EXAMINATION OF PROFITABILITY IN THE CONTEXT OF BANGLADESH BANKING INDUSTRY

By

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Abstract

Loans are the riskiest asset of a bank, but these loans play a pivotal role in banks' profitability. Banks' profitability depends on the results of some parameters and among them Bank's Return on Equity, Market Size, Market Concentration Index, and Bank Risk Measure are widely used and the same are investigated in the Bangladesh Banking Industry in this study for a period of the last six years. The data comes from the annual reports of individual banks listed in Dhaka Stock Exchange (DSE) and from the Bangladesh bank's published statistics book (Scheduled Banks Statistics). Correlation matrix and stepwise regression have been used for the purpose of data analysis. The analysis finds that market concentration and bank's risk do little to explain bank's return on equity, whereas bank's market size is the only variable providing an explanation for bank's return on equity in the context of Bangladesh.

Introduction

The traditional measure of profitability through stockholder's equity is quite different in banking industry from any other sector of business, where loan-to-deposit ratio works as a very good indicator of banks' profitability as it depicts the status of asset-liability management of banks. But banks' risk is not only associated with this asset-liability management but also related to growth opportunity. Smooth growth insures higher future returns to holders and there lies the profitability which means not only current profits but future returns as well. So, market size and market concentration index along with return to equity and loan-to-deposit ratio seize the attention of analyzing the banks' profitability.

The banking industry of Bangladesh is a mixed one comprising nationalized, private and foreign commercial banks. Many efforts have been made to explain the performance of these banks. Understanding the performance of banks requires knowledge about the profitability and the relationships between variables like market size, bank's risk and bank's market size with profitability. Indeed, the performance evaluation of commercial banks is especially important today because of the fierce competition. The banking

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industry is experiencing major transition for the last two decades. It is becoming imperative for banks to endure the pressure arising from both internal and external factors and prove to be profitable. Until early 1985, Bangladesh had a highly repressed financial sector (Chowhdury, 2002). Banks and other financial institutions were fully owned by the government. In the early part of 1980, Bangladesh entered into the IMF and World Bank adjustment programs and the process of privatization and liberalization gained momentum under the influence of the World Bank and the IMF. Since then the banking industry of Bangladesh has become an attractive ground for both domestic and foreign investors to take part in the game. It is of utmost importance that these players prove themselves profitable. Andrews (1975) noted that it is essential to understand the strategies to achieve greater profitability. In line with this, the current study makes an effort to unearth those pillars which are major constituents of strategies and goals.

This paper intends to analyze the importance of internal and external factors for banks return on equity. Specifically, the purpose of the study is to closely examine the relationships of bank's market concentration, market size, and bank's risk with return on equity. The intention is to decide which amongst the potential determinants appear to be important. Hassan, Khan, and Haque, (1995) previously examined banks' profitability considering monetary affect and concentration in context of Bangladesh. However Fraser, Philips, and Rose (1974) stated that performance of commercial banks should not be measured by a single proxy but by a set of variables which are jointly determined by market structure, demand, and other factors.

Therefore, the current study aims to propose and examine a framework incorporating bank's market concentration, bank's market size, bank's risk, and identify the relationships of these variables with bank's return on equity in context of Bangladesh.

Literature Review

Market Size

Cravens (2000) elaborated that, market size is usually measured by currency, sales and/or unit sales for any product market and also in specified time period other size measurement include the number of buyers' average purchase quantity, frequency of purchase for any product oriented market. As a result the key measures of market size are market potential, sales forecast, and market share. In another study on banking reformation Thorsten and Ross (2002) measured the market size of banks against the GDP and to measure bank size, Thorsten and Ross (2002) used bank credit to the private sector as a share of GDP. Demirguc-Kunt and Maksimovic (2002) suggested that the extent to which various financial, legal, and other factors (e.g. corruption) affect bank profitability is closely linked to size. In addition, as Short (1979) argued, size is closely related to the capital adequacy of a bank since relatively banks tend to raise less expensive capital and, hence, appear more profitable. Luthria and Dhar (2005) defined market size as the scale of economic activity over which agents can contact. They tried to measure market size or space by national borders. Large space creates the potential for reaping economies of scale and the scope for specialization as well. It requires specific investments in physical and human capital, as well as marketing channels, constrained by slow-moving economic activity.

