The Structure and Performance Relationship in Banking System

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Abstract:
Banking system is a crucial factor that controls capital flows in the economy and contributes to promote economic and social development of the nation. In more than sixty years of construction and development of four state-commercial banks, thirty joint-stock commercial banks, joint-venture banks and banks with 100% foreign capital, the banking system in Vietnam is gradually developing a perfect structure.
Keywords: *Banking system, Vietnam*

1. Introduction

In 2006, Vietnam joined WTO and started to open the market economy. Restructuring the banking system is a necessity in this time, stemming from the economic situation and the demands of the people. However, under the impact of the global financial crisis, Vietnam banking system soon faced with a number of risks and challenges to the daily evaluation of bank performance, which has deteriorated over the years as a consequence of profit slump, low credit growth, and rising bad debts. Therefore, together with restructuring banking system to build a healthy economy, the central bank and commercial banks have been implementing measures to restructure the banking system to overcome these difficulties and improve the operational efficiency of the entire system and individual banks because of the impacts of 2008 global financial crisis. With the aim of assessing the situation to restructure the banking system in Vietnam in recent years, the subject is based on previous studies on the restructuring the banking system of other countries. The content of the specific research topic includes references of the previous studies on restructuring to build, to choose the model and the proposed research methodology; analyse the situation of Vietnam's restructuring banking system through quantitative research models from which to propose recommendations and solutions to improve efficiency in the process of restructuring the banking system on a sustainable and effective basis.

There is a close relationship between bank restructuring and efficiency. It is proved through a number of researches in many economies in the world. With different restructuring measures, the results of the linkage between bank restructuring and efficiency may be positive or negative. The result depends on which kind of economy that country has, the status of that economy and what problems that economy suffered. A number of researches have proved that the association between bank restructuring and efficiency is positive; For example, after the banking restructuring, the bank efficiency in Turkey was significant improved (Zaim, 1995). Accordingly, privatization is a good measure to increase banking efficiency; mergers and acquisitions also has positive effect on cost and profit efficiency. However, some other researchers said that the banking restructuring did not have any impact on the operating efficiency, it was suggested to even contribute to its fall; For example, Elyasiani and Mehdian (1995) indicated that the performance efficiency of the United States' banks was unaffected after the banking restructuring. Therefore, this thesis needs to research the linkage between bank restructuring and efficiency to investigate whether this relationship in an emerging economy like Vietnam's is positive or negative.

2. Literature review

2.1. Background knowledge about restructuring

The definition of restructuring commercial-banking system

Waxman (1998) show that restructuring the banking system only solved the problems of one of the aforementioned components of the system or a bank which was likely to go bankrupt, but the banking system still operated effectively. Generally speaking, restructuring the banking system is the process of restructuring all the components of the system, including: i) central banks; ii) commercial banking system; iii) banking systematic social policy and development banks and iv) a system of micro-credit organizations.

Pazarbasioglu and Dziobek (1997) supposed that restructuring the banking system was to recover the solvency and the profitability, to increase the capacity of the banking system and to improve the efficiency of the banking operation. In this statement, the restructuring includes financial restructuring, restructuring activities and corresponding safety monitoring with three goals. Alexander (1997) suggested that "A restructuring program for a banking system typically includes a series of measures on macroeconomics, effect of institutions and law. It has important implications for macroeconomics, monetary policy, balance of payments, stability and development of the macro economy; it shows the efficiency and transparency of public policy, and future activities on the financial markets".

In conclusion, the restructuring of the banking system, which is a long process, including a number of legal measures, financial institutions, is deployed step by step in order to change and overcome structural weaknesses in the banking system structure to put the system into reasonable and effective operation mechanisms, to increase the labour and businesses, especially small and medium enterprises accessing probability to banking services, to build a firm basis for healthy development of the banking system and also the economy in particular. The subjects of the restructuring are banks in all forms such as State Bank of Vietnam (SBV), commercial banks (CBs), domestic-invested banks and foreign- invested banks.

Features of the restructuring of commercial banks

Restructuring commercial-banking system is different from restructuring of other sectors like trade, services and telecommunications. The impact of restructuring of other majors is not widespread because the commercial-banking system does business with special commodity and currency trading while the activities of commercial banks are closely related to all other sectors of the economy and the society in one country. According to some studies, restructuring commercial banks has two characteristics:

- Drastic restructuring in work: The activities' influence of commercial banks spreads widely and therefore a weak banking system will lead to the weakening of all other fields. Eventually with just a banking collapse, the risk of bankruptcy of the whole system is high and wide spread like the domino phenomenon. Therefore, restructuring the banking system requires drastic and radical implementation.
- Restructuring the national bank's status: Since the banking system is closely related to all economic areas, so restructuring banking system on its own will not be able to achieve its objectives. Thus, restructuring banking system needs to ensure participation, active cooperation and efficient management of various state agencies.

The causality of the restructuring

Kithinji, Mwangi and Ogutu (2017) supposed that the economy can only be healthy if there was an existence of the support for a healthy banking system. In another word, before the evolution of the global financial crisis and the intrinsic difficulties of the economy, restructuring banking system is a needed job. If a banking system in crisis entails risk of economic and social crisis or a major bank in crisis, it would be in danger of spreading to the whole system. Then it would be difficult for the economy of a country to develop a stable and healthy banking system with such potentially unstable and inefficient operation.

