



Capital Adequacy Ratio of Commercial Banks in Vietnam and Some Asian Countries in the Period from 2016 to 2022

BY

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Article History

Received: 15/10/2023

Accepted: 19/10/2023

Published: 21/10/2023

Vol – 2 Issue – 10

PP: -27-33

Abstract

During the 1970s of the 20th century, banks expanded their lending activities without a corresponding increase in bank capital. Koehn & Santomero (1980) pointed out that the consequences of excessive lending expansion without a simultaneous increase in bank capital led to the international debt crisis and the failure of one of the largest banks in the United States, Franklin National Bank. A series of control measures and criteria for capital management methods were introduced to prevent the collapse risk of banks. Thus, prior to bank capital regulations, the Basel Capital Accord (1988), originating from the practice of bank operations management, demonstrated the importance of bank capital safety as follows:

Regulations regarding bank capital and capital adequacy originate from the requirement to ensure a bank's ability to meet its payment obligations for the purpose of protecting depositors and limiting the risk of insolvency in banking operations. Research into the Capital Adequacy Ratio (CAR) of commercial banks in a developing country like Vietnam is necessary, especially when compared to some countries in the Asian region to assess and rank the safety of sustainable development of Vietnamese commercial banks. Therefore, the authors will conduct a comprehensive analysis and comparison of the CAR of Vietnamese commercial banks and certain Asian countries during the period between 2016 to 2022.

Keywords: CAR, Commercial Banks Capital Structure

1. Introduction

During the banking system crises in both developed and developing countries in the 1980-1994 period, Demirgüç-Kunt & Detragiache (1997) indicated that bank crises disrupted credit flows to households and businesses, thereby reducing investment and consumption, and pushed businesses to the point of bankruptcy.

When banking crises arise, bank losses will break the relationship between banks and customers, and disrupt economic payment activities. The collapse of one bank can lead to a chain reaction affecting other banks, financial markets, and even the entire macroeconomic environment. Therefore, identifying the factors that lead to banking system crises is a significant concern for authorities, researchers, and society as a whole.

One of the key factors is that regulatory authorities require banks to maintain a certain level of capital as a means to reassure depositors and ensure safety and soundness in

banking operations (Casu et al., 2015). Consequently, a series of capital adequacy regulations in commercial banks and related research have emerged.

In Vietnam, a newly emerging economy with vast opportunities for economic growth, a robust financial system, particularly the credit institution system, plays a crucial role. The existence and growth of commercial banks drive economic development, and one of the critical determinants for their survival is the assurance of capital adequacy. Hence, the concept of the Capital Adequacy Ratio (CAR) came about. *CAR is defined as the proportion of capital that a bank must maintain according to regulatory standards to limit losses in banking operations and ensure safety for the bank, depositors as well as the financial system.*

The role of CAR is unquestionable, and thus, enhancing the standing of Vietnamese commercial banks through CAR is necessary. The research group conducts a comparison of CAR among Vietnamese commercial banks and those in regional countries mentioned in this article.



2. Literature Review

Bank capital typically represents a small proportion of total funding but plays a crucial and indispensable role for banks. Capital is a prerequisite for establishing and conducting banking operations. Simultaneously, it's a significant factor that helps banks compete with others. The existence of bank capital is driven by market requirements, akin to equity capital for businesses. The capital adequacy ratio adheres to theories of capital, such as the Trade-Off Theory, Pecking Order Theory, and Agency Theory. Market-driven capital requirements maximize the bank's value when there are no specific capital regulations (Berger et al., 1995).

Depending on different research objectives, the authors categorize bank capital from various perspectives. However, the classification of bank capital also stems from different economic contexts worldwide. Specifically, before the Great Depression of 1929-1933, bank capital was synonymous with equity capital. Still, after the crisis that saw nearly 11,000 of the 25,000 US banks collapse, the perspective on bank capital shifted to Tier 1, Tier 2, and Tier 3 capital. Consequently, the research group systematizes various understandings and classifications of bank capital as follows:

Based on the accounting balance sheet:

Bank capital is reflected in items like common equity, preferred stock, retained earnings, general reserves, and capital reserves.