Market Concentration

The concentration aspect is particularly important for the transition economies and it has been very commonly used as the measurement of

profitability of banking industry. Athanasoglou, Brissims, and Delis (2005) argue that banking systems are highly concentrated, with little separation between central and commercial banking activities in order to facilitate the banks' role in the planning process. A highly concentrated banking sector results in market power for the banks. As opposed to perfect competition, banks having monopoly power would lead to an equilibrium characterized by higher loan costs and a smaller quantity of loanable funds (Cetorelli & Gambera, 2001). According to Alzaidanin (2003) when a large share of the business of a given industry is controlled by few large firms or concentrated in a few pockets the situation is usually termed as a slate of concentration.

However, Deidda and Fattouh (2002) showed theoretically as well as empirically that the relationship between banking concentration and return on equity depended on the level of economic development. More specifically, banking concentration had an adverse impact on return on equity only in low income countries. For high income countries, there was no significant effect between the two variables. Additionally, Beck, Maksimovic, and Vojislav (2003) found that this effect is especially strong if a state has a weak legal system, high level of corruption and a low level of economic and financial development. Since these factors are true for at least some of the economies under consideration, one would expect low banking concentration to foster return on equity.

Bank Risk

According to Allen (1997), banks tend to focus on areas where they believe they have a comparative advantage to maximize efficiency in making loans. This approach makes banks give attention to geographic, industry specific demographics, and other market characteristics to operate. Calomiris and Karceski (1998) noted that diversification and different levels of riskyness is the result of differences across banks in the scale of their operations. As economic conditions vary across different regions and industrial sectors, therefore bank riskyness and return on equity also vary across different regions. Gerlach, Peng, and Shu (2004) took a different approach in defining Banks' risk. Poor management qualities in inefficient institutions have a tendency to carry higher risk (credit risk, operating risk, & liquidity). The credit risk on any individual loan can be broken down into two components, the probability that the borrower will default, and the losses incurred in the event of default.

Banks' Return on Equity

In an earlier study on asset quality of commercial banks Stafon (2000) found that bank return on equity driven mainly by changes in Net Interest Margins (NIMs) and loan provision which in turn were determined by asset quality. However, Greusning and Bratanovic (2003) revealed that return on equity is a revealing indicator of a bank's competitive position in banking markets and of the quality of its management. The authors further elaborated that the income statement of a bank is a key source of information on a bank's return on equity, reveals the sources of a bank's earning and their quantity and quality as well as the quality of the bank's loan portfolio and the focus of its expenditures.

Relationship between market concentration and banks' return on equity

The empirical findings on the relationship between market concentration and return on equity are as diverse as the theoretical underpinnings. Parsley and Wei (1985) found that young firms in concentrated markets receive more credits than in competitive markets, with no difference for older firms, which results in a positive effect on return on equity. In contrast,

Cetorelli and Gambera (2001) concluded that banking concentration leads to an overall depressing effect on return on equity. The authors suggest that increased competition (thus less concentration) causes a rise in entrepreneurship and thus a higher rate of new firm creation. Very convincing is the recent work of Deidda and Fattouh (2002) showing theoretically as well as empirically that the relationship between banking concentration and return on equity depends on the level of economic development. More specifically, banking concentration has an adverse impact on ROE only in low income countries. For high income countries, there is no significant effect between the two variables. Therefore, the following hypothesis can be proposed:

Hypotheis1: There is a significant relationship between Bank's market concentration and Bank's return on equity of commercial banks in Bangladesh.

Relationship between market size and banks' return on equity

Shepherd (1972) mentioned a positive relation between the market size and return on equity. Such a nature of relationship continues to receive a great deal of attention. Seedier and Gee (1961) suggested that the variability of the growth rate of bank assets declines with the market size. Demerguç- Kunt and Huizinga (2001) noted that growth of market size, in contrast, is positively and significantly related to profit growth. Again by following the same path of Smirlock (1985), Alzaidanin (2003) mentioned a positive and significant relationship between banks' size and banks' return on equity based on product differentiations. Therefore, the following hypothesis can be proposed:

Hypothesis 2: There is a significant relationship between Bank's market size and Bank's return on equity of commercial banks in Bangladesh.

Relationship between banks' risk and banks' return on equity

Gizycki (2001) stated that even though return on equity is influenced by bank's credit risk, the relationship between the two is not straightforward. Movements in the return on assets will reflect not just credit risk, but the full range of risks, including bank's exposures to movements in interest rates and exchange rates, liquidity risk and operational risks. Moreover, banks return on equity reflects not just risk-taking, but also other factors such as the mix of on and off balance sheet business, operating efficiency, the level of competition within the banking market, and regulatory constraints. Banks earn higher returns by taking on riskier business, this will boost the return on equity. However, if a bank experiences losses beyond what it had provisioned for, such losses will reduce return on equity. Bourke (1989) reports that the effect of credit risk on return on equity appears clearly negative. This result may be explained by taking into account the fact that the more financial institutions are exposed to high-risk loans, the higher is the accumulation of unpaid loans, implying that these loan losses have produced lower returns to many commercial banks. Therefore, the following hypothesis can be proposed:

Hypothesis 3: There is a significant relationship between Bank's risk and Bank's return on equity of commercial banks in Bangladesh.

