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CAPITAL ADEQUACY RATIO AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN NEPAL

Dhundi Raj Bhattarai

Lecturer, Nepal Commerce Campus, Kathmandu, T.U.
Corresponding author: dhundibhattarai@gmail.com

ABSTRACT

The Purpose of this study is to measure the impact of capital adequacy ratio i.e., core capital ratio, supplementary capital ratio, and total capital fund ratio; financial performance i.e., return on assets and return on equity as well as their relationship. It has also focused on effect of capital adequacy ratio on financial performance of commercial banks in Nepal. Descriptive and casual comparative research design has been used in this study. It is based on secondary sources of data. The data were collected from annual audit report of twenty-six commercial banks from fiscal year 2012/13 to 2018/19 out of twenty-seven. Rastriya Banijya Bank has been excluded in this study due to the unavailability of annual audit report. Total number of observations were 182. The mean range, standard deviation, coefficient of variation, correlation analysis, and regression analysis statistical tools were used in this study. This study reveals that the return on equity is highly scattered in comparison to return on equity. Supplementary capital is highly spread in comparison to core capital ratio. There is low degree of positive relationship of return on assets with core capital ratio and supplementary capital ratio. There is low degree of positive relationship of return on equity and supplementary capital however low degree of inverse relationship in between return on equity and core capital. Core capital ratio and total capital fund ratio positively influence on return on assets and return on equity.

Keywords: core capital - supplementary capital - ROA - ROE -commercial banks

INTRODUCTION

Ratio of bank's capital available to risk weighted assets is known as capital adequacy ratio. It is regulated by the central bank of the state. It

is used to meet future unexpected losses and liabilities for sustainability of financial performance of the bank as well as to protect public deposit. This study specially has focused on two types of capital: tier one and tier two capital.

Internal mechanisms and capital Regulations effects on financial performance (Ayadi, Ayadi & Trabelsi 2019). According to bankers experiences and academicians research report findings, capital assets ratio has less impact on financial performance due to change into fair-value-based system from historical-cost-based accounting system (Anagnostopoulos & Buckland 2005). Previously balance sheet items i.e., liabilities and assets were recorded based on book value, but according to regulatory capital balance sheets, the above mentioned i.e., items were recorded based on market value. This results as instability in financial performance (Chisnall 2000, Allen & Carletti 2008, Heaton, Lucas & McDonald 2010). There is no significant relationship between liquidity creation and return on average assets of Middle Eastern and North African 18 countries commercial banks (Sahyouni & Wang 2019). Another empirical evidence is Tunisian and Moroccan banks, service quality positive effects on efficiency but bank capitalization and GDP growth negative effects on efficiency (Kallel, Hamad & Triki 2019).

GCC (Golf Cooperation Council) conventional and Islamic banks' financial performance increased due to low competition, legal protection, Government interference, and regulation of central bank as well as value added by assets diversification but in conventional bank result is opposite (AlKhouri & Arouri 2019).

Based on regulation of central bank of Nepal, there are two types of capital which are Tier one and two. According to central bank regulatory standard, banks were undercapitalized (Shrieves & Dahl 1992). Konishi and Yasudab (2004) research findings has affirmed reduce risk in Japanese commercial banks due to implementation of capital adequacy requirement as well as there is inverse relationship in between bank's capital and risk.

Allen and Carletti (2008) described about asset mobilization, to maintain capital adequacy as well as loss provision ratio with considering level of risk. Vaitulevičienė and Staroselskaja (2014) revealed that capital adequacy and liquidity management ability in risk management. Similarly,

other researchers have approved that there is inverse relationship between capital buffer and bank's risk (Zheng, Xu & Liang. Zheng 2012).

Research findings of Rubin and Nayada (2008), Van, K Imai, and M Mesler (2014), Onali (2014), Ayaydin and Karakaya (2014) has presented that Tier-1 capital reduce banking risk. There was inverse relationship in between capital to total assets ratio and bank risk (Brewer a & Lee 1986, Jacques & Nigro 1997, Agusman, Manroe, Gasbarro & Zumwalt 2008).

During the four-year period from 2001 to 2004, the productivity was increased by 1.85 % due to non-performing loan decreased by 1 % and productivity increased by 2.15 % due to capital adequacy ratio increased by 1 % in commercial bank of Thailand (Huang, Hsiao & Cheng 2008). Favorable impact of capital adequacy ratio is on risk taking behavior of Islamic and conventional banks (Harkati, Alhabshi & Kassim 2019). Capital guidelines of central bank of state have positive effect on financial performance of commercial banks (Jamali 2020). In bank hold companies' shareholders, manager, and board member invest in less risky project (Sood 2017). Similarly, Archer, Karim and Sundararajan (2010) Found that displaced commercial risk (DCR) shows higher influence on product pricing, asset-liability management, Islamic bank's economic and regulatory capital requirements. Adopting no. 34 Taiwan Financial Accounting Standards 34 decreases the application of capital adequacy ratios for decreasing risk (Liao 2013).

Based on the review of literature, empirical evidences were collected in the perspective of impact of capital adequacy ratio in financial performance of financial institution specially in banking sectors.