Restructuring the banking system is in demand when the current state of banks faces with many structural problems in the banking activities which are ineffective and even stagnant with weak capital, short of liquidity and asset quality deterioration on the verge of disintegration and bankruptcy. These problems stem from the internal weaknesses of the banking system. Nevertheless, there are some wrong structural reasons such as unclear strategies and plans, inefficient management team work is, unsuitable financial structure, lacks of necessary system's risk control tools, weak human resource management, ineffective coordination activities due to irrational structure, or weak banking system. For such rapid growth, it is easy to overlook small details when establish a bank and expand the branch network. In another word, when a bank does not have enough resource to be trained to manage the administration, it is easy to lead to fraud and loss of property, for instance, lack of transparency in financial report such as concealing or carrying forward, not accounting properly credit provision expenses and so on. So, the government needs to restructure banking system through the restructuring of banks and financial institutions. Without screening and restructuring soon, the service disruption of the mass credit system is likely to happen and difficult to control.

Moreover, elements from the macroeconomic regulatory policies which are inefficient and predict able may lead to misleading and loose regulation, which would result in ineffective banking system. For example, when there is a fast-growing economy, if the government encourages the banks to increase credit without a reasonable restraint policy, this would lead to lax bank lending which would result in increasing NPL ratio and inefficient debt (NPL), and cause loss of liquidity to banks, which can affect the entire system.

The objective of the restructuring

According to Alexander (1997), because of the financial crisis, it is necessary to implement a restructuring for banking system to recover its functions in order to continue to supply banking services to the economy normally.

In order to do that, the necessary tasks are:

- Maintaining the stability of the banking system to ensure the liquidity, the payments and the operation of the banking system and the whole economy.
- Finding solutions for problems in a timely manner to prevent them from spreading.
- Restoring public financial intermediaries. This is the most basic goal of the restructuring in order to ensure the stability with confidence towards the banking system. When it is restructured, the liquidity of the entire system would be stable; the level of bank credit would improve the confidence of all economic sectors for the banking system.
- Minimizing the cost of restructuring for the central bank, deposit insurance or government. Along with the objective of strengthening the banking system, restructuring also aims at reducing costs related to the central bank, the deposit insurance or the government to bring the most efficient restructuring process.

Conditions for a successful restructuring

It is only really necessary when the activities of credit organizations deviate from their basic functions in the economy or the arising problems become threatening or there is a risk of system collapse.

- When carried out, the restructuring should be viewed under different angles, established a clear set of criteria which answers appropriately why it is needed to restructure, which aspects need restructuring, how the banks will operate after the restructuring, whether the banks will handle bad loans and prudent deployed on a voluntary principle with a roadmap and specific steps.
- It must have an appropriate legal framework to allow the government to intervene in the restructuring to ensure that the deposit insurance system has sufficient capital to handle the crisis and can be used quickly and effectively. Beside liquidity issue, the intervention process of the government will also raise a number of legal issues relating to the existing shareholders due to corresponding laws that need to adjust. At the same time, it is necessary to guarantee that the merger will guide the banks to better development and does not interfere with

the system. Daniel said that the government can directly improve the recovery of banks by purchasing debts from weak banks.

This is a complicated process, so that the role of the central bank has to be shown strongly and the intervention must be carried out quickly and in time (not an important factor, related to the solution). The government must get a clear and comprehensive process to monitor and evaluate the on - going bad debt situation and the loss of liquidity in the banking system and avoid the passive situation. The supervisory staffs need to be trained, equipped with the right set of skills to implement the law and management. The supervisory authorities must be able to have full access to the accurate information, to ensure that the restructuring is effective, transparent with timely adjustments.

The general theory of the commercial-banking system restructuring

When the banking system has trouble and is in danger, the selection of policy is feasible and effective to restore and reconstructing the system is an important matter to suggest. Some of those recommendations have been implemented around the world. Maseno (2014) shows that the addition to the system of capital through equity or hybrids acquired the assets of the bank or the nationalization of the system. However, various options in restructuring the banking system are rarely compared with each other base on specific criteria and science.

There is controversy surrounding this issue as the bank's bad assets should be sold before or after refinancing. Should hybrid securities or common stock in financial restructuring for banks be used? Is it possible to carry out bank restructurings without resorting to bankruptcy process or not using taxpayer money? People are required to participate in the process of rescuing the banks or not? However, there are three issues which the economists completely agree with:

- The restructuring, in theory, can be carried out successfully without the contribution of the taxpayers.
- If the debt contract is not renegotiated, the use of tax money is needed, however, in a number of plans which can proceed with the strategy that will cost more than other strategies.
- In case of inefficient markets, the restructuring should be conducted on both the debt and the equity components (Landier and Kenichi, 2009).

The objective of the restructuring is assumed to help to decrease the possibility of bankruptcy and minimize the burden on taxpayers. The bank’s debt which is renegotiated and the conversion of debts into equity will help to reduce the possibility of the bank collapsing. The restructuring will be carried out without the involvement of state contracts if the debt is converted into equity capital easily. In addition to the impact of the system risk and the events during the financial structure, in fact, it is hampered by the impact of interest. (Landier and Kenichi, 2009).

When the debt contract cannot be renegotiated for conversion into equity capital, the restructuring of commercial banks can use taxpayer’s money. The creditors of the banks will see that the value of the government’s debt increases more acquisition than before and requires a higher value. If the government refuses the acquisition, the value of the creditors will dig to use part of the owners of capital, and then the owners will oppose the restructuring. (Landier and Kenichi, 2009).