Conceptual framework

It is proposed that bank's market concentration, bank's market size, and bank's risk are important in the context of their relationships with bank's return on equity. Based on the preceding literature review, the following framework was proposed.

The conceptual framework (figure 1) depicts the measured variables and their relationships in the present study.

Methodology

Research setting

Only the listed banks in the Dhaka Stock Exchange were selected for this study. The researchers collected secondary data from the annual reports of these banks.

Sampling method

Currently the Dhaka Stock Exchange has 23 listed banks. Therefore, the researchers have selected 23 banks in Bangladesh. However, the sample size is trimmed down to 15 because of inaccessibility of data. To run the analysis data from the year 2000 to 2005 data were used.

Measures

To calculate profitability of selected banks, the following ratios were used:

- Bank's return on equity (ROE) = Net Income / Total Equity
- Market size = Individual bank's deposit / Total banks' deposit
- Market Concentration index = Market size
- Bank Risk Measure = Bank's total loan / total deposit

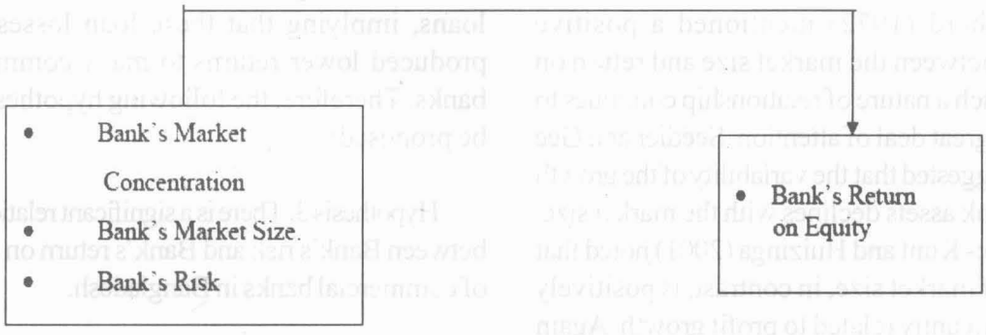

Figure1: Conceptual Framework of proposed variables and their relationships.

The relevant reasons and credentials behind the above measures of profitability of banks are as follows:

According to Al-Shammari M. and Salimi A. (1998) profitability ratio especially ROE signals the earning capability of the organization. They also suggest that higher return on equity (ROE) ratio is appreciable as it is the primary indicator of bank's profitability and functional efficiency. Besides that the authors pointed out that higher liquidity ratio pulls strength of operation up. Thus, from their view it can be stated that bank risk can be offset through lower loan-to-deposit ratio. For bank, the capital sufficiency is important to further growth as well as profitability. Conversely, more loans derive higher credit risk, higher rate of nonperforming loans, and lower return on asset as well as equity. They provided a data envelopment analysis (DEA) model to explore the financial position of commercial banks in Jordan. Therefore, ROE is used here to measure the profitability which is the most sought after measure among all.

Philippatos and Yildirim (2007) recommended that the market attractiveness and profitability has a positive relationship in the context of monopolistic banking business. Force of lending can pull up through increase efficiency of own capital and competency. However, earlier in 1977, Heggestad explained that if the individual bank has higher market share it is sure to enjoy monopoly which helps the bank to extend market concentration and reduce risk. The ultimate result is the increase of return on equity (ROE). He also said that risk is a fundamental factor in pulling up profit. But, market size diverts risk from business and confirms smooth growth and secured ROE. Hence, market concentration index is used to address the market-structure of Commercial Banking Industry of Bangladesh.

Keeley (1990) thinks that higher Market-to-Book Value ratio and capital to asset ratio provide good signal about bank attractiveness and dominating power in the market. He also exemplifies that higher market/book value of the industry indicate that the market concentration is high in this industry. But, the capital markets (i.e. the stock markets/exchanges) are not efficient in taking into account for this measure, hence this measure is not used here in this study.

