

Liquidity Coverage Ratio, Ownership, Stability: Evidence from Iran

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The Basel Committee on Banking Supervision (BCBS), in response to the recent financial crisis, has developed new stability rules aimed at preventing financial crises in the future. This paper uses the new Liquidity Ratio (LCR) and attempts to determine the impact of this ratio on the stability of banking system. The objective of the LCR is to promote the short-term resilience of the liquidity risk profile of banks. It does this by ensuring that banks have an adequate stock of unencumbered high-quality liquid assets. The LCR will expand the banking sector's ability to bear shocks arising from financial and economic stress. We find that liquidity coverage ratio as a requirement in the regulation develops bank stability. Specifically, banks with more liquidity coverage ratio are more stable. The role of banking ownership is also pursued as another goal in the paper. According to the results, there is the positive effect of the liquidity coverage ratio on stability in private banks and there are the negative effects of the liquidity coverage ratio on stability in state and specialist banks. We find that there is a difference between state banks and specialized banks with private banks. The state and specialized bank have more liquidity risk than private banks in Iran.

Keywords: Banking, Stability, GMM, Liquidity Coverage Ratio.

JEL Classification: G21, G28, O23

1 Introduction

The introduction of the LCR as a regulatory standard is to expand the liquidity of banks. Banks are encouraged to hold a higher stock of low-risk highly liquid securities and a smaller quantity of short-term loans to financial institutions. This might diminish the impact of monetary policy shocks. Regarding the liability, one would expect that banks tend to depend less on the market and deposits from financial institutions. LCR was announced as planned on 1 January 2015 by Basel committee; the minimum requirement were at 60% and then this ratio was risen in equal annual steps to reach 100% on 1 January 2019.

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The classic financial intermediation literature has also required clarifying the relationship between liquidity and stability (Diamond & Dybvig, 1983). They determine that the maturity mismatch between assets and liabilities creates unstable balance sheet and expose banks to the possibility of panic bank runs (Acharya & Viswanathan, 2011; Demiroglu & James, 2011).

Liquidity transformation is the main role of banking system in the economy. (Diamond & Dybvig, 1983), the effect of liquidity on bank stability is not yet impeccable. Some studies find that liquidity makes banks less vulnerable to individual shocks because they can meet any unanticipated large extractions (Diamond & Rajan, 2005; Carletti et al., 2007). Then, higher asset liquidity enables the sale of bank assets in crises and hence decreases the motivation of banks to avoid crisis. (Wagner et al., 2007).

Schooner and Taylor (2010) indicate that the banking industry provides long-term lending products while simultaneously guaranteeing the liquidity of their liabilities to short-term depositors. However, the recent global financial crisis (2007-2009) revealed banks' funding instability and illiquidity due to the maturity mismatch of assets and liabilities. Banks and other financial intermediaries experienced this since they faced major losses on investments in the U.S. sub-prime mortgage market. The impact of Basel III on the financial stability of banks in less sophisticated banking sectors is unfamiliar. Banks have limited access to refined financial risk-management tools such as financial derivatives and may rely on traditional risk-management tools for fund management.

This paper investigates the relationship between the liquidity coverage ratio and stability. The organization of the paper is as follows:

Section 2 provides a review of the existing literature. Section 3 explains the impacts that the liquidity requirements will have on the financial stability. Section 4 provides a detailed description of the variables that affect the analysis of the liquidity coverage ratio including stability measures, bank-specific and country-specific variables. The final Section surveys the empirical methodology and key findings of this study and provides concluding remarks.

2 Literature Review

Basel committee focuses on the liquidity requirement because the main reason of past crises in financial markets was the liquidity and lack of liquidity coverage. Consistent with the Committee's capital adequacy standards, national authorities need higher minimum levels of liquidity. This committee should be aware that the minimum ratio could have influence on stability.

Supervisors direct those additional levels of liquidity to be held if they believe the LCR does not adequately reflect the liquidity risks of banks.

The Committee rests that the liquid requirement is an essential component of the reforms of banking system. This could help to achieve the stability of banking system. The committee has been cognizant of the implications of the standard for financial markets, credit extension, and economic growth. (Basel III, 2013)

Admati et al., (2011) study the adoption of Basel III that decreases credit availability and therefore decrease economic growth. Allen et al., (2012) show that the requirements of Basel III might affect the credit resource in the economy .

Hong et al., (2014) investigate the impact of liquidity risk measures using the Net Stable Funding Ratio (NSFR) and liquidity coverage ratio using panel data from US banks for the period of 2001 to 2011. The results show that liquidity risk is a predictor of bank failure and point out new liquidity requirements under the Basel III .