Based on the risk level of bank capital:

According to the Basel Capital Accord (BIS (1999); BIS (2006); BIS (2011)), the following concepts of bank capital are introduced as:

- Tier 1 capital: As per Kjeldsen (2004), Tier 1 capital is referred to as the core capital of the bank, including common equity, non-cumulative preferred shares, perpetual subordinated debentures, minority interests in consolidated subsidiaries' equity, and other intangible assets. It's crucial for safeguarding the bank's survival and financial system stability (Kjeldsen, 2004).
- Tier 2 capital: Tier 2 capital is supplementary capital, including undisclosed reserves, general loss reserves, convertible bonds, subordinated debt with maturity, equity instruments, perpetual preferred stock, and long-term preferred convertible stock. However, this capital type is constrained by the condition that Tier 2 capital cannot exceed 100% of Tier 1 capital. Deductions from Tier 1 and Tier 2 capital include investments in non-consolidated financial and banking institutions, equity securities, and other deductions.
- Tier 3 capital: Tier 3 capital comprises short-term subordinated debt. This type of capital is considered a buffer against market risk-induced losses when Tier 1 and Tier 2 capital is insufficient to offset the damage. Market risk refers to losses caused by

foreign exchange business activities, interest rate contracts, or changes in exchange rates and interest rates. However, regulatory authorities do not specify a specific capital requirement to ensure protection against market risk-induced losses. Therefore, there are no specific requirements for Tier 3 capital.

Bank capital has been examined from various perspectives. However, in this research, the authors only assess bank capital based on the risk level to evaluate issues affecting bank capital adequacy. The essence of bank capital that the research group wishes to address is the capital that banks use in the long term and ensure the safety of their operations.

Hence, capital adequacy reflects the capability and efficiency of banks in measuring and monitoring the risks they face, not only to restrict and control risks but also to make decisions that align with the bank's strategy and policies (Shahatit, 2011). Capital adequacy represents the minimum capital that banks must maintain as required by regulatory authorities. The requirements for capital adequacy originate from the goal of maximizing a social welfare function influenced by cost factors (credit cost increase) and capital benefit (reducing the bank's failure probability) (Abel & Rafael, 2007).

3. Research Results and Discussion

3.1. Summary of Basel Capital Accord and CAR Determination

The primary goal of commercial banks is profit-oriented, so they continually seek investment portfolios with an element of risk to enhance profitability. However, the primary source of funding for such investments is deposits. To prevent inadequacies within the credit institution system and establish a level playing field for banks worldwide, especially in the context of internationalization in banking operations (in which banks may find it easier to relocate to other countries to take advantage of looser regulations over there), it is essential to have unified standards among countries regarding bank capital requirements and supervisory conventions. This is the reason why the Banking Supervision Committee (BSC) was established to promulgate the Basel Capital Accord.

Basel I provided a definition of bank capital. Bank capital is assessed based on its payment capacity and reliability in coping with risk. Bank capital comprises Tier 1, Tier 2, and Tier 3, which will be detailed as follows:

Basel I classifies asset groups according to risk coefficients: 0%, 20%, 50%, and 100%. The level of asset risk is measured based on collateralized assets and customer groups. Initially, the minimum capital requirements in Basel I only consider credit risk. However, in 1996, Basel I was amended to include minimum capital requirements that also account for market risk.

According to Basel I, bank capital is divided into five levels, as outlined by Casu et al. (2015): First, a decent level of capital safety must meet:

- 1) Capital Adequacy Ratio (CAR) = Total capital ratio / Total assets adjusted for a minimum risk factor of 10%.

- 2) Tier 1 capital ratio/ Total assets adjusted for a minimum risk factor of 6%.

Second, the sufficient level of capital that ensures security must meet:

- 1) Total capital ratio/ Total assets adjusted for a minimum risk factor of 8%.
- 2) Tier 1 capital ratio/ Total assets adjusted for a minimum risk factor of 4%.

