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Corporate Governance and Liquidity Creation: Evidence from Iranian Banks

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This paper examines the impact of internal bank governance on bank liquidity creation in Iran during 2010-2017. We analyze whether banks with larger size and liquidity levels creates higher levels of liquidity. The results using panel GMM method show that corporate governance has a positive effect on liquidity creation; of course, it is not significant. Also, this effect is not affecting by bank size level, but a bank with higher liquidity levels have a higher elasticity to the governance change. Moreover, banks with higher financial stability have higher liquidity creation. Furthermore, the equity ratio index harms liquidity creation, which means "the fragility hypothesis" is confirmed within Iranian banks.

Keywords: Corporate Governance, Liquidity Creation, Bank Size, GMM Method.
JEL Classification: G01, G21, G30

1 Introduction

Banks as financial intermediaries play a critical role in the financial system. Banks are intermediaries of funds and transfer short-term deposits into long-term facilities. Therefore, their balance sheets are usually mismatched. Likewise, banks are sometimes unable to receive their claims due to various economic, social, and political factors. These cause some inflexibility on the banks' assets side. So, the higher the non-payment of concessional facilities and thus, the higher the range of non-performing loans, the greater their vulnerability. Therefore, the proper liquidity management in the banks is critical to avoid wasting investment opportunities as well to use excess liquidity for investment with higher returns, which results to increase preparedness deal with crisis conditions and cash fund shortages. Examination of the causes and pathology of the collapse of some large corporations and banks that have had significant losses, particularly for shareholders, indicate that these losses were mainly due to weak corporate governance mechanisms (Hagendorff et al., 2008).

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Also, recent financial and banking crises emphasize that the inefficiency of liquidity management is mainly due to weak corporate governance, which in turn leads to a decrease in shareholder wealth (Anders et al., 2007; Choi et al , 2014). Corporate governance in banks differs from that in other financial institutions. Because the complexity of banks' operations leads to increase information asymmetry that is resulting to reduces the power of shareholder supervision over bank management. Besides, there is a conflict of interest between shareholders and depositors, as shareholders tend to engage in risky projects and increase their stock value in the face of rising investment costs.

However, it can be said that corporate governance is an essential regulatory tool for banks' success in managing liquidity. To date, empirical studies in field corporate governance issues have focused mainly on large corporations and advanced economies. This study is one of the few studies that empirically evaluate the relationship between corporate governance and liquidity creation in Iranian banks, considering the role of size and liquidity levels. For this aim, we examine the following hypotheses: first, improving corporate governance in banks leads to create higher liquidity in the balance sheet. Second, the effect of corporate governance on bank liquidity creation is influenced by their size. Finally, the impact of corporate governance on bank liquidity creation is affected by the levels of liquidity.

The rest of the paper is organized as follows. Section 2 describes the theoretical framework and review empirical studies. Section 3 deals with the used methodology and introduces the regression model. In the next section, descriptive statistics of research variables, especially corporate governance, are presented. Section 5 discusses our empirical results. The final section offers concluding remarks.

2 Literature

One of the critical features that distinguish banks from other types of firms is their ability to create liquidity (Berger and Bouwman, 2013). Because most of the funds required for bank operations are financed by short-term deposits (liabilities). The feature of these deposits is that depositors can demand them at any time. While bank assets are mostly in the form of long-term investments (through the provision of financial facilities to customers). These types of assets usually have a long-term maturity and can be claimed by the bank only in exceptional circumstances in the short term.

Therefore, the consequence of banking activities is the creation of illiquid assets and liquid liabilities, which means the creation of liquidity in the economy (Diamond and Dybig, 2007). Therefore, liquidity management, as

the ability to raise funds and timely fulfillment of liabilities that have matured, has become an essential factor in banks' operational strategy. The current theory of working capital management suggests that banks can enhance liquidity and hence stabilize their competitive position by making a transfer in cash (Berger and Bouwman, 2009).

