Assessment Of The Relationship Between Capital, Risk And Efficiency In Ghana Commercial Banking Sector

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Abstract— This article analyzes the relationship between capital, risk and efficiency for a large sample of banks in Ghana between 2008 and 2016. Contrary to the American belief, we do not find a positive correlation between inefficiency and the acceptance of risk by banks. Ineffective banks in Ghana seem to have more capital and less risk. Empirical evidence of the positive correlation between capital risk (and liquidity risk) has been found, indicating that the regulator prefers to use capital to limit its risk-weighted assets. We also discovered that the financial strength of the corporate sector had a positive effect on risk appetite and the reduction of bank capital. There is no significant difference between capital, risk and efficiency in commercial banks, savings banks and cooperative banks. For cooperative banks, we find that capital is inversely proportional to risk and that inefficient banks have less capital. Some of these relationships also depend on the banks of the most efficient or efficient operators.

Keywords— Bank capital, risk, efficiency, credit, Ghana Banks.

I. INTRODUCTION

In recent years, banking systems in Ghana have become more integrated and liberalized as they have led to greater deregulation of products and services. This gradual process of financial integration increases competition and emphasizes the importance of improving the efficiency of financial institutions. However, some authors have argued that this increased competition would lead banks, at least in the short term, to take more risks (see, for example [19],[23]). Regulators have sought to offset these incentives by placing more emphasis on the adequacy of capital in the bank resolution process. In this sense, most European banks were under pressure from regulation and the market to increase their capitalization. The current theoretical literature on the determinants of risk involves an often contradictory risk, in particular studies on the relationship between the bank's capital and its risk positions. The main reason is that most hypotheses are not exclusive. For example, the cost of agency costs and the asymmetry of information can have a significant impact on the risk and trade of banking capital ([22], [12]), which explains why some institutions could respond to a financial risk problem. More capital needs more resources. The risk of impact can be reduced. Since the theory provides conflicting forecasts, the only way to determine the relationship between capital, risk and efficiency in the Ghanaian banking sector is to perform an empirical analysis. Like [12] and, more recently, [20], there are no empirical studies on this topic, especially in Ghana. Therefore, the purpose of this paper is to examine the link between risk, leverage and efficiency in the banking sector in Ghana.

II. LITERATURE REVIEW

Basel II identifies operational risk since 2001 as a different risk category in terms of market risk and credit risk [17]. While the Basel Committee for Banking Supervision controls a good measure of operational risk, the degree of refinement varies from bank to bank. This can be explained by the fact that operational risk is considered the most complex type of risk in terms of identifying, quantifying and mitigating the risk. Operational risk is particularly dynamic and is influenced by many events, including international business processes, regulatory frameworks, customer preferences, business growth and other external factors. The concept of risk management has never been easy for banks, and those who do not manage well must still pay huge prices. There is growing awareness and growing reliance on regulatory compliance and risk management, which will have a significant impact on the Bank's competitiveness [19]. The risk function has taken a different direction than breaking the numbers in a dynamic activator of the company. Risks arise from complex products, multiple channels, a diverse workforce, diversified business and regulatory compliance at the international level, as well as regional. This requires a focus on proactive risk management rather than a response to the event. The truth is that banks look at risk activity as a natural activity. A similar comparison between the risk management system between banks and other sectors shows that banks have developed and perfected their risk management systems. There are many ways to manage risk effectively, but many still struggle to manage operational risk because they lack resources, neglect, trust, neglect or excitement. While it is not possible to predict certain operational risk events, this could be overcome or limited by risk awareness, training and the implementation of the appropriate management system. Regulators of financial organizations, such as banks, are concerned and encourage managers to better understand risk management and the effectiveness of other control measures. In addition, compliance standards such as Basel II and SOX must limit operational risk and require financial institutions to identify, assess, assess and control this risk [5]. This has fostered a better awareness of sound operational risk practices regarding the valuation and allocation of internal capital. To this end, it is very important that operational risk control is a key concern and considered as a good management tool that updates it through regular monitoring and improvement procedures. An operational risk factor is the ability to influence credit ratings, stock prices and the reputation of the organization. This means that analysts can include it in the assessment of management, technology, and the overall functioning of the business. There have been several cases of financial scandals,

fraud and errors in information technology and systemic illusions over the past decade [4]. The era of increased reliance on technology, increasing competition and rapid globalization could have made the financial world more exposed to operational risk. Therefore, it is an appropriate step for the Basel Committee on Banking Supervision to treat operational risk as a central principle for effective banking supervision, and for supervisors to take risk management measures for banks to overcome operational risk.

