

IMPACT OF ASSET LIABILITY MANAGEMENT AND ECONOMIC CAPITAL MODELLING ON THE PROFITABILITY OF KENYA COMMERCIAL BANKS: A REVIEW OF EXISTING EMPIRICAL EVIDENCE

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Abstract: The purpose of these study was to assess the mediating role of regulatory capital on the relationship between economic capital and profitability of commercial banks in Kenya. The study adopted systematic review which entailed reviewing studies on profitability, asset liability management and regulatory capital. Empirical studies between 2000 and 2019 were considered. From the findings, majority of the reviewed studies indicated that asset liability management affects profitability of commercial banks and similar results were obtained between capital regulation and profitability. The study also established that capital regulation has been successful used as moderating variable, however, the same has not been established as mediating variable between asset liability management and profitability. The study proposed a conceptual framework that would bring the mediating role of capital regulation on the relationship between asset liability management and profitability of commercial banks.

Keywords: Asset Liability Management, Commercial Banks, Economic Capital Modelling, Profitability.

I. INTRODUCTION

Commercial banks possess many types of assets, current or fixed, but the asset contributing to the largest share of a bank's income is the bank loan and Echeboka et al. (2014) stressed that the quality of a bank's assets is influenced by the bank's exposure to specific risks, the trends in non-performing loans and the financial health of bank borrowers. The quality of loans is then crucial to the success of banks as poor asset quality is said to be one of the main causes of bank failures.

Further, although banks are required to set up reserves for bad debts, banks are at high risk of incurring losses as a result of bad loans which makes non-performing loan (NPL) ratios the best proxies for asset quality. Altan et al. (2014) also assert the need for asset quality analysis is to determine the amount of non-performing assets as a percentage of the total assets. Asset quality of a commercial bank is thus mainly observed on the basis of the bank's ability to recover its outstanding loans and advances in due time and this is shown by the percentage of bad debts to total gross loans issued (Kabir & Dey, 2014).

Quality of the loan portfolio has a direct impact on bank profitability; and non-performing loans should be monitored and kept as low as possible using appropriate strategy and policies. Therefore, the lower the percentage of NPL to total loans the better the bank's financial performance. Many studies seem to agree with this generalization (Kabir & Dey, 2014).

Muhman and Hashim (2015), for instance, find that as loan loss provisions decrease, bank performance increases and that an increase in assets financed by loans leads to an increase in bank profitability, thus concluding that asset liability management has a significant association with performance of banks in Malaysia.

Therefore asset liability management rests on three pillars; (i) information systems which include Management Information System, Information availability (accuracy, adequacy and expediency), (ii) organization (structure and responsibilities, level of top management involvement and (iii) process (risk parameters, risk identification, risk measurement, risk management, risk policies and tolerance levels.

Secondly, capital is the amount of own funds that a bank has to fund its activities and can be used as a safeguard in case of unfavourable changes in the environment (Swarnapali, 2014). Thus enough capital is necessary for liquidity purposes as bank deposits can be susceptible to bank runs. Capital adequacy is thus, an indication of a bank's capital strength in terms of insolvency risk. Capital adequacy ratio (CAR) is commonly expressed by the sum of Tier I Capital and Tier II Capital as a percentage of a bank's risk weighted assets (Swarnapali, 2014). Capitalization is another indicator of capital adequacy measured by the ratio of shareholders' equity to total assets of a bank (Onuonga, 2014).

With regards to the relationship between capital adequacy and bank performance, generally banks with low capital ratio are considered more risky than those with higher capitalization, especially in the case of a financial crisis, and thus adverse implications for bank performance (Onuonga, 2014). Therefore, well-capitalized banks are safer, have greater creditworthiness and gain from reduced funding costs which all positively affect the performance of commercial banks. Nouaili et al. (2015) adds that a highly capitalized bank has a lesser need for debt financing thus reducing its cost of debt. Onuonga (2014) explains that banks with high capitalization are able to meet the regulator's capital requirements and then issue the excess funds as loans.

