

The Effect of Changing Capital and Deposits on the Performance of Banks: Banks Listed in Tehran Stock Exchange

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Abstract: Now a days, banks as the most important element of monetary market play crucial role in the economy of our contry. Among the items of balance sheet, the ratio of regulatory capital has been interested as a new key variable in the monetary transmission mechanism. In this study, changes in capital and deposits and its effect on the performance of banks have been examined. For this purpose, banks listed in the Tehran Stock Exchange within 2001-2014 have been examined and 19 banks were analyzed using data from the financial statements. The results showed a positive relationship between capital and deposits with Return on Assets (ROA) and Net Income (NI). But, there is no significant relationship between capital and deposits with Return On Equity (ROE).

Key words: Capital adequacy, profitability, return on equity, return on assets, net income

INTRODUCTION

Now a days, banking system including central bank and commercial banks play a leading role in the control of economic activity and and social and economic development. So that banking system in economic literature is introduced as the heart of economy which provides blood (money) for real departments based on their needs.

Wide network of commercial banks centralized by the central bank play three key roles in the economy including exchanges development, optimized allocation of resources and implementation of monetary policy. The effect of ownership structure on the performance of banks has been examined in many literatures. Companies can use some techniques and strategies to achieve the Return on Equity (ROE). One strategy is through the capital structure. The relationship between capital structure and return on equity is a significant part in all companies.

Making decisions about capital structure especially in banks is important because the changes of financial leverage are sensitive to total assets. In addition, banks' capital structure is adjusted in high manner. Decisions about capital structure not only for administrators and legislators are important but many shareholders are also concerned. In decisions of capital structure, banks have to focus on regulatory requirements, accuracy of information and rate of return on equity.

Shareholders pay attention on capital structure of bank but this determines the rate of return and security of their investment in the bank. Banks with high leverage are at high risk. However, according to the conventional view about high rate of return on equity thus decisions about capital structure impose business risk on banks.

Capital of Bank has always been a central issue and the structure is a disturbing factor in the financial health and security of the Bank. In fact, we can say that the resistance of a bank for dealing with the crisis depends on the bank's assets in the fund. The importance of investment in these funds is a convenient tool and hard insulation is banks which are created through deposit in the fund, accumulation of legal reserves and lead to confidence.

Determine the functional role of capital in the profitability, performance and public confidence in banks, with an emphasis on capital adequacy requirement is considered as a means in the financial system. In general, the legal authority has been addressed for the performance of banks. The main body of various issues is to determine the appropriate amount and the causal relationship between the capitals and the bank's performance.

According to Shleifer and Vishny (1994), ownership structure influences on company performance. A number of previous studies have discussed the ownership concentration and companies' performance which is

complex and experimental studies have shown mixed results because these results are inconsistent and uncertain and this causes to the study the relationship between capital structure and deposits with the performance of bank. In this study will seek to answer the following questions:

- Does the ownership of capital influence on return on assets, return on equity and net income of banking deposits?
- How the ownership structure and deposits affect the profitability of the banks?

The remainder of this study is presented based on the following: the next part provides the literature. Second section describes the assumptions and methodology used in this study. Conclusion is provided in fourth section and summary and recommendations are presented in the fifth section.

Research literature

Capital and capital adequacy: The importance to establish each activity is concerned especially on the capital and due to the many ideas of theorists; the term capital is a source of confusion, because it has diversity of concepts. In economics, capital means the amount of goods accumulated through business activity. In finance, “finance capital” can be defined in two tangible and intangible capitals.

On the other hand, Altunbas *et al.* (2007) defined capital as stock of business owners and as a result of their commitment to their success. However, the difference between the bank and financial experts should be considered a form of capital adequacy. For example Altunbas *et al.* (2007) expressed a question of the appropriate level of capital adequacy of the bank which leads to trust in shareholders and maintain healthy operations in regulatory legal framework.

After the introduction of the first agreement of capital in accord Basel Committee in 1988 and the credit crunch in the international arena in the early 1990s, the regulatory capital of banks in their lending decision was very important. In fact, capital of bank not only in making portfolios but also as a key variable was identified and its importance in the effectiveness of monetary policy transmission mechanism was also addressed.

