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International Review of Financial Analysis 15 (2006) 21–38
IRFA
INTERNATIONAL REVIEW OF
Financial Analysis

Liquidity and stock returns: Evidence from a pure order-driven market using a new liquidity proxy

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Received 8 October 2003; accepted 8 September 2004
Available online 4 November 2005

Abstract

Liquidity has been found to be a determinant of stock returns in large hybrid quote-driven markets. Liquidity proxies have ranged from trade-based measures such as turnover rate to order-based measures such as the bid–ask spread. The relationship between return and liquidity in small pure order-driven markets is less clear, with different liquidity proxies yielding conflicting results. This study adds to the existing literature by considering the return–liquidity relationship on the Australian Stock Exchange, a small pure order-driven market, using a new liquidity measure, Weighted Order Value (WOV). Liquidity is found to be an important determinant of returns.

JEL classification: G12; G15
Keywords: Liquidity; Order-driven markets; Weighted order value

1. Introduction

Asset pricing is central to resource allocation within an economy. Consequently, a large amount of literature has investigated factors that affect asset returns. Liquidity emerged as a determinant of asset returns starting with Keynes (1930) who proposed that "an asset is more liquid than another if it is more certainly realisable at short notice without loss" (Keynes, 1930, p. 67). A more common definition of liquidity is "the ability to convert shares into cash (and the converse) at the lowest transaction costs" (Aitken & Comerton-Forde, 2003, p. 45).

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doi:10.1016/j.irfa.2004.09.001

The empirical relationship between return and liquidity in the large hybrid quote-driven markets of the US (the NYSE, AMEX and Nasdaq) is well documented. Studies have found a negative relationship, confirming the existence of a positive liquidity premium as proposed by theoretical papers. Much less is known about the return–liquidity relationship in small pure order-driven markets. The two papers[1] that have used small pure order-driven market data found inconclusive evidence so this paper takes another look using Australian Stock Exchange (ASX) data and a new liquidity proxy. The majority of the world's stock markets take the form of an order-driven system so research in this area is of interest (Ahn, Cai, Hameo, & Ho, 2002).

An accurate liquidity proxy should correctly classify an asset as being more liquid than another if it is more certainly realisable at short notice without loss. Under certain circumstances traditional liquidity proxies may fail to achieve this. Trade-based measures such as trading volume and the turnover ratio are ex post rather than ex ante measures. In this sense, they indicate what people have traded in the past which is not necessarily a good indication of what will be traded in the future, particularly for small stocks. In an order-driven environment there is no obligation for liquidity to be provided to the market at any point in time. Order based measures, such as the bid–ask spread, are an effective measure of liquidity for small investors because they are likely to have all their order filled at the bid or ask price. However, larger investors may not be able to complete all of their order at the best bid or ask price. For these investors the bid–ask spread understates the true cost of trading.

This paper investigates whether a liquidity proxy, *Weighted Order Value* (WOV)[2], that was specifically developed for order-driven markets can better explain the relationship between return and liquidity in these markets. WOV overcomes the weaknesses of traditional liquidity proxies by incorporating both bid–ask spreads and market depth. Unlike trade based measures, WOV includes orders that are available for an investor to trade against, and in contrast to order based measures WOV accounts for the depth that is available at each quote. WOV is therefore an attractive liquidity proxy.

The remainder of this paper is organised as follows. Section 2 describes the extant literature. The Australian Stock Exchange (ASX) trading mechanism is compared to the mechanisms employed by other markets in Section 3. Section 4 presents a detailed description of the data, variable definitions and methodology. The results of the cross-sectional time-series regressions are presented in Section 5. Section 6 concludes the paper.

2. Literature review

The traditional explanation for why liquidity might affect expected returns is a straightforward one. Amihud and Mendelson (1986) and Vayanos (1998) proposed that investors anticipate having to sell their stocks at some point in the future and recognize that they will face transaction costs when they do. This leads to investors rationally discounting stocks with higher transaction costs by more than their low transaction cost counterparts.

Baker and Stein (2002) proposed an alternative explanation that rests on the assumptions that there is a class of irrational investors who under-react to the information contained in order flows and that there are short-sale constraints. In this framework, the presence of irrational investors

[1] Marshall and Young (2003) and Chan and Faff (2003).

[2] Aitken and Comerton-Forde (2003) used the Weighted Order Value (WOV) liquidity proxy to measure liquidity around market structure changes in the Jakarta Stock Exchange.