Yan et al., (2012) investigate the impact of tighter capital regulations and liquidity requirements under the Basel III on a sample UK banks for the period of 1997 to 2010. This survey shows that the higher regulatory of capital requirements not only reduces the probability of a banking crisis but also reduces the economic loss from a banking crisis.

King (2013) studies the impact of the new NSFR requirement on earning ability of banks by using a sample of banks and shows that banks could not achieve the minimum NSFR requirements at the end of the 2009. In that year crisis, a possible response from the banking sector might include shrinkage of the balance sheet.

Jiraporn et al. (2014) survey the relationship between the NSFR and risk-taking behavior of banks by using a sample of banks from East Asian countries for the period of 2005-2009. The findings show an inverse relationship between the intensity of capital regulation and risk-taking by banks using Z-score as a proxy for risk-taking .

Hartlage (2012) indicates that Liquidity Coverage Ratio is a highly disparate treatment of retail and wholesale funding that may instead undermine financial stability by increasing the competition for the types of funding under the rule. This study shows the Republic of Korea's experience with its post-crisis liquidity regulation that prescriptive rules can create market distortions. Implementing Liquidity Coverage Ratio could be helpful to achieve more stable debt and support maturity transformation.

Ratnovski (2013) creates a model in which banks can manage liquidity risk. Higher liquidity buffers protect banks against small liquidity shocks and greater transparency guards against large liquidity shocks. The government can impose effective and verifiable liquidity buffers, but cannot impose transparency. Thus, government liquidity regulation results in reduced amounts of active liquidity management. Banks hold high liquidity buffers by law but reduce their costly transparency efforts.

There is a substantial literature on the impact of state ownership of banks on banking performance and stability. Some studies such as La Porta, Lopez-de-Silanes and Shleifer, (2002) investigate that ownership of banking is associated with bank efficiency and financial stability. State bank ownership leads to lower economic growth and consequently instability (La Porta, Lopez-de-Silanes, & Shleifer, 2002; Caprio & Martinez Peria, 2002). Lehmann and Weigand (2000) explore that ownership negatively affects profitability. Demsetz and Villalonga (2001) do not find a significant relationship between ownership structure and performance. Welch (2003) such as Demsetz and Villalonga (2001), show that there is a relationship between ownership structure and the performance of banking and find that ownership significantly influences performance.

Dinc (2005) shows that state bank lending increases their credit risk. Micco, Panizza, and Yanez (2007) report that state-owned banks located in developing countries tend to have lower profitability and higher costs than their private counterparts. Cornett et al. (2010) show that state-owned banks in 16 Asian countries face less profitably and greater credit risk than privately-owned banks. Berger et al. (2005) find that the profit of state-owned decrease. Lin and Zhang (2009) focus on the size of banks and analyze the “Big Four” state-owned commercial banks in China and indicate that less profitable, less efficient, and worse asset quality could affect stability.

3 Liquidity Coverage Ratio and Stability

Banks create liquidity as maturity transformation, also known as time intermediation. In other words, they take demand deposits and other short-term funds and lend them in the form of longer maturity. (Elliott, 2014) Maturity transformation is useful as it provides the liquidity and banks as the main intermediators create liquidity. In particular, deposits are “sticky”. Demand deposits can theoretically all be remote in a single day. Therefore, banks can create liquidity by a mismatch. Attention is drawn to the fact that a banking crisis may also arise. This is the classic “bank run” that has destroyed many banks over the centuries. The LCR emphasizes that banks hold high-

quality liquid assets to meet liquidity needs over a 30-day time horizon under an acute liquidity stress scenario to reduce the banking crisis and improve the stability in banking systems .

The LCR requires internationally focus on a stock of HQLA and total net cash outflows over the stress period, this formula summarized in the following:

$$\frac{\text{stock of HQLA}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%$$

However, the minimum of HQLA could change during periods of stress and bankers and policymakers are expected to provide guidance on the usability of HQLA according to circumstances.

The LCR is thus a constraint for short-run liquidity risk that a bank is allowed to hold. This ratio is supposed to be the short-term liquidity risk by confirming that it has adequate high-quality liquid assets to continue a significant stress scenario lasting for one month. (Basel III, 2010)

The LCR builds on traditional liquidity “coverage ratio” methods used by banks to assess exposure to conditional liquidity events. The total net cash outflows are to be calculated for 30 calendar days into the future. The standard of Basel III focuses on the value of ratio which should not be lower than 100% (the stock of HQLA should at least be equal to total net cash outflows) on an ongoing basis because the stock of HQLA is intended to aid as a protection against the potential liquidity stress.