The activities that people have to do are a fundamental risk. The more complex the activity, the greater the associated risk. Internally, there is often incorrect processing, incorrect data entry into the system, omissions, and other types of errors and errors, especially when employees have been living, under pressure, or under stress. In addition to employees who intend to deceive or harm the company, most cases are not errors, errors, omissions or false references for personal gain [18]. In cases where investigations reveal that employees are at excessive risk of operational risk due to errors and errors, but that there is nothing more than deliberate steps to reverse the organization or third parties, this indicates that there are several programs. employee training only. Your skills are needed to improve negligent work tasks. When investigations show that operational risk is caused by employees, legal and penal measures should be used as a remedy to deter the manufacturer and others from assuming such guilt in the future. The complex task is to decide whether the employee's act involved fraud or error, since most people could be at risk. In addition, workers should be treated in the same way with regard to labor law and contracts, especially with regard to annual holidays. This becomes extremely important because many errors and errors could result from excessive stress at work [8]. Another management strategy that may contain errors and errors is the strategy of combining the skills of employees with the correct job description. People with the right skills are certainly more competent for the right job and cannot devote time to delivery.

III. METHODOLOGY

A. -Hypotheses between capital and risk

The first hypothesis highlighted in the theoretical and empirical literature in the analysis of venture capital relationships was the impact of moral hazard on safety figures, agency issues, and expected / unexpected regulatory impact. In this section, we explore these relationships and explain how they explain the relationship between capital, risk, and risk effectiveness.

One important factor is the action of regulators and regulators [13], [2], which lead to a positive relationship between capital and regulatory capital Contributing to risk. In this prudential approach, supervisors encourage banks to increase their capital risk, which may result from effective market surveillance⁶ when equity is deemed inappropriate [5]. However, another hypothesis points to a negative relationship between capital risk and argues that banks are encouraged to use existing fixed income strategies by increasing risk positions as capital reductions. The causal direction, which explains the moral hazard hypothesis, could result from the risk capital and the (unintended) consequences of the flow of prudential measures.

In the framework of these two hypotheses, as suggested by [9] [13], capital and risk are also likely to be influenced by the level of efficiency of the banking firm. From a regulatory perspective, and other things being equal, regulators may allow an efficient firm with better management probably more room for leverage. On the other hand, from a moral hazard point of view, a less efficient firm may be tempted to take on higher risk to compensate for the lost returns. Efficiency could, in turn, be also affected by the level of bank risk [15] For instance, managers who are not very efficient at assessing and monitoring loans are not likely to be very efficient in achieving a high level of operating efficiency. Finally, a bank may choose to maximize short-term profits by reducing the funds devoted to allocating and monitoring loans. This, other things being equal, would boost both efficiency and risk measures, producing (in the short-term) a positive relationship between risk and efficiency. Prior literature examining the determinants of banking risk takes into account the fact that capital and risk are both determined contemporaneously [10], [9], [2]. Also capital and risk may also be simultaneously determined by the level of efficiency of the banking firm [13], [14], [10].

As a result, capital, risk and efficiency are combined. This implies that any empirical study must use the approach used to model the relationship between capital and risk associated with the bank's efficiency account. When examining these relationships, account must be taken of the different types of banking ownership, as the Agency's problems with private, public and private banks can have different effects on capital, risks and efficiency.

B. Modelling Framework

$$LLRL_i = a + bETA_{ij} + c INEFF_{ij} + dNLTA_i + e LNTA_i + f LAODEP_i + g INSB0C + h SOLVENCY + i LAOAC_j + j LLPOAC + YEAR_j \dots\dots\dots(1)$$

$$ETA_{ij} = a + b INEFF_{ij} + cNLTA_{ij} + d LNTA_{ij} + eROA_{ij} + f LAODEP_{ij} + g INSB0C_j + h SOLVENCY_j + i LAOAC_j + j ROCC_j + k COIRC_j + l OEPOAC_j + mLLPOAC_j + YEAR_j \dots\dots (2)$$

$$INEFF_{ij} = a + bETA_{ij} + c LLRL_{ij} + dNLTA_{ij} + e LNTA_{ij} + f LAODEP_{ij} + g INSB0C_j + hSOLVENCY_j + i LAOAC_j + j COIRC_j + k OEPOAC_j + l LLPOAC_j + YEAR_j \dots\dots\dots (3)$$

