



# The role of governance on bank liquidity creation



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## ABSTRACT

This paper examines the impact of internal bank governance on bank liquidity creation in the U.S. before, during and after the 2007–2009 financial crisis. Using bank holding company level data, we analyze whether better-governed banks create higher levels of liquidity. We find that this effect is positive and significant but only for large bank holding companies. Further analysis reveals that specific internal governance categories: CEO education, compensation structure, progressive practices, and ownership have a significant effect on bank liquidity. However, this positive effect occurs mostly during the crisis period, and for large banks that are also high liquidity creators. Finally, we find that the effect of governance on liquidity creation increases during the crisis period. These findings are robust even while controlling for liquidity measures, bank size, and endogeneity problems between governance and liquidity creation.

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## 1. Introduction

The financial crisis of 2007–2009 provided compelling evidence as to how quickly liquidity can evaporate, and that the resulting illiquidity can last for an extended period of time. From the early stages of the crisis, liquidity management problems became apparent even in those financial institutions with adequate capital levels. The Basel Committee on Banking Supervision (BCBS) concluded that many banks failed to follow basic principles of liquidity risk management when liquidity was still abundant ([Bank for International Settlements, 2008](#)). Consequently, risk failures and governance issues predominated in new bank regulation<sup>1</sup>, banking research studies, and news headlines. According to a 2015 Wall Street Journal article, U.S. bank supervisors, recognize that improvements in bank governance have a positive impact in the soundness of our financial system.<sup>2</sup>

The financial crisis of 2007–2009 (hereon referred to as “the crisis” or “crisis”) exposed several flaws in our financial system,

but also long-standing gaps in banking studies. We are interested in particular by the exclusion of financial institutions from governance studies. This paper empirically examines for the first time, how internal corporate governance affects bank liquidity creation and how this varies across bank size classes. Our contribution in this paper is two-fold. First, we seek to fill a gap in the bank governance literature by presenting the first examination of whether corporate governance affects bank liquidity creation. Second, we aim to expand the limited but growing empirical literature on bank liquidity creation. While several recent studies look at how internal governance influence risk-taking behavior or bank performance (e.g., see [Beltratti and Stulz, 2012](#); [Erkens et al., 2012](#); [El-lul and Yerramilli, 2013](#)), we have found no paper which examines whether, and how corporate governance is related to bank liquidity creation. It is well documented that for any bank to be competitive, it must fulfill two core missions; a bank must be able to a) transform risk and b) create liquidity ([Bhattacharya and Thakor, 1993](#)). According to risk transformation theory banks transform riskless deposits to finance risky loans (e.g. [Diamond, 1984](#); [Ramakrishnan and Thankor, 1984](#); [Boyd and Prescott, 1986](#)). The effect of internal governance on risk transformation and associated risk-taking behavior has been examined extensively in the past; studies exploring the effect of governance on liquidity creation are non-existent, but we believe, equally important. Liquidity creation and risk transformation do not move simultaneously, it is necessary to highlight their differences to fully understand the liquidity

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<sup>1</sup> New guidelines in bank governance for large financial institutions were recently finalized by the OCC in 2014 (press release September 2014) <http://www.occ.gov/news-issuances/news-releases/2014/nr-occ-2014-117.html>

<sup>2</sup> “Regulators Intensify Scrutiny of Bank Boards” Wall Street Journal, March 30, 2015.

creator role a bank plays in the financial system (Berger and Bouwman, 2009).

The process of liquidity creation exposes banks to numerous risks. Banks create liquidity by transforming liquid deposits into illiquid assets. While this is a vital service to the economy, it leaves banks vulnerable to runs (Diamond and Dybvig, 1983). Despite this vulnerability, banks continue to create liquidity during downturns in the economy, thus performing a critical role in the financial system (e.g. Bryant, 1980; Bernanke, 1983; Dell'Ariccia et al., 2008). However, there are limits to the economic benefits of liquidity creation. According to Acharya and Naqvi (2012), excessive liquidity may drive the banking sector to initiate or aggravate an asset bubble potentially increasing the vulnerability of the banking sector, and instigating a financial crisis. Berger and Bouwman (2014) find evidence that liquidity creation increases immediately before crisis periods, and that excess liquidity creation is predictive of future crises. These studies support the importance of increasing our understanding of bank liquidity creation. In the current paper, it is our intention to expand our knowledge on this topic and specifically on the relation between bank governance and liquidity by answering the following questions; Does internal bank governance affects bank liquidity creation? Is this effect the same for all banks? Are banks that create high levels of liquidity better governed than low liquidity creators?