Supervisors should permit for discriminated responses to a reported LCR below 100% and should measure a number of firm- and market-specific factors in determining the appropriate response as well as other considerations related to both domestic and global frameworks and conditions. The reason(s) that the LCR fell below 100% is that the stock of HQLA has inability to roll over funding or large unexpected draws are contingent obligations. Supervisors should have a range of implements to address an LCR below 100%. Banks may use their stock of HQLA in both idiosyncratic and systemic stress events, although the supervisory responses may vary between the two. Enhanced reporting to supervisors should be commensurate with the duration of the shortfall.

Then, they calculate the ratio of liquidity according to the Basel III and attempt to investigate the relationship between liquidity and stability.

Iran’s banking system will need to strengthen the system-wide approach to supervision. It is important to know that the transfer of this system to institutional level supervision is to make the total financial system more

resilient. Focusing on resources in this way can help to make the regulatory, supervisory and risk management infrastructure in a financial market. The Central Bank of Iran as a regulator could be the establishment of a capital framework that promotes strong buffers in banks in bad times. This regulator for the regulation and supervision of banks could assess banks to comply with the global underwriting standards and to address imbalances in risk controls and business growth of banks. The regulator could assess the gaps in regulations and ways to fix them to strengthen a system-wide approach for supervision. Establishing robust links between the objectives of Central Bank's liquidity operations and liquidity regulation and supervision is an approach to strengthen system-wide supervision.

Controlling shareholders' ownership can have consequences for bank profitability that accrue to both controlling and non-controlling owners and this effect is determined by the levels of ownership concentration in Iranian banks. Therefore, this paper investigates the case of Iran to examine the influence of different levels of ownership on bank stability and focuses only on banks because they have a main role as the financial intermediation in Iran's banking system.

Shareholders' ownership can impose greater monitoring on management and compel managers to make decisions that increase overall shareholder value for all, thereby benefiting all shareholders including minority shareholders, which improves the performance and profitability.

Considering the ownership in banking system that increases incentives to maximize benefits for adjusting shareholders at the expense of non-controlling shareholders. Adjusting shareholders will pursue private benefits of control or transfer of assets/profits, which in turn would hurt non-controlling shareholders through the resulting reduction in firm profit and firm value (Jensen & Meckling, 1976).

In Iran, banks have funds that can be provided with loans and facilities, relying on absorbed resources. Therefore, the sustainability of the banks' resources in the balance sheet requires the allocation of it in the form of facilities. By categorizing banks to private, state, private and specialized banks, it can be well demonstrated that, on average, private banks with high returns have a suitable share of the facility, and balancing debt to the Central Bank.

Specialized banks, which have attracted lower deposits, have been providing their facilities from the Central Bank. In state-owned banks, the balance sheet structure is aimed at attracting more deposits and relying less on equity of bank resources. Specialized banks with a minimum deposit and

financing, are financed through the Central Bank and shareholders have a nearly different capital structure from other banks.

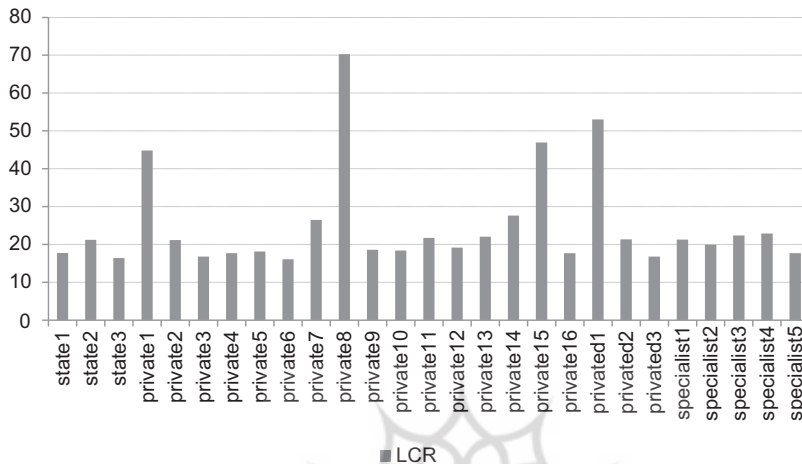


Figure 1. Liquidity Coverage Ratio in Iranian Banking (2014). *Source:* Research Findings. *Data Source:* Central Bank of Iran.

Private banks, often attracts resources by attracting short-term and long-term deposits. One of the private banks has the highest rate of attracting resources among private banks and has the highest rate of sustainable financing in this group in 2014.