The continued funding for commercial banks depends on the plans of the government, which reflects the interests of the creditors for the restructuring. Most governments select banks simply to approach those that receive rescue capital with the conditions attached when the banks want to issue new shares. The rescue capital may be reduced if the banks issue new shares and use money to buy other debts. On the other hand, selected banks for the rescue capital must provide transparent situation of their property in order to receive funds (Landier and Kenichi, 2009).

During the restructuring process of the banking system, beside costing factors, the economists also consider the possibility of creating efficiency and benefits. Additionally, benefits and personal excesses can accelerate the process of restructuring and thereby reduce the costs; Or restructuring the banking system to help ensuring the rights of the managers, which would encourage them to implement the best strategies to help commercial banks to be profitable; Isolating bad assets of the banks help the managers to focus on basic governance functions and also encourage to improve the performance productivity of the commercial banks. Especially in a crisis, some assets of the commercial banks are rated lower than the true value because of the market's concerns for lack of liquidity, while it would be the best option if the government acquires the property. However, as the government is not an expert in this field, so it should encourage the use of professionals to manage private assets of the commercial banks and state-owned banks. Therefore, in long-term the manager and the owner must use the appropriate form of penalty in order to avoid financial issues as previously mentioned in the future (Landier and Kenichi, 2009).

In the process of restructuring the banks, problems of asymmetric information arise - where the banks understand the assets of themselves than those outside. So, the banks are reluctant to take part in the process of restructuring and the transfer requires more from the taxpayers. Since the banks being involved in the process of restructuring can be considered to have poisonous asset and are required more capital to support awareness. For just that the market value of the assets banks is under-pricing and requires more cost for restructuring. The issuance of hybrid securities magazine will help solve this problem because it shows that the issuer is not in a state of excessive negativity. If the released accompanying is more secured, the released strategic hybrid securities are more valuable (Landier and Kenichi, 2009).

2.2. Efficiency Theory

After looking back on the restructuring's issues, the efficiency-structure theory is presented. This theory shows that low costs of production by relatively efficient firms enable them to compete more aggressively, capture a bigger market share and earn higher profits. There are two relative efficient-structures hypotheses: one is the relative X-efficiency hypothesis (ESX) and the other is the relative Scale-efficiency hypothesis (ESS). The X-efficiency hypothesis supposes that banks that have lower costs, higher profits, and bigger market shares would have high X-efficiency (Demsetz, 1973, 1974; Peltzman, 1977). According to Lambson (1987), by scale-efficiency hypothesis, banks with lower cost and higher profit have higher scale-efficiency, which may lead to a greater concentration or/and larger market share.

The term "efficiency" is generally known as the ability to produce something with a minimum spending of resources such as time and effort. In general, when there always is a scarcity of resources, reaching the optimal point of production and allocations or, efficiency is expected to perform better. Thus, in business, efficiency is a measure of actual gained output as a percentage of the input to perform it and maximizing efficiency is one of the most important goals of a firm.

Measurement of the banking performance efficiency and the banking efficiency ratio is contrary to the general one. By reflecting the ability of a particular bank to turn its operational expenses into revenues, it should be a small percentage which shows how much the bank costs to make a unit income. If there is an increase in this ratio, there is either a rise in costs or a fall in revenues. One of the predominant aims of the previous study onthe efficiency of banks was to find out an effective way to minimize the ratio to increase the efficiency of their performances.

According to the studies of Maudos et al. (2002), whichever bank had the highest average cost was also the most cost-efficient bank. The result was related to the accounting indicator, the average costs per unit of assets (TC/A). The study showed the rank correlation of cost efficiency and this one was positive and significant. This outcome may be because of different computing of accounting ratio and cost efficiency. The study made a significant sense in evaluating the cost efficiency with the average cost of a bank. This can be interpreted that a

decrease in the bank's cost efficiency could lead to an increase in its chance to reduce costs. In conclusion, with the introduction to cost efficiency, the higher the possibility to reduce the operational costs of a bank to make the same given volume of production, the less the bank costs and the less the cost efficient is.

While studying on cost efficiency, however, numerous researches such as the one of Berger, Hunter and Timme (1993) revealed surprising divergence of average costs despite similar banks. The finding of X-efficiency (XEFF) suggests that a group of banks with similar size and product mix has greater divergent costs than that of banks of different sizes, which makes X-efficiency a much more essential tool to evaluate the cost reduction.

Back to 1966, when X-efficiency was introduced by Leibenstein (1966), a firm was assumed not to be able to fully utilize its inputs to make the maximum output under less competitive pressure. When a company has monopoly, or when it is a very small one when the competitiveness is not intense, its employees believe that however efficient the choice they make is, it will not make any difference to the company and thus become less productive. Under these circumstances, its X-efficiency falls. Accordingly, the firm may spend its resources on other fields instead of on campaigns to undercut and take out other competitors. The X-efficiency is in interconnection with management and technology. Therefore, X-inefficiency is used to depict management decadence arises with market power, when there are extra costs over the least necessary one to produce the current outputs, as there are no incentives for the firm to cut costs. X-inefficiency in banking sector, generally, is used to describe excessive expenses of production which are not incurred by subpar scale.

When a bank is considered as a X-efficient one in a competitive environment, it has an ability to incur costs lower than other banks. In other words, it can make a given volume of production with the least necessary cost by its better management and/or technology and consequently, it can make higher profits and has larger market shares with lower costs.