More precisely, based on basel agreement the bank without adequate capital to cover risk weighted to maintain a ratio of regulatory capital required in the short term changed their composition of its asset portfolio and because of the risk weight under the securities compared

with loans, changes in the composition of the loan portfolio of assets in the securities have been concerned. This shows the willingness of banks to participate in stock exchange market rather credit market when the capital is little.

Unoh stated that capital adequacy is an important variable in the business which has been interested by different people in the field of banking. More theorists have stated that banks have adequate capital to prevent potential losses to grant loans, funds to meet domestic needs for development and make sure depositors and deposit insurance.

Legislators and bankers also agreed on the level of capital adequacy, for example, Legislators primarily have been addressed 2 of banks, survival of investment funds and stability of financial markets (Pahlavanzadeh, 2007). Many researchers including Nachane *et al.* (2006) cited studies that show fewer disastrous aspects of banking crises in the banks which have had a better capital position. A bank with sufficient capital has more time to deal with the problems and to solve them properly.

In the channel of bank capital introduced by Chami and Cosimano (2001), Goddard *et al.* (2004) and Van den Heuvel (2012) completely, bank capital is considered as a dynamic variable that plays a key role in the ratio of regulatory capital and making decision about lending. In this approach, the incomplete banking capital market and mismatch between due date of assets and liabilities.

Capital performance: The main task of capital is to finance the purchase of machinery and equipment while its secondary function is protection against creditors and needed funding in the short term. However, in banking the function of capital primarily is a shield against loan losses and damages that may occur. It is also a supplier for physical assets for business. Capital of Bank is an “engine and shield” for the banks (The mismatch between due date of assets and liabilities lead to effectiveness of monetary policy and changing the interest on banking profit).

For example, regulatory capital primarily is an indicator of growth of the banks that provide the financial ability to develop and the necessary facilities for new services. On the other hand, it is an “inhibitor” regulation to limit bank risk. So protection of deposit insurance by the government is very important.

Despite disagreements over the role of capital between bankers and regulators in fact, the capital performance determines the quantity and amount of capital is for banking that is different depending on the goals and objectives to use the capital. This leads to a

different classification of the bank's capital role. In the first case, the performance of capital is for operational activities and in the second case leads to productivity.

Bank literature review has shown that most legislators focused on the role of banks' capital while bankers focus on its second role. Researchers stated that the need for capital in the banking lies in its application importance in different stages of the life cycle of a bank.

For example, capital is to meet the minimum needs of the bank and earn interest at an early stage of its work. In a mature bank, additional capital is a shield to absorb operating losses. In the third stage, many banks are facing lack liquidity and bankruptcy and capital is a mean to protect against depositors and other creditors (Al-Taani *et al.*, 2014).

Measuring capital adequacy and profitability: Recent studies due to environmental changes, significant impact in the banking sector has been created in the world. After decades of deregulation, globalization and national innovation, the banking sector was revived after the financial markets failure. Internal and external factors affected the banking structure and its performance.

The global financial crisis is resulting market volatility, lack of liquidity in many financial markets and the systemic risk. Banks to increase their profitability need to know the risk factors affecting their profitability. In addition, the risks are well known by the banks. This leads to better identify of banking risk and rules of Basel and their efforts are reflected in the capital adequacy. Factors affecting the profitability are considered by many researchers.

In fact, Short (1979) and Bourke (1989) widely identified factors affecting the profitability of banks. The relations between the capital and the profitability of banks are different (Schiniotakis, 2012). Lee and Hsieh (2013) also examined the effect of bank's capital on the profitability of the and the risk of Asian banks in the period 1994-2008 with a review of 42 Asian countries and showed that by changing the capital, investment banks had the least positive effect on profitability. Also in banks in low income countries, the effect of capital was higher on banking profitability.

Naceur and Omran (2011) examined the effect of banking regulation, concentration and financial and organizational development on profitability in 173 banks in the Middle East and North Africa in the period of 1988-2005. The results showed that the specific characteristics of banks, capital of bank and credit risk have significant positive effect on profitability while macro indicators of macroeconomic development and financial factors are not effective in the profitability of banks.

Schiniotakis (2012) also showed that ownership of the banks and the banks' capital structure influence on the profitability of banks. Tarek Al-Kayed *et al.* (2014) examined the effect of the capital structure on the Islamic banks. The results showed that after macroeconomic environment, financial and tax market, the performance of Islamic banks is affected by the positive response to equity ratio (toward capital).