Thus, economic capital refers to the amount of risk capital that a bank estimates it will need in order to remain solvent at a given confidence level and time horizon. Regulatory capital on the other hand, reflects the amount of capital that a bank needs, given regulatory guidance and rules. According to these concepts, commercial banks must have sufficient capital to cover not only credit and market, but also the operational risks (Elizalde et al., 2016). Thus, economic capital takes into account all the risky circumstances that a banking institution may encounter. The need to apply the method of economic capital in assessing the capital of a bank is justified and significant

Further, in order to promote profitability, regulatory authorities pay a lot of attention to capital regulation. In addition to these requirements, financial institutions calculate their own economic capital reflecting the unexpected losses and true risk according to the specific characteristics of their portfolio. The recently implemented Basel II framework should result in a further convergence between regulatory and economic capital. However, recent papers Elizalde et al. (2016) argue that also under Basel II, regulatory and economic capital will have different determinants. In order to understand the true impact of Basel II on financial stability, one should first develop an understanding of the determinants of and the relationship between regulatory and economic capital. That is why the proposed study introduces regulatory capital to moderate the relationship between economic capital and commercial banks profitability using structural equation modelling.

Statement of the Problem

Profitability of commercial banks can be affected by internal and external factors which can be classified into bank specific (internal) and macroeconomic variables (Flamini et al., 2015). For long run survival it is critical for a commercial bank to identify issues increasing or decreasing banks return thus enabling its long term survival and this increases initiatives by increasing its profitability by managing the controlling determinants (Athanasoglou et al., 2015). Nouaili et al. (2015) in their study found a positive impact of capitalization on the interest margin of banks in Tunisia concluding that higher capital levels represent a positive signal to the market on the solvency of the banks. A study by Onuonga (2014) showed that capital adequacy or capital strength has a positive impact on the profitability of the top banks in Kenya in 2008 to 2013. Capital actually showed the largest impact on the changes in profits in this case, which agrees with the argument that highly capitalized banks can even endure general financial crisis and remain profitable. The author thus suggests that the top commercial banks in Kenya can earn higher profits by increasing capital.

But Frederick (2014) found a negative relationship between capitalization and bank profitability and explained that the banks may have been avoiding potentially risky but profitable undertakings in an approach deemed too prudent. This shows that capital regulatory requirement can have adverse implications on bank performance if not adjusted with

increased investments. Further most studies conducted in relation to commercial banks profitability in Kenya have focused on industry and overall internal factors that affect the overall banking sector performances (Olweny & Shipho, 2014).

Scanty empirical studies also show linear relationships between asset liability management and economic capital on firm profitability with less emphasis on profitability of specifically commercial banks (Olweny & Shipho, 2014). Further, most reviewed studies do not show the bivariate relationship between economic capital and regulatory capital which can have an effect on commercial banks profitability. Thus, in order to understand the true impact of economic capital on profitability one should first develop an understanding of the relationship between regulatory and economic capital. Thus, this paper proposes an empirical study in the prediction role of asset management on profitability and the mediating role of regulatory capital on the relationship between economic capital and commercial banks profitability, a case of commercial banks in Kenya.

Objectives of The study

The specific objective of this study was to

- i. To assess the mediating role of regulatory capital on the relationship between economic capital and profitability of commercial banks in Kenya.

II. LITERATURE REVIEW

Theoretical Framework

The paper is also informed by the efficiency theory. The Efficiency Structure theory asserts that bank performance is not determined by the market concentration but by bank efficiency. This theory is also made up of two distinct hypotheses, namely X-efficiency and Scale-efficiency (Olweny & Shipho, 2014). According to the X-efficiency hypothesis, a bank which operates more efficiently than its competitors can be more profitable due to lower operational costs. Such firms tend to gain larger market shares and thus higher market concentration, however it is argued that concentration alone should not lead to increased profitability (Olweny & Shipho, 2014). Athanasoglou et al. (2015) argue that with other factors held constant, the impact of concentration on profitability should be negligible and further discusses that banks with better management and practices will be better at controlling costs and earning profits, thus “moving the bank closer to the best-practice, lower bound cost curve.” The Scale-efficiency hypothesis states that some banks achieve better scale of operation and thus lower costs resulting in higher profit and faster growth for the banks (Athanasoglou et al., 2015). The scale approach focuses on economies of scale rather than efficiency gained through good management or production technology, according to Olweny and Shipho (2014), as larger firms can obtain lower unit cost and higher profits through economies of scale such as efficient asset liability management.