Similarly, to cost efficiency, X-efficiency is defined as a ratio between an expected minimum cost used if the bank is as efficient as the best – practice bank in the observed data and the expected actual incurred costs, which takes the management and technology into consideration. According to Berger and Mester (1997), X-efficiency is followed by:

$$\text{X-EFF}_i = \frac{\widehat{Cmin}}{\hat{C}} = \frac{\widehat{umin}}{\widehat{ui}} \quad (2.2)$$

Where:

C_{min} is the anticipated minimum costs used by the best – efficient bank.

C represents the anticipated actual costs incurring and is expressed as follows: C = C(y, w, u, v). It consists of the number of products or services made (y), the costs of inputs used (w), the X-inefficiency level (u) which may raise the costs over the best – efficient bank and (v) is random factors incorporating the effect of error while measuring the variables and chance may make the costs rise usually higher or lower.

U_i is the anticipated inefficient actual cost of a particular bank in the considered data.

U_{min} is the minimum of u_i.

Due to being a ratio measurement of a bank efficient costs used, XEFF ranges over 0 to 1. This value indicates how efficiently the resources a bank uses to make the same given amount of production. Accordingly, banks which have high X-efficiency have high value. However, XEFF index has one limitation which is it only compares XEFF between banks that have the best operation in the observed data; it can't be used for generalization with other data. Therefore, despite the fact that XEFF equals 1, the bank may only be the best – efficient of all banks in the sample, but not among all the banks.

Management factor, the M rating, is a composite of four quality dimensions of a bank's managers or directors. This rating is examined by subjective analysis by evaluating the ability and qualifications of the bank's managers and varies from 1 (completely effective management) to 5 (generally inferior or ineligible management). The study examines whether there is administrative ability in management to react to constantly changing situation and internal controls in place, which are very crucial for controlling costs. The monitor of board of directors is considered as well to check whether there is enough provision for success of management. Moreover, the integrity of management and its willingness to serve the banking demands of public are also considered. The result implies that the higher the M rating is, the more X-inefficient the bank would be, which means that good managers can manage banks more efficiently than inferior managers.

In conclusion, management qualification plays a certain role in making the costs difference between banks. The management-related X-efficiency seems to be uncorrelated with the bank size.

The second aspect of X-efficiency is technology, which triggers some research on technological progress to check whether it affects a bank's efficiency. Innovations in technology such as the appearance of Automated teller machines (ATMs), Internet banking, cell phone banking and credit cards have made great contribution to the bank efficiency improving, according to Musara (2010).

The former hypothesis will be rejected if the average p-value is smaller than 0.05. The data was collected from 200 random respondents participated in the survey. The result, however, only comes from the evaluation outside the bank's operation, although there is considerable relationship between XEFF and technological development of the bank.

Another angle to approach the issue is scale-efficiency (SEFF), which suggests that if a bank operates at optimal economic scale, it can have lower costs, higher profits and results in bigger market shares, regardless of the same managerial skills and production technology. According to Berger et al (1994), very small banks with scale economies can reduce average costs when increasing bank size. Moreover, this small scale economy can also cut down costs by 5% or less when jointly producing various products.

In economics, when a firm increases its outputs to reach lower costs in the long term, economics of scales occurs. In this circumstance, the firm is expected to expand its size and specialize in only some products to be more efficient. The need to increase the capacity of the firm can be interpreted by high costs needed to build a large factory. A bigger firm is able to run the factory with its full capacity to make full use of this bigger factory. If it is a small scale plant, it may turn out to be inefficient as resources are wasted. Similarly, to the need of specialization, the firm can improve its efficiency when every worker does specific part of the work, and therefore, become very efficient in their own task. As the result, scale – efficiency is also another important dimension of a bank's costs.

According to Goldberg and Rai (1996), S-EFF is calculated as follows:

$$P=\text{scale}=\frac{\partial lnC}{\partial lnYp} \quad (2.4)$$

Where:

C is the cost function and Y_p represents various products produced.

$$\text{S-EFF} = P - 1 \text{ (if } P > 1)$$

$$\text{Or S-EFF} = 1 - P \text{ (if } P < 1)$$

If P is less than 1, the bank is operating over the optimal scale level and is required to cut down its outputs to reach the best allocation point of resources. Conversely, if P is greater than 1, the bank should increase its future output level to cut costs. The bank reaches S-EFF only when P=1, at which S-EFF = 0.

SEFF is simply a ratio of average costs between the inefficient and efficient bank scale. The value of SEFF falls in the (0;1) interval and equals 1 if the bank has the optimal point of production as the scale efficient bank does. This comes to a conclusion that this method is able to check whether a bank is being run below or beyond the optimal producing point in the same manner that the former one does.

3. The related hypothesis

Market structure and performance hypothesis

To research the relationship between market structure and market performance in RQ2, Structure, Conduct and Performance paradigm (SCP) was considered to use. It is considered as a combination of industrial organization theories. It aims to discover the issue about correlations between firm structure and performance. Therefore, SCP's concept was carried out by analysing the market structure, the business controlling and the management.

In this research, both hypotheses of the SCP paradigm were studied: The first one is Structure performance hypothesis and the other is efficient structure hypothesis. According to the Structure performance hypothesis, there is a direct relationship between the degree of market concentration and degree of firm competition. To discover this relationship, it is necessary to calculate the market concentration index that is measured by the market ratio, the performance index that is measured by profits and the firm efficiency that is measured by market share. The Structure performance hypothesis shows that firms have higher market concentration will earn higher profit and vice versa.

