Impact of Bank Competition on Bank Liquidity Creation: Empirical Evidence from GCC and ASEAN Region

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Abstract

This study evaluates the effect of bank competition on liquidity creation by banks. The aim of this study is to examine, what are the major determinants of bank liquidity creation and how bank competition impacts bank’s liquidity creation. The contextual setting of the study is provided by GCC AND ASEAN countries. This study uses GMM estimation on international banking data across 16 countries from GCC and ASEAN region. The panel data of 733 banks was accessed through Orbis bank database for the year 2011-2016. Findings suggest that enhanced competition reduces liquidity creation, a finding observed under different specifications, including alternative measures of liquidity creation. We explain this finding in terms of the impact of increased bank competition on the financial fragility of banks, which leads banks to reduce their lending and deposit activities. The evidence suggests that pro-competitive policies in the banking industry can reduce liquidity provision by banks. This study evaluates the effect of bank competition on liquidity creation by banks. Thus, it contributes to the literature on both bank competition and the determinants of liquidity creation by banks. The findings of the study validate the prophecy of competition fragility theory in the context of GCC and ASEAN region.

Keywords: Bank Competition, Liquidity Creation, GCC & ASEAN
Introduction

1.1. Background of the Study

The pace of globalization has stimulated the banking activities and postulates a debate about the role of competition in the banking industry. The economic competition theory also advocates that competition leads to the mean deviation of market profitability (Fiordelisi & Mare, 2014). Likewise, it is a hoary notion in banking industry that increased competition results into socially adverse outcomes in the form of bank’s insolvency panics and financial fragility. Therefore, in order to smooth functioning of financial and banking industry, competition should be reserved. This proposition provides the basis of the reforms and regulation of banking activities around the globe.

Previous studies have examined the influence of bank competition on financial stability, economic growth, risk taking behavior, leverage and on access to credit (Claessens & Ueda, 2015; Fu, Lin, & Molyneux, 2014; Jiang, Levine, & Lin, 2017; F. Jiang, Jiang, Huang, Kim, & Nofsinger, 2017). The paradox of bank competition remains exceptional due to its prudent impact on various banking activities. Beside risk transformation, the main function or activity of banks is to stream liquidity to the economy (Díaz & Huang, 2017). Banks generate liquidity by financing relatively illiquid assets with relatively liquid liabilities (i.e., using short term deposits to finance long term illiquid lending).

There are limited evidences regarding the impact of competition on bank liquidity creation. Liquidity creation by banks is significant to finance economic activity and expedite transactions among economic agents. The bank liquidity creation function has been ignored in the empirical literature, in contrast to their role in risk transformation (Leroy & Lucotte, 2017). However, an empirical study by Berger and Bouwman (2009), device an approach to measure bank liquidity creation. This empirical investigation set forth the burgeoning strand of literature based to the measurement, process, and outcomes of bank liquidity creation.

Predominantly, there are two contradictory arguments can be advocated regarding the effect of competition on bank liquidity creation. The first is based on the rationale about deterrent effect of competition on increased fragility of banks and reduced profitability. Due to competition banks reduce liquidity creation by reducing volume of bank deposits and volume of loans.
granted to reduce the propensity of bank runs (Farag & Mallin, 2017). Accordingly, with the notion of “fragility channel,” competition effects the banks liquidity creation. The fragility channel view was advocated by Petersen and Rajan (1995), that increase level of competition reduce credit supply by limiting the banks’ ability to grant credit.

The second argument holds the view that increased competition impact the bank pricing policies, proceeding to lower loan rates and higher deposit rates. Therefore, demand for both deposit and loans increase which is exceptional to higher bank spread. The links between bank competition and lower lending rates have been empirically supported by previous archival studies (Carbó-Valverde, Rodriguez-Fernandez, & Udell, 2009). The increased bank competition expedites demand for loans by mitigating financing hurdles (Love & Pería, 2015). The argument that competition increase the financing hurdles is supported by Cetorelli and Strahan (2006), while Cetorelli and Strahan (2006), postulate that competition is correlated with higher collateral requirements. The price channel view also hold the view that bank competition positively impact bank liquidity creation.