This paper is further guided by Theory of Economic Regulation. This theory was established and developed by George J. Stigler in 1971 and further modified by Peltzman (1976). The researcher incorporated an easy to use model of regulation: Stigler started from two primary premises; the fundamental asset controlled by the state is the power to coerce. The researcher argued that any group can benefit if and only if it knows how power is used. Stigler (1971) mainly researched only on the demand for regulation (demand by producers and consumers), large ignoring the supply-side calculus—that is, he ignores the regulator's motivations. Stigler (1971) did not explain details of the behavior of supply-side, but Stigler (1971) pointed out that legislatures want political support, campaign contributions, future employment, bribes, and so on. But by under emphasizing the supply side, Stigler (1971) ended with an unrealistic conclusion that consumers always loose. Peltzman's (1976) modification of Stigler's model corrects this problem, resulting in far more realistic predictions by giving equal attention to supply side factors that might motivate regulators to produce regulations that benefit consumers even though producers may better use lobbying strategies (Peltzman 1976). The current study used the theory of economic regulation to gauge the performance of banking firms. The theory noted that the regulation of banks is necessary to maintain safety and soundness of the banking system, putting them in a position to meet its liabilities without difficulty as a result and avoid financial distress. This made it imperative for the regulatory authorities to compel greater solvency and liquidity on individual banks than making it optional.

In terms of theoretical model, existing literature as elucidated by Nouaili, Abaoub & Ochi, 2015) shows use of CAMEL model, that is, shows variables that constitute the CAMEL (Capital adequacy, Asset Quality, Management, Earnings, Liquidity) model as they too are associated with the financial performance of commercial banks, mainly focusing on Capital Adequacy, Asset Quality and Management. The CAMEL rating system is often used by regulatory bodies, such as

the Central Bank of Kenya to evaluate the operations of banks and details the 5 aforementioned factors related to banking operations (Nouaili, Abaoub & Ochi, 2015). Recently, many researchers have shown interest in the determinants of bank performance and investigated the relationship between these factors and the profitability of banks (Nouaili, Abaoub & Ochi, 2015).

III. METHODOLOGY

A desktop review was carried out to assess the mediating role of regulatory capital on the relationship between economic capital and profitability of commercial banks in Kenya. Systematic review was utilized. The aim of a systematic review is to identify all empirical evidence that fits the pre-specified inclusion criteria to answer a particular research question or hypothesis. The study targeted all studies that focused on regulatory capital, economic capital and profitability. The study first examined studies on regulatory capital, economic capital and profitability. The mediating role of capital regulation was examined. A total of nine studies were empirically reviewed. Ten studies focused on regulatory capital, asset liability management and profitability and four on the mediating role of regulatory capital. However, none of them adequately focused on the mediating role of regulatory capital.

IV. FINDINGS AND DISCUSSIONS

Studies on Asset liability management, regulatory capital and profitability.

Clampson (2017) studied on the influence of asset liability management and financial performance in two commercial banks in the United States. The study used explanatory design and correlational analysis to estimate asset liability and financial performance. The results indicated that asset management has a strong correlation with financial performance of commercial banks. Stiweid (2016) studied on impact of asset and liability management on profitability of Australian banks. The study used descriptive survey design to get perceptions of asset and liability management and profitability of banks. The results showed that effective asset and liability management has an influence on bank profitability. Peterson (2017) investigated the relationship between asset liability management and financial performance of sampled commercial banks in America. The study used a longitudinal study research design. Study concluded that there was a positive relationship between asset liability management and financial performance of service commercial banks in United States. Muhl (2016) did a study on how asset liability management affect profitability of Banks. The main goal of study was to analyze the asset-liability management in banks for the 2004-2011 periods, using a panel of over 30 banks across Europe. The study concluded that in order to be effective in banks, the management of assets and liabilities must take into consideration the risk level, earnings, liquidity, profit, solvency, the level of loans and deposits. Anjichi (2014) did a study to evaluate the relationship between asset and liability management and financial performance of commercial banks in Kenya. Data was analyzed using linear regression model and the results of the analysis indicated that there was a positive relationship between the asset and liability management and financial performance of commercial banks in Kenya.