Relative market power hypothesis

In addition to the SCP paradigm with two hypotheses, the Relative Market Power hypothesis is studied to solve the issue of RQ2. This hypothesis is empirically proved when the concentration introduced in the explanatory equations of the performance is non-significant in contrast to the market share which should be positively and significantly correlated with the price and/or the profitability. Relative Market Power hypothesis shows that efficiency can be achieved by obtaining as large market share as possible to have large concentration and create a well-differential product. This helps firms to get a supper normal profit. However, there is an existence of unambiguous results: A bank with a strong position in the market may either reinforce its domination over the market or achieve a higher efficiency.

Testing Market structure and performance (SCP) and Relative market power (RMP) hypotheses.

According to Chortareas, Garcia and Girardone (2007), in SCP and RPM, hypotheses were used to test the relationship between market structure and conduct. In the market, the power consumption is considered as variables in determining the profits of the enterprise. In previous studies, companies having big market shares take advantage of the price, so they can reach the level of high profits. There are two cases: First, if there is SCP theory, in the equation, coefficient is positive signs; Second case is the theory of RMP when the co-efficiency represents the market must be statistically significant positive. If this occurs in two theories, controlling for other variables, including the effect of the variables is found to significantly affect the profit.

Quiet life hypothesis

To finish RQ2, the Quiet-life hypothesis (QLH) is tested. It is a special case of the RMH[1] and first developed by Hicks (1935). QLH suggests that banks enjoy benefits of market power in terms of foregone revenues or cost savings; and that firms with higher market power put less effort in pursuing cost efficiency: Instead of taking advantage of their favourable position by cutting costs so as to gain higher profits, they prefer to enjoy a "quiet life". Besides, it postulates that the higher the market power is, the lower the effort of the managers to maximize the operating efficiency, a negative correlation thus existing between the market power and the efficiency. Up to date, in the empirical testing of this hypothesis, the market concentration measures are traditionally used as proxy for market power.

4. METHOD OF BANK RESTRUCTURING AND EFFICIENCY

a. The relationship between bank restructuring and efficiency

In previous studies about bank restructuring in the world, some researches proposed that efficiency was improved by the improved financial reform. For example, Berg et al., 1992 and Zaim, 1995, respectively proved that banks efficiency was improved after deregulation in Norway and Turkey. Similarly, Kumbhakar and Sarkar (2003) after deployed a test from data of Indian banking from 1985 to 1996 found that after implementing deregulation measures, the operation of private banks was improved significantly. Das and Ghosh (2006) in their study indicated that medium-sized public banks had high performance. Using bank data of 10 newly acceded EU countries from 1994 to 2005 period, Brissimis et al. (2008) showed that there was a positive effect of banking sector reform on banking efficiency, Koutsomanoli-Filippaki et al. (2009) concluded that Central and Eastern European banking industry had improved productivity by implementing institutional and structural reforms during the 1998–2003 period. Chortareas, Girardone and Ventouri (2013) estimated bank-specific efficiency scores using Data Envelopment Analysis (DEA) relying on a large sample of commercial banks operating in 27 European Union member states over the 2000s; Their results suggested that the higher the degree of an economy's financial freedom was, the more benefits for banks in terms of cost advantages and overall efficiency. Furthermore, the effects of financial freedom on bank efficiency tend to be more pronounced in countries with more freedom in their political systems in which the governments formulate and implement sound policies and higher quality governance. Besides, Rajiv (2010) found that regulatory changes to strengthen the bank's capital structure and improve risk management did not have any impact on the bank efficiency. Fethi, Shaban, and Weyman-Jones (2012) carried out the study in emerging economy and investigated that in the financial crisis, the attempt to recapitalize banking system had potential to impose significant costs. Similarly, Pinprayong and Siengtai (2012) examined the corporate restructuring in the banking industry of Thailand, their results showed that the corporate restructuring had significantly improved and supported the SCB strategic changes and its performance during the difficult economic fluctuation and fierce competition; Moreover, the corporate restructuring had led to a higher level of efficiency in business and organization. Furthermore, Bonin, Hasan and Wachtel did a research about the impact of bank privatization in transitioning countries and their results showed that the efficiency did not increase by privatization sector; and later-privatized banks are less efficient than early-privatized banks.

In privatization mater, there are a number of results showing that privatization is a good way to improve banking efficiency. For instance, Eckel and Singal (1997) in their research suggested that a change from the government to the private ownership improved the economic efficiency. Patti and Hardy (2005) found that immediately following the privatization program, the privatized banks' profit efficiency improved considerably. In terms of corporate administration, there are some studies suggest that State-owned banks' operation is less efficient than privatization banks. For example, Berger, Clarke, Cull, Klapper and Udell (2005) studied banking

[1] Relative Market Power Hypothesis

operations in Argentina and indicated that banks in this country tend to be more privatized as State-owned banks were non-performing. Similarly, Berger, Hasan, and Zhou (2009) in their study of banking system reform in China during the period 1994-2003, showed that Big Four banks performed inefficiently, the most efficient banks were foreign banks while small banks that had foreign investment significantly improved their performance. Based on the results of research, Nakane and Weintraub (2005) argued that the privatization banks significantly improved the operational efficiency and State banks were less efficient than private banks.

