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The Impact of Short-Sales Constraints on Liquidity and the Liquidity–Return Relations ☆

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ABSTRACT

Baker and Stein's (2004) model predicts that individual stock liquidity, commonality in liquidity across stocks, the contemporaneous correlation between stock returns and liquidity, and the degree of high liquidity associated with low subsequent stock returns decrease in the absence of short-sales constraints relative to in the presence. To test these theoretical predictions, we examine both the component stocks of the Taiwan 50 index and other nonindex stocks for the sample period before and after the removal of short-sales constraints on the former and use trading turnover and Amihud's (2002) illiquidity ratio as the measure of liquidity to proxy for investor sentiment. Overall, our empirical results are consistent with these theoretical predictions and therefore provide evidence in support of Baker and Stein's (2004) model.

1. Introduction

Using liquidity as a sentiment indicator for predicting stock returns has recently gained increasing attention in the literature.[1] For example, Baker and Stein (2004) develop a model to explain why increases in liquidity predict lower subsequent stock returns. They show that, in the presence of short-sales constraints, liquidity increases with investor sentiment and high liquidity indicates that the market is

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[1] Another important role taken by liquidity in the literature is that it is a priced risk factor. For example, the theoretical models of Amihud and Mendelson (1986) and Pastor and Stambaugh (2003) show that liquidity is a priced risk factor, and empirical studies find supporting evidence that expected returns increase in illiquidity (e.g., Amihud and Mendelson, 1986; Haugen and Baker, 1996; Eleswarapu, 1997; Datar et al., 1998; Chordia et al., 2001; Amihud, 2002).

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dominated by irrational investors, and thence is overvalued. Consequently, liquidity can be used as a sentiment indicator to predict stock returns. Scheinkman and Xiong (2003), Baker and Wurgler (2007), and Hong and Stein (2007) also provide a complementary argument for using liquidity as a sentiment indicator to predict stock returns.

On the empirical side, both trading turnover and Amihud's (2002) illiquidity ratio are commonly used liquidity measures in the literature.[2] For example, Baker and Stein (2004) find that high New York Stock Exchange (NYSE) trading turnover predicts low subsequent market returns (MR). Hong and Stein (2007) find that high trading turnover helps explain why the returns to Internet and glamour stocks fall far below non-Internet and value stocks, respectively, when the Internet bubble is collapsing. Avramov et al. (2006) document that stocks with high illiquidity ratio exhibit more price reversal than stocks with low illiquidity ratio. However, these studies do not take into account how short-sales constraints affect the association between high liquidity and low subsequent stock returns.

The issue on commonality in liquidity has also been intensively studied in the recent literature. For example, Chordia et al. (2000) find that commonality in liquidity is significant and material even after controlling for well-known individual liquidity determinants such as volatility, volume, and price. Hasbrouck and Seppi (2001) investigate the 30 Dow stocks and find evidence of covariation in liquidity proxies derived from quote data. Coughenour and Saad (2004) examine NYSE specialist firms and find evidence that individual stock liquidity covaries with specialist portfolio liquidity, apart from information reflected by market liquidity variation. Pukthuanthong-Le and Visaltanachoti (2009) find that, in addition to marketwide commonality in liquidity, industrywide commonality in liquidity exists in the Thailand stock market. These studies, however, do not analyze whether commonality in liquidity is affected by short-sales constraints.

We characterize Baker and Stein's (2004) model by the following three testable hypotheses. First, liquidity will decrease when short-sales constraints are removed. Second, the contemporaneous correlation between stock returns and liquidity and the degree of high liquidity associated with low subsequent stock returns will decrease when short-sales constraints are removed. Third, commonality in liquidity across stocks will decrease when short-sales constraints are removed.[3] Testing these hypotheses sheds important light on the issue of how short-sales constraints affect liquidity, the relation between liquidity and stock returns, and commonality in liquidity across stocks.

Note that testing the aforementioned hypotheses requires that short-sales constraints are removed from some stocks or the market. On May 16, 2005, the Taiwan Stock Exchange (TWSE) has removed the short-sales constraint from the component stocks of the Taiwan 50 Index (hereafter, the T50 stocks). This change in the trading mechanism on these stocks provides a good opportunity to examine our hypotheses. Using this unique data set, we can examine the impacts of removing the short-sales constraint on liquidity, on the relation between stock returns and liquidity, and on commonality in liquidity across stocks. As suggested by prior studies, we use trading turnover and illiquidity ratio as liquidity measures to proxy for investor sentiment. Overall, we find empirical evidence in support of our hypotheses.

The rest of this paper proceeds as follows. Section 2 describes the Taiwan stock market and data in detail. Section 3 discusses the testable hypotheses of the Baker and Stein (2004) model and introduces our empirical frameworks to test these hypotheses. Section 4 presents and discusses our empirical results. We conclude this paper in Section 5.

2. Background and Data

2.1. Taiwan market rules

The TWSE is an order-driven call market where only limit orders are accepted. Unlike the U.S. stock markets, there are no formal designated market makers. All securities listed on the TWSE are traded through the Fully Automated Securities Trading (FAST) system. Orders are executed according to the rule

[2] Other liquidity measures were used in the literature. For example, in addition to trading turnover, other liquidity measures used in Korajczyk and Sadka (2008) include quoted and effective spreads, components of price impact (fixed versus variable and temporary versus permanent), and the absolute returns-to-volume ratio.

[3] We will discuss Baker and Stein's (2004) model and these three testable hypotheses in detail in Section 3.