Third, the level of capital that does not ensure the safety standard is considered unable to meet one or more minimum levels of safety capital.

Fourth, the level of significantly deficient capital: Total capital ratio over total assets adjusted for a risk factor below 6%, and Tier 1 capital ratio over total assets adjusted for a risk factor below 3%.

Fifth, the level of capital is considered too low if the capital is less than or equal to 2% of total assets.

In which: Capital Level = [(Common Equity + Non-cumulative Preferred Stock - Intangible Assets) / Total Assets]

Therefore, According to Basel I, to ensure safety and soundness in credit institution operations, commercial banks must maintain a minimum Total Capital to Total Assets ratio adjusted for a minimum risk factor, which is also known as the Capital Adequacy Ratio (CAR), at a minimum of 8%, and the Tier 1 Capital to Total Assets ratio adjusted for a minimum risk factor, known as Tier 1 Capital Adequacy Ratio, at a minimum of 4%.

Thus, the determination of CAR according to Basel I is as follows:

$$CAR = \frac{\text{Capital Tier 1} + \text{Capital Tier 2} - \text{Deductions}}{\sum (\text{Asset} * \text{Risk Coefficient})}$$

In the CAR formula introduced by Basel I, the risks are applied to each type of asset. After a period of application, it is found that they are no longer consistent with actual banking operations. Therefore, to overcome the limitations of Basel I, the Basel Committee launched the Basel II Agreement.

Basel II Capital Accord (BIS, 2006):

Basel II Capital Accord was issued by the Basel Committee on Banking Supervision in May 2004. It became effective in 2007 and underwent a complete transition period until 2010. The objectives of Basel II are to (i) Promote safety and soundness in the operations of commercial banks; (ii) Determine capital requirements based on a more accurate and comprehensive risk measurement; (iii) Maintain a level playing field for commercial banks in the international market; (iv) Allow for the uniform application of international capital standards

Basel II focuses on three fundamental pillars that interact to support each other: (i) Pillar 1 - Minimum capital requirements; (ii) Pillar 2 - Establishment of internal review

and monitoring procedures for capital adequacy; (iii) Pillar 3 - Disclosure requirements to enhance market discipline.

The understanding of capital in Basel II remains consistent with Basel I. The minimum capital ratios established in Basel II are similar to Basel I (the minimum Tier 1 capital adequacy ratio is 4%, and the minimum total capital adequacy ratio for commercial banks is 8%).

However, there are significant changes in determining CAR (Capital Adequacy Ratio) in Basel II compared to Basel I: (i) the coefficients for assessing the credit risk level of assets are more stringent and vary depending on collateralized assets, asset risk sensitivity, the creditworthiness of individual customers, and risk coefficients ranging from 0-150%; (ii) factors included in calculating CAR also encompass capital requirements for market risk and operational risk.

The method for measuring credit risk in the Basel II Capital Accord is more complex compared to Basel I. Under Basel II, commercial banks can choose either the standard approach or the internal credit rating-based approach to determine credit risk. The standard approach measures credit risk based on the credit ratings of organizations independent of the credit institution approved by the banking supervisory authority. The internal credit rating-based approach measures credit risk based on the credit institution's assessment by estimating the probability of default, loss given default, outstanding balances at the time the customer defaults, and expected repayment terms.

Thus, the determination of CAR in Basel II is as follows:

$$CAR = \frac{\text{Capital Tier 1} + \text{Capital Tier 2} - \text{Deductions}}{\sum (\text{Asset} * \text{Risk Coefficient}) + (\text{Market Risk} + \text{Operational Risk}) * 12.5}$$

To ensure capital adequacy, according to Basel II, the CAR must be greater than or equal to 8%. Thus, it can be observed that compared to the calculation of CAR in Basel I, the CAR calculation in Basel II is more stringent, accurately reflecting credit risk and encompassing various fundamental risks of the bank. However, after the global financial crisis of 2008-2010, marked by the collapse of Lehman Brothers, it became apparent that Basel II was still not strong enough for banking institutions to withstand a multitude of risks. Therefore, in September 2010, the Basel Committee issued the Basel III Capital Accord as an enhancement to Basel II.