With M&As, Athanasoglou and Brissimis (2004) argued that it had a positive effect on cost and profit efficiency and that scope existed for further improvement in the efficiency, in particular for those involving small banks. Similarly, Staub, Souza and Tabak (2010) proposed that State-owned banks were significantly more cost efficient than foreign, private domestic and private with foreign participation. In particular, they argued that reforms imposed higher costs to encourage banks to minimize the costs of certain risky activities. Basel III requirements for better-quality capital and liquidity buffers enable institutions to better withstand distress (Lee and Hsieh, 2013). Although financial reforms (such as liberalizing direct credit or interest rate control) refer to more liberalization and competition, they may overall bring synergy to diversified banks.

On the contrary, many other researches show that financial reform doesn't impact or reduce the operating efficiency. For instance, the performed efficiency of the United State banks was unaffected after deregulation (Elyasiani and Mehdian, 1995). Similarly, Fukuyama and Weber (2002) showed evidence supporting the decrease in efficiency of Japanese banks during the period 1992–1996. Park and Weber (2006) also provided empirical evidence to assert the efficiency decrease of Korean banks over the period 1992–2002. Additionally, during the period 1985 to 2002, Fu and Heffernan (2009) studied the case in China, investigated that X-efficiency fell considerably and banks' performance were below efficiency scale. In another study, Banker at al (2010) investigated the impact of banking system reforms on bank technical efficiency and examined determinants of cross-sectional variations. Havidz, Setiawan (2015) investigated the efficiency and examined the inter-temporal relationships between bank efficiency and non-performing financing (NPF) of Indonesian Islamic Banks by employing DEA approach with the data covering the period of January 2008 – September 2014. The finding revealed that none of the Islamic banks was consistently efficient for all periods of research by OTE, PTE, and SE. The overall results showed that the efficiency of Islamic Banks was affected significantly by return on assets (ROA), operational efficiency ratio (OER), and inflation rates (INF), while financing to deposit ratio (FDR), capital adequacy ratio (CAR), size, and GDP growth rate had insignificant effect on the bank efficiency. The research supported "Bad Management" hypothesis since it revealed that possibly because of poor financing portfolio management of Indonesian Islamic Banks in the period and sample of the research.

Besides, Fischer and Guedhami (2005) suggested that state-owned banks were more efficient than banks chosen for privatization. Kraft and Tırtıroğlu (1998) studied a number of banks in Croatia from 1994 to 1995 by using stochastic-cost frontier methodology; they estimated X-efficiency and scale-efficiency for both old and new state and private banks. It was concluded that new banks were shown to be more X-inefficient and more scale-inefficient than either old privatized banks or old state banks.

Even though there have been different perspectives showing that mergers and acquisitions (M&As) have positive impact on the banking system efficiency, some researchers argue that the largest scale improvement and integration process and competitive pressure from other European countries have altered the environmental bank, which can off-set the overall picture of the overall picture (Angelini and Cetorelli, 2003, Berger, De Young and Udell, 2001). Also, Yudistira (2004) suggested that Islamic banks had been less effective in the 1998-9 global crisis; the difference of the size of the data was defined by the specific elements of the nation.

b. Bank restructuring methods and bank efficiency

Mergers among domestic banks

During the Asian banking crisis, Asian governments tried to promote mergers to solve the consequences as it was the least costly way to restructure banking system (Hawkin and Turner, 1999). At the same time, Berger et al (1999) indicated that mergers may improve efficiency if greater diversification improved the risk – return trade-offs. They suggested that regulators may act to encourage consolidation in the time of financial crisis. Athanasoglou and Brissimis (2004) argued that M&As, in particular those involving small banks, had a positive effect on cost and profit efficiency and that scope existed for further improvement in efficiency. Similarly, Staub, Souza and Tabak (2010) suggested that State-owned banks were significantly more cost efficient than foreign, private domestic and private with foreign participation.

However, it is insufficient to state that bank mergers in industrialized countries gains from mergers in developing countries. For example, Krishnasamy et al. (2004) documented improvement in production efficiency of Malaysian post-merger banks in 2000–2001. The authors noted that the overall rise in total factor productivity was driven more by technological progress of the banking system than individual bank technical efficiency. Also, Peng and Wang (2004) suggested that bank mergers could had enhanced cost efficiency of Taiwanese banks. Even though there have been many views showing that mergers and acquisitions (M&As) have positive impact on the banking system efficiency, some authors argue that regulatory reform, large-scale consolidation, and competitive pressure from other European countries have changed substantially the banking environment, with potentially offsetting effects on the overall degree of competitiveness (Angelini and Cetorelli, 2003; Berger, De Young and Udell, 2001). Additionally, Yudistira (2004) stated in his research that Islamic banks suffered slight inefficiency during the global crisis 1998-9; Efficiency differences across the sample data appear to be mainly determined by the country's specific factors.

Allowing for foreign bank entries

In Vietnam, the law on foreign investment was amended in 1995 and took effect from 1997. This law gave foreign investors an opportunity to acquire sanitized and recapitalized banks which in some cases had been consolidated with the branch networks and assets of other troubled banks. In other countries, for example Mexico, according to Schulz (2006), foreign bank penetration helped to recapitalize Mexico's banking sector effectively. In most Asian countries, the entry barriers have been loosened and foreign banks have been allowed to increase their presence. A 30% ceiling on foreign ownership of banks is retained in Malaysia, whereas a 60% interest in an existing domestic bank is allowed in the Philippines (Unite and Sullivan, 2003).