There is a positive correlation between the ratio of stable financing and liquidity coverage ratio in Iran's banking system, and according to the following diagram, with the possibility of more liquidity coverage in the short run, banks can have a long-term financing ratio based on sustainable financing. The correlation between these two indicators is positive at 0.28% in 2014.

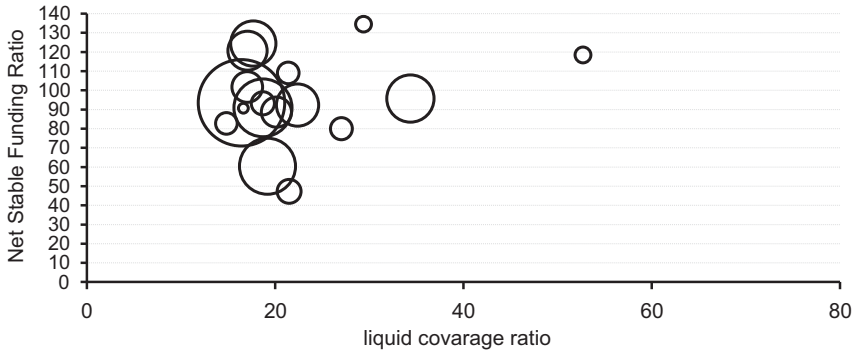


Figure 2. The correlation between Liquidity Coverage Ratio and Net Stable Funding Ratio in Iran's Banking System. *Source:* Research Findings. *Data Source:* Central Bank of Iran.

4 Variables and Empirical Model

This paper surveys the relations between the liquidity coverage ratio and stability with a focus on ownership. Financial data for the Iranian banks obtained from the Database of the Central Bank of Iran. This model estimates panel data for 25 banks (private and state-owned banks) in Iran's banking system. In our study, the data includes active banks in Iran's banking system over the period of 2005-2016.

The estimation method that is used is a dynamic system– GMM estimator due to the Arellano and Bond. In fact, because “equilibrium” may not be achieved in each time period, the lagged dependent variable is added to the regression.

Dynamic relations are modeled by the presence of interrupted dependent variables among explanatory variables. GLS estimator will be biased by an assumption of random effects for dynamic pooling data. Arellano and Bond proposed a process from a generalized method of moments in 1991 that was more efficient than previous estimators. Generalized Method of Moments for dynamic panel models that have been developed by Arellano and Bond, and Arellano and Boyer are used to estimate the model. Tools matrix is applied to eliminate the correlation of interrupted variables and explanatory variables. In this method, Arellano and Bond represent two-step GMM estimator.

The independent variable is banking stability in Iran's banking system. A static framework is used in the following econometric model:

$$z - \text{score}(i, t) = \alpha_1. z - \text{score}(i, t - 1) + \mu_1. \text{LCR}(i, t) + \beta_1 \text{ Deposit ratio}(i, t) + \dots + \gamma_1. \text{Inflation}(t) + \delta_1. \text{ROE}(i, t) + \theta_1. \text{Capital ratio}(i, t) + \eta_1. \text{size}(i, t) + \varepsilon(i, t) \quad (1)$$

This paper uses the Z-score as a tool for the assessment of banks insolvency risk and financial stability based on empirical literature. Z –score is the sum of E (ROA) and CAR and then this sum divided by σ (ROA). E (ROA) is the expected return on bank assets, CAR is equity capital to asset ratio and σ (ROA) is the volatility of return-on-assets, subscripts i and t refer to bank and time respectively. The studies such as Laeven & Levine, (2009); Schaeck and Cihak, (2012) use this ratio for measuring stability in banking system. Then, we used the log (z-score) as the dependent variable.

The main variable used in this model is the Liquidity Coverage Ratio. This ratio is defined as Basel III regulations. In the LCR ratio, The HQLA includes cash, high-quality securities, and government debt. One would expect that banks with more HQLA are more liquid, therefore, be able to easily equalize monetary policy shocks through selling their liquid assets. This ratio includes all estimated outflows minus the expected inflows of money during one month. The term outflows in the Basel Committee’s means stable as opposed to unsteady deposit financing and off-balance sheet activities. The Inflows compound different sources of revenues within the 30-days horizon. To examine the effect of bank ownership characteristics, we include OWN, a vector of dummy variables for state, private and privatized and specialist banks in Iran’s banking system. The structure of ownership has important effect on stability in banking system. Dummy variable equal to 1 if the banks are private banks (D1) and 0 otherwise. When multiplied by LCR, these variables reveal the differences among ownership structures in terms of their effect on stability. Then, there is the effect of four bank type (D1, D2, D3, D4) on stability. Stability is also influenced by ownership structure. Conflicts of interests between managers and shareholders are related to the role of ownership structures. (Fama & Jensen, 1983; Jensen, 1988). The type and ownership of banks could change the behavior of the bank that makes effort exerted by large shareholder to increase.

