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Liquidity commonality and pricing in UK equities[☆]



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ABSTRACT

We investigate the pricing of systematic liquidity risk in UK equities using a large sample of daily data. Employing four alternative measures of liquidity we first find strong evidence of commonality in liquidity across stocks. We apply asymptotic principal component analysis (PCA) on the sample of stocks to extract market or systematic liquidity factors. Previous research on systematic liquidity risk, estimated using PCA, is focused on the US, which has very different market structures to the UK. Our pricing results indicate that systematic liquidity risk is positively priced in the cross-section of stocks, specifically for the quoted spread liquidity measure. These findings around the pricing of systematic liquidity risk are not affected by the level of individual stock liquidity as a risk characteristic. However, counter-intuitively, we find that the latter is negatively priced in the cross-section of stocks, confirming earlier research.

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1. Introduction

One of the most significant trends in global financial markets over the last twenty years has been the growth in aggregate stock market trading volume. For UK investors this increase in trading volume

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has been accompanied by a move from a traditional quote driven trading system to an order book system on the London Stock Exchange (LSE). This changing market structure has led to falling trading costs, and narrower spreads, for the most liquid stocks. For anyone operating during this period the relationship between changes in systematic liquidity and stock returns is particularly relevant. In this paper we investigate commonality in stock liquidity and the pricing of systematic liquidity risk in the UK equity market.

Unlike the US where trading is fragmented, in the UK all trading takes place on a single exchange. Both regions historically operated very different market structures. In the US, trading on Nasdaq has evolved from a quotation driven structure to a hybrid model including an order book system while the NYSE has a hybrid system where specialists have an obligation to stabilize their assigned stocks. On the LSE trading is a mix of a pure order book (the Stock Exchange Electronic Trading Service (SETS)) and a hybrid quote/order book driven system (SETSm) and a quote driven SEAQ system for more thinly traded stocks. SETS was introduced in 1997 for constituents of the FTSE100 index, representing the most liquid stocks on the exchange. In September 1999, 47 mid cap stocks from the FTSE 250 were also added to SETS and in 2003 the remaining FTSE250 stocks were added to a hybrid SETSm system where dealers still have an obligation to provide quotes in their registered stocks but investors have the option of using the electronic order book.

The differing market structure of the UK and US exchanges leads to large differences in liquidity characteristics (Huang and Stoll, 2001). By providing evidence on the pricing of systematic liquidity in the UK market we are able to assess whether these differences in market structure and liquidity characteristics affect conclusions on the relation between systematic liquidity and stock returns as documented in the predominantly US literature.

Using daily data between January 1991 and December 2013 we make two key contributions to the literature. First, we test for commonality in liquidity across stocks in the UK using a range of stock liquidity measures, demonstrating that shocks to the liquidity of an individual stock are correlated with shocks to the liquidity of the rest of the market. Second, we examine whether systematic liquidity risk in stocks is priced in the cross-section of returns. Previous studies have found that liquidity risk exhibits a common component across US stocks (Korajczyk and Sadka, 2008) and has a significant asset pricing effect (Cotter et al., 2015).

Microstructure liquidity literature focuses on idiosyncratic determinants of a stock's liquidity. Theories put forward to explain cross sectional differences in liquidity include inventory cost models (Stoll, 1978) and information based models (Kyle, 1985). Chordia et al. (2000) find that liquidity shows systematic patterns with changes in an individual stock's liquidity exhibiting contemporaneous correlation with changes in market liquidity. This study was followed by a number of papers investigating commonality in liquidity across longer time periods, different trading mechanisms (Brockman and Chung, 2002; Galarotis and Giouvris, 2007) and different countries (Brockman et al., 2009). Commonality implies a risk to investors of adverse changes in market liquidity which may not be fully diversifiable and may constitute a priced risk factor. Examples of periods where liquidity largely disappeared include the October crash of 1987, the Long Term Capital Management crisis of 1998 and the recent financial crisis period. In such events investors who may wish to liquidate their positions find themselves severely hindered in doing so.

The literature contains many alternative measures of liquidity, such as quoted bid-ask spreads (Amihud and Mendelson, 1986), effective bid-ask spreads, turnover, the ratio of absolute stock returns to trading volume (Amihud, 2002) or propensity for return reversals (Pastor and Stambaugh, 2003). Each of these measures may have systematic and asset specific components while there may also be correlation in the systematic components of liquidity across measures (Korajczyk and Sadka, 2008).

Liquidity may be priced in two ways. Liquidity as a priced characteristic considers the level of liquidity as a determinant of assets returns. Amihud and Mendelson (1986) argue that illiquid stocks should earn a premium over liquid stocks to compensate investors for the trading costs incurred which reduce realizable returns, for example wider bid-offer spreads. Liquidity as a risk factor refers to systematic liquidity risk, i.e., sensitivity of stock returns to changes in market liquidity that may not be diversifiable. Such high liquidity risk stocks should command a higher required return to induce investors to hold them.

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