After Vietnam joined the WTO, activities of banks and foreign financial institutions on Vietnam market have been expanding. As follows, SBV has granted operating license to financial institutions and banks of many countries to operate in Vietnam. With the opening of financial markets, domestic banks have access to international financial markets. There are conditions to learn, to improve the governance, the administration and to develop new products and services business skills, particularly in the professional activities of domestic banks that have no or little experience such as foreign exchange trading, international payments, international trade credit, e-banking services, fund managers, broker currency, and risk management. Besides, when the foreign investment banks buy shares of the domestic banks, they will have favourable conditions to raise capital, acquire knowledge, improve management experience and apply modern technology in banking activities with the participation of international strategic partners. Additionally, the opening of the banking services market will spur the central bank capacity and operating efficiency, implementation of monetary policy, sharing information with other central banks. However, in this paper's research scope, only the restructuring process of domestic banks was discussed and foreign banks operating in Vietnam were not focused on because of inadequate information for research. Furthermore, the permission for foreign banks to

buy shares of the local banks is still limited by SBV regulations. Therefore, in the experimental study, this restructuring measure would not be applied.

State intervention

The governments can directly improve banks' ability by purchasing new shares or rolling over long-term debts of the troubled banks (Daniel, 1997). Thoraneenitiyan and Necmi (2009) suggested that the more concentration of state bank ownership have, the more unfavourable economic consequences would be. Borish et al. (1995) indicated that bank recapitalization which was accompanied by changes in bank incentive structures developed better. Fane and McLeod (2002) showed that owners provided 20% of the capital shortfall, and the remaining 80% was provided by the government under Indonesia's joint recapitalization program. Hasan and Marton (2003) studied the development of the Hungarian banking system in the transition period from a centrally planned economy to a market-oriented economy and showed that free policies for participation of foreign banks in local organizations had helped to build a relatively stable and efficient banking system. Ariff and Can (2009) found that in the early stages of the IMF intervention, bank's performance improved, but then restructured banks were less efficient than the unstructured banks. Moreover, Oleka and Mgbodile studied 17 banks out of the 25 banks that emerged out of the 89 banks that were in operation in 2004 before the reform and recommended that among other things that banks should opt for optimum dividend pay-out ratio that would focus on the maximization of the market values of the banks' shares, hence higher dividend per share with the resultant increased earnings per share. Furthermore, some studies investigated that foreign-owned banks were more efficient than domestic-owned banks (Weill, 2003; Walker, 1998; Philippon and Schnabl, 2013)

By contrast, Shaban, and Weyman-Jones (2012) employed the data including efficiency measurement and productivity decomposition in the banking system of an emerging economy, they said that the effort of recapitalization banking system had potential to improve costs. Similarly, Wruck (1990) found new evidence on financial restructuring and distress costs which demonstrated that financial distress had benefits as well as costs, and that financial and ownership structure affected the net costs. Furthermore, Bonin, Hasan and Wachtel did a research about the impact of bank privatization in transitioning countries, they took the largest banks in six relatively advanced countries, namely, Bulgaria, the Czech Republic, Croatia, Hungary, Poland and Romania. Their results showed that both the method and the timing of privatization matter to the performance; specifically, voucher privatization did not lead to increased efficiency and early-privatized banks were more efficient than later-privatized banks, even though no evidence was found for a selection effect.

The privatization of state-owned commercial banks

The privatization of state commercial banks is one of the tools done by the national government in the bank restructuring. Williams and Nguyen (2005) investigated the relationship between bank performance and bank management for Southeast Asian countries in the period 1990-2003 and found that state banks were less efficient than private banks. In other words, privatization can increase revenue and total assets of each bank in the short to medium term. Baer (1994) and Baer and Nazmi (2000) also pointed out that the inefficient operation of state commercial banks accelerated the process of recession, even in some cases it revealed structural weaknesses and affected economic growth in general in Brazil. Therefore, the Brazilian government had a strong impact on the restructuring of the banking system through the privatization of state banks and intervention in troubled banks.

However, it is debated that the privatization of state commercial banks is not enough to increase the bank efficiency because the government's ownership for the majority of shares makes it difficult for the banks' operation to change. Besides, M&A and the government's intervention might be inefficient in the first bank restructuring.

In conclusion, previous studies about bank restructuring and efficiency in emerging market focus on changing the bank efficiency score in pre, during and post restructuring period, then they show that the bank restructuring period is efficient or inefficient. The gap is that previous studies rarely separate the impact of the bank restructuring period and environment variables to the bank efficiency, so that the changing bank efficiency may not come from bank restructuring methods but it could be from environment variables such as financial crisis or weak local economy. To fill this gap, this study uses the three - stage DEA/SFA method to investigate the bank restructuring period. On the other hand, Vietnamese Banking sector is selected to investigate as Vietnam is one of the special economies in the world which is transitioning with small and emerging market, so that the research also fills another gap in bank restructuring studies as the case in Vietnam. Besides, the transition cost is examined further during the restructuring process of the Vietnamese banking system.

5. Results

Through a large amount of literature, we are going to use three main hypothesises about the structure and performance relationship in banking which is the market power hypothesis and the other is the efficiency structure hypothesis. Besides, we are going to carry out the testing of Quite-life hypothesis to examine this integration.

