FACTORS AFFECTING THE STABILITY OF COMMERCIAL BANKS IN VIETNAM

Tram Thi Xuan Huong*, Nguyen Tu Nhu

School of Banking - The University of Economics Ho Chi Minh City

ABSTRACT

This paper investigates impact of factors on bank stability through regression method with data of 25 commercial banks in Vietnam covering the period from 2006 to 2016. Its results show that the Z-Score, operating expenses and macroeconomic factors: gross domestic product, inflation (GDP, INF) are beneficial to bank stability. There are also factors that affect the stability of banks such as scale of assets, liquid assets, credit balance in the opposite way. At the end of our analysis, we provide useful suggestions for managers and policymakers to improve the stability of the Vietnamese commercial banking system in the next time.

Keyword: Z-Score, banks, efficiency of banking business, bank stability.

1. INTRODUCTION

The banking system is the transmission channel and tool which helps the central banks to implement the objectives of monetary policy in countries. The instability of the banking system will affect the economy. Otherwise, stability in the banking sector is an important condition to ensure the stability of the economy and financial system. The financial crisis in the period 2007-2008 is a warning bell for countries to pay attention to stability in banks. They must determine the causes and factors affecting to not only financial stability but also banks’ stability.

The banking system in Vietnam has changed positively in recent years, especially improvements in governance and technology that help to adapt in terms of competition. However, the limitations are still revealed such as the increase in bad debts, the liquidity risk and the weak management ability. They show that Vietnam's
commercial banks are not really developed and stable. So finding factors affecting the stability of the banking system in Vietnam in recent years is the necessary requirements. The goal of this study is answering questions and suggesting policy implications for bank executives.

2. LITERATURE REVIEW

Banking stability is the financial stability in banking operations. In the study of factors reflecting the stability of the banking system, Nadya Jahn and Thomas Kick (2011) mentioned the concept of financial stability as follows: "Financial stability of the banking system is a steady state in which the banking system performs its functions effectively including resource allocation, risk dispersion and income distribution" According to Pierre Monnin and Terhi Jokipiia (2010) when studying the impact of banking stability on the economies of 18 OECD countries, the definition of banking stability is: Financial instability is a probability in which the banking sector is unable to pay its debts in the next quarter. Therefore, this lower probability corresponds to increasing stability. Specifically, if the market value of the assets in all banks is less than the total liabilities, that is, the bank declines or is even unable to pay its debt, which means the bank is unstable.

Another study by Miguel A. Segoviano and Charles Goohart (2009) on the method of measuring banking stability, two authors defined the probability of bank exhaustion was the content assessing the bank's stability. They considered changes in the banking system over the economic cycle, thus putting each bank in each specific period, from which they calculated and indicated exhaustion probability of each bank. It meant the bank’s stability was higher.

Thus, banking stability is the effective operation of the bank. It is able to cope well with internal and external impacts all time, especially with the shocks of the economy to maintain the solvency for its due debts and operate normally.

To measure the financial stability of the banking system, most of the methods came from measuring the stability of the financial system of businesses in the 1930s. First, it was the ratio analysis method. Then it was the univariate analysis method and finally, in 1968, the analysis method combined the indicators proposed by economist Edward I. Altman. His method was used to predict the probability of business bankruptcy. Inheriting Z-Score of Edward I. Altman, Céline Meslier - Crouzille, Ruth C. Tacneng and Amine Tarazi (2007) proposed the Z-Score estimation equation with the following factors:

$$Z\text{-score} = \frac{\text{ROA} + \text{E}/\text{TA}}{\sigma \text{ROA}}$$

With:

ROA is the ratio of net profit to total assets;
E/TA is the ratio of equity to total assets of the bank;
$\sigma \text{ROA}$ is the standard deviation of net profit over total assets.
The Z-score reflects the increasing bank’s stability as the profitability and capitalization level increases, and the decrease in income instability reflecting the standard deviation of the ROA. Thus, the Z-score measures the likelihood of a bank defaulting when the value of its assets drops below the value of its debts.

Regarding the factors affecting bank stability, there were many empirical studies done by economists to focus on the following elements.

**Bank size**

This is one of the factors that greatly affects the stability of the bank. Studies in the world showed a two-way correlation of these two factors. The positive correlation indicates that large banks will have the advantage of market share, the ability to dominate the market and generate higher revenues. It resulted that the stability of these banks is also higher (Martin Cihák & Heiko Hesse, 2008; Luc Laeven, Lev Ratnovski & Hui Tong, 2014; Boyd et al., 2004). Other studies, meanwhile, had found that large-scale banks often ventured into many areas, including those that were high risk and threatened bank stability (Mirzaei, Moore & Liu, 2013; Fu et al., 2014; Pak & Nurmakhanova, 2013). Thus, according to the different research results, the article builds a research hypothesis on the impact of bank size on bank stability below:

H$_1$: Relationship of bank size and stability is positive or negative.