Surveys show that the main reason for the collapse and bankruptcy of some large banks that have had significant losses, especially for shareholders, is the weakness of the corporate governance mechanism on liquidity. Corporate governance is a regulatory tool used by businesses, especially financial corporations, to supervision activities and achieves goals such as accountability, transparency, fairness, and stakeholder rights. Corporate governance mechanisms reduce agency problems. The quality of these mechanisms is relative and varies from firm to firm. The importance of corporate governance in the world is to the extent that Standard & Poor has introduced four criteria for corporate governance, including ownership structure, financial stakeholder relationships, board structure and performance, and finally, accountability, transparency, and disclosure of information. In financial literature, the most fundamental theory that emphasizes corporate governance in banks is the Agency theory. According to this theory, managers may make decisions that are not necessarily in line with maximizing shareholder wealth. Therefore, there should be adequate control or oversight mechanisms to protect shareholders from conflicts of interest (Jensen, 1993).

As such, the role of corporate governance components such as the independence of the board of directors, the size of the board of directors, the audit committee, and ownership of institutional shareholders cannot be ignored in liquidity management, because it increases the ability to monitor managers 'decision making and executive actions and hence it can have a significant impact on working capital management criteria such as cash flow, accounts receivable, accounts payable, and fund turnover (Gill and Biger, 2013).

For example, Gill and Shah (2012) show that the board size and the CEO (chief executive officer) duality significantly affect the corporate cash holdings. Dittmar and Smith (2007) and Pinkowitz et al. (2006) investigate how investors have evaluated the value of each dollar invested in liquid assets in countries with weak investor protection. They emphasize that corporate governance is the main reason for the benefits of cash holdings. Chen and Lin (2016) show that the weakness of corporate governance systems in the bank diminishes the confidence of the bank in its ability to manage its assets and

liabilities and thereby controls the liquidity that will ultimately lead to a decrease in shareholders' wealth.

However, empirical studies on corporate governance issues have focused mainly on large corporations and developed economies (Kyereboah-Coleman, 2008). Diaz et al. (2017) examine the impact of internal bank governance on bank liquidity creation in the U.S. before, during, and after the 2007–2009 financial crisis. The results show that banks with better corporate governance will create more liquidity. Of course, the magnitude of this effect is only noticeable in larger banks. Also, internal components of corporate governance such as CEO education, compensation structure, and ownership have a significant impact on bank liquidity creation. Berger and Sedunov (2017) assessed the relationship between bank liquidity creation and economic growth. The findings showed that banks with less liquidity creation generate more dollar GDP.

Also, Larger-size banks create more liquidity. Chen and Lin (2016) examined the role of corporate governance on both credit and liquidity risks in 43 countries during 2002–2010. The results showed that corporate governance control mechanisms are reduced both liquidity and credit risks. Aebi et al. (2012) investigate the impact of corporate governance on financial performance in China banking during 2007-2008. The components of corporate governance in this study include the existence of a risk committee, the CEO duality, the board size and the board's independence. The results showed that banks with higher risk committees had higher financial performance. Also, in banks where there is a CEO duality, it has a negative and significant effect on financial performance.

Also, other components of corporate governance have not had a substantial impact on financial performance. Farzinvash et al. (2017) examined the relationship between corporate governance and banking sector profitability indices, using panel data regression for 15 selected banks from developing (D8) and developed (G7) countries during 2005-2014. The results confirm that corporate governance measures have a positive and significant impact on selected banks' profitability indices. It is also notable that the magnitude of estimators and their level of significance are different between developing (D8) and developed (G7) countries. Taghavi et al. (2013) investigate the impact of corporate governance (bank ownership) on banking stability in developing countries during 2000–2011. The results showed that state ownership causes greater deferred claims than private ownership. Also, Banks with foreign ownership perform better in terms of profitability ratios than other types of ownership.

3 Methodology

As implied before, the purpose of this paper is to investigate the impact of corporate governance on the liquidity creation of Iranian banks during 2010-2017. The statistical sample includes 12 Iranian banks listed on Tehran Stock Exchange, including Pasargad, Tejarat, Saderat, Mellat, Saman, Ansar, Shahr, Dey, Sarmayeh, Sina, Karafarin, and Post Bank. In line with the research objectives and inspired by the study of Diaz et al. (2017), the regression model is considered as follows:

$$LIQU_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 ZSCORE_{it} + \beta_3 EQUI_{it} + \beta_4 ROA_{it} + \beta_5 SIZE_{it} + +\beta_6 GDP_{it} + \varepsilon_{it}$$