The previous archival research contains limited evidence about the possible impact of competition on bank liquidity creation. Moreover, the price channel and economic competition theory holds contradictory views regarding competition. Therefore, determining the impact of competition on bank liquidity creation is exceptional to fill the existing literate gap. Bank liquidity creation has dual impact on bank performance as well as macroeconomic indicator of the economy (Bassett, Chosak, Driscoll, & Zakrajšek, 2014). Extending this notion the main concern of the present study is to:

1.2: Problem Statement:

The main concern of the study is to determine the impact of bank competition on bank liquidity creation in the context of GCC and ASEAN countries.

1.3: Research Questions:

1. What are the major determinants of bank liquidity creation?
2. To what extent the bank competition impact bank liquidity creation?
On the basis of substantive literature review, research questions, and problem statement, the study aim to achieve the following objectives:

1.3: Objective of the Study

The aim of this study is to examine, what are the major determinants of bank liquidity creation and how bank competition impacts bank’s liquidity creation. The contextual setting of the study is provided by GCC AND ASEAN countries.

1.4: Significance of the Study

The study remains robust due to the fact that it shed light on the ongoing debate of bank competition and its economic effects. The findings of the study will fill the existing literature gap, to determine the impact of bank competition on liquidity creation. Bank competition may have negative economic effects through its impact on bank fragility. Also there is a trade-off effect of competition on bank consumers, stemming from lending rates and collateral requirements. Therefore, the current study also send message to policy makers, to effectively manage the liquidity creation function during the low and high pace of competition.

2. Literature Review

Antedated studies offer divergent perspectives about the effect of competition on bank liquidity creation. One stream of research proclaims that competition leads to mitigate bank liquidity creation by decreasing the risk captivation of banks. The perspective is based on two building blocks. First, by decreasing profit margins and diminishing loan loss provision Berger, Klapper, and Turk-Ariss (2009) address that competition can prompt banks to decrease risk taking initiatives (Ashraf, 2017; Boyd & De Nicolo, 2005; Sarkar, Sarkar, Sensarma, & Sensarma, 2016). Second, bank liquidity creation remains risky, i.e. when banks dispose off illiquid assets to fulfill the demands of liquid liabilities (Allen & Gale, 2004; Allen & Santomero, 1997). Therefore, competition leads banks to lower their level of risk by reducing liquidity creation.

A second stream of research holds the view that competition decrease liquidity creation by hindering lending relationship. Extending this notion, competition can facilitate customer to switch banks and makes difficult for banks to recoup the costs of building long run relationships with customers (Degryse & Ongen, 2005; Lucotte & Leroy, 2017; Petersen & Rajan, 1995;
Sääskilahti, 2016). Moreover, previous studies disclose that long term customer-bank relationship enable banks to acquire information about liqutation value of customer assets (White & Yorulmazer, 2014). Therefore, relationship lenders create liquidity creation more effectively than other lenders. The diluted lending relationship due to competition can impede bank liquidity creation (Campello & Gao, 2017).

Alternatively, the financial intermediation theory also proposes that bank competition increase liquidity creation. First, the argument is based on the notion that competition leads to improved efficiency and financial innovation (Cummins, Rubio-Misas, & Vencappa, 2017). Both, financial innovation and improved efficiency remain exceptional for improved bank liquidity creation. Second, the increased level of competition inclines toward more transparency and spurs bank’s management to devote more attention to credit allocation (Bashir, Yu, Hussain, Wang, & Ali, 2017), Therefore, in turn more effective credit allocation incites bank lending and more bank liquidity creation. Likewise, the increased level of bank competition also affects bank’s pricing policies. Specifically, competition tends to raise deposit rates and diminish lending rates. As a result demand for deposits and loans rises. Studies expounded in previous literature provide support for correlation between competition and lower lending rates (Leroy & Lucotte, 2017; Petersen & Rajan, 1995; Sääskilahti, 2016).