Where:

LLRL_{ij} represents the Loan-loss reserves for bank i
EtA_{ij} represents the Equity to assets ratio for bank i
INEFF_{ij} Cost inefficiency for bank I in country j (derived from stochastic cost frontier estimates)
NLTA_{ij} Net loans to total assets for bank i
LNTA_{ij} Natural log of total assets for bank i
ROA_{ij} Return-on-assets for bank i
LAODEP_{ij} Liquid assets to customer and short-term deposits for bank

C. Specific Variables:

INSB0C Interest rate spreads over 3-year government bounds
SOLVENCY Current assets to current liabilities (short-term shareholders' funds) for non-financial companies.
LAOAC Banking system liquid assets to total assets

ROCC Banking system return on capital

COIRC Banking system cost to income ratios

OEPOAC Banking system operating expenses to total assets

LLPOAC Banking system loan-loss provisions to total assets

Year Yearly dunny variables from 2008-2016

The first model explains the risk associated with the banking sector, the second capital level of the bank and the last model examines the determinants of the bank's cost inefficiency. Model 1 uses the amount of bad debt reserves as a bank risk indicator as a dependent variable (LLRLij), model 2 as a dependent variable (ETAIj) and finally as a third model of ineffective bank cost-dependent variables (INEFF). As a result, the differences between banking risk, capital and inefficiency in the Ghanaian banking markets are taken into account.

Provision for credit losses is used as a fraction of the balance sheet total (LLRLij) as a measure of bank risk resulting from accounting information. Higher reserves indicate increased bank risk. (This risk measure is preferable to the provision for bad loans, as there was not much detail on the provisions in our sample.) The change in the available reservation data showed a much higher level than the reserves. Restrictions on use The risk variables calculated from the accounting data indicate that managers are likely to have discretion as to when the measures will be selected and how they will function. this discretion to lower regulatory costs more or less. Most European banks do not negotiate on measures for accounting for bank risks. Capital is calculated as the ratio of equity to total assets (ETAIj). Individual bank efficiency (INEFF) is obtained as the distance of a firm's observed operating costs to the minimum or 'best-practice' efficient cost frontier and are derived using the stochastic frontier approach.

IV. DATA ANALYSIS

Bank-specific data were obtained from the World Bank database, which contains information on the balance sheet and income statement of banks in Ghana. We use data from banks operating in Ghana between 2008 and 2016. Estimates of the risk equation (Model 1) obtained from the simultaneous estimation are presented in Table 1. The columns present estimates for the entire sample (each bank), as well as for commercial savings and co-operative banks. We focus on different types of bank ownership, as unlisted (and / or private) companies can achieve different goals than their equity competitors. This means that commercial banks (listed companies and joint-stock companies) may have different advantages than deposit banks and cooperative banks (which belong to mutual / cooperative banks and are mutually beneficial to cooperative banks). Banks with different ownership characteristics may have different attitudes to capital, costs and risks. The estimates are based on examples of the most convenient banks in the last two columns. The objective is to determine if the relationships are different if we consider only the banks that are practical or ineffective

Table 1 Relationship.