- Basel III Capital Accord (BIS, 2011):

The Basel III Capital Accord was issued in 2010, became effective in 2013, with the transition period ending in 2019, and officially applied from the beginning of 2022. Fundamentally, the provisions of Basel III still inherit the regulations of Basel II, but they place a strong emphasis on enhancing the quality of bank capital and increasing the proportion of Tier 1 capital. Specifics include the following:



+ For common equity: Banking institutions must raise the common equity ratio from 2%, as stipulated in Basel II, to 4.5% under Basel III. In addition to Basel II, Basel III introduces supplementary terms, that is “buffer” established by common shares capital of 2.5% and "buffer" assuring against Cyclical risks ranging from 0-2.5%

+ Excluding the capital buffers, the minimum capital adequacy ratio remains at 8%.

+ While Basel I primarily considered credit risk and market risk, and Basel II added operational risk, Basel III broadens its scope by examining the impact of multiple risk factors on bank capital adequacy in comparison to Basel I and II. These factors include credit risk, market risk, operational risk, liquidity risk, and cyclical risk.

Summarizing the fundamental aspects of the Basel Accords, we can provide a comparative table of the regulations within the Basel I, Basel II, and Basel III agreements as follows:

Table 1.1: Minimum capital requirements according to the Capital Treaty Basel I, Basel II, Basel II

Capital Requirement						Macrosafety-ensuring capital buffer	
Ownership Capital			Capital Tier 1		Total Capital	Against-Cyclical risk Capital Buffer	
	Minimum	Reserved Buffer	Required	Minimum	Required	Minimum	
Basel I	-	-	-	4%	-	8%	-
Basel II	2%	-	-	4%	-	8%	-
Basel III	4.5%	2.5%	7%	6%	8.5%	10.5%	0% - 2.5%
Risk types							
Basel I			Basel II			Basel III	
1. Credit Risk 2. Market Risk			1. Credit Risk 2. Market Risk 3. Operational Risk			1. Credit Risk 2. Market Risk 3. Operational Risk 4. Liquidity Risk 5. Cyclical risk	

Sources: Casu et al.(2015) and Tran (2020)

3.2. Capital adequacy ratio of commercial banks in Vietnam and some Asian countries in the 2016-2022 period

CAR of commercial banks in Vietnam is demonstrated in the below Figure 1.1:

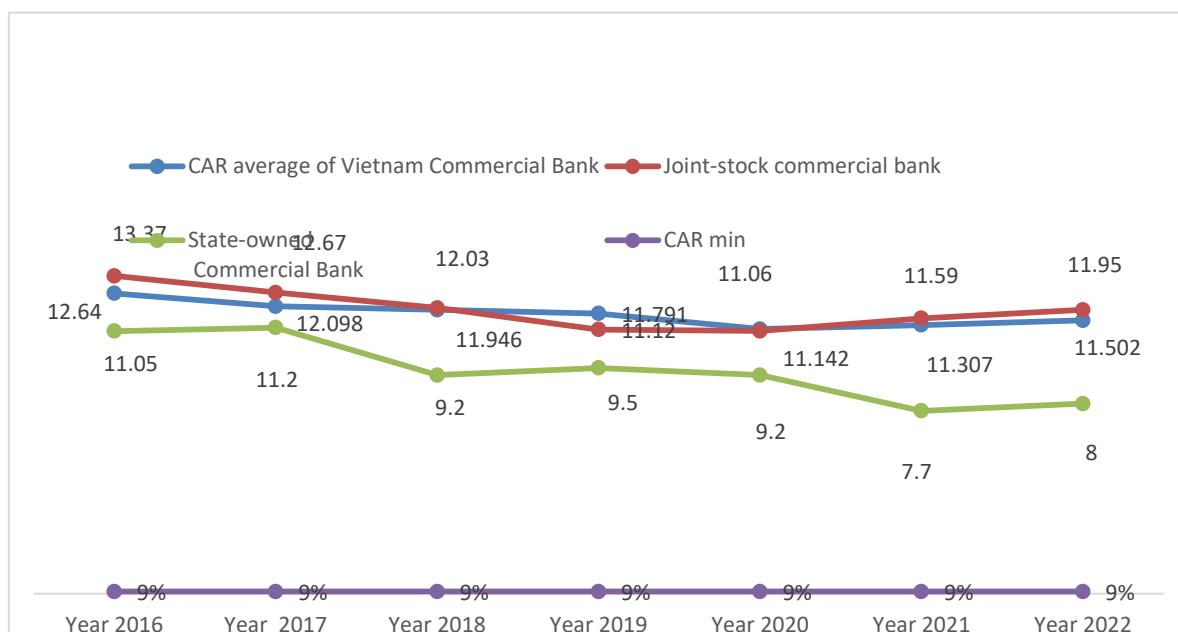


Figure 1: Capital adequacy ratio of commercial bank groups in Vietnam in the 2016-2022 period

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From Figure 1, it is evident that the CAR of the State-owned Commercial Bank (Agribank) during the research period consistently remained at the lowest level compared to other commercial banks. In 2021, Agribank Vietnam's CAR fell below the regulatory requirement set by the State Bank of Vietnam (7.7%). This might be one of the reasons why Agribank has been cautious in terms of privatization and bringing its shares on the stock exchange. An essential question is raised regarding the conditions for calculating CAR at Agribank Vietnam.

State-owned commercial banks often take the lead in implementing the policies and directions set by the National Assembly, the Government, and the State Bank of Vietnam. They play a crucial role in reducing interest rates and profit margins to support businesses with reasonable interest rates. However, they often face capital difficulties due to their low registered capital. This means that with the current credit scale, Agribank cannot ensure the minimum capital adequacy ratio (CAR) required for credit growth. Therefore, in 2022, Agribank's credit growth remained low compared to the system's average. "It is deemed essential to provide additional registered capital to Agribank as it is only when it ensures the minimum CAR for credit growth at the beginning of 2023 that Agribank will have the resources to serve the capital needs of the economy, especially in the agriculture sector". The Government should implement the allocation of additional registered capital of 6.753 trillion VND to Agribank, as approved by the National Assembly in light of the state budget estimate.

Despite being more proactive than Agribank Vietnam, other state-owned commercial banks in Vietnam also need to wait for government approval to increase their capital as expected. In reality, the capital adequacy ratio (CAR) of the remaining three banks in the Big 4 (Vietcombank, Vietinbank, BIDV) is also slightly higher than the minimum required, posing potential risks. Therefore, the Chairman of BIDV's Board of Directors fervently suggests that the Government, the Ministry of Finance, and the State Bank of Vietnam continue to allow state-owned commercial banks to increase their registered capital from post-tax profits after setting up the required funds in 2022. This will strengthen their financial resources and ensure the minimum capital adequacy ratio.

For example, Vietcombank, despite implementing numerous capital-raising solutions, still maintains a modest CAR compared to the development needs and international standards. Pham Quang Dung, Chairman of Vietcombank's Board of Directors, proposes that the Government and the State Bank of Vietnam prioritize raising the registered capital for state-owned commercial banks. Vietcombank hopes for the Prime Minister's approval to increase its registered capital from the remaining profits of 2019 and 2020 after setting up the funds. This proposal has already been agreed upon by the State Bank of Vietnam and the Ministry of Finance. In 2023, Vietcombank plans to request the State Bank of Vietnam's opinion to present to the Shareholders' General Meeting for further registered capital increase using the remaining profits