**Credit risk**

This is a factor that directly affects the stability of any bank because credit is the main activity of the bank and accounts for a large proportion. The higher the risk of credit, the higher the bad debt that reflects lower bank stability (Yong Tan & Christos Florosb, 2013). In this study, the research hypothesis is given as follows:

H$_2$: Increased credit risk creates banking instability.

**Operating expenses**

This factor reflects banking stability through risk (Magnus Willesson, 2014). When the cost is low, it shows that the bank manages costs effectively and increases profits. This helps the bank increase competition, reduce risks and help increase stability. On the basis of empirical studies are concerned, the article construct hypotheses.

H$_3$: The cost of banking operations have termites correlated negative to bank's stability.

**Solvency**

This indicator reflects the bank’s solvency causing a series of bank failures. According to Wassim Rajhi and Slim A. Hassairi (2013), the higher the solvency of the bank is, the safer the bank will be. The loss of assets will minimize in banks.

Proposed research hypothesis H$_4$: Solvency is positively correlated with banking stability.

**Credit scale**
This indicator affects banking stability in two directions. The positive direction is that the high lending rate of the bank helps good credit growth in the condition that the economy absorbs capital from intermediary financial institutions to meet the shortage of capital needs. At the same time, the bank’s income has increased. It contributes to the increasing bank’s stability (H.Saduman Okumus & Oksan Kibritci Artar, 2012). On the contrary, when the bank’s credit scale increases, it also negatively affects the increase of bad debts if the bank’s risk management capacity is limited. The cause may be that economic sectors generate many risks from world crises. As a result, banking stability is also affected (Heiko Hesse & Martin Cihák, 2007).

Derived from previous studies, research hypotheses.

\[ H_5 : \text{Credit scale is negatively correlated to banking stability.} \]

**Income structure**

Nowadays, facing the more risks in credit operations, the more banks are looking for profitable opportunities beside their traditional activities. The non-interest income index reflects that the more diversified the bank is, the less the risk in lending activities (Laeven & Levine, 2007; Demirguc - Kunt & Huizinga, 2010). So the stability in bank also increases. Busch and Kich (2009) pointed out that fee income was more stable for commercial banks from 1995 to 2007 in Germany. Ashraf and Goddard (2012) using data from US commercial banks from 2001 to 2009 showed that banks faced pressure to reduce loan portfolio growth due to increasing income from other non-profit sources. However, a number of other studies also indicated that the bank would be at risk in other areas and reduced the competitive advantage because of decentralized operations. (Altaee et al., 2013) Through the research on the impact of income diversification on banking stability, the study develops the research hypothesis:

\[ H_6 : \text{Diversifying income correlated positively with the banking stability.} \]

**Factors from the macro environment**

Most studies on banking stability were considered in a certain macroeconomic environment which referred to the influence of factors representing the economy such as GDP, inflation, exchange rates, government policies. These factors were evaluated in two directions: there were good and bad effects on banking stability. In particular, factors that appeared more in research related to banking activities such as GDP, inflation (Okumus & Artar, 2012; Rahim et al, 2012; Heiko Hesse & Martin Cihák, 2007, Martin Richard Goetz, 2016).

Based on the results of the above studies, the hypotheses was given:

\[ H_7 : \text{GDP and inflation impact oppositely to banking stability} \]

3. RESEARCH METHODS

With the approach and inheritance of previous studies, the authors use a multivariate regression model with panel data (Ioana Raluca Diaconu & Dumitru Cristian Oanea,
2015; Richard Adjei Dwumfour, 2017) to measure the extent of effects of factors: Bank size, credit risk, operating costs, solvency, credit scale, income structure, competition, macro-environment factors (GDP, Inflation) to the stability of Vietnamese commercial banks. To ensure the model estimates are accurate and the selection of variables is appropriate, the study has conducted multi-collinear testing, variance change and autocorrelation. Besides, the study also uses methods of FEM, REM, GMM to test hypotheses.