Where, $LIQU_{it}$ denotes total liquidity created on the balance sheet of bank i at time t. In this sense, liquidity creation reflects the liquidity of the balance sheet items. It is important to calculate the liquidity creation index, in the first step to classify the balance sheet items into liabilities and assets (liquid and illiquid). For example, in the assets side of the balance sheet, loans with a maturity of less than one year are considered liquid assets, but loans with a maturity of one year or longer are considered illiquid assets. Other items, such as cash and securities and market assets have considered liquid assets. Respectively, in the liabilities side of the balance sheet, short-term deposits and government receivables, as well as bonds, are considered liquid liabilities, but long-term deposits and equity have considered as illiquid. In the second step, the weight is assigned to all bank activities consistent with liquidity creation theory. Positive weights are applied to both illiquid assets and liquid liabilities. Thus liquidity is created when a liquid liability is used to finance illiquid assets: for example, when deposits are used to finance a small business.

Similarly, negative weights are applied to liquid assets, illiquid liabilities, and equity. In this situation, liquidity decreases when either illiquid liabilities or equity are used to finance liquid assets. In the third step, liquidity variables are created by multiplying each item by its respective weight.

The independent variable GOV is the corporate governance index. The index is calculated according to ISS standards and Jiraporn et al. (2011) so that using 21 different standards from 8 categories: Voluntary Disclosure, Business Ethics, director education, charter/bylaws, audit, ownership, the board of directors, management of asset and Liquidity. These standards are listed in the Appendix. The higher the score in these standards indicates better corporate governance.

Also, we control for bank-level risk and performance characteristics and macroeconomic conditions. The variable ZSCORE is the z-score measure that is defined as the return on assets plus the capital asset ratio divided by the standard deviation of asset returns. Higher z-score values represent more stable banks with a greater distance to default. The z-score is highly skewed and thus log-transformed as recommended by Laeven and Levine (2009). Also, we include the equity ratio defined as total equity divided by total assets to control for equity levels, and size using the log of total assets. Bank performance is included in the regression using ROA to control for managerial performance. To control for macroeconomic conditions during our sample period, we include annual GDP growth. Finally, ε_{it} is a disturbance term assumed to be uncorrelated.

Dynamic Panel Data Technique method was used as a reliable solution for the efficient estimation of dynamic panels was set by Arellano and Bond (1991) using the Generalized Method of Moments (GMM). This estimator has been extremely popular, especially in the context of dynamic empirical research as it allows discluding some of the OLS assumptions. Arellano and Bond estimator accounts for the endogenous lagged dependent variable and provides consistent parameter estimates even in the presence of endogenous right-hand-side variable. It also allows for individual fixed effects, heteroskedasticity, and autocorrelation within individuals (Roodman, 2006). The consistency of the GMM estimator depends on the validity of the instruments. As suggested by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998), two specification tests were used. Firstly, the Sargan/Hansen test of over-identifying restrictions testing for the overall validity of the instruments and the null hypothesis indicated that all devices as a group are exogenous. The second test examining the null hypothesis demonstrated that error term εit of the differenced equation is not serially correlated, particularly at the second-order (AR(2)). One should not reject the null hypothesis of both tests.

4 Overview of Descriptive Statistics in Iranian banks

Table (1) presents an overview of Descriptive Statistics of the above variables, especially the corporate governance index, in Iranian banking. It is visible that the levels of corporate governance and banking supervision are relatively low, so that the related mean value is 14.58. It is noteworthy that in recent years, the central bank of Iran has circulated parts of corporate governance principles, mainly based on auditing and risk management, to the banking system in the form of directives and guidelines. However, the existence of a

legal vacuum is still one of the most critical challenges for the Iranian banking system to develop corporate governance. Thus, we can be said that corporate governance for purposes such as reforming the inter-organizational rules of banks, paying attention to stakeholders' rights, disclosure and transparency do not have a proper situation in the Iran laws and regulations and therefore, the performance of Iranian banks in this regard is not desirable. Also, the descriptive statistics for other variables in the model show that values of mean and Standard deviation for ROA as a proxy for managerial performance are 0.056 and 0.20, respectively. The related values for Size are 18.98 and 1.29, respectively. Furthermore, the mean value of liquidity in the banks is 0.018.