The increased level of competition also stimulates demand for loans by easing financing obstacles. Beck, Maksimovic, and Demirgüç-Kunt (2003), supported this argument by disclosing that increased bank competition relax financing obstacles and reduce the lending rate, while Beck, Demirgüç-Kunt, and Maksimovic (2004) proclaim that bank concentration raise collateral requirement and impede credit allocation. Similarly the study of Jiang et al. (2017) disclose that intensification of banking completion leads to reduced liquidity creation. The regulatory induced competition leads to impede bank’s capacity to finance illiquid asset with liquid liabilities. According to Horvath, Seidler, and Weill (2016), bank competition obstruct liquidity creation because intensified competition leads banks to shrink lending and deposit activates. The study assessed bank competition by formulating Lerner Index, a regulatory indicator that reflects the contestability of the banking sector.

Past studies identified various methods to scale competition however, predominantly there are two approaches. First, the bank concentration measure under so called structure conduct
performance paradigm and the contestability or market power measure based on new empirical industrial organization literature (Fu et al., 2014). The first approach is based on the decomposition of interest spread to measure competition, however spreads is an outcome variable of bank efficiency and variance in bank interest spread is also subject to macro performance (Beck et al., 2004). Also the bank specific variable affects the bank interest spread therefore, these effects need to be controlled for bank competition measure. The concentration measure is also widely known as Herfindahl-Hirschman Index (HHI) (Beck et al., 2003). However, HHI is generally not good predictors of bank competition due to low predictive accuracy and prophecy of market contestability.

The market contestability paradox is based on markups of banks to operationalize the competition. The widely used bank competition measure also term as Lerner index, operationalize through differences between output prices and marginal costs. A number of recent studies expounded in literature adopted Lerner index approach to measure the competition (Horvath et al., 2016; Huang, Liu, & Kumbhakar, 2017). Moreover, another most recent measure of bank competition is known as Boone indicator, a measure to determine the effect of efficiency on bank profit. The measure calculates the elasticity of profits to marginal cost (Bernini & Montagnoli, 2017; Boone, 2008).

The modern theory of financial intermediation advocates that banks remains central to create liquidity and transform risk. Banks create liquidity by using liquid liabilities to fund illiquid assets, which concurrently satisfies the demand for liquidity by creditors and debtors (Berger & Bouwman, 2007). The most comprehensive measures of liquidity creation was initially founded by Berger and Bouwman (2009), which incorporate balance sheet items and off balance sheet activities. Beside this, liquidity coverage ratio a perquisite of Basel Accords which signifies the level of liquid asset to be held by financial institutions. However, the liquidity coverage ratio is a regulatory measure which encompasses certain limitations. The measure does not take into account the bank specific variable and balance sheet activities. Most of the recent studies employed Berger and Bouwman (2009) liquidity creation model to operationalize the construct of liquidity creation (Bernini & Montagnoli, 2017; Huang et al., 2017; L. Jiang, Levine, & Lin, 2016; Lucotte & Leroy, 2017; Umar, Sun, & Majeed, 2017). The bank liquidity creation model remains exceptional due to its vigor and inclusiveness.
Based on substantive review, it’s evident that past studies proclaim divergent perspectives regarding the possible impact of competition on bank liquidity creation. The studies expounded in literature simultaneously report the positive and negative effects of competition on bank liquidity creation (Horvath et al., 2016; L. Jiang et al., 2016; Lucotte & Leroy, 2017). Additionally, findings of the archival studies are subject to diverge across contextual settings. There are limited empirical evidences in cross country setting to reflect that how magnification and concentration of competition effect banks specific actives (Horvath et al., 2016). Therefore, in the view of aforementioned literature, the subject of the study is to determine the effect of competition on bank liquidity creation in the context of European Union countries. Moreover, the secondary objective is also to determine the determinants of bank liquidity creation among European Union banking industry. The study aims to provide a comparative analysis among EU countries which will insight the phenomenon of bank competition and liquidity creation.

