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ABSTRACT

We argue that there is a connection between the interbank market for liquidity and the broader financial markets, which has its basis in demand for liquidity by banks. Tightness in the market for liquidity leads banks to engage in what we term “liquidity pull-back,” which involves selling financial assets either by banks directly or by levered investors. Empirical tests on the stock market are supportive. Tighter interbank markets are associated with relatively more volume in more liquid stocks; selling pressure, especially in more liquid stocks; and transitory negative returns. We control for market-wide uncertainty and in the process also contribute to the literature on portfolio rebalancing. Our general point is that money matters in financial markets.

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– All the rivers run into the sea; yet the sea is not full: unto the place from whence the rivers come, thither they return again.

Ecclesiastes 1:7

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* Corresponding author.

E-mail address: Kjell.nyborg@bf.uzh.ch (K.G. Nyborg).

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1. Introduction

We study the connection between the interbank market for liquidity and the broader financial markets. That such a connection exists is suggested, for example, by the experience of the recent financial crisis, which saw both a breakdown in the interbank market and a collapse in the prices of financial assets. However, our focus is not on the crisis, but rather on the day-to-day interaction between the interbank market for liquidity and financial market activity. The paper makes three contributions. First, it advances what we call the liquidity pull-back hypothesis, which addresses how demand for liquidity by banks impacts on financial market activity. Second, we test and find supportive evidence for this hypothesis by examining stock market volume, order imbalance, and returns. Third, as a byproduct of controlling for market-wide uncertainty in the testing of the liquidity pull-back hypothesis, we document relations between uncertainty, stock liquidity, and trading activity that may help shed light on how agents rebalance portfolios in response to fluctuations in market-wide uncertainty. In broad terms, the paper bridges two different concepts of liquidity, namely, the finance idea that liquidity is a property of an asset and the central banking and monetary economics concept of liquidity simply as high powered money.

There is evidence in the extant literature that financial markets are affected by monetary phenomena. For example, returns in bond and equity markets appear to be influenced by monetary shocks (Fleming and Remolona, 1997; Fair, 2002; Piazzesi, 2005) and fund flows (Edelen and Warner, 2001; Boyer and Zheng, 2009; Goetzmann and Massa, 2002), as are measures of liquidity in these markets (Chordia, Sarkar, and Subrahmanyam, 2005). However, we are not aware of research that explicitly posits and documents a link between the interbank market and the stock markets, as we do in this paper.

Our line of reasoning has its basis in a money and banking perspective on financial market activity. Banks need liquidity, or central bank money, to satisfy reserve requirements, allow depositor withdrawals, etc. The central bank determines the quantity of liquidity via its operations and then the interbank market (re)allocates it. However, if the price of liquidity in the interbank market is high, alternative sources of liquidity may be more attractive. Banks that have exhausted credit limits, *must* look for alternative sources. But to paraphrase Friedman (1970), “One bank can increase its money balances only by persuading another one to decrease its balances.”¹ And as emphasized by Tobin (1980), “The nominal supply of money is something to which the economy must adapt, not a variable that adapts itself to the economy – unless the policy authorities want it to.” So what alternatives to the interbank market are there?

Banks have, in fact, several alternatives. They can go to the discount window, but this is expensive and a last

resort. They can try to induce more deposits, but this is unlikely to be effective within a short time span. Rather, the alternative that we wish to emphasize here is pulling back liquidity from the financial markets. This can be done in several ways. The most obvious one is through selling financial assets.² This could occur through the mechanism of a banks' internal liquidity management system feeding into trading desks' limits. Alternatively, a bank can increase margins to investors, which in turn may lead to asset sales as investors seek to meet margin requirements. Increasing haircuts in repos has a similar effect. These actions do not increase the quantity of liquidity in the system, but they can increase the selling bank's liquidity balances, as long as the buying counterparty banks with another bank. One can think of liquidity pull-back as a bank dipping its ladle into the “ocean” of financial assets, recovering for itself liquidity granted to a counterparty some time in the past and stored all the while in the financial asset that now is being sold. Thus, we argue that there is a connection between the interbank market for liquidity and the broader financial markets arising from (the possibility of) liquidity pull-back.

Liquidity pull-back trading is arguably most likely to occur if the interbank market is not allocatively efficient. The crisis is an example of it being so; volume in the interbank market fell (Cassola, Holthausen, and Lo Duca, 2009) while central banks around the world injected vast amounts of liquidity to counteract banks' unwillingness to lend to each other. In addition, Bindseil, Nyborg, and Strebulaev (2009) find evidence that there is a degree of allocational inefficiency in the interbank market even during what we think of as times of normalcy, and Fecht, Nyborg, and Rocholl (2011) find evidence that interbank liquidity networks, which are intended to overcome imperfections in the interbank market, are not always effective. We expect tighter interbank markets to be associated with a higher level of liquidity pull-back activity. This has implications for volume, order imbalance, and returns.

The implication of liquidity pull-back on volume is cross-sectional in nature. In particular, the liquidity pull-back effect on volume should be felt differentially across assets, depending on their degree of liquidity in the financial economics sense of the word. By definition, trade in a highly liquid asset involves lower price impact, or transaction costs, on average, than an equivalent trade in a less liquid asset (Black, 1971; Kyle, 1985). *The implication, and our central hypothesis, is thus that increased tightness in the interbank market for liquidity is associated with an increase in the volume of more liquid assets relative to that of less liquid assets.*³ We expect this relation because when interbank markets function well, banks that hold excess

² Kashyap and Stein (2000) document that many banks hold substantial amounts of securities.

³ This is related to the observation made by Scholes (2000), writing on the topic of crises and risk management and drawing on his experience from Long Term Capital Management, that “[i]n an unfolding crisis, most market participants respond by liquidating their most liquid investments first...” because “[more] liquid markets tend to be large and can handle large trading volumes relatively quickly.”

¹ The original Friedman quote is: “One man can reduce his nominal money balances only by persuading someone else to increase his. The community as a whole cannot in general spend more than it receives.”

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