Slama Zouari and Taktak (2014) also examined the relationship between structure of capital ownership and performance of Islamic banks. The results showed that 49% of banks have centralized structure and 41% of banks have institutional ownership is that return on capital and return on equity was used to measure performance. The results showed that the common efforts of institutional investors are effective on banking performance.

Andrie and Cocris (2012) examined the performance of banks during the financial crisis. The results of study showed that higher capital of banks is more effective on banking activities and had better performance during the financial crisis. There is a positive relationship between capital and the expected return which is increased by combination and merging. Increasing the profitability of banks is related to increase their capital. Finally, given the information asymmetry is expected that banks with larger capital have better performance and profitability.

Al-Taani *et al.* (2014) examined the effects of changing owned capital and bank deposits on banking profitability in Jordan. The results showed that the ratio of net income, return on equity and return on assets have a significant positive correlation with bank capital. In addition there is no significant relationship between ROA and deposit also performance of bank is positively associated to owned capital of deposits.

Also in Iran, Rahmani and Heidari examined the relationship between capital adequacy ratio and financial variables in the Iran banking system. The results showed that all variables of profitability, size, ratio of deposits to loans and credit risk are significantly associated with the capital adequacy ratio. The intensity of this relationship is more for the profitability than other variables and is less for relative credit risk than for other variables. Also, the relationship for profitability is direct and for other variables including size, the ratio of deposits to loans and credit risk is reverse.

Farshad *et al.* (2010) also evaluated the performance of private banks compared to Persian Gulf Arab countries banks, bank performance indicators in four categories: profitability, liquidity, capital efficiency and to evaluate and compare the performance of private banks of Iran and Persian Gulf Arab. The results showed accepted performance of private banks in the early years of activities in bank performance indicators of four groups.

Four criteria listed above represent different aspects of the performance of banks so that the profitability indicators show income structure and bank profitability; indicators of liquidity show the ability of banks against depositors given due date of assets and liabilities; performance indicators show personnel costs to revenues ratio and capital indicators show the ability of bank to refund in the case of internal problems and economic problems.

Also, Valiollah Pour examined the relationship between deposits and lending on the growth of bank deposits across the country in two provinces. The results showed that the better absorption of resources and the granting bank deposits to real and legal persons, successful management of this process and the development in banking system cause that accurate information is obtained by the cost and benefits of this process.

Evaluating iran banking system from perspective of capital adequacy: In the international arena, the provisions of the capital adequacy have been included in the field of banking regulation and adoption of regulations concerning the capital adequacy of the Bank's Financial Health because is so imperative that some efforts have been done to pass from Ball I to II in these countries and more complex regulations have been interested to regulate capital adequacy. In Iran, no efforts have been done in the filed of banking healthy based on capital adequacy of bank.

More precisely in 2003, other countries are implementing key requirements for the implementation of capital agreements of Ball II with a significant time lag. The regulations of basic (Islamic Republic Central Bank, Circular No. 1911 on 2003, regulation of basic capital in banks and credit institution) capital of banks and capital (Islamic republic central bank, circular no. 1966 on 2003, regulation of capital adequacy (public banks) and circular No. 1967 on 2003, regulation of capital adequacy (private banks) adequacy of the banks have been adusted according to Ball I pattern and was notified to banks.

Assessment of current financial information contained in the banking network in the spring of 2014 seperately for state commercial banks, specialized public banl, private banks reflect the clear image of the negligence of banking network in the calculation and disclosure of this variable to all stakeholders. On the basis of the information contained in Table 1, state commercial and specialized banks are not interested to exclose these

Table 1: Evaluation of capital adequacy ratio in banking system in 2014.
Ratio of capital adequacy

Parameters	Number	Number	Percent
State commercial	4	0	0.00
Public specialized	5	1	20.00
The privatized	3	1	33.33
Private	19	12	63.16
Total	31	14	45.16

variables in its financial statements. This unwillingness in privatized banks has been reduced and in private banks is minimized.

However, the performance of private banks in this field is not desirable. Totally, 54 and 84% of the banking networks consisting of 17 banks do not notify the above ratio to the public and this shows improper image of compliance of banks to the regulatory guidance within 10 days after announcement of related circulars to banking network.

Although, most active banks in banking system did not disclose their capital adequacy ratio but based on banks' balance sheets is possible to calculate this variable given the the pattern set forth in the foregoing guidance. Hence in this paper, according to the information available in this database, the ratio for banks operating in the banking system for the period 2007 1-2013 was 1:2.