Deposit Ratio (i, t) indicates the ratio of deposits to total liabilities of bank i in the year t . This paper uses $X(i, t)$, variable that consists of capital ratio and return on asset and size of banks.

In this model, bank-specific variables are used such as the size of the banks. The size of banks significantly influence bank stability. In addition, Schwerter (2011) suggests that the ‘too big to fail’ phenomenon provides an incentive to

larger banks to engage in excessive risk-taking activities. We measure SIZEit as the natural logarithm of total assets.

Bank profitability has one of the most important effects on bank stability. Financial institutions with strong operational profitability are more stable. Based on King, 2013; Jiraporn et al., 2014; Hong, 2014 studies, we use the ratio of total equity as a measure of profitability.

If higher capital requirements are forced, competitive pressures will constrain banks resulting in competition for loans, deposits and even the sources of equity and debt investments. This competition will lead to higher costs of doing business, resulting in instability. Based on the above argument we anticipate positive (negative) coefficient of regulatory capital with the stability of banks. We employ the ratio of total regulatory capital to risk-weighted assets as a proxy for regulatory capital.

The economic outlook of a country can greatly impact the stability of its financial institutions. The empirical literature (St. Clair, 2004; Shu, 2002) has linked GDP growth with bank performance and stability. Borio and Lowe (2002) find that low and stable inflation promotes financial stability.

Descriptive statistics for the variables are displayed in Table (1).

Table 1
Summary Statistics

Variable	Mean	Median	Std. Deviation
Z score	1.25	1.27	0.359
Deposit ratio	52.55	53.97	13.73
Liquidity coverage ratio	66.78	31.16	164.45
Capital ratio	0.47	0.054	2.49
Size of bank	5.008	5.04	0.796
Return on Equity	1.25	0.66	1.97
Inflation	20.76	21.5	7.37

Source: Research Findings.

The average of z-score in the sample is around one percent. The share of deposit in total asset is 52 percent.

Before estimating the model, it is necessary to test unit root of all applied variables in estimations, because unit root variables create quasi-regression problem for both time series data and panel data. Therefore, Levin, Lin, and Chu test, Im, Pesaran, Shin W-stat test and Fisher test and Hadri stat are used to study common unit root of variables. Results are represented in a Table (2).

Table 2

Results of Common Unit Root Test Related to Variables

Variable	Levin, Lin, Chu t.	Im,Pesaran ,Shin W-stat	ADF Fisher square	– Chi	PP- Chi_square	Fisher Stat	Hadri Stat
Liquidity	-27.21	-5.3	76.58		66.7		5.104
coverage ratio	(0.000)	(0.000)	(0.0002)		(0.0027)		(0.000)
capital ratio	9.63	-0.332	65.779		152.114		50.13
	(0.000)	(0.037)	(0.066)		(0.000)		(0.000)
Size	-37.54	-2.53	88.05		116.92		12.48
	(0.000)	(0.0057)	(0.0007)		(0.000)		(0.000)
Roe	-14.64	-1.34	84.74		143.88		8.35
	(0.000)	(0.088)	(0.0016)		(0.000)		(0.000)
Deposit ratio	-17.85	-4.214	104.481		198.43		7.746
	(0.000)	(0.000)	(0.000)		(0.000)		(0.000)
z-score	-13.78	-1.2	57.49		40.55		7.39
	(0.000)	(0.0014)	(0.0008)		(0.000)		(0.000)
Inflation	-33.36	-1.54	90.6		53.73		51.85
	(0.000)	(0.063)	(0.0004)		(0.033)		(0.000)

Source: Research Findings.

One of the advantages and applications of pooled data is the better understanding of dynamics. Dynamic relations are modeled by the presence of interrupted dependent variables among explanatory variables. Arellano and Bond proposed a process from a Generalized Method of Moments in 1991 that was more efficient than previous estimators. Generalized Method of Moments for dynamic panel models that have been developed by Arellano and Bond, and Arellano and Boyer are used to estimate the above model. Tools matrix is applied to eliminate the correlation of interrupted variable and other explanatory variables. In this method, Arellano and Bond represented two-step GMM estimator. The validity of tools matrix in this estimation is examined by Sargan test. The null hypothesis indicates non-correlation of tools with disturbing elements. Amount of probability of Sargan test's statistic is calculated as shown in Table (3). The null hypothesis indicates that the non-correlation of tools with disturbing elements could not be rejected. Therefore, we conclude that the applied tools for estimation have validity.