This study has focused on individual characteristics of capital adequacy ratio i.e., common equity tier 1 capital or core capital ratio, supplementary capital ratio, and total capital fund ratio and financial performance variable i.e., return on assets and return on equity as well as significant relationship between them. This study has also focused on measuring the impact of capital adequacy ratio financial performance of commercial banks in Nepal to fulfil research gap. Based on above research gap, following theoretical framework has been developed.

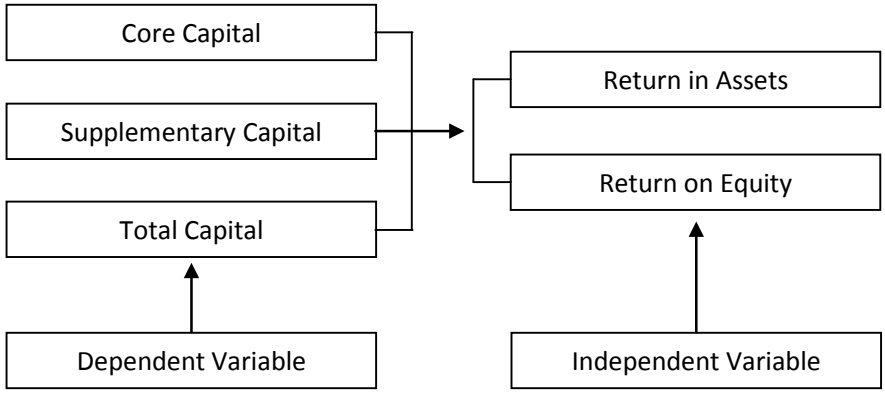

Figure 1: Theoretical framework

METHODS

Financial performance of banks was measured through return on assets (ROA) and return on equity (ROE). Sigillary, Capital adequacy ratio measured through core capital, supplementary capital, and total capital. This study included twenty-six commercial banks out of twenty-seven. However, Rastriya Banijya Bank was omitted in this study due to the lack of annual audit report. The data were collected through annual audit report of respective bank from fiscal year 2012/13 to 2018/19. It has focused on individual characteristics of mention variable i.e., mean, range, standard deviation, and coefficient of variation due to this reason it was used descriptive research design. It has also paid attention to the relationship between above mentioned variable. Additionally, it has used regression analysis to measure the impact of different risk factor on financial performance. So, correlational and casual comparative research design were used by this study.

Following regression models were used in this study.

$$ROA_{i,t} = \alpha_0 + \beta_{1CCRi,t} + \beta_{2SCi,t} + \beta_3 TC_{i,t} + \ldots \varepsilon_{i,t} \quad \text{(i)}$$

$$ROE_{i,t} = \alpha_0 + \beta_{1CCRi,t} + \beta_{2SCi,t} + \beta_3 TC_{i,t} + \ldots \varepsilon_{i,t} \quad \text{(ii)}$$

Dependent variables are return on assets and return on equity of a firm i in a year t in regression (i) and (ii). Independent variables are ratio of core capital, supplementary capital and total capital of a firm i in a year t of both regression model.

RESULTS

Table 1 has presented: range, standard deviation, and coefficient of variation of return on equity is greater than return on assets. This result has demonstrated that return on equity is highly dispersed in comparison to return on assets. Supplementary capital ratio is highly dispersed in comparison core capital ratio.

Table 1: Descriptive statistics

Variables	N	Maximum	Minimum	Mean	Std. dev.	C.V.
ROA	182	.0363826	-.0343399	.015898106	.0072340995	45.5029
ROE	182	.6068352	-3.6136391	.127263337	.2931951902	230.3846
CC	182	21.41	-0.59	11.6545	2.67668	22.96692
SC	182	19.43	0.00	1.5321	1.53066	99.90601
TC	182	31.10	-.59	13.1920	2.97423	22.54571

Note: N is annual report of a year of a particular bank, ROA is return on assets, ROE is return on equity, CC is core capital fund ratio, SC is supplementary capital fund ratio, and TC is total capital fund ratio.

Table 2 has showed: there is low degree of direct relationship of return on assets with core capital ratio, supplementary capital ratio, and total capital fund ratio at 1 % LOS. Likewise, there is low degree of positive relationship between return on equity and supplementary capital fund ratio at 1 % LOS; low degree of inverse relationship in between return on equity and core capital ratio as well as return on equity and total capital fund ratio at 1 % LOS. There is moderate degree of positive relationship in between return on assets and return on equity at

1 % LOS. Similarly, there is low degree of positive relationship between supplementary capital fund ratio and total capital fund ratio at 5% LOS. Additionally, there is low degree of negative relationship between core capital fund ratio and supplementary capital fund ratio at 1 % LOS. However, there is high degree of positive relationship in core capital fund ratio and total capital fund ratio but this statistically insignificant result. Finally, it shows low degree of direct relation of supplementary capital fund ratio and total capital fund ratio at 1 % LOS.