Based on calculations done and by focusing on calculated regulatory capital ratios for the last quarter of the sample, the banks were classified in two groups with captial adequacy <8% and capital adequacy >8%.

With respect to the banks in each of these two groups (Fig. 1). it is observed that this variable in this banking system has sinusoidal behavior and in 2008 and 2011 showed the best performance of the banking system on these variables, 75% of banks have capital ratio >8% and at the end of the period in 2009, the performance of banks is extremely unfavorable, so as in this year only 64. The 5% of banks could supply the expected regulatory capital ratio. In general, the study also found that an average of 69. The 7% of banks have regulatory capital ratio of 8% and this variable is less than the required amount in 30.3% of banks.

Research hypothesis: In this study, model of Al-Taani *et al.* (2014) is inspired to examine the effect of changes in capital of banks and deposit on performance of banks in the period 2000-2011. He used multiple regressions to test the hypothesis. Based on the research questions, the conceptual model is considered. Following model showed that the relationship between capital and deposits of the bank are independent variables and return on assets, net income and return on equity are dependent variables (Fig. 2).

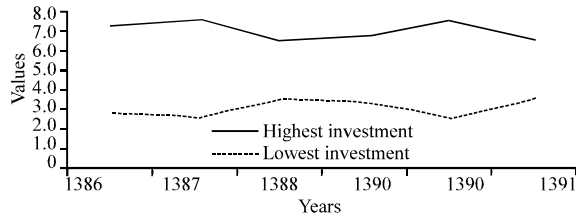


Fig. 1: Assessment of regulatory capital of the banking network

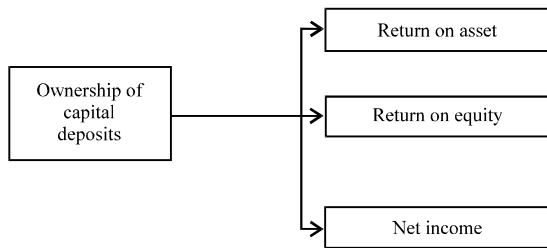


Fig. 2: Research conceptual model (Al-Taani *et al.*, 2014)

Research hypotheses are as follows:

- Capital owned by the bank and the deposit are not effective on the Return on Assets (ROA)
- Capital owned and deposits have negligible effect on Return on Equity (ROE)
- There is a negative relationship between the he capital owned and deposits with Net Income (NI)

MATERIALS AND METHODS

The study is applied for the purpose. In term of reasoning, inductive and in terms of statistical method, this study is correlation and a multivariate regression model was used as statistical patterns. To test the hypothesis three methods including t-student test, correlation analysis and regression analysis were used. Eviews software used to test the hypotheses.

Statistical population of this study includes all the banks listed in the Tehran Stock Exchange, except investment companies, banking and insurance. The sample consisted of 19 bank accepted in stock exchange within 2010-2014.

The samples consists of banks which their financial year is ended to last day of March and did not change their fiscal years and during the years studied. The banks were accepted in Tehran Stock Exchange before the end of fiscal year of 2011 and their information is available for the years studied and the banks which don't have operational interval during the study.

Thus, with regard to panel data (sectional units over time) that will be used to test the hypotheses, the total

sample includes 19 banks. Information associated with the company is collected and abbreviated using Rahavard Novin software and CDs of stock exchange.

Variables and research model: In this study, the pattern of research Al-Taani *et al.* (2014) was used to discuss the definition of variables and model. In order to test the hypothesis of this study, the three following Eq. 1-3 were used:

$$ROA = C + \beta_1 X_1 + \beta_2 X_2 \tag{1}$$

$$ROE = C + \beta_1 X_1 + \beta_2 X_2 \tag{2}$$

$$NI = C + \beta_1 X_1 + \beta_2 X_2 \tag{3}$$

Where:

X_1 = Capital under ownership

X_2 = Deposits

The method of calculation parameters used in the model is as follows:

In this study, to measure Net Income (NI), profit before extraordinary items and discontinued operations to be measured. ROE is an important criterion to demonstrate the earnings per share is calculated by dividing the net profit (income) on equity. ROA is an important criterion to demonstrate the company's revenue is the amount invested by dividing net profit (income) assets acquired existence thoroughly.