3. Methodology

3.1. Data

The study use annual data, from the GCC and ASEAN region for all banks (733) operating during the period 2011-2016. The data has been collected from Orbis bank database. The study does not incorporate foreign banks branches, only national banks of respective region countries have been included. Branches of foreign banks represent only about 10% of total assets of the GCC and ASEAN industry. The study contains a total observation of 4398. In line with previous studies (Bernini & Montagnoli, 2017; Fu et al., 2014), the study adopt cluster random sampling technique to collect the data.

3.2: Lerner Indices

Previous studies expounded in literature used various tools to measure bank competition however, these measures can be divided into the traditional IO and new IO approaches. The traditional IO approach evaluates bank competition based on the structure conduct performance model. Usually the HHI-index has been developed to assess bank competition. However, HHI-index measure only bank concentration not the individual level bank competition. Moreover, it is the partial measure of bank concentration. Therefore, HHI-Index does not provide completed representation of competition. The structure conduct performance hypothesis state that increased
concentration causes less competitive behavior among banks leads to higher bank profitability and vice versa. Competition can then be measured by concentration indices or Herfindahl-Hirschman index. The index used to assess the market share of the largest banks and gain the estimation of banking sector competition. The new empirical IO approach provides non-structural tests to combat the issues associated with the competition. Therefore, in line with this approach, the study compute the Lerner index, an individual measure of competition for each bank and each period, commonly adopted by various recent studies of bank completion (Fu et al., 2014; Horvath et al., 2016; Jiang et al., 2017). The Lerner index is defined as the difference between price and marginal cost, divided by total price. The index measures the market power of a bank to set a price greater than marginal cost. Price is measured as the total assets while the marginal cost is estimated using a translog cost function with one output (total assets) and three input prices (price of labor, price of physical capital and price of borrowed fund. The cost function is as under:

\[ TC = \hat{\partial}_0 + \hat{\partial}_1 \ln x + \frac{1}{2} \hat{\partial}_2 (\ln x)^2 + \sum_{j=1}^{3} \beta_{jk} \ln q_j + \sum_{j=1}^{3} \sum_{k=1}^{3} \beta_{jk} \ln q_j \ln q_k + \sum_{j=1}^{3} \gamma_j \ln x \ln q + \varepsilon \]

Where the TC represents total cost, t is total assets, w is the price of labor (the ratio of staff expenses to the number of employees), q is the price of physical capital (the ratio of general and administrative expenses, other operating expenses, and depreciation divided by fixed assets), and q is the price of borrowed funds (the ratio of the cost of borrowed funds to borrowed funds). X represents the total asset of respective banks. Therefore, the total cost is summation of general and administrative expenses, staff expenses, depreciation, operating expenses, and costs of borrowed funds. The estimated coefficients of the cost function are used to calculate the marginal cost:

\[ MC = \frac{TC}{x} \left( \hat{\partial}_1 + \hat{\partial}_2 \ln x + \sum_{j=1}^{3} \gamma_j \ln q_j \right) \]

Once the above equation is estimated, Lerner index for each bank and each time period is calculated, thus obtaining the direct measure of bank competition used in the estimation.
3.3. Liquidity Creation Measures

The study follow Berger et al. (2009) method in categorizing balance sheet items as liquid, semi-liquid, or illiquid. After classifying balance sheet items, weights are assigned to each category according to Berger et al. (2009) four measures of liquidity creation and calculate the measures by summing all weighed items. Their specifications classify all items, except loans, by combing information on both product maturity and category, while loans are classified based purely on category or maturity (“cat” or “mat”). Moreover off-balance sheet items are either included or excluded (fat or nonfat measures). For our purpose of analysis we label liquidity creation measure into broad and narrow measure respectively. The broad measure of liquidity creation is most preferred measure because it contains off-balance sheet items that are also a major source of liquidity.