Table 1
Descriptive Statistics in Iranian banks

Statistics	Governance	Liquidity	Z-Score	Size	ROA	Equity
Mean	14.58333	0.018273	0.985688	18.98780	0.056969	0.087450
Median	13.00000	0.007516	0.274612	18.88283	0.009901	0.064100
Max	19.00000	0.171920	7.434762	21.29107	1.496129	0.519375
Min	10.00000	0.002180	-0.15804	15.27241	-0.016644	0.030313
Std Deviation	3.637338	0.034427	1.462362	1.289684	0.195561	0.069574

5 Empirical Results

Before estimating the regression models, an important step is to test for unit roots with stationary covariates. Hence, we used the Levin, Lin, and Chow (LL) unit root test that assumes the series is non-stationary. Table 2 presents the results of the Levin, Lin, and Chow (LL) unit root test. The results show that all variables are stationary at the level. In other words, all variables are integrated of order (0).

Table 2
Levin, Lin and Chow unit root test at level

Variables	**statistic**	**Prob.**	**results**
LIQU	4.183	0.000	I(0)
GOV	-8.684	0.000	I(0)
ZSCORE	-4.175	0.000	I(0)
EQUI	-10.300	0.000	I(0)
ROA	-7.874	0.000	I(0)
SIZE	-10.270	0.000	I(0)
GDP	-3.352	0.000	I(0)

To analyze precisely whether the effect of corporate governance on bank liquidity creation is influenced by bank size or liquidity levels, we estimate the regression models for three groups, separately, including all banks, banks with larger size (than mean) and banks with higher liquidity (than mean) levels. Table (3) demonstrates results using the sample period 2010-2017. It is visible that in column 1 shows the estimation for all banks, the effect of corporate governance on liquidity creation, although positive, is not significant. In column 2 that reported for banks with a larger size, the impact of corporate governance on bank liquidity creation is negative and nonsignificant.

In other words, in larger banks, which have largely increased liquidity in the community through their central bank debt and lending to the government, corporate governance has no significant effect on liquidity creation. Thus, we found that the impact of corporate governance on liquidity creation is not affected by the size of the banks. In column 3 that the model has estimated for banks with higher liquidity levels, the related estimation coefficient is positive (albeit small) and significant, so that one percent improvement at corporate governance induce to increase the liquidity creation by 0.02 percent. In other words, banks with higher levels of liquidity are more sensitive to changes in internal corporate governance. It means that increasing the supervision of this group of banks would increase the banks' ability to deal with risk and thus increase the liquidity creation.

Moreover, the findings for all three estimation models show that banks with higher financial Z-score (more financial stability), have higher liquidity creation. So that, one percent increases in financial stability induced to increase the liquidity creation by 0.05 percent. This result seems to be legal because the increase of financial stability would increase banks' ability to hedge risk and thus creates more liquidity. Furthermore, we find that the equity ratio has a negative and significant effect on liquidity creation, supporting the “fragility” hypothesis. It means that banks are using more equity to finance liquid assets rather than increasing lending. Likewise, the ROA that indicates management ability to make good use of financial resources in generating profit has not a significant effect on liquidity creation.

As mentioned before, the GMM estimator checks for the validity of the moment conditions by performing the Sargan test for over-identification. As can be seen from the corresponding *p*-values reported at the bottom of Table 3, the null hypothesis of the validity of instruments cannot be rejected.

Table 3
The results of GMM estimation for three groups

Variables	total banks	Banks with larger size	Banks with higher liquidity
LIQU(-1)	0.143(0.035)*	0.178 (0.056)	0.185 (0.063)
GOV	0.0010 (0.38)	-0.000193 (0.37)	0.0526 (0.0058)
ZSCORE	0.0226 (0.014)	0.0512 (0.010)	0.0027 (0.4737)
EQUITY	-0.1904 (0.006)	-0.0286 (0.009)	-0.25001 (0.035)
ROA	-0.0469 (0.24)	-0.063 (-2.23)	0.0550 (0.0683)
SIZE	0.0069 (0.95)	-0.143 (0.21)	0.0011 (0.474)
GDP	0.00000065 (0.39)	0.00000078 (0.34)	-0.00000042 0.446)
J-statistics	6.066	6.2591	3.5558
Sargan test	0.1974	0.1824	0.1660
Observation	60	35	35

* Figures in parentheses are P-value.