RESULTS AND DISCUSSION

Descriptive statistical of research variables: Table 2 shows the descriptive statistics of the variables. In Table 2, for each of the variables, mean, median, standard deviation, maximum and minimum value of each variable is shown. Compare the average of observations and median showed slight differences which represent the distribution is normal.

The average of net income in the studied banks was 24.34236 and positive sign means that the banks of the study had positive returns totally. The mean and median of operating cash flow are both positive and indicate that banks operating cash flow has been grown in the period studied. The mean and median return on equity both positive and indicate that the banks have positive returns during the study period.

Before estimate the correlation graph, model variables can be very convenient. Correlation represents the linear model, correlation >0.7 and increases significance of probability of a linear model. Correlation has been studied in the following Table 3.

To determine the stationary if research variables, Phillips-Perron unit root tests for research variables was

Table 2: Descriptive statistics of research variables

Variables	Symbol	SD	Median	Average
Net income	NI	17.22306	18.94500	24.34236
Operating cash flow	ROA	1.532944	1.695000	2.032778
Return on equity	ROE	9.425217	18.67000	18.59097
The capital owned	X1	19178306	8111391.	16510702
Deposits	X2	2.70E+08	85450110	2.05E+08

Table 3: Correlation between model variables

Correlation					
Probability	NI	ROA	ROE	X ₁	X ₂
NI	1.000000				
ROA	0.636042	1.000000			
ROE	0.298086	0.470848	1.000000		
X ₁	-0.173731	-0.191316	0.021115	1.000000	
X ₂	-0.281361	-0.340952	0.048090	0.869108	1.000000

Table 4: Results of unit root test of research variables

Phillips-Perron unit root tests			
Vaibles	Results	Sig. level	Statistic
NI	Stationary	0.0045	-4.218899
ROA	Stationary	0.0022	-4.560031
ROE	Stationary	0.0018	-4.653625
X ₁	Stationary	0.0000	-6.363234
X ₂	Stationary	0.0004	-5.26000

used. If time series were not reliable in the regression, regression may be suspended. Results of Phillips-Perron unit root test for the studied model variables are listed show in Table 4 According to the stationary of all variables, estimations can be done.

Test research hypotheses: To examine the regression assumptions, first the reliability of variables is evaluated. in the second stage, Chow test is used to examine the existence of intercept in the regression model. If intercept is not confirmed, Pool Model is used to test the regression equation. If intercept is accepted, Hausman test is used to examine the existence of fixed effects:

$$ROA = C + \beta_1 X_2 + \beta_1 X_2 \quad (4)$$

$$ROE = C + \beta_1 X_2 + \beta_1 X_2 \quad (5)$$

$$NI = C + \beta_1 X_2 + \beta_1 X_2 \quad (6)$$

If a fixed effect is confirmed, to test the hypothesis fixed effect model is used. Otherwise, random effects model is used to test the model. In this study, confidence level is 95%. The first model estimation is defined as follows.

Table 5: Results of fitted of the first model

Test	Test	Sig. level	df	Statistic
Model 2 to test the hypothesis	Period F Chi-Squre	0.667128 2.150878	(3.66) 3.00	0.5752 0.5417

Table 6: Results of the fitted of second model

Tests	Test	Sig. level	df	Statistic
Model 2 to test the hypothesis	Period F Chi-Squre	0.278320 0.905151	(3.66) 3.00	0.8408 0.8242

Table 7: Results of the third model fitted

Test	Test	Sig. level	df	Statistic
Model 3 to test the hypothesis	Period F Chi-Squre	7.522673 21.176358	3.66 3.00	0.0002 0.0001

According to the description given in the previous study, first Chow test (F Limer) is performed. Due to the significant level obtained in Table 5 can be sure that use of panel data is appropriate. Later, Hausman test is performed to choose fixed or random effects.

As it is observed, due to the significant level of the null hypothesis, the intercept equality is accepted. (Absence of fixed effects). So, in this stage Pool Model as the preferred model for the first hypothesis is selected.

As it is observed, due to the significant level of the null hypothesis, the intercept equality is not accepted. (Absence of fixed effects) So, in this stage Pool Model as the preferred model for the second hypothesis is selected (Table 6). As it is observed, due to the significant level of the null hypothesis, the intercept equality is not accepted. (Absence of fixed effects). So, in this stage Hausman Model as the preferred model for the third hypothesis is selected (Table 7).