Variables	All banks	Commercial banks	Savings banks	Cooperative banks	Most efficient banks
ETAIj	0.086* (0.0046)	0.033* (0.0078)	0.091* (0.0089)	-0.066* (0.0117)	-0.059* (0.0093)
INEFFij	-0.008* (0.0042)	-0.04* (0.0071)	-0.154* (0.0089)	-0.041* (0.0085)	-1.559* (0.0486)
NLTAij	-0.028* (0.0016)	-0.019* (0.0030)	-0.044* (0.0018)	-0.014* (0.0023)	-0.037* (0.0048)
LNTAIj	0.019 (0.0173)	-0.223* (0.0386)	0.024 (0.0176)	0.083* (0.0220)	-0.093* (0.0404)
LAODEPij	0.005* (0.0012)	0.006* (0.0020)	-0.002 (0.0014)	0.018* (0.0021)	0.011* (0.0024)
INSBOCj	0.124* (0.0271)	-0.017 (0.0577)	0.206* (0.0283)	0.022 (0.0348)	0.906* (0.0691)
SOLVENCYj	-0.025* (0.0018)	-0.012* (0.0033)	-0.018* (0.0018)	-0.05* (0.0031)	-0.006 (0.0039)
LAOACj	0.052* (0.0030)	0.043* (0.0055)	-0.034* (0.0045)	0.057* (0.0048)	0.078* (0.0083)
LLPOACj	1.519* (0.0763)	1.379* (0.1478)	0.708* (0.0713)	3.274* (0.1326)	1.354* (0.1713)
D2008	0.128 (0.2325)	0.296 (0.4522)	0.248 (0.2020)	0.15 (0.3469)	-0.854 (0.5680)
D2009	-0.288 (0.2196)	-0.074 (0.4325)	0.291 (0.1904)	-0.432 (0.3347)	-0.651 (0.5225)
D2010	-0.702* (0.2205)	-0.558 (0.4394)	0.032 (0.1904)	-1.165* (0.3377)	-0.854 (0.5202)
D2011	-0.843* (0.2169)	-0.322 (0.4313)	-0.007 (0.1879)	-1.647* (0.3338)	-1.185* (0.5142)
D2012	-0.597* (0.2128)	-0.084 (0.4229)	0.079 (0.1821)	-1.338* (0.3254)	-0.732 (0.5022)
D2013	-0.324 (0.2109)	0.21 (0.4182)	0.147 (0.1793)	-0.733* (0.3230)	-0.535 (0.4947)
D2014	-0.46* (0.2097)	0.205 (0.4181)	0.145 (0.1778)	-1.229* (0.3204)	-0.321 (0.4919)
D2015	-0.476* (0.2099)	0.023 (0.4224)	-0.094 (0.1766)	-1.006* (0.3191)	-0.272 (0.4891)
CONS	3.786* (0.3718)	5.678* (0.7074)	8.408* (0.3970)	6.313* (0.6233)	28.199* (1.0838)
Observations	20,333	7,108	5,810	7,415	5093
R sq	0.1483	0.0555	0.3688	0.3022	0.1778

Table 1 shows that there is a positive relationship between capital at each level of the sample and each risk. In other words, banks also tend to capitalize on levels with the highest credit losses. However, as with commercial banks and savings banks, cooperative banks seem to have an inverse relationship. Even at the end of the demonstration of an inverse relationship between capital and risk in the most effective banks, banking regulatory / regulatory authorities may allow for greater effectiveness. Capital and risk compared to inefficient banks. Capital restrictions may be cheaper for more efficient banks. Therefore, they are more flexible in terms of capital and risk transactions and this option is less accessible for inefficient traders.

The second line of the table reiterates that there are many signs of risk and inefficiency in a negative context, as shown in the other sign of the INEFFij variable for the entire sample.

The most effective banks and banks. For banks that are not so effective, the relationship is positive. Cost containment can limit banks' ability to take more risks. Ineffective banks may be more connected to reserves, which may lead to this result. The table also shows that the net loan capacity (NLTA_{ij}) is inversely proportional to the risk, suggesting that credit growth is inevitably linked to the level of risk insurance. The size of banking activities also seems to be important, as commercial banks do not appear to be at high risk and their smaller counterparts, as well as more efficient and inefficient banks, make fewer provisions. available for credit losses. This suggests that the potential diversification of size-related benefits, as reported by [13].

Furthermore, there appears to be a strong positive relationship between liquidity and risk, eg. B: Banks with higher liquidity have higher reserves. Together, the results of the risk equation show that banks have more capital and liquidity. The levels are riskier. Furthermore, effective banks have a greater risk. The results generally confirm the approval of the supervisory authority. Banks have more capital and liquidity to cover their risks. We have not found clear evidence that the US statements [12], [13] are always worse for the Ghanaian statements.

V. CONCLUSION

This article analyzes the relationship between capital, risk and the performance of the main bankers in Ghana during the 2008-16 period. Inefficient couple Ghanaian banks raise more capital and have less risk. It has been found that there is empirical evidence of positive risk factors in the form of capital (and liquidity) that point to the existence of capital regulators as a means to prevent risk appetite. Find tips that show that the economic power of the corporate sector has a positive impact on bank risk and equity. For commercial banks and savings banks there are no significant differences between capital, risk and return. Although there are cooperative banks, we see that the level of capital is in danger and the banks are inefficient with low capitalization. Some of these relationships also depend on whether banks are among the most efficient or smallest operators. We cannot find a strong link between inefficiency and bank risk taking. This finding may affect the different methods used and the periods covered.

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