Information demand and stock market liquidity: International evidence

Amal Aouadi, Mohamed Aroui, David Roubaud

Abstract

The aim of this paper is to investigate whether information demand is a significant determinant of stock liquidity. For a large sample of 209 firms from 7 countries over the 2004–2014 period, we show that information demand, as proxied by daily search volume in Google, is positively associated with stock market liquidity. Most importantly, this relationship is found to be shaped by the firm’s overall visibility and information asymmetry levels.

1. Introduction

According to recent research, factors such as information asymmetry and idiosyncratic risk are likely to be relevant for determining trading activity levels. Particularly, several research studies on stock markets have investigated the issue of liquidity under information asymmetry (Admati and Pfleiderer, 1988; Easley et al., 1996; Kyle, 1985; Li and Wu, 2006). Actually, illiquidity is primarily caused by asymmetric information (Akerlof, 1970; Bagehot, 1971).

To reduce the cost arising from information asymmetry, investors naturally demand more information before making financial decisions (Drake et al., 2012; Peng and Xiong, 2006; Vlastakis and Markellos, 2012). Thus, information demand increases with information asymmetry from the perspective of investor rationality. In response to such information demand, firms attempt to improve the quality of information disclosure in the hope of reducing information asymmetry, and in turn improving trading activity.

The present paper proposes investor demand for information as a determinant of stock liquidity. In particular, relying on international data, we provide original evidence that information demand, as proxied by Google research volume (GSV), tends to be positively associated with liquidity. Apart from this basic relationship, we rely on previous theories and empirical findings (Brandt and Kavajecz, 2004; Green, 2006; Grullon et al., 2004) and suggest more specific mechanisms for how the link between information demand and stock liquidity might work. First, we control for firm visibility proxied by advertising expenditures, firm size and stock performance. Interestingly, we find that information demand reduces information asymmetry, but only for low-visibility firms, while the relationship becomes weaker for high-visibility firms. Then, we split our sample with respect to information asymmetry levels, as proxied by quoted spread, stock volatility and analysts’ forecasts dispersion. We find that information demand and stock liquidity are positively related only for high information asymmetry firms.

Overall, our empirical findings suggest that investors demand more information via the Internet when trading in the security is more difficult, which would be reflected in more liquid stocks. In addition, as suggested by Drake et al. (2015), it may be that investors focus on their search where the benefits from acquiring information are the highest (i.e., where information asymmetry is the highest, as proxied by high bid-ask spreads and idiosyncratic volatility). Finally, to control for endogeneity issues, and to explore attributors of substantial increase in stock liquidity, we employed alternative estimation methods and continue to find a significant positive association between the liquidity and information demand.

There is a vast empirical literature which had tried to explore the contribution of information retrieved from the internet in the context of developed markets. The importance of information demand in explaining stock market activity is first suggested in Drake et al. (2012) and
that the act of seeking information proxied by Google search volume as a measure of investor attention improves the shareholder base and stock liquidity. Our paper differs from Ding and Hou (2015) as we do not only focus on the US stock market and provide new international evidence that Google search volume does enhance stock liquidity, but under some conditions such as firm visibility and information asymmetry levels.

This paper further complements and links prior literature in two ways. First, to the best of our knowledge, we are the first to bring new international evidence that daily information demand as proxied by GSV improves stock liquidity. This suggests that Internet search activity may partially resolve information asymmetry problems. Furthermore, prior studies investigate the explanatory power of Google data on price dynamics and volatility clustering without exploring the underlying mechanisms (Bank et al., 2011; Drake et al., 2012; Vlastakis and Markellos, 2012). In this study, we attempt to identify underlying mechanisms, i.e., information asymmetry and firm visibility, to explain the stock liquidity reaction to investor information demand (Zhang et al., 2016).

The remainder of this paper proceeds as follows. The next section describes the data, sample construction and methodology. Section 3 reports our empirical results and discusses theoretical and practical implications. In Section 4, we address some methodological concerns by employing a battery of validity check tests. Section 5 sets forth concluding remarks.

2. Variables, sample and descriptive statistics

2.1. Measuring information demand

The question of whether information demand matters for stock liquidity has been difficult to test due primarily to the absence of a valid proxy of information demand. Da et al. (2011) introduce Google search volume of ticker symbols as provided by Google Trends as a proxy of investor attention. They also provide consistent evidence that, in an average week, GSV is positively associated with market capitalization, abnormal returns of IPOs, turnover, and media attention. GSV could also proxy for information demand as in Drake et al. (2012) and Vlastakis and Markellos (2012). Google Trends is a free tool provided by Google which covers the query records from January 2004 to present. In particular, for any given term, this application can report the search volume index, which quantitatively measures how often this term is searched via Google by internet users.

In this study, Google Trends provides the raw inputs for information demand proxy. In particular, to identify investor demand for firm-specific information (SID hereafter), we use the stock ticker as the search criterion submitted to Google Trends. One of the shortcomings of this application is that Google data with a daily frequency are available only for 90 days, whereas weekly data are available for an extended period.

To create daily data for periods longer than 90 days, we have developed an R code to automatically download daily data for all stocks under

\[1\text{ Source: AT Internet Search Engine Barometer.}\]
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