3.4. Relationship between Lerner index and liquidity creation

To examine the statistical relationship between competition and bank liquidity creation, study estimates the following econometric equation:

\[ LC = f(Lerner_i, Liquiditycreation_i, Z_{i,t}) + \epsilon_{i,t} \]

Where Z represents control variable, the subscript “i” represent bank I , t denotes the time dimension and € represent error term. Liquidity creation is the ratio of liquidity creation to assets. The study employ GMM estimators, so that the potential issue of endogeneity following (Arellano & Bover, 1995).

3.5. Variable Specification

The study incorporate several control variable, where the selection of these variables is based on (Berger & Bouwman, 2009; Horvath et al., 2016), who measure liquidity creation by US banks and Czech banks, respectively.
A first group of control variables consist of bank-level variables. Explicitly, study contain different dimensions of risk into account using three variables: Credit Risk, operationalize as the ratio of risk weighted assets and off balance sheet activities, divided by assets; Z-score, measured by the return on assets plus the ratio of equity to total assets; and NPL, defined as nonperforming loans to total loans. Capital is defined as the ratio of equity to total asset. The study do not include size of the bank or market share as control variables, as it is known that they are obviously strongly related to study proxy variable for competition and liquidity creation.

A second group of control variables consists of macroeconomic variables. Specifically the study incorporates GDP, inflation (the year on year change in consumer prices) and unemployment rate. Data from these variables accessed from Bankscope.

4 Results:

Table 1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std.dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lerner</td>
<td>4398</td>
<td>-1.014869</td>
<td>35.45944</td>
<td>-934.103</td>
<td>1091.055</td>
</tr>
<tr>
<td>Catnonfat</td>
<td>4398</td>
<td>-1791452</td>
<td>6383914</td>
<td>1.28E+08</td>
<td>515879.5</td>
</tr>
<tr>
<td>Zscore</td>
<td>4398</td>
<td>2.51986</td>
<td>252.2987</td>
<td>-10565.8</td>
<td>19610.41</td>
</tr>
<tr>
<td>Crisk</td>
<td>4398</td>
<td>0.1174177</td>
<td>0.488398</td>
<td>-3.34</td>
<td>17.83785</td>
</tr>
<tr>
<td>NPL</td>
<td>4398</td>
<td>0.0063844</td>
<td>0.3084727</td>
<td>-5.7914</td>
<td>48.42857</td>
</tr>
<tr>
<td>Capital</td>
<td>4398</td>
<td>2.203695</td>
<td>9.8363</td>
<td>-19.86</td>
<td>99.79</td>
</tr>
<tr>
<td>Tasset</td>
<td>4398</td>
<td>7516332</td>
<td>3.22E+07</td>
<td>0</td>
<td>7.46E+08</td>
</tr>
<tr>
<td>Mcost</td>
<td>4398</td>
<td>0.0299065</td>
<td>0.0661785</td>
<td>0</td>
<td>0.740401</td>
</tr>
<tr>
<td>Totcost</td>
<td>4398</td>
<td>224125.3</td>
<td>710695.1</td>
<td>0</td>
<td>8301916</td>
</tr>
<tr>
<td>Operatorrevenu</td>
<td>4398</td>
<td>239739.7</td>
<td>790694</td>
<td>3751377</td>
<td>1.33E+07</td>
</tr>
<tr>
<td>Topexpenst</td>
<td>4398</td>
<td>112062.7</td>
<td>355347.5</td>
<td>0</td>
<td>4150958</td>
</tr>
<tr>
<td>Returnonav~t</td>
<td>4398</td>
<td>0.7346749</td>
<td>2.374673</td>
<td>-40.16</td>
<td>33.58</td>
</tr>
<tr>
<td>Inflation</td>
<td>4398</td>
<td>3.63892</td>
<td>1.41641</td>
<td>-0.9</td>
<td>10.8</td>
</tr>
<tr>
<td>Gdp</td>
<td>4398</td>
<td>3.83169</td>
<td>1.452016</td>
<td>-2.35</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 1 shows the descriptive statistics of the variables under study like Lerner index, catnonfat, Z-score, credit risk, non-performing loans, credit risk, capital, total assets, marginal cost,
operating revenue and macro-economic variables taken as control variables i-e GDP, inflation and unemployment rate. The total number of observations is 4398 with lerner index and catnonfat means values -1.014 and -1791 respectively. The values ranging from minimum -934.1 and 1.28 to the maximum values 1091.05 and 51558 respectively for lerner index and catnonfat. Z-score having mean value 2.5198 and -10565.8 the minimum range and 19610.41 maximum range. Credit risk has the mean value of 0.1174 while the minimum value -3.34 and maximum value 17.83. NPL has mean value 0.0063 and minimum to maximum range -5.7914 and 48.42857 respectively. Capital has mean value 2.2036 with a minimum value -19.86 and maximum 99.79. Total assets have mean value 7516332 with minimum value 0 and maximum 7.46E+08. The mean values of marginal coast, total cost and operating revenue are 0.0299, 224125.3 and 239739.7 respectively while the minimum values ranges from 0, 0 and 3751377 to 0.740401, 8301916 and 1.33E+07 respectively. The descriptive statistics of control variables i-e GDP and inflation shows the mean value of 3.63892 and 3.83169 respectively and the minimum to maximum values ranges from -0.9 and -2.35 to 10.8 and 9 respectively.