Table (3) presents the results of estimating equation (1). For all banks in the Iran's banking system, the coefficient of the lag of z-score is significant .

Regarding the coefficient of lagged z score, the result shows a point estimate of near 0.5 (significant at the 1% level) which shows that the dynamic model is suitable in explaining a structure of z-score.

Table 3
Results of Estimation Effect of Liquidity Coverage Ratio on Stability
Banking

Independent Variable	Estimation1	Estimation2	Estimation3	Estimation4
Z score(-1)	0.5478 (21.75)	0.4742 (21.3)	0.5211 (20.19)	0.584 (14.4)
LCR	0.001186 (4.09)	0.001022 (7.07)	0.00189 (7.69)	0.001528 (2.47)
Deposit ratio	---	0.1219 (9.53)	0.0538 (6.59)	---
capital ratio	---	0.1918 (4.51)	0.1619 (5.78)	---
Roe	0.2605 (3.33)	0.484 (8.39)	0.538 (1.87)	0.242 (1.86)
Size	-0.0995 (-3.94)	---	---	0.013 (2.01)
Inflation	---	---	-0.0031 (-13.31)	-0.00353 (-2.93)
Size *LCR	---	---	---	-0.000368 (-2.51)
J-static: Sargan- Test (prob.)	25.5 (0.37)	23.62 (0.367)	21.67 (0.42)	25.6 (0.32)

Source: Research Findings.

The liquidity coverage ratio has a positive effect on stability. The liquidity coverage ratio depends on the treatment of retail and wholesale funding. We find that the liquidity coverage ratio has a significant impact on stability. The liquidity coverage ratio improves the ability of short terms liquidity requirements and decreases the liquidity risks in markets.

Deposit ratio and capital ratio are positive coefficients in the table, so the banks with high deposit ratio and capital ratio facing stability in markets.

Return on equity is positive and significant in this model. Then, the profitability has positive effect on liability structure and stability.

Bank size may affect capital structure through several channels. First, if there are economies of scale, large banks should hold relatively less capital. Second, large banks may have better investment and a variety of opportunities. Thus, they are subject to a lower probability of a large negative shock to their capital and need to hold a lower capital. And finally, the 'too-big-to-fail' hypothesis' suggests that larger banks in financial distress are more likely to be bailed out, because of potential systemic effects. Taking into account these considerations, we include size effect with an expected negative sign.

The size of bank affects wholesale funding as a bank capital structure. The trend which arises from all the previous studies is that the bank size is an important determinant of capital structure at least and it is inversely related to the capital level. Larger banks have complicated systems to use capital more efficiently and they are also able to access capital from financial markets at more favorable terms. According to the survey of Kleff and Weber (2008), the large banks maintain less capital ratio than small banks because they are able to cover their fund's requirements from external sources easily which affects stability.

The liquidity coverage ratio has a positive effect on stability. Banks with more liquidity asset would be more stable because they have more quality asset and liability .

Table 4

Results of Estimation Effect of Liquidity Coverage Ratio on Stability: Focus on Bank Ownership Structure

Independent Variable	Estimation5	Estimation6	Estimation7	Estimation8
Z score(-1)	0.546 (3.54)	0.5461 (3.17)	0.4837 (12.9)	0.462 (3.8)
capital ratio	0.0179 (4.24)	0.021 (14.15)	0.0223 (3.93)	0.2295 (19.67)
Roe	0.432 (4.92)	0.242 (3.666)	0.364 (3.26)	0.36 (9.63)
Inflation	-0.008 (-2.21)	-0.0016 (-5.56)	-0.00078 (-2.98)	-0.00332 (-4.39)
Dummy1*LCR	0.000516 (1.7633)	---	---	---
Dummy2*LCR	---	-0.00193 (-3.83)	---	---
Dummy3*LCR	---	---	-0.032 (-11.028)	---
Dummy4*LCR	---	---	---	0.0303 (5.53)
J-static: Sargan- Test (prob.)	23.29 (0.385)	21.43 (0.494)	23.005 (0.41)	21.83 (0.469)

Source: Research Findings.

We consider the dummy variable for ownership structure. In Iran's banking system, there are four group (private, state, privatized, specialized) of banks. The structure of ownership has the important effect on stability. Dummy

variable equals to 1 if the banks are private banks (D1) and 0 otherwise. When multiplied by LCR, these variables reveal the differences among ownership structures in terms of their effect on stability. Then, there is the effect of four bank structure (D1, D2, D3, D4) on stability.