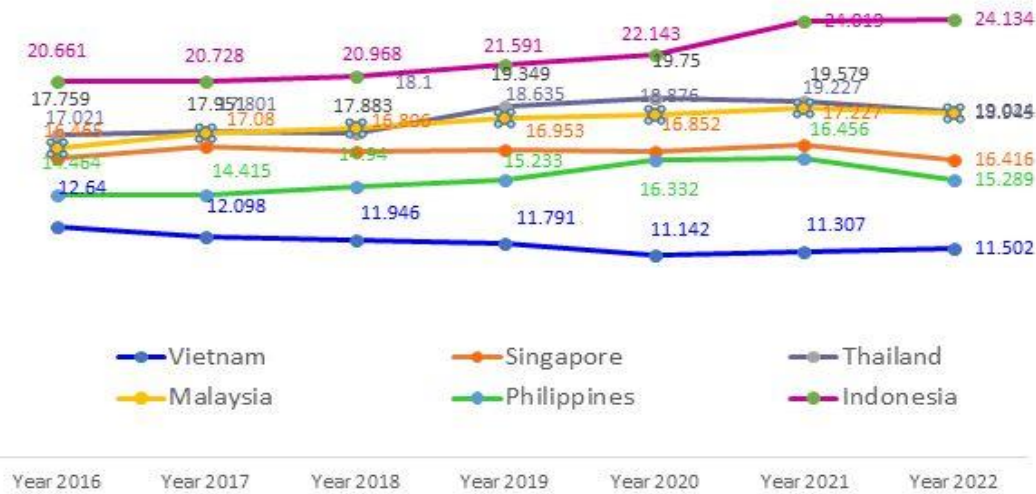
from 2021 and previous years. This direction has been approved by the Prime Minister, the State Bank of Vietnam, and the Ministry of Finance. "Vietcombank eagerly anticipates the attention and facilitation from the Government, the State Bank of Vietnam, and relevant departments during the reporting, explanation, and approval process by the National Assembly", the Chairman of Vietcombank says.

As of October 2022 statistics, the CAR of state-owned commercial banks in Vietnam averages only 9.04%. This is significantly lower than other regional countries like the Philippines (15.289%), Singapore (16.416%), Malaysia (18.945%), Thailand (19.024%), and Indonesia (24.134%). Moreover, many countries in the region have adopted Basel III or some aspects of Basel III, whereas Vietnam has only implemented Basel II. A low CAR can hinder the ability of state-owned commercial banks to provide credit, thereby limiting their support for businesses, especially in the current high-risk economic environment. Prolonged low CAR may also challenge the dominance of state-owned commercial banks within the credit institution system.

Members of the National Financial and Monetary Policy Advisory Council believe that capital injection into state-owned commercial banks is essential. A resilient banking system can best support the economy. For Agribank Vietnam, it is crucial to prioritize capital increase as it mainly serves the agriculture sector, a vital area of the economy. With more capital, Agribank can supply a substantial amount of affordable capital to boost economic development, enabling millions of customers to grow their businesses. When customers perform well, the bank operates efficiently, generating good revenue and contributing substantial tax revenue to the state.

In fact, banking experts suggest that if the state budget is viewed as an investment, investing in state-owned commercial banks is the most profitable option. While state budget investments in various projects may incur losses, investing in the Big 4 banks is a consistent source of profit and annually contributes thousands of billions of VND in tax revenue to the state.

Meanwhile, joint-stock commercial banks, without state ownership, often maintain higher CARs, allowing them to be more proactive in payment capacity and sustaining their operations. However, the current situation in Vietnam indicates that state-owned commercial banks often maintain low CARs for various reasons. Since being large, experienced, and proficient in risk management and market upheaval coping, state-owned commercial banks do not necessarily have to maintain CAR at a high level. Nevertheless, by accounting for the majority of the mobilization and lending market share of the entire market, they still have to confront multiple risks in their activities, potentially threatening their own capital safety and the entire banking system. In particular, as the banking system transitions to the CAR calculation method under Basel II, capital and asset risk regulations become stricter than current standards.



