results do not support channels that predict a negative relationship between stock market liquidity and firms' investment, as in Stein (1988, 1989) and Porter (1992).

Moreover, as was noted before, liquidity has a positive relationship with investment, because the above facilitates the financing of investment. Thus, it should be noted that those firms that have greater financial constraints, should be more sensitive to liquidity, because liquidity enables external financing. When estimating a regression that incorporates the interaction between liquidity and a dummy that identifies whether the firm has higher financial constraints, I find that liquidity has a greater relation with investment in firms with greater financial restrictions. In turn, the relationship between liquidity and investment should be stronger in firms that have greater investment opportunities. For example, there is evidence that firms that have greater investment opportunities are more sensitive to stock market conditions in deciding their investment (Zhang, 2007). The results found in this paper show that the effect of liquidity is higher in firms with greater investment opportunities, as proxied by the interaction of liquidity and a dummy that identifies whether the firm has greater investment opportunities. This is consistent with a view of liquidity acting as a catalyst for decisions to invest.

It is important to note that the study of liquidity in emerging markets has not garnered much attention. However, in this area two works by Bekaert et al. (2007) and Lesmond (2005) stand out in this area. The first finds predictability from liquidity to asset returns, while the second makes a study of differences in liquidity between different emerging countries, finding that countries with weaker political and legal institutions have a higher liquidity cost. Unlike these works, this paper studies the relation between firm-level liquidity and firm decisions in the context of emerging markets.

This paper is organized as follows: Section 2 discusses the various channels in which stock market liquidity might affect a firm's real investment, thus motivating the hypothesis of this study. Section 3 presents the econometric strategy and data, while Section 4 shows the empirical results. Finally, Section 5 presents the conclusion.

2. Liquidity and firm investment

This section explains in more detail the different channels that relate stock market liquidity and firm's real investment. I separate this explanations into three different channels that derive a neutral, a positive, and a negative relationship. I will begin with the neutral channels. First, there are models based on agency problems and information in the stock prices. As Maug (1998) and Edmans (2009) propose, liquidity in the stock market facilitates the entry of blockholders. Given this entry, Maug (1998) predicts more monitoring activities by investors in highly liquid firms. Consequently, more liquid markets tend to support better management of the company. In the same light, Admati and Pfleiderer (2009), Edmans (2009), and Edmans and Manso (2011) show that the act of trading on private information by blockholders can discipline managers when managerial compensation is closely tied to stock prices. This is because investors collection of information and trading on that information make liquid stock price more informative. Khanna and Sonti (2004) show that liquidity can be related positively to the performance of the company. This suggest that greater liquidity stimulates the entry of informed investors, which makes the price more informative for the "stakeholders", thus improving the results of operations and relaxing financial constraints. All these models approach the relationship between liquidity and investment, but they do not predict a specific sign of such a relationship.

Secondly, there are models related to asset mispricing, which predict a positive relationship between stock market liquidity and firm investment, as detailed in Gilchrist et al. (2005), who focus on a mechanism based on share issuing. They develop a model where the dispersion of beliefs and short-sale constraints can lead to stock market bubbles, these being exploited by firms issuing new shares with an inflated price.

¹ These are defined as abnormal differences between accounting profits of the business and cash flow.

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