First of all, in the market power hypothesis, the words “market power” refers to a firm's relative ability to manipulate the price of an item in the marketplace by manipulating the level of supply, demand or both; A firm with substantial market power has the ability to manipulate the market price and thereby controls its profit margin, and possibly the ability to increase obstacles to potential new entrants into the market.

There were some early empirical researches testing this hypothesis in banking. Phil Molyneux and William Forbes (1995) presented tests of the two hypotheses as the traditional structure-conduct-performance (SCP) and the relative efficiency (RE) hypothesis with respect to the European banking industry and the results generally supported the traditional SCP paradigm as an explanation for the market behaviour of European banks.

In the 1993-2000period, the cost, the technical and allocative efficiency of 43 Chinese banks were examined by Xiaogang Chen, Michael Skully and Kym Brown (2005). The goal of this analysis was to identify the change in Chinese banks' efficiency following the program of deregulation initiated by the government in 1995. The results showed that large state-owned banks and smaller banks were more efficient than medium sized Chinese banks. Additionally, the technical efficiency consistently dominated the allocate efficiency of Chinese banks. The financial deregulation of 1995 was found to improve cost efficiency levels including both technical and allocate efficiency.

Fu and Heffernan (2009) investigated the relationship between market structure and performance in China’s banking system from 1985 to 2002, a period when this sector was subject to gradual but notable reform. Using panel data estimation techniques, both the market-power and the efficient-structure hypotheses are tested. Moreover, the model is extended to consider issues such as the impact of bank size/ownership and whether the big four banks enjoy a ‘‘quiet life”.

Ye, Xu and Fang (2012) tested five hypotheses that had been proposed in the literature on the relationship between market structure, profitability, and efficiency using data envelopment analysis. With a panel data of the 14 largest nationwide banks in China during the period of 1998–2007, they investigated whether the competition can help to improve the performance and efficiency of the banks or not; the result showed clearly that neither the structure-conduct performance nor the efficient structure hypotheses hold in China.

Tan (2013) examined the determinants of bank profitability; In particular, the study emphasized the effects of inflation, GDP growth rate and stock market volatility on bank profitability in China over the period of 2003-2009. The main findings suggested that, over that period, the Chinese banking sector was in a state of

monopolistic competition as examined by Panzar-Rosse's H statistic. When using the Lerner index as the competition indicator, the results revealed that joint-stock commercial banks had the highest level of competition over the examined period. Regarding to the efficiency of Chinese banks, the findings suggested that state-owned commercial banks had the highest technical efficiency, followed by joint-stock commercial banks and the city commercial banks being the least technically efficient. Some other results indicate further that scale efficiency contributes more than pure technical efficiency to the overall efficiency of Chinese banks and those Chinese banks are faced with a misallocation of inputs and outputs in banking operations. The productivity of three types of Chinese commercial banks (state-owned, joint-stock and city commercial banks) was quite stable over the examined period; these three types of banks show productivity growth in 2005 and 2009.

Berger and Hannan (1997) employed U.S bank data (1985) and found more support for the structure-conduct performance paradigm than for the relative market-power or efficient-structure hypotheses. Prior research on the structure-performance relationship has not investigated all relevant relationships among market structure, profits, prices, and explicitly calculated measures of firm efficiency. Their paper replicated four approaches in the literature, added several innovations, and applied the analysis to the banking data. They found that there was more support for the structure-conduct-performance hypothesis than for the relative-market-power and efficient-structure hypotheses, although the data was not fully consistent with any of these theories. They also found support for Hick's quiet-life hypothesis, which implied that firms with market power adhere less rigorously to efficiency maximization.

Using banks' data in 11 European countries in the 1988-1991 period, Goldberg and Rai (1996) showed evidence to support the hypothesis of market power for all banks, except countries with low concentration ratio, which was evidence to support the X-efficiency hypothesis. The relationship between market structure and performance has been widely studied for U.S banks. In contrast, very little work has been done to investigate this relationship for European banks. Two explanations for the correlation between profitability and concentration have been processed: the traditional structure hypothesis (SCP) hypothesis about the structure and efficiency. The previous empirical testing of alternative hypotheses has brought mixed results but the test was not reliable because they did not put the direct effect on the model. This study applies a random amplitude costs as proposed by Aigner et al. (1977) in order to find solutions for X-ineffective and inefficient scale, with the assumption that the errors are normally distributed in half. Ineffective measures are combined directly to the check as proposed by Berger and Hannan (1993).

Berger and Mester (1997) investigated the efficiency and productivity growth of the U.S. banking industry based on the comprehensive data between the later part of the 1980s and first part of the 1990s of the U.S. commercial banks, in case that cost efficiency decreased slightly in these period, and large banks showed a sizable decline in profit efficiency.

Finally, the Quiet-life hypothesis (QLH) is considered. Hicks (1935) argued that "The best of monopoly profits is a quiet life" and in his 'quiet life' hypothesis, he showed that firms with greater market power usually created a more relaxing environment in which less effort was put into the rigours of maximizing the cost efficiency.

Many researchers tested QLH hypothesis in their country's banking system. For example, in the case of German savings banks, Koetter and Vins (2008) used bank-specific Lerner indices to measure the competition among banks and test whether the cost and the profit efficiency were negatively related to the market power or not in the period of 1996-2006. After researching, they found out that both market power and average revenues declined among these banks. In term of the U.S, Koetter et al (2012) also applied Lerner indices in their research model and found that it revealed a quiet life among U.S commercial banks.

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