Table 4 shows that the multiplied private bank Dummy (D1) and the liquidity coverage ratio has a positive effect on stability. Then the private banks in Iran with more liquidity coverage ratio have a direct effect on stability. State banks and specialized banks have a negative effect on stability and we find that the state banks and specialized banks are the riskiest in the banking system. These banks have more liquidity risk and less liquidity coverage ratio. The banks with banking regulations regarding based requirement can be less risky with respect to their z score and this effect is stronger for the money market. We find that there is a difference between state banks and specialized banks with private banks. The state and specialized banks have more liquidity risk than private banks in banking system of Iran.

5 Conclusion

Liquidity Coverage Ratio has an impact on the asset structure as well as the funding profile of the company. Liquidity Coverage Ratio predictions may develop a part of decisions by the Asset Liability Committee (ALCO) or Risk Committee (RICO).

Liquidity requirement should be applied to all internationally active banks to help achieve stability. The LCR standard and monitoring tools should be applied consistently wherever they are applied. The liquidity coverage ratio depends on the treatment of retail and wholesale funding. We find that the liquidity coverage ratio has a significant impact on stability. The liquidity coverage ratio improves the short terms liquidity requirements and decreases the liquidity risks in markets. We find that there is a difference between state banks and specialized banks with private banks. The state and specialized banks have more liquidity risk than private banks in banking system. Banks with a high liquidity coverage ratio can adjust their balance sheets and increase this ratio equal to 1 according to Basel III. Then high liquidity increases stability and we show that banks with more liquidity assets can be confronting a crisis.

Management and controlling of liquid assets is important in liquidity risk management framework. Banks may also face additional liquidity requirements from activities and businesses that create more instability. Lending activities also change their liquidity needs; banks may provide lines of credit to non-financial firms or to non-bank financial institutions that

require relatively quick funding of advances when drawn. And, banks with significant amounts of deposits from institutional clients such as other financial institutions need sufficient cash to meet the possibility of large and variable withdrawals. Meanwhile, banks that engage with retail clients may provide credit cards or home equity lines of credit that can be unpredictably tapped. Finally, the scale of the banks' activities affects their liquidity needs. For example, a given liquidity management strategy, such as one that involves assumptions about a bank's ability to liquidate a set of securities quickly, may not be practical on a substantially larger scale.

The liquidity coverage ratio is related to the capital, structure, and function of banks. Then, we should be encouraged to take steps to understand the implications of LCR requirements and their linkages to capital held to cover other risks. This ratio allows the bank to provide its liquidity, make capital and earnings targets and thus improve its balance sheet.

References

- Acharya, V. V., & Viswanathan, S. (2011). Leverage, Moral hazard, and Liquidity. *The Journal of Finance*, 66(1), 99-138.
- Admati, A. R., DeMarzo, P. M., Hellwig, M., & Pfleiderer, P. (2010). Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is not Expensive, 86, *Max Planck Inst. for Research on Collective Goods*.
- Allen, B., Chan, K. K., Milne, A., & Thomas, S. (2012). Basel III: Is the Cure worse than the Disease?. *International Review of Financial Analysis*, 25, 159-166.
- Arellano, M., & Bond, S. (1991). Some tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, 58(2), 277-297.
- Arellano, M., & Bover, O. (1995). Another Look at the Instrumental Variable Estimation of Error-components Models. *Journal of Econometrics*, 68(1), 29-51.
- Bank for International Settlements, (2010). Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring. *Bank for International Settlements*.
- Bank for International Settlements. 2010. "Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring." Available at: <http://www.bis.org/publ/bcbs69.pdf>.
- Berger, A. N., Miller, N. H., Petersen, M. A., Rajan, R. G., & Stein, J. C. (2005). Does function follow organizational form? Evidence from the Lending Practices of Large and Small Banks. *Journal of Financial Economics*, 76(2), 237-269.
- Borio, C. E., & Lowe, P. W. (2002). Asset prices, Financial and Monetary Stability: Exploring the Nexus.

