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# Bank funding structure and lending under liquidity shocks: Evidence from Korea<sup>☆</sup>



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### ABSTRACT

This paper examines the relation between bank funding structure and lending to firms during periods of liquidity shocks. We analyze this relation by using quarterly loan panel data of all commercial banks in Korea, as well as their borrowing firms. We find that when liquidity shocks are severe, banks generally reduce their lending, but banks with a high core funding ratio tend rather to increase their lending to firms during periods of market-wide liquidity shocks, thereby offsetting the reduction in lending due to liquidity shocks. This tendency is stronger in banks that maintain relationship banking with these firms. However, these findings are valid only for large banks. Our findings could provide some important policy implications for financial supervisory authorities seeking some regulatory policies on liquidity such as those of Basel III.

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## 1. Introduction

The bank regulatory environment has significantly changed since the recent global financial crisis. Before the global financial crisis, regulatory authorities had tried to ease regulations based on the belief that efficient capital allocation could be achieved through financial innovation. Since the global financial crisis, however, both economists and regulatory authorities have come to agree that certain elements of regulatory easing instead bolstered the vulnerability of the financial system. The Basel Committee on Banking Supervision (BCBS)

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and the financial regulatory authorities of major countries view banks' tendency to rely excessively on wholesale funding as a major source of the aggravated financial market turmoil.<sup>3</sup> Based on this view, they are expected to adopt liquidity regulation in addition to capital regulation as a global-level regulatory scheme.

The wholesale funding of banks is generally not covered by deposit insurance; hence uninsured creditors respond sensitively to market-wide liquidity shocks. Therefore, banks with high wholesale funding will be severely affected in their lending when market-wide liquidity shocks are high. In contrast, banks' core funding, which has sufficiently stable sources of funding, is relatively less sensitive to financial market-wide liquidity shocks. The BCBS has strengthened its liquidity framework by developing a minimum standard for funding which is designed to achieve the following objective. That is to reduce funding risk over a longer time horizon by requiring banks to fund their activities with sufficiently stable sources of funding in order to mitigate the risk of future funding stress. As such *stable funding* sources, the BCBS suggests retail (demand and term) deposits, capital, and liabilities with effective maturity of one year or more.<sup>4</sup> As core funding, therefore, we include retail (demand and term) deposits covered by deposit insurance (or core deposits), core capital (Tier 1 capital),<sup>5</sup> and debt and bank debentures with long-term maturities. Since most retail deposits are covered by deposit insurance, retail depositors respond much less sensitively to market-wide liquidity shocks. Further, banks are flush with funds from deposit inflows because investors tend to seek a safe haven for their money in financial market turmoil. As a result, banks with high core funding can even increase lending to firms when liquidity shocks are severe.

Banks may well behave differently in lending to firms according to their funding structure, particularly during a liquidity shock crisis. This paper examines the relation between banks' funding structure and their lending to firms in Korea during liquidity shock crises. The extent to which bank lending is related to funding structure is affected by the banks' characteristics (such as capital structure, profitability, and the amount of non-performing loans), as well as the characteristics of borrowing firms (such as leverage ratio, profitability, and firm value). To analyze this relation, therefore, we use panel data of both banks and firms from June 2007 to September 2011. Most previous studies use the panel data of banks only. To our knowledge, our study is the first to analyze the effect of bank funding structure on their lending to firms during liquidity shock periods after controlling for factors that may affect the demand and supply of corporate lending by using the panel data of both banks and firms.

The findings of this study are as follows. First, when liquidity shocks are intense (i.e., bank credit spreads widen), banks generally reduce their lending, but banks with a core funding ratio higher than a certain level tend to increase their lending to firms, thereby offsetting the reduction in lending due to liquidity shocks. These results indicate that banks with a stable funding structure increase their lending during a liquidity shock crisis and play an important role in absorbing market-wide liquidity shocks in the financial markets. Second, the tendency of banks with a higher core funding ratio to increase lending is stronger in main banks that maintain a strong relationship with their lending firms.<sup>6</sup> In other words, even though main banks have a core funding ratio lower than a certain level, during a liquidity shock crisis, they tend to increase their lending to firms that maintain relationship banking with them. Both banks and firms receive benefits from relationship banking.

The results in this study provide some important policy implications for financial supervisory authorities seeking some regulatory policies on liquidity such as those of Basel III.<sup>7</sup> Our results provide justification for the adoption of such regulatory policies that encourage banks to change their funding structure by reducing

<sup>3</sup> Wholesale funding is a method of funding that banks use in addition to core retail funding (based on deposits) to finance their long-term assets from other financial institutions and in financial markets. Wholesale funds are usually raised on a short-term rollover basis. According to Huang and Ratnovski (2011), there is a risk that at the refinancing stage wholesale financiers will suddenly withdraw their funds upon a hint of negative news. This could trigger disorderly liquidations. When wholesale withdrawals follow a market-wide signal, correlated bank failures exacerbate systemic risk.

<sup>4</sup> See Table 1 on page 5 of the BCBS document entitled "Basel III: The Net Stable Funding Ratio (2014)," which is available on the BIS website ([www.bis.org](http://www.bis.org)).

<sup>5</sup> Tier 1 capital is composed of *core capital*, which consists primarily of common stock and disclosed reserves (or retained earnings).

<sup>6</sup> When a firm borrows from multiple banks, the bank that maintains the largest amount of loan with the firm is defined as its main bank. There are no multiple main banks in our sample. There is no case that a firm has no main bank.

<sup>7</sup> Refer to Basel Committee on Banking Supervision (2014).

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