Mwongeli (2016) determine if there is a relationship between capital regulations and financial performance. Performance was measured using financial ratios such as return on capital, return on equity and return on assets. The population of study is the 43 commercial banks in Kenya and the period of study is between 2010 and 2015. The test was carried out on each of the ratios and the findings were that there is no relationship between regulations and financial performance of commercial banks. Most of the banks have been able to comply with the minimum capital requirement and the government must continue to ensure that there is compliance of the stipulated guidelines in order to ensure the stability of the banking sector in Kenya.

Mwega (2014) carried out a case study in the Kenyan financial sector to investigate the potential tradeoff between regulation and stability of Kenya's financial sector. The study focused on the banking sector. According to this study, regulations have led to an increase in profitability. He however states that Kenya has a lightly regulated financial system. Vianney (2013) conducted a study in Rwanda that was intended to ascertain the relationship between regulation and the financial performance of commercial banks in Rwanda. His findings were that regulation is not a significant predictor of financial performance of commercial banks in Rwanda. He states that regulation is a key pillar of financial institutions operation and by extension to financial prosperity and stability.

Osano and Gekara (2018) evaluated the effect of government regulations on the performance of commercial banks in Kenya. The research adopted a descriptive research design. The study focused on 42 commercial banks in Kenya. The study concluded that there exists a positive relationship between capital adequacy requirements and profitability of commercial banks in Kenya. The banks with larger capital are able to diversify their business operations by strengthening

their ability to assume risk and attract funds at low cost, which enhance their liquidity position. Nzioki (2011) examined the link between financial performance of commercial banks in Kenya and adequacy of capital or lack of it. Specifically to identify the distressing effect of financial performance on capital adequacy. The study used secondary data from the financial statements of commercial banks in Kenya over Eleven years. Commercial banks had slightly higher capital adequacy ratios as compared to the minimum regulatory capital adequacy ratios in average over the eleven years.

Studies on the mediating role of capital regulation

Ramon, Sudarma and Djumahir (2014) sought to explain banking regulation role in moderating effect of capital structure decisions and performance. This study was conducted at People Credit Bank (PCB) in North Sulawesi and Gorontalo Provinces at 2011. This study result found that risk management practice is a key determinant of capital structure decisions. Adherence to banking regulations determines capital structure decisions. Research findings show that compliance with banking regulations did not moderate risk management role in determining capital structure decisions. Ozili (2017) investigated the determinants of African bank profitability while controlling for bank capital regulation. Using static and dynamic panel estimation techniques, the findings indicate that bank size, total regulatory capital, and loan loss provisions are significant determinants of the return on assets of listed banks compared to non-listed banks. Also, regulatory capital has a more significant (and positive) impact on the return on assets of listed banks than non-listed banks particularly when listed banks have sufficient regulatory capital ratio. We also find that higher regulatory thresholds have a negative impact on the return on asset of non-listed banks.

Ayaydin and Karakaya (2014) applied the Two-Step System Generalized Method of Moments technique developed by Arellano and Bover (1995) and Blundell and Bond (1998) for dynamic panels using bank-level data for 23 Turkish commercial banks over the period 2003 to 2011 to investigate the impacts of bank capital regulation on the relationship between profitability and risk. We find evidence that the effect of increasing bank capital regulations on risk is significantly positive and negative, supporting the regulatory hypotheses and moral hazard hypothesis, respectively. The results also suggest that there is a positive and negative relation between the capital and profitability. Thus, the sample supports also structure-conduct-performance hypothesis. Zheng and Cronje (2019) examined the role of bank capital regulation in moderating the relationship between bank liquidity creation and the performance in U.S. banks over the period of 2003–2014. We find that, conditional on bank capital, bank liquidity creation is related to bank failure risk negatively. The negative relationship is moderated positively (i.e., strengthened) by (changes in) bank capital.