- Caprio, G., & Peria, M. S. M. (2002). Avoiding Disaster: Policies to Reduce the Risk of Banking Crises. *Monetary Policy and Exchange Rate Regimes: Options for the Middle East*, 193-230.
- Carletti, E., Cerasi, V., & Daltung, S. (2007). Multiple-bank Lending: Diversification and Free-riding in Monitoring. *Journal of Financial Intermediation*, 16(3), 425-451.
- Chalermchatvichien, P., Jumreornvong, S., & Jiraporn, P. (2014). Basel III, Capital Stability, Risk-taking, Ownership: Evidence from Asia. *Journal of Multinational Financial Management*, 28, 28-46.
- Cornett, M. M., Guo, L., Khaksari, S., & Tehranian, H. (2010). The impact of State Ownership on Performance Differences in Privately-owned Versus State-owned Banks: An International Comparison. *Journal of Financial Intermediation*, 19(1), 74-94.
- Demiroglu, C., & James, C. (2011). The Use of Bank Lines of Credit in Corporate Liquidity Management: A Review of Empirical Evidence. *Journal of Banking & Finance*, 35(4), 775-782.
- Demsetz, H., & Villalonga, B. (2001). Ownership Structure and Corporate Performance. *Journal of Corporate Finance*, 7(3), 209-233.
- Diamond, D. W., & Dybvig, P. H. (1983). Bank Runs, Deposit Insurance, and Liquidity. *Journal of Political Economy*, 91(3), 401-419.
- Diamond, D. W., & Rajan, R. G. (2005). Liquidity Shortages and Banking Crises. *The Journal of Finance*, 60(2), 615-647.
- Dinç, I. S. (2005). Politicians and Banks: Political Influences on Government-owned Banks in Emerging Markets. *Journal of Financial Economics*, 77(2), 453-479.
- Elliott, D. J. (2014). Bank liquidity Requirements: An Introduction and Overview. *The Brookings Institution*.
- Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *The Journal of Law and Economics*, 26(2), 301-325.
- Hartlage, A. W. (2012). The Basel III Liquidity Coverage Ratio and Financial Stability. *Mich. L. Rev.*, 111, 453.
- Hong, H., Huang, J. Z., & Wu, D. (2014). The Information Content of Basel III Liquidity Risk Measures. *Journal of Financial Stability*, 15, 91-111.
- Jensen, M. C. (1988). Takeovers: Their Causes and Consequences. *Journal of Economic Perspectives*, 2(1), 21-48.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305-360.
- Jiraporn, P., Jiraporn, N., Boeprasert, A., & Chang, K. (2014). Does Corporate Social Responsibility (CSR) Improve Credit Ratings? Evidence from Geographic Identification. *Financial Management*, 43(3), 505-531.
- King, M. R. (2013). The Basel III Net Stable Funding Ratio and Bank Net Interest Margins. *Journal of Banking and Finance*, 37(11), 4144-4156.

- Kleff, V., & Weber, M. (2008). How do Banks Determine Capital? Evidence from Germany. *German Economic Review*, 9(3), 354-372.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2002). Investor Protection and Corporate Valuation. *The Journal of Finance*, 57(3), 1147-1170.
- Laeven, L., & Levine, R. (2009). Bank Governance, Regulation and Risk Taking. *Journal of Financial Economics*, 93(2), 259-275.
- Lehmann, E., & Weigand, J. (2000). Does the Governed Corporation Perform Better? Governance Structures and Corporate Performance in Germany. *Review of Finance*, 4(2), 157-195.
- Levine, R., & Barth, J. (2001). *Bank Regulation and Supervision: What Works Best?* The World Bank.
- Lin, X., & Zhang, Y. (2009). Bank Ownership Reform and Bank Performance in China. *Journal of Banking & Finance*, 33(1), 20-29.
- Micco, A., Panizza, U., & Yanez, M. (2007). Bank Ownership and Performance. Does Politics Matter?. *Journal of Banking & Finance*, 31(1), 219-241.
- Ratnovski, L. (2013). Liquidity and Transparency in Bank Risk Management. *Journal of Financial Intermediation*, 22(3), 422-439.
- Schaeck, K., & Cihak, M. (2012). Banking Competition and Capital Ratios. *European Financial Management*, 18(5), 836-866.
- Schooner, H. M., & Taylor, M. W. (2010). The New Capital Adequacy Framework: Basel II and Credit Risk. *Global Bank Regulation*, 147-164.
- Schwerter, S. (2011). Basel III's Ability to Mitigate Systemic Risk. *Journal of financial Regulation and Compliance*, 19(4), 337-354.
- Tabák, A. G., Herder, C., Rathmann, W., Brunner, E. J., & Kivimäki, M. (2012). Prediabetes: a High-risk State for Diabetes Development. *The Lancet*, 379(9833), 2279-2290.
- Wagner, G. G., Frick, J. R., & Schupp, J. (2007). The German Socio-Economic Panel Study (SOEP)-Evolution, Scope and Enhancements.
- Welch, E. (2003). The Relationship between Ownership Structure and Performance in Listed Australian Companies. *Australian Journal of Management*, 28(3), 287-305.
- Yan, M., Hall, M. J., & Turner, P. (2012). A Cost-benefit Analysis of Basel III: Some Evidence from the UK. *International Review of Financial Analysis*, 25, 73-82.