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## Does stock market liquidity explain real economic activity? New evidence from two large European stock markets

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### ABSTRACT

This paper examines the relationship between stock market liquidity, which proxies for the implicit cost of trading shares, with macroeconomic conditions. We provide evidence that stock market liquidity contains strong and robust information about the condition of the economy for both the UK and Germany in the presence of well-established leading indicators. Our findings exemplify the importance of small cap firms' liquidity in explaining the state of the economy and support the "flight-to-quality argument". Finally, the empirical findings show that there is not any differential role of liquidity in explaining the course of macroeconomic variables between a capital market and a bank-oriented economy.

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### 1. Introduction

The existence of an illiquidity risk premium is well documented in the literature, in the sense that illiquid stocks command higher expected returns than liquid stocks (e.g., Amihud and Mendelson, 1986; Amihud, 2002; Chordia et al., 2005; Kempf and Mayston, 2008; Pastor and Stambaugh, 2003; Acharya and Pedersen, 2005; Papavassiliou, 2013). The liquidity shock hypothesis argues that sudden drops in asset markets liquidity cause equity prices to fall and the price of liquid assets to rise (Kiyotaki and Moore, 2008). Moreover, in a world where firms have to cope with financing constraints on their investments, this fall in equity prices reduces the funds for investments a firm can raise by issuing equity and/or using equity as collateral in borrowing. As a result, investments fall, output follows and a recession starts. The liquidity shock hypothesis has received wide attention because of its immediate policy implications. If unexpected fluctuations in equity liquidity are the cause of economic growth, then a government can attenuate the economic performance by making the supply of liquid assets countercyclical. At the onset of a recession, a government can use liquid assets to buy up some of the illiquid equity to prevent equity prices from falling precipitously. The increase in the supply of liquid assets relaxes firms' financing constraints, while the stabilization of equity prices further improves firms' ability to use the equity market to finance their investment projects with lower cost of capital, thus, increasing the return on the projects they adopt. These policy implications seem to provide a justification for the large and repeated injections of liquidity by the US Federal Reserve System as well as other central banks over the recessionary period 2008–2009.

The goal of this study is to investigate the information content of stock market liquidity, based on firm-level data, to explain the course of economic activity, after controlling for a number of equity (i.e., market risk premium, stock market

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volatility) and non-equity (i.e., housing starts, term spread, short-term interest rates, default spread) factors. In doing so, we apply alternative liquidity proxies to different indicators of economic activity, while we utilize a sample of stocks originating from two of the largest European stock markets, i.e. the London Stock Exchange and the Deutsche Börse, spanning the period 1994 to 2011 and 1997 to 2011, respectively.

The rationale for examining whether stock market liquidity can act as a leading indicator for economic activity is threefold. First, according to the “flight to quality” hypothesis put forward by Longstaff (2004), investors tend to shift their portfolios to more liquid securities in turbulent times of economic activity. Second, liquidity can affect economic activity through certain investment channels, since a liquid secondary market may facilitate investments in productive long-run projects (Levine, 1991). Third, Brunnermeier and Pedersen (2009) show that during periods of economic downturn, both a lack of assets’ markets liquidity and reduced financial intermediaries’ funding liquidity lead to liquidity spirals.

The relationship between stock market liquidity and economic activity has attracted limited attention in the literature and certain studies have focused either on US data or on small markets, such as Norway and Switzerland. Beber et al. (2011) find that an order flow portfolio, based on cross-sector movements, can predict the state of the macro economy. In a similar study, Kaul and Kayacetin (2009) show that two alternative order flow measures can predict GDP and industrial production growth. Næs et al. (2011) use alternative liquidity measures, both for the US and Norway, and document that stock market liquidity can serve as a leading indicator for the macroeconomic variables. Meichle et al. (2011) find that stock market liquidity is the main predictor for economic activity for Switzerland over the period 1990–2010. More recently, Florackis et al. (2014a) find that stock market illiquidity can better explain and forecast the future UK GDP growth than any other variable usually examined (i.e., term spread, short-term interest rates and real money supply) and confirm a statistically significant negative association between these two variables.

Taking into account that the association between stock market liquidity and macro variables has attracted limited interest in the literature, further evidence is needed in terms of market selection, methodological approaches and the sample period, in order to fully understand this association. The present study contributes to the literature towards this end in a number of ways. It is clear from the above discussion that the relationship between stock market liquidity and macro variables has been examined mainly in a US setting. Thus, we shed further light in the literature with the use, for the first time, of data from two large European stock markets, the UK and Germany. The London Stock Exchange (LSE) and the German stock exchange (Deutsche Börse) are selected on the grounds that although they are major markets of great international importance and interest, ranking among the world’s largest in terms of number of firms listed and total market capitalization, they have a larger liquidity effect and have not been cross-examined in the previous empirical literature.

Another significant novelty of the present paper is that for the first time we provide an interesting comparison of the information content of stock market liquidity for economic activity between a capital market oriented economy (UK) and a banking oriented economy (Germany). It has been argued<sup>1</sup> that the type of the financial system (i.e., market vs. bank based) influences economic growth, while a number of empirical works show that the distinction is irrelevant, at least for the case of developed and mature markets (Beck and Levine, 2002). The issue examined in our study is whether we should expect that stock market liquidity could behave differently in a bank-based system, such as in Germany, than in a market-based system, such as in the UK, based on the fact that liquidity is explicitly used as the main explanatory variable of the macroeconomic environment. Stock markets provide direct funding to investors, while banks and other financial institutions, as intermediaries, provide indirect funding to them. Therefore, we could argue that stock markets provide an easier and quicker transmission of liquidity to investors and to the real economy than banks when the economy is thriving, but an equally faster negative adjustment of liquidity when the economy is plunging into recession.

In terms of methodological approaches, the present study differentiates from previous works in the area by examining alternative liquidity proxies. To this end, the paper makes use of alternatives definitions of liquidity as well as the Instrumental Variable (IV) methodological approach, which takes care of any endogeneity bias problems. The study focuses on the simpler non-sophisticated liquidity proxies, which, however, are the ones used by practitioners and investment professionals that do not require restrictive assumptions as the more sophisticated proxies do. Moreover, the present study differs from those by Næs et al. (2011), Meichle et al. (2011) and Florackis et al. (2014a) by examining the information content of two liquidity measures, namely, the turnover and the volume of trading, to explain economic activity along with the relative spread and Amihud’s illiquidity ratio which have both been previously examined. We opt to use different liquidity proxies in order to fully examine on how various aspects of liquidity affect economic conditions and to provide robustness to our results.

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<sup>1</sup> Stiglitz (1985) and Bhidé (1993) claim that stock markets do not produce the same improvement in resource allocation and corporate governance as banks. Those who favour the market-based system argue against the role of banks for extracting informational rents from firms and reducing incentives to undertake risky and innovative but profitable projects (e.g., Rajan, 1992; Morck and Nakamura, 1999). La Porta et al. (2002) also argue against the role of state-owned banks for having political goals in the process of supplying credit to rather traditional labour intensive industries, than to innovative and truly strategic ones. However, Boot and Thakor (1997) show that banks facilitate better the goal of economic growth in emerging financial systems and stock markets do better in mature financial systems. In addition, Allen and Gale (2000) present evidence that both banks and markets provide different financial services, while economies at different stages of economic development require different mixtures of financial services to operate effectively. A similar finding is provided by Tadesse (2002). Beck and Levine (2002) do not find any evidence that the type of financial structure really matters for industry growth and the efficient allocation of capital across industries.

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