6 Conclusion

This paper investigates the effects of corporate governance on the liquidity creation in Iranian banks during 2010-2017, concentrating on their size and liquidity levels. Thereby, with regard to Diaz et al. (2017), we estimate the regression model for three groups, separately, including all banks, banks with larger size (than mean) and banks with higher liquidity (than mean) levels. The results using the GMM method for all banks show that the effect of corporate governance on bank liquidity creation, although positive but is not significant. Also, for banks with a larger size, which can largely create liquidity through transferring their central bank debt and lending to the government, the effect of corporate governance on liquidity creation is not significant.

Thereby, it can conclude the impact of corporate governance on bank liquidity creation is not affected by the size of banks. Conversely, the results for banks with higher liquidity levels show that the estimated coefficient of corporate governance is positive and significant. In other words, banks with higher liquidity levels are more sensitive to changes in corporate governance. It means that improvement of the regulatory mechanisms, particularly in banks with higher liquidity levels would strengthen the banks' ability to deal with risk and thus increase liquidity creation. Moreover, the results show that banks with higher financial Z-score (more financial stability), have a higher liquidity creation. Because greater financial stability induces greater banks' ability to hedge risk and result in greater liquidity creation. Furthermore, the equity ratio has a negative and significant effect on bank liquidity creation, supporting the “fragility” hypothesis. It means that banks are using more equity to finance liquid assets rather than increasing lending.

Overall, it can be concluded that there is not a significant relationship between corporate governance and liquidity creation in Iranian banks. This conclusion confirms the weakness of corporate governance in the Iranian banking system. Although the Central Bank of Iran has issued guidelines to banks to implement corporate governance, corporate governance has not taken its place in financial institutions due to a lack of codified guidelines based on international standards, and as a result, it does not have the necessary performance. However, corporate governance is one of the most critical issues in monetary and financial institutions; so that weaknesses and insufficient attention to proper corporate governance, especially in banking, have been identified as one of the leading causes of a financial crisis. Given, a sound corporate governance system enables the bank to timely disclosure and reporting that reduce asymmetric information problems and improve banks' stability as well as increase liquidity. Also, corporate governance mechanisms could create investor confidence, increase efficiency and reduce information asymmetry in financial markets.

Therefore it is recommended to pay attention to corporate governance mechanisms in the Iranian banking system. In this regard, measures such as reducing the dominance of dysfunctional government structures in the banking system, educating managers and determining the appropriate structure of the board of directors, ownership, and financial reporting should be prioritized by banking system officials. Likewise, establishing ranking agencies to score corporate governance and liquidity levels in banks listed on the Tehran Stock Exchange and to present their reports to the public and relevant institutions can assist investors and managers in making decisions.

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Appendix: Items Comprising the *GOV* Index

For each firm, we compute *GOV* by assigning one point for each of the items listed below and summing. A higher score indicates better governance.

Voluntary Disclosure
The firm disclosed its claims to the auditor. The audited financial statements published on a timely basis. The manager's Compensation has disclosed in the financial statements.
Business Ethics
The firm helping to finance the environment activities in the financial statements.
Director Education
The staff and managers particippate at director education programs. The managers participate in the educating classes related tocorporate social responsibility.
Charter/bylaws
Board members are not allowed to deal with the company without the inspector's knowledge. The board of directors of each firm is required to store 5% of the company's net profit each year as a legal reserve.
Auditing
There is an internal audit. The auditor's report is Qualified or Unqualified opinion
Ownership
Institutional shareholders ownership is more than 50 percent? Large shareholders ownership is more than 50 percent?
Board structure
The majority of the board of directors includes non-executive directors. The number of members of the board of directors ranges from five to nine. The maximum number of non-executive directors is four. The chairman of the board and CEO are not the same. The Board-CEO-tenure is limited.
Asset and Liquidity Management
According to the auditor, all of the firm's assets are optimized. Aren't most of the firm demands from specific people According to the auditor, the firm's liquidity is sufficient to meet the firm's obligations this year.