Source: ADB and authors' calculations

Figure 2: Capital adequacy ratio of commercial banks in Vietnam and other countries in the Asian region

The data presented in Figure 2 indicate that when comparing Vietnam's Capital Adequacy Ratio (CAR) with that of neighboring countries such as Indonesia, Malaysia, the Philippines, Singapore, and Thailand, Vietnam has the lowest CAR. Vietnam's CAR during the 2016-2022 period averaged 11.78%, which is approximately 5% lower than the CAR of the regional countries. The CAR of countries like Malaysia and Indonesia has shown an increasing trend, whereas Vietnam's CAR has experienced fluctuations during this period and a downward trend in recent years from 2016 to 2022.

CAR is a crucial metric for assessing the payment capacity of commercial banks, which directly influences sustainable development and competitiveness with foreign banks in Vietnam. Proposing solutions to increase CAR in Vietnamese commercial banks is of utmost importance. Within the scope of this article, the author would like to suggest the following solutions.

4. Recommendations

Some recommendations to bring the capital adequacy ratio at Vietnamese commercial banks closer to commercial banks in the Asian region are:

First, increasing registered capital

Ways to Increase Registered Capital

(1) Increasing registered capital by retaining profits

The scale of registered capital of Vietnamese commercial banks continuously grew during the research period. However, compared to other countries in the region, the registered capital scale of Vietnamese commercial banks is still low. Furthermore, although the profitability of Vietnamese commercial banks is low compared to other countries in the region and compared to international

standards, the profitability of Vietnamese commercial banks has tended to increase recently. That is a favorable condition for Vietnamese commercial banks to increase their registered capital by retaining profits. For this solution to be truly effective, banks need to improve profitability through improving operational efficiency: reducing bad debt to increase interest income, saving operating costs, increasing income from service activities by improving service quality, and providing convenient services to customers.

(2) Increasing registered capital by issuing common shares

To increase capital, banks can issue common stocks to attract capital from domestic and foreign investors by issuing new common stocks and converting bonds into common stocks (as in the case of TCB and VPB). However, to successfully raise capital in this way, commercial banks need to ensure that stock price during the issuance period increases, business results are positive, and the financial situation is healthy.

(3) Increasing registered capital by issuing certificates of deposit and bonds.

In recent times, to increase equity capital, some Vietnamese commercial banks have issued certificates of deposit and bonds domestically and on the international market. For example, VCB and ACB issued bonds with a term of 10 years in December 2016; Sacombank and Nam A issued certificates of deposit with a term of 7 years in February and March 2017. However, this method is only suitable for commercial banks with good reputations and financial capacity due to the high cost of issuing bonds. In addition, Vietnamese commercial banks also need to consider increasing their registered capital through mergers and acquisitions.

Second, improving operational efficiency

The profitability of commercial banks (ROE) is positively correlated with CAR. This means that the more effective the bank's operations are, the lower the risk. Therefore, banks have the ability to increase capital and increase CAR at a high

level, as commercial banks easily maintain or increase equity when income is high.

Third, improving the management capacity of commercial banks.

The management capacity of commercial banks is an important factor in ensuring safe, healthy, and effective bank operations to increase profitability. An appropriate management apparatus helps commercial banks improve management capacity and reduce operating costs as well as improve the efficiency of resource use. In the coming time, when Vietnam applies Basel II throughout the banking system, commercial banks will be required to build appropriate governance structures according to Basel II, especially in terms of building a risk management model to improve operational capacity and compete with commercial banks in the region.

Fourth, handling bad debts and making provisions for credit risks

In the banking industry development strategy until 2030, the task for Vietnamese commercial banks is to handle bad debts. Handling bad debts can be done in many different ways such as using credit risk provisions and selling debt to VAMC. Accordingly, the author proposes solutions to handle bad debts and set up provisions for credit risks to help Vietnamese commercial banks ensure capital safety.

Fifth, necessitating the completion and promulgation of legal regulations according to international standards and restructuring the system of Vietnamese commercial banks to enhance operations of the financial system.

Proposing a number of solutions for Vietnamese commercial banks to help them ensure capital safety according to the regulations of the State Bank as well as to pursue the mission of uplevelling their ability to compete with commercial banks in the region, and raising the position of this group of banks in the international arena are the goals that Vietnamese planners and researchers aim for and is partly addressed in this article.

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