When a bank faces financial distress it is easy for the bank to take greater risk and expose more profit (Herring & Vankudre, 1987). The traditional measure of stockholder's equity is determined by Loan-to-Deposit ratio. Not only is risk associated with this but is also related with growth opportunity as well. Smooth growth ensures higher future return to holders. Besides, loans are the riskiest asset of a bank (Todhanakasem, Lynge, Primeaux, & Newbold, 1986). Risk can be measured by ex ante factors. To reduce risk a bank may use more equity to total asset ratio. They also argued that the total loan to total asset is the most popular system to determine risk of default. Furthermore, they determined that the risk adjusted profit is more appreciable to reduce risk though it decreases the level of return to equity holders. Therefore, market size and bank risk measures are used here as the indicators of banks' profitability.

Results

Correlation Analysis

Correlations statistics among studied variables are listed in Table 1, which shows the correlation matrix of the measured variables.

The correlations matrices give a picture of correlations among market concentration, market size, bank risk, and banks' return on equity of commercial banks in Bangladesh. Market concentration is found to be significantly and positively correlated with banks' return on equity (r = .937, p< .01). Market size was found significantly and positively correlated with banks' return on equity (r = .977, p< .01). A negative but insignificant relationship was identified between bank's risk and return on equity.

Table 1 Correlation Matrix for bank concentration, market size, bank risk, and bank return on equity

Variables	Return on Equity	Market concentration	Market Size	Bank risk
Return on Equity		.937**	.977**	-.358
Market concentration			.954**	-.271
Market Size				-.338
Bank risk				

Note: *p<.05; **p<.01.

Regression Analysis (stepwise regression)

Stepwise regression is conducted to recognize the relationship between market concentration, market size, bank risk, and return on equity for commercial banks in Bangladesh.

Table 2 shows that, Market size (p<.001) was found to be statistically significantly related to bank's return on equity. Market concentration, and bank's risk failed to enter signifies that that they are not significantly associated with banks' return on equity in Bangladesh. Market size explained 95% variance in bank's return on equity. Therefore, stepwise regression provides support only for hypothesis 2, and hypothesis 1 and 3 were not supported.

Table 2: Stepwise regression on return on equity of commercial banks in Bangladesh

Variable	B	SE B	β	R^2	ΔR
Step 1					
Market Size	.823	.050	.977***	.954	

Note: *p<.05, **p<.01, ***p<.001

Conclusion and Recommendations

Market size and bank's return on equity proved to have strong relationship in the correlation analysis. Also, in the stepwise regression analysis, a strong and significant relationship was identified between market size and bank's return on equity. It suggests that capital adequacy is important for a bank to be profitable. In line with the proposition of Goddard et al. (2004), commercial banks are holding less expensive capital in Bangladesh. The correlation analysis shows a negative relationship between bank's risk and return on equity. This supports the explanation made by Miller and Noulas (1997), from which it can be concluded that commercial banks are exposed to high-risk loans in Bangladesh producing lower returns to them. However, bank's risk failed to enter the stepwise regression analysis to explain return on equity. It signifies that bank's risk is not an antecedent of bank's return on equity in context of Bangladesh. Besides, commercial banks are running the risk of lending more than what they are provisioned for, so sometimes they are substantially risk-prone. Albeit the negative relationship between banks credit risk and return on equity is not significant in context of Bangladesh, commercial banks can manage to reduce their credit risk by increasing their amount of deposits. Increasing the individual bank's deposit can also enhance the market size of commercial banks as a sequel they can improve their return on equity. This has been established from the existence of significant relationship between market size and return on equity in context of Bangladesh.

Capital sufficiency may be able to remove the risk of default (Talmor, 1980). But higher liquid money cause return of investment lower and it also fail to meet stockholder's expectation as they desire higher returns. Moreover, he added those banks loans suffer from two main sources are the risk of default and the risk of interest rate. The fact is default risk can be offset by good management decision but interest rate risk is a macro factor and it is determined by central bank of the country. The terminology, good management is very subjective, arbitrary to define and it is not always an internal factor to the banks; specially in Bangladesh, good management can not be expected in most of the cases, where the expertise on this sector yet to be developed. Besides, interest rate can not controlled by banks themselves.

So, the lessons to the banks derived from the findings of this study to reach to the expected level of profitability are to increase market size and bank's return on equity. So, banks have increase their clientele list without compromising their clientele's quality as if the clients fail to pay back, return on equity will swing down.

The present study is noteworthy in various aspects as the findings can be useful for commercial banks to make management decision to improve their return on equity which is the bottom line of banks' profitability. Besides, the shareholders care for this parameter as it accelerates the value of the firm. Again, this study can also be useful for further research in a comparable context because it will trigger the future researcher for an extensive research in the similar area and beyond.

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