Table 2: Correlation
The study use two step system GMM estimator with Windmeijer’s (2005) corrected standard errors (reported in brackets, and without brackets indicate that p is less than 0.01, 0.05, and 0.1, respectively. Beside this the Sargan test is performed to validate that instruments used are not correlated with the residuals, and hence the over identifying restricts are valid.

Table 3: Main estimations
<table>
<thead>
<tr>
<th></th>
<th>Liquidity creation broad measure</th>
<th>Liquidity creation narrow measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lqcreation1</td>
<td>1.26</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>(0.62)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Lqcreation2</td>
<td>-0.001</td>
<td>1.07</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Lerner1</td>
<td>1.06</td>
<td>1.05</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Lerner2</td>
<td>-0.0002</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>(0.0001)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Mcost</td>
<td>0.04</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.41)</td>
</tr>
<tr>
<td>Zscore</td>
<td>0.001</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>(-0.0002)</td>
<td>(0.0103)</td>
</tr>
<tr>
<td>Crisk</td>
<td>0.04</td>
<td>1.27</td>
</tr>
<tr>
<td></td>
<td>(-0.0014)</td>
<td>(0.0046)</td>
</tr>
<tr>
<td>NPL</td>
<td>-0.54</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(-0.001)</td>
</tr>
<tr>
<td>Capital</td>
<td>1.09</td>
<td>1.36</td>
</tr>
<tr>
<td></td>
<td>(0.0331)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Obs</td>
<td>4398</td>
<td>4398</td>
</tr>
<tr>
<td>Sargan test</td>
<td>12.17</td>
<td>8.98</td>
</tr>
</tbody>
</table>

The estimations result of both broad and narrow measures of liquidity creation are reported in tale 3. As noted in table the broad measure of liquidity creation is our preferred one, as it is the most detail measure of bank liquidity creation because it also incorporates off balance sheet items. The major finding is the positive and significant coefficient for the Lerner index. The estimations result obtain with both sets of control variables and both measures of liquidity creation. Study thus observes that greater market power enhances liquidity creation. As a
consequence, our estimations clearly support the prediction that bank competition reduces liquidity creation.