Table 2: Correlation analysis

Variables	ROA	ROE	CC	SC	TC
ROA	1.000				
ROE	0.596**	1.0000			
CC	0.202**	-0.314**	1.000		
SC	0.217**	0.364**	-0.218**	1.000	
TC	0.235**	-0.196**	0.892	0.146*	1.000

***. Correlation is significant at the 0.01 level (2-tailed) and *. Correlation is significant at the 0.05 level (2-tailed)*

Regression analysis

Table 3 showed three regression models are statistically significant at 1 % LOS. Impact of total capital fund ratio and core capital fund ratio on return on assets is statistically significant at 1 % LOS. However, impact of supplementary capital fund ratio on return on assets is statistically insignificant. There is no multicollinearity problem of all retrogression models. Similarly, all regression models are not suffering from autocorrelation and heteroscedastic problem. Model 1 and 2 has approved that total capital fund ratio positive effect on return on assets. Based on regression model 2, coefficient value of 0.342 approved that when total capital fund ratio will be increased by 1 unit return on assets will be increased by on average 0.342 unit under the condition of other thing will be remaining the same. Likewise, core capital fund ratio has positive effect on return on assets, coefficient value of core capital fud ratio is 0.308 and this result is approved by regression model 3. All regression model has explained near about 10 % area of the study.

Table 3: Impact of capital on return on assets

Models	**Model 1**			**Model 2**			**Model 3**		
Variables	Std. Corff.	VIF	T value	Std. Corff.	T val.	VIF	Std. Corff.	T val.	VIF
Constants			2.521		**2.257**			2.258	
$CC_{i,t}$							0.308*	4.339	1.006
$SC_{i,t}$				-0.067	**-0.852**	1.243	0.108	1.524	1.006
$TC_{i,t}$	0.313*		4.414	0.342*	**4.333**	1.243			
R^2 =0.098				R^2 = 0.101			R^2 = 0.102		
F = 19.485*				F = 10.090*			F = 10.117*		
D.W. = 1.966				D.W. = 1.962			D.W. = 1.964		

*Note: Number of Observations = 182 * Significant at 0.01 levels ** Significant at 0.05 levels *** Significant at 0.10 levels*

According to Table 4, three regression models are statistically significant at 1 % LOS. All regression models are fulfilling regression assumptions i.e., no multicollinearity, no auto correlation, and no heteroscedastic problem. Table 4 has approved that core capital ratio and total capital fund ratio positive effect on return on equity but there is no significant impact of supplementary capital fund ratio on return on equity.

Table 4: Impact of capital on return on equity

Models	**Model 1**			**Model 2**			**Model 3**		
Variables	Std. Corff.	VIF	T value	Std. Corff.	T val.	VIF	Std. Corff.	T val.	VIF
Constants			2.521		**2.258**			2.257	
$CC_{i,t}$				0.308*	**4.339**	1.006			
$SC_{i,t}$				0.108	**1.524**	1.006	-0.067	-0.852	1.243
$TC_{i,t}$	0.313*		4.414				0.342*	4.333	1.243
$R^2 = 0.098$				$R^2 = 0.102$			$R^2 = .101$		
F = 19.485*				F = 10.117*			F = 10.090*		
D.W. = 1.966				D.W. = 1.964			D.W. = 1.962		

*Note: Number of Observations = 182 * Significant at 0.01 levels ** Significant at 0.05 levels *** Significant at 0.10 levels*

DISCUSSIONS

In comparison to return on assets and return on equity, return on equity is highly spread. This result is similar with Hunjra (2020). Similarly, between the core capital ratio, supplementary capital ratio, the supplementary capital ratio is highly dispersed. There is low degree of positive relation in between return on assets and capital adequacy related variables are at 1 % LOS. This result is disagreed with study of Harkati, Alhabshi & Kassim (2019). Low degree of positive relationship in between return on equity and supplementary capital and low degree of inverse relationship in between return on equity and core capital ratio at 1 % LOS. Core capital ratio and total capital fund ratio has positive effect on return on assets and return on equity, but there is no separate significant impact of supplementary capital ratio on return on assets and return on equity.

This study has provided the knowledge about the role of capital adequacy ratio on financial performance of commercial banks in Nepal. It is based on seven fiscal years from fiscal years 2012/13 to 2018/19 of twenty-six commercial banks. Number of observations are 182. No. of observation should be increased to measure the impact of operational risk and market risk on financial performance. Dimension of financial performance should

be increased i.e., to measure the impact of impact of supplementary capital on financial performance of commercial banks in Nepal. In future, research dimensions of financial information should be increased such as net profit divided by total income, price earnings ratio etc.

CONCLUSIONS

Financial performance is measured being based on revenue and investment. This study has focused on investment. Dimensions of measurement of financial performance are return on assets and return on equity. Return on assets and return on equity affect different factors. Besides this, capital adequacy ratio plays significant role for the financial performance of the banks. Out of core capital and supplementary capital, core capital is better than supplementary capital to increase and sustainability of financial performance of the commercial banks in Nepal. However, existence of supplementary capital cannot be ignored for increasing financial performance as well as sustainability of financial performance of the commercial banks in Nepal.

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