The proposed research model is as follows:

\[
\text{Stab}_i = \beta_0 + \beta_1 \text{Stab}_{i,t-1} + \beta_2 \text{Size}_{i,t} + \beta_3 \text{NPL}_{i,t} + \beta_4 \text{Cost}_{i,t} + \beta_5 \text{LR}_{i,t} + \beta_6 \text{Loan}_{i,t} \\
+ \beta_7 \text{R-Income}_{i,t} + \beta_8 \text{GDP}_{i,t} + \beta_9 \text{INF}_{i,t} + \varepsilon_{i,t}
\]

With:

- Stab: Reflecting the stability of commercial banks through Z-Score indicators;
- Size: Bank size, calculated by the natural logarithm of the bank’s total assets;
- NPL: Bad debt ratio, calculated by the ratio of bad debts/total outstanding loans;
- Cost: Operating expenses, calculated by operating expenses/total assets;
- LR: Solvency of the bank, calculated by liquid assets/total assets;
- Loan: Credit/Total assets;
- R-Income: Non-Interest Income/Total Income;
- GDP: GDP index;
- INF: Inflation index;
- \(i_t\): bank i in year t;
- \(\beta_0\): blocking factor;
- \(\beta_j (j = 1-9)\): regression coefficient;
- \(\varepsilon\): model remainder;

Table 1. Summary of research variables and correlation expectations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Calculation</th>
<th>Related research</th>
<th>Expected correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent variables</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. RESEARCH DATA

The research data of the study was collected from the Bankscope database, the annual report was published and the audited financial statements of 25 Vietnamese commercial banks during the period of 2006 - 2016 included: VCB, BIDV, CTG, ACB, EIB, STB, HDB, MRB, OCB, VIB, VPB, VAB, GPB, MB, BVB, NAB, SGB, SHB, TCB, NaviBank, LPB, KLB, ABB, SCB, Seabank. These are commercial banks with full public reporting data as prescribed, bank size accounts for more than 75% of total assets of the Vietnamese banking system.
Table 2. Descriptive statistics used in the study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-Score</td>
<td>27.54086</td>
<td>3.936231</td>
<td>104.9721</td>
<td>14.82147</td>
</tr>
<tr>
<td>Size</td>
<td>17.74364</td>
<td>13.572</td>
<td>20.72965</td>
<td>1.411359</td>
</tr>
<tr>
<td>NPL</td>
<td>0.0372971</td>
<td>0</td>
<td>0.371</td>
<td>0.0582659</td>
</tr>
<tr>
<td>Cost</td>
<td>0.0154176</td>
<td>0</td>
<td>0.0599038</td>
<td>0.0060921</td>
</tr>
<tr>
<td>LR</td>
<td>0.2259743</td>
<td>0.0521398</td>
<td>0.8950523</td>
<td>0.1199679</td>
</tr>
<tr>
<td>Loan</td>
<td>0.5378016</td>
<td>0.2252535</td>
<td>0.9174093</td>
<td>0.299731</td>
</tr>
<tr>
<td>R-Income</td>
<td>0.2848646</td>
<td>0</td>
<td>0.4999909</td>
<td>0.1467945</td>
</tr>
<tr>
<td>GDP</td>
<td>6.124819</td>
<td>5.247367</td>
<td>7.129504</td>
<td>0.6177622</td>
</tr>
<tr>
<td>INF</td>
<td>8.958727</td>
<td>0.63</td>
<td>23.11632</td>
<td>6.175048</td>
</tr>
</tbody>
</table>

Source: Calculated from research results

The statistical results describing the variables shows that the highest Z-Score is about 105 of SHB bank (2006). This is a period of relatively rapid development of the banking industry. Followed by the rapid growth in assets in 2015 and 2016 with equitization banks such as BIDV, CTG, and VCB. Besides, the bad debt ratio of the bank has also increased, typically PGB Bank for two consecutive years and is highest among the banking sector (0.371). In terms of operating expense effectiveness compared to total assets, Ban Viet bank ranks first in group (2006), followed by Kien Long (2008, 2012). That is partly explained by the diversification activities in some banks over the long time: Kien Long, Nam Viet (small R-Income). In addition, the indicators of liquid assets and credit did not have a big difference between values and average values, proving that banks have good forecast ability and maintain liquidity as well as appropriate credit growth.

5. RESEARCH RESULTS AND DISCUSSION

Table 3 shows the results of multicollinearity test among variables in the research model. By using the variational magnification factor, the study shows that the VIF coefficients are all low (less than 2.5), showing the multicollinearity phenomenon between the variables is insignificant.

Table 3. Results for VIF

<table>
<thead>
<tr>
<th>Variables</th>
<th>Z-Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>1.32</td>
</tr>
<tr>
<td>NPL</td>
<td>1.15</td>
</tr>
<tr>
<td>Cost</td>
<td>2.05</td>
</tr>
<tr>
<td>LR</td>
<td>2.25</td>
</tr>
<tr>
<td>Loan</td>
<td>1.57</td>
</tr>
<tr>
<td>R-Income</td>
<td>1.23</td>
</tr>
<tr>
<td>GDP</td>
<td>1.28</td>
</tr>
<tr>
<td>INF</td>
<td>1.16</td>
</tr>
<tr>
<td>Z-Score</td>
<td>1.09</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1.46</td>
</tr>
</tbody>
</table>

Source: Calculated from research results
According to Dwumfour RA (2017), Neanidis and Varvarigos (2009) and Blundell and Bond (1998), there is an empirically proven correlation between bank operating expenses and capital. Therefore, the article uses the results estimated by GMM two-step method to replace the estimated results using FEM. Table 4 presents the results of estimating the variables in the GMM model.