We answer these questions using empirical measures of bank liquidity creation not only from traditional bank activities, loans and deposits but also from off-balance sheet activities. This dual focus is important because banks not only create liquidity from transforming liquid liabilities into illiquid assets, they also create liquidity from off-balance sheet commitments (e.g. Holström and Tirole, 1998; Berger and Bouwman, 2009; Kashyap et al., 2002). In the current study, we use two liquidity measures: cat fat, and cat nonfat. We use the definitions of these liquidity variables from Berger and Bouwman (2009). Cat nonfat measures liquidity created on the balance sheet, and Cat fat is the sum of on-balance sheet liquidity and off-balance sheet liquidity.

To preview our results, we find evidence that internal bank governance has a positive effect on liquidity creation, and this effect is robust to different definitions of liquidity. We also examine the effect of governance on liquidity creation using three bank subsamples sorted by total assets. We find a positive effect of governance on bank liquidity creation present in the full sample, and for large banks when we split the sample into size subsamples. We also find that before and after the financial crisis, better governance decreases liquidity creation, and during the financial crisis the effect of governance on liquidity creation is positive and statistically significant. This result suggests that boards made significant changes in their supervision and controls during the financial crisis. In particular, we find that better scores in specific governance categories such as audit committee characteristics, compensation incentives, and ownership characteristics have different effects on liquidity creation during the financial crisis than before and after this period. For example, better governance scores of audit committee characteristics had a positive effect before and after the crisis for cat fat and cat nonfat, but this effect is negative during the crisis for cat fat and economically insignificant for cat nonfat.

We also examine how equity capital affects liquidity creation. Cornett et al. (2011) find that banks using more core deposits, a key component of liquidity creation, and more equity capital, saw significant increases in loan production, relative to those banks that rely more on wholesale sources of debt financing during the financial crisis. In our study, we find there is a positive relation between equity and liquidity creation across all liquidity measures. Moreover, the results are robust across bank size subsamples and sample periods.

Further analysis using two subsamples of high liquidity creators (top 25%) and low liquidity creators (bottom 25%) provide additional results. When examining the full sample the data shows that the effect of governance on liquidity creation is only significant for high liquidity creators. When considering individual governance variables, better audit committee characteristics show a positive effect on liquidity creation across the sample period, but only for high liquidity creators. This supports the contention that when their internal governance increases, these banks create more liquidity. On the other hand, excluding ownership characteristics, improvements in internal governance showed no effect on bank liquidity creation for bottom liquidity creators. We also find that the positive effect of governance on liquidity creation is present for ownership characteristic variables during the 2003–2007 sample with no significant differences during the crisis period.

The rest of the paper is organized as follows. Section 2 describes the theoretical framework and hypotheses development. Section 3 describes the sample, data and liquidity, governance and control variables used in the estimation. Section 4 presents the empirical methodology. Section 5 discusses our empirical results. Section 6 offers concluding remarks.

## 2. Theoretical framework and hypotheses development

In this section, we review existing literature and theories to develop our hypotheses about the relationship between corporate governance and bank liquidity creation and the effect of capital on bank liquidity creation while controlling for internal governance.

Our study expands the existing literature on liquidity creation, and builds upon the growing bank governance literature. Banks perform a critical role in the economy when they create liquidity by funding relatively illiquid loans with liquid deposits. For example, corporate lending, either through traditional business loans or loan commitments, is known to be an important driver of business activity (e.g. Guiso et al., 2004), firm startup (e.g. Kerr and Nanda, 2009), and firm productivity (e.g. Krishnan et al., 2014).

Empirical studies on bank liquidity creation are limited but growing. Berger and Bouwman (2009) fill an important gap in bank research by creating four empirical measures of bank liquidity: cat fat, mat fat, cat nonfat and mat nonfat. These measures are based on loans' categories or maturities (cat or mat), and the inclusion (fat) or exclusion (nonfat) of off-balance sheet activities. Subsequent empirical liquidity creation studies use their measures and find significant links between liquidity creation and equity capital (Horváth et al., 2014), monetary policy (Berger and Bouwman, 2014), economic output (Berger and Sedunov, 2016), and government intervention (Berger et al., 2016). However, ours is the first study to our knowledge that examines the effect of governance on liquidity creation.

### 2.1. Bank liquidity and corporate governance

**H1.** Banks with stronger internal governance create more liquidity on the balance sheet (cat nonfat).

**H2.** Banks with stronger internal governance create more liquidity on and off the balance sheet (cat fat).

In creating liquidity, banks reduce their own liquidity (Bouwman, 2013). Banks are vulnerable to liquidity risk because they must provide on demand liquidity to depositors. At the extreme, systemic increases in liquidity demand can result in bank runs from depositors (Cornett et al., 2011). Thus, regulatory safety nets exist (e.g. deposit insurance) to avert potentially disastrous systemic bank runs. Alternatively, moral hazard and option values

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