Discussions of Discussion of Main Findings from Review

Many studies recognize the importance of asset liability management on profitability. However, few studies have been conducted locally meaning there is significant contextual gaps in regard to relationship between asset liability management and profitability of commercial banks. Further, there has been noticeable inconsistencies in regard to methodological approach. Some studies have used both primary and secondary data while some have used either primary or secondary data. This leave a significant methodological gaps which requires further studies to addressed it. In regard to role of regulatory capital as mediating or moderating variable, studies have indicated that it has been successfully used with variables such as financial performance. However, few studies have successfully deployed it as mediating variable between asset liability management and profitability of commercial banks.

Some studies have used the camel model to investigate profitability of commercial banks but have some did not even apply all aspects of the CAMEL model to assess its influence on profitability. Most existing studied have used small samples thus raising concerns over generalizability of study finding to a wider population. More so scanty existing studies have on investigated the direct effects of asset liability management and economic capital on profitability of commercial banks but have not examined the mediating role of regulatory capital on the relationship between economic capital and profitability of commercial banks in Kenya.

V. CONCLUSION AND RECOMMENDATION

First the evidence from reviewed literature shows that effective asset and capital management have linear relationship with bank profitability. Secondly, some empirical studies have been based on smaller sample size of banks used in the study thus posing challenges on the generalizability of research findings to a wider population. Thirdly, from the literature review, it can be concluded that asset quality management and economic capital can significantly influence profitability of commercial banks if well modelled with objective profitability measures.

First all variables within the CAMEL model must be objectively measured to realize significant influence of asset liability management on profitability of commercial banks. Secondly, economic capital must be well modelled with regulatory capital to ascertain the effect of such modelling with commercial banks profitability. Thirdly, empirical studies must have a high sample size of commercial banks and effectively apply multiple regression analyses to assess effect size and power of the statistical tests.

Lastly, in order to promote financial stability, financial regulatory authorities pay a lot of attention to capital regulation. In addition to these requirements, financial institutions calculate their own economic capital reflecting the unexpected losses and true risk according to the specific characteristics of their portfolio, thus, this study introduces regulatory capital in the model to assess its moderating effect on the relationship between economic capital and commercial banks profitability in Kenya. The study thus proposes a conceptual framework based on structural equation modelling shown in the conceptual model below;

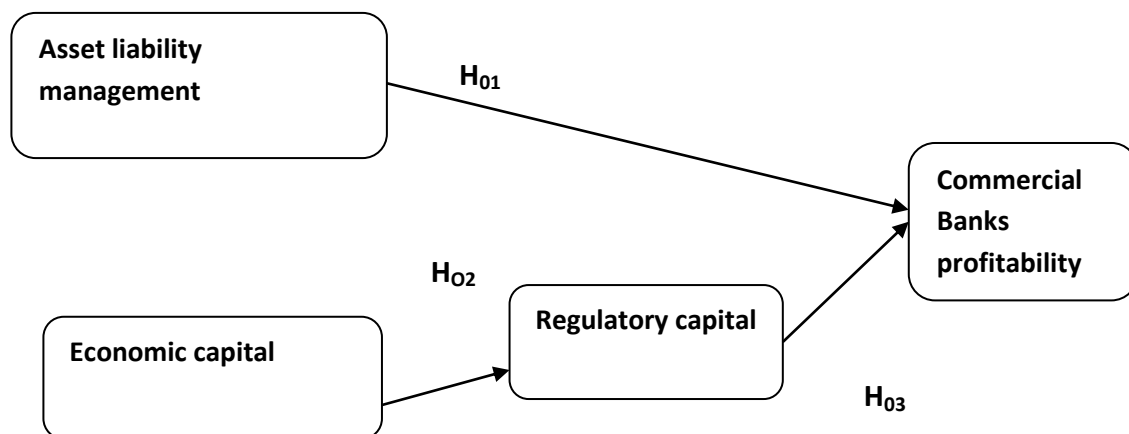


Figure 1: Proposed Conceptual Framework

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