Table 4: Estimated results of the research model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Z-Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
</tr>
<tr>
<td>Z-Score,</td>
<td>0.514*** (9.81)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-0.604 (-0.89)</td>
</tr>
<tr>
<td>NPL</td>
<td>-8.938 (-0.65)</td>
</tr>
<tr>
<td>Cost</td>
<td>213.9 (1.06)</td>
</tr>
<tr>
<td>LR</td>
<td>-16.51 (-1.58)</td>
</tr>
<tr>
<td>Loan</td>
<td>3.897 (0.54)</td>
</tr>
<tr>
<td>R-Income</td>
<td>7.268 (1.23)</td>
</tr>
<tr>
<td>GDP</td>
<td>2.385* (1.73)</td>
</tr>
<tr>
<td>INF</td>
<td>0.363*** (2.82)</td>
</tr>
</tbody>
</table>

* p<0.1, ** p<0.05, *** p<0.01

Source: Calculated from research results

The regression results of the model show that all hypotheses are accepted. So the article draws some remarks as follows.

The variables Z-Score, Cost, GDP, INF are positively correlated with the Z-Score coefficient with statistical significance of 1%: reflecting the stability of the previous year that positively affects the current banking stability. In addition, when the bank increases its operating expenses, which will affect its business results, the bank can trade off costs to achieve the expected profit in a certain period. The research results also show that economic growth and inflation have a positive impact, which proves that when the economy develops, it also contributes to stabilizing the banking system. When the economy grows well, banks are absorbed and positively affected by that development. At the same time, in the process of making business strategies
for the bank, bank managers have anticipated expected inflation and automatically
adjusted interest rates accordingly.

Search results show that variable Size, LR and Loan rate inversely with
coefficient Z-Score. This can also be explained in the recent period of time, banks
increased their operations, but did not focus on the profitability of assets. Therefore,
although banks have increased their assets over the years, they actually contributed
insignificantly to the increase in profits or the financial stability. This problem really
poses a challenge for banks in the process of using assets when the increase in
assets is unlikely to bring higher profits as expected. In addition, maintaining a high
ratio of liquid assets shows that the uncertainty forecast on liquidity is potentially
threatening bank stability. The banks do not control the liquidity needs as well as
credits and it will make banking business more unstable.

6. CONCLUSIONS AND POLICY IMPLICATIONS

6.1. Conclusion

The stability of the banking system is not only the ultimate destination for bank
administrators but also a top concern of economists and economic policy makers of
a country. Through the results of the research, the study concludes as follows:

- Factors on bank stability last year, operating expenses, economic growth and
inflation have positively impacted the bank stability of Vietnam’s commercial banking
system. As banks consolidate their business operations and control costs effectively,
it will make banking operations more efficient and help to improve banking stability.

- Besides, factors such as bank size, solvency, credit have a negative impact on
bank stability. When the bank does not focus on increasing sustainable capital or
forecasting of liquidity demand as well as controlling credit risk, it will further threaten
the stability of Vietnamese commercial banks.

6.2. Policy suggestions

The research results show that the banking stability of the system of Vietnamese
commercial banks is affected by many different factors. From there, the study
presents some of the following suggestions:

- First, determine the positive correlation of some essential elements to stabilize
banks, administrators and policy makers should take measures to increase and
strengthen the assets to prevent and combat business risks, avoid unsustainable
scale growth affecting the financial stability of the banking system. In addition, the
bank continues to implement reasonable control of increasing operating expenses
to serve the expanding operation of the bank. They need paying more attention to
the domestic and world economic fluctuations to have suitable business strategies in
the context of integration, considering economic development as a lever to promote
the development of the banking system.

- Secondly, with the main factors impact negatively to the stability of banks,
managers should increase to closely monitor further loans and restrict lending to risk
industries. At the same time, banks need to enhance the ability of liquidity forecasting
to maintain a reasonable liquidity assets. Thereby, they can maximize the profitable assets, avoid waste and risks and increase profits. Thus, the business activities of the bank are stable.

Banking stability is always the goal of all banking activities. This stability will contribute to the stability of country’s financial system. To do that, administrators as well as bank policymakers need effective solutions to ensure banking stability.

REFERENCES