Then, the research models are estimated based on the results of the previous stage. The results of the model assumptions are given in Table 8.

To test the first hypothesis: capital owned by the bank and the depositor are not effective on the Return on Assets (ROA).

The results obtained are the following: Due to the significance level for X₁ variable, it is observed that the amount is >5% as a result there is no correlation between X₁ and ROA. The coefficient of determination shows that the X₁ variable predict S 4.6% of changes in ROA. On the other hand Durbin-Watson statistic is 1989152 which represent the lack of autocorrelation between estimated residuals of equation. Due to the significance level for X₂ variable, it is observed that the amount is less than 5% as a result there is no correlation between X₂ and ROA.

Table 8: The results of the regression model of dependent variable (ROA)

Variables	Significant level	Coefficient	SD	t-statistic
X ₁	0.0383	2.325651	1.78E-08	3.83E-08
X ₂	0.0021	-3.203253	1.26E-09	-4.05E-09
C	0.0000	10.34084	0.222147	2.297188
	461320.0	Coefficient of determination	F-statistic	6.636064
	989152.1	Durbin-Watson statistic	Statistic probability of F	0.002312

Table 9: The results of the regression model of the dependent variable (ROE)

Variables	Significant level	Coefficient	SD	t statistic
X ₁	0.7289	-0.348015	1.19E-07	-4.15E-08
X ₂	0.6183	0.500451	8.47E-09	4.24E-09
C	0.0000	12.36695	1.488416	18.40715
	0.004061	Coefficient of determination	F statistic	0.140670
	0.976232	Durbin-Watson statistic	Statistic probability of F	0.869024

Table 10: The results of the regression model of the dependent variable (NI)

Variables	Significant level	Coefficient	SD	t statistic
X ₁	0.0485	2.008536	1.86E-07	3.73E-07
X ₂	0.0063	-2.817275	1.30E-08	-3.67E-08
C	0.0000	6.636731	3.874163	25.71178
	0.108019	Coefficient of determination	F statistic	4.177972
	1.669238	Durbin-Watson statistic	Statistic probability of F	0.019376

To test the second hypothesis: Capital owned and deposits have negligible effect on Return on Equity (ROE).

The results obtained are the following: Due to the significance level for X₁, X₂ variables, it is observed that the amount is >5% as a result there is no correlation between X₁, X₂ and ROE.

Due to the significance level for the variable X₁, X₂ observed that its value is >5% as a result of the X₁, X₂ and ROE relationship does not exist.

To test the third hypothesis: There is a negative relationship between the capital under the ownership and deposits with Net Income (NI). The results obtained are Table 9.

Due to the significance level for X₁, X₂ variables, it is observed that the amount is <5% as a result there is correlation between X₁, X₂ and NI. Due to the significance level for the variable X₁, X₂ observed that its value is >5% as a result of the X₁, X₂ and ROE relationship does not exist.

To test the third hypothesis: There is a negative relationship between the capital under the ownership and deposits with Net Income (NI). The results obtained are Table 10.

Due to the significance level for X₁, X₂ variables, it is observed that the amount is <5% as a result there is correlation between X₁, X₂ and NI.

CONCLUSION

Among the items in the balance sheet of banks, the ratio of regulatory capital has been considered as a key variable in Monetary Transmission mechanism. In recent years, this issue has been emphasized in the international arena by highlighting the role of capital regulations to making any decisions about loans and significant evolutions in the capital agreements. The relationship between capital structure and return on capital is significantly important for banks and businesses.

Banking industry is sensitive to changes in financial leverage due to the low level of capital adequacy to total assets. In addition, the bank structure is highly controlled and regulated. In this study, the relationship between capital structure and profitability of return on capital and return on assets in 19 banks listed in the Tehran Stock Exchange in the period 2011-2013 have been discussed.

The results of the model by regression models with panel data show a positive relationship between owned capital and deposits with Return on Assets (ROA) and Net Income (NI). But, there is no significant relationship between capitals owned and deposits with Return on Equity (ROE). It is suggested, that in order to increase the profitability of banks, a certain proportion of asset to liability be applied in capital structure.

RECOMMENDATIONS

It is recommended to private sector investors and financial analysts to consider the capital structure and bank debt ratio as a measure to predict the profitability

and their analysis. It is recommended to banks and credit institutions to pay attention to factors such as profitability and leverage ratios when lending.

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