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## On stock market illiquidity and real-time GDP growth



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This study examines whether stock market illiquidity forecasts real UK GDP growth using data over the period 1989q1–2012q2. Apart from standard linear model specifications, we also utilize non-linear models, which allow for regime switching behavior in terms of a liquid versus an illiquid market regime and over the phases of the business cycle. Our findings support a statistically significant negative relationship between stock market illiquidity and future UK GDP growth over and above the usual control variables. This relationship is found to be stronger during periods of highly illiquid market conditions and weak economic growth. Our out-of-sample forecasting analysis indicates that a regime-switching model of illiquid versus liquid market conditions predicts UK growth better than any other model. Actually, this model is the only one to significantly outperform the GDP growth forecasts published in the *Bank of England's Inflation Report*.

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## 1. Introduction

The President of the Federal Reserve Bank of Boston, Eric Rosengren (2010) pointed out that the seriousness of the recent financial crisis was underestimated by economic forecasters because financial

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links, such as provision of liquidity, to the real economy were “only crudely incorporated into most macroeconomic modeling” (p. 221). Adding to this, [Borio \(2013\)](#) noted that for most of the postwar period “financial factors in general progressively disappeared from macroeconomists’ radar screen” (p. 1). However, provision of liquidity has become a central issue in the literature since the recent financial crisis (see [Bridges and Thomas, 2012](#); [Angelini et al., 2011](#); [Naes et al., 2011](#); [Acharya et al., 2011](#); [Joyce et al., 2011](#); [Blanchard et al., 2010](#); [Hameed et al., 2010](#); [Brunnermeier and Pedersen, 2009](#); [Borio, 2008](#); [Adrian and Shin, 2008](#)). Additionally, in response to the crisis, UK (and global) monetary policy followed an unprecedented path of interest rate cuts. UK interest rate cuts came to a halt in March 2009 and since then the Bank of England (BoE) base rate stands at a record low of 0.5%. BoE also decided to support the economy further by boosting liquidity. The above operation, known as Quantitative Easing (QE), consisted of large purchases of mainly longer-term government bonds and related assets. Between March 2009 and July 2012, the Monetary Policy Committee (MPC) authorized a total of £375bn of QE. The impact of QE on the economy works via three main channels: the macro/policy news channel, the signaling channel and the portfolio rebalancing channel (see [Martin and Milas, 2012](#); for a critical analysis).

In this study, we examine an additional channel through which economic growth may be affected: the prevailing stock market liquidity conditions. There are various reasons why stock market liquidity can be an informative leading indicator for future economic conditions. Firstly, market liquidity can act as a signaling mechanism, revealing the information set of investors. During periods of high uncertainty or negative outlook regarding the future state of the economy, investors move their capital away from high-risk investments, reducing their exposure or fleeing the stock market altogether, investing in short-term fixed income securities, preferably government debt (*flight to quality or flight to safety*). If these shifts in investors’ portfolio composition are related to fears that stock market liquidity may dry up, then a “*flight to liquidity*” is observed ([Longstaff, 2004](#)). These effects become more pronounced during periods of financial distress, where the actions of market participants, and in particular institutional investors, tend to be correlated. [Brunnermeier and Pedersen \(2009\)](#) show that a reinforcing mechanism between market liquidity and funding liquidity (the interaction between securities’ market liquidity and financial intermediaries’ availability of funds) leads to liquidity spirals and institutional investors are forced to shift their holdings towards stocks with low margins. Stock market liquidity can alternatively affect the real economy through an investment channel. In particular, a liquid secondary market can facilitate the financing of long-run projects in the real economy ([Levine and Zervos, 1998](#)). It is also well-established that liquidity has a first-order effect on the premium that investors demand to withhold risky assets (see, for example, [Amihud, 2002](#); [Acharya and Pedersen, 2005](#)). As a result, a liquid stock market may lower the cost of capital for firms, and hence boost high return projects that stimulate earnings and productivity growth ([Levine, 1991](#)).

The main contribution of this study is that it examines whether stock market illiquidity forecasts real UK GDP growth once other financial variables, such as the term spread (see e.g. [Chinn and Kucko, 2010](#); [Estrella, 2005](#); [Estrella and Hardouvelis, 1991](#)), asset prices (see e.g. [Zaher, 2007](#)) and stock market uncertainty (see e.g. [Fornari and Mele, 2009](#)), have been accounted for. [Stock and Watson \(2003\)](#) provide an extensive review of the literature on forecasting macroeconomic variables, namely inflation and real output growth, by using asset prices in addition to monetary aggregates. Their work concludes that most assets (short-term interest rates, term spreads and stock returns) do not provide stable and strong predictive power. We build upon this strand of research by suggesting stock market illiquidity as an additional leading indicator of economic growth using data for the period 1989q1–2012q2.

In doing so, we pay attention to a particular dimension of stock market illiquidity, namely the price impact, which measures the resilience of stock prices to changes in trading activity. [Blume and Keim \(2012\)](#) show that illiquidity measures that attempt to estimate the price impact of trades do a better job at capturing liquidity, and are robust to regime changes such as the change in minimum tick size to decimals. Following [Naes et al. \(2011\)](#), we use the illiquidity measure of [Amihud \(2002\)](#), which is defined as the average ratio of daily absolute returns to daily trading volume (hereafter RtoV). This measure is appealing because it is easy to compute for long time

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