This result accords with the hypothesis that competition undermines liquidity creation by increasing the fragility of banks. In particular, increased competition diminishes profits and thus weakens banks' protections against negative shocks. Given reduced profitability, banks have lower incentives to create liquidity, as a higher volume of loans increases potential loan losses and a higher volume of deposits increases sensitivity to bank runs. Thus, we provide evidence that increased bank competition can have detrimental economic effects by reducing liquidity creation of banks. This broadly corresponds to the findings by Berger et al. (2009) and (Horvath et al., 2016). Their results indicate that greater bank competition is detrimental for financial stability. However, the study of Horvath et al. (2016), used the contextual setting of Czech countries. The underlying study provide evidence about cross region i.e. GCC and Asean countries.

The results of the study can also be compared with those from Berger and Bouwman (2009). Namely this study does not focus on the same issue than ours, but includes a measure of concentration, the Herfindahl Hirschman index, as a control variable when considering the link between capital and liquidity creation for US banks. Overall they find no significant relationship. So this finding differs from ours, but it can be related to the fact that the Herfindahl-Hirschman index does not exactly measure competition. Therefore, current study fills this gape by employing Lerner index to operationalize the bank competition.

One of the major objective of this study was also to determine that either the impact of bank competition on liquidity creation comes from on-balance-sheet items, or if it also goes through off-balance-sheet items. Indeed the liquidity destruction effect of bank competition is observed with the broad measure (accounting for all items) and with the narrow measure (excluding off-balance-sheet items) of liquidity creation. To examine this issue, study use estimations by measuring liquidity creation only for off-balance-sheet items. The results displayed in the two last columns in Table 3 show also a significantly positive impact of the Lerner index. In other words, bank competition also contributes to deteriorate liquidity creation taking place off-balance-sheet. Hence the liquidity destruction impact of bank competition is driven by items on- and off-balance-sheet.
Regarding the control variables, we observe that Credit Risk and Z-score, with negative and positive coefficients, respectively, are the only bank-level variables that are significant in both estimations. These findings accord with the view that reduced risk enhances liquidity creation.

The study use robustness test to validate the results by employing lag periods to make sure that error term are not correlated. The test of endogenity being determines the endogenous variable in the model. Furthermore, Sargan test being used to determine the validity of instrumental variables.

**Conclusion**

This study examines the relationship between bank competition and liquidity creation by banks. Findings of the study suggest that increased bank competition reduces liquidity creation. The result can be interpreted in terms of the effect of competition in increasing bank fragility, which reduces banks' incentives to create liquidity. The paper results, which shed light on the debate over the economic effects of bank competition, send an important message to policymakers: bank competition can have detrimental economic effects through its impact on liquidity creation. In other words, there is a trade-off between the positive effects of competition on consumer welfare, stemming from lower margins, and the negative effects of competition on liquidity creation. Furthermore, the study confirms the traditional view or competition fragility theory that increased competition leads to negative deviation of bank performance.

In addition to this trade-off, the message that bank competition should be limited to promote liquidity creation must take into account the impact of bank competition on financial stability, which has been shown to be rather detrimental (Berger et al., 2009; Beck et al., 2013; Fungacova and Weill, 2013). The analysis of the impact of bank competition on financial stability has moreover shown the potential nonlinearities of the effects of bank competition, which prevents to give a general message on fostering or limiting bank competition. The findings of study can be generalized with due care because it only provide the combine region countries analysis, and does not consider the individual country specific variable. The country specific variable may have a potential mediating role to affect the relationship between competition and liquidity creation.
The dominant share of foreign ownership can favor the influence of foreign characteristics on the behavior of banks (e.g. Sturm and Williams, 2008). As such we can expect that countries with lower market share of foreign-owned banks could have banks more influenced by domestic characteristics. Consequently the impact of bank competition could be more detrimental in countries with lower presence of foreign investors in banks. The study due to data unavailability does not consider the effect of financial crises as an interactive variable to effect the relationship between exogenous and endogenous variable. Further research in other regions and other periods will deepen the understanding of this important issue.

References


