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Market Discipline in Banking: Evidence From Publicly and Privately Own Banks in Ghana

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Abstract
The efficiency of the financial system and its architecture is vital to the economic growth of every country. Efficient financial largely ensures efficient firm capitalization, optimal capital investment decision making and risk management as such market through publicly available information has the ability assess whether the financial and investment approach adopted by banks are the best and detect signs of financial soundness. The market price of publicly traded securities issued by a bank reflects the latest market assessment of the bank's financial condition. In recent years there have been paradigm shift in effort of stakeholders in the financial market to greatly rely on market forces to prevent banking crisis. This require bank supervisors, to a higher degree, count on market discipline as it has been identified that "the real pre-safety-net" emanate from the market and it served as the first line of defense. From the perspective of market discipline theorist, the market can provide up-to-date signals to constraint any abnormal behavior of management, through firm securities price levels to achieve optimal performance. Thus, publicly traded banks performance with respect to risk taking, cost and profit efficiency is expected to be better than privately held banks. However, empirical results on this view remain are inconclusive. Thus, this study examined the effect of the capital market discipline on the performance publicly traded banks on the Ghana Stock Exchange as against privately own banks. The study adopted Two-Sample T-Test to examine the existence of significant difference between their performance with respect to cost, profitability, asset quality and return on equity. The results of this study are mixed. The study identified that publicly traded banks are efficient at liquidity risk management and maximizes shareholders wealth than privately own banks. However, in terms profit, cost efficiency and asset quality management they are not significantly different. Thus, the Ghana stock exchange has relatively insignificant disciplinary effect on listed banks' management behavior to be more optimal in profit and cost.
Key Words: Market discipline, Cost efficiency, Publicly and privately own banks in Ghana, management behavior, systematic risk, rational expectation, Ghana stock exchange, disciplinary effect.

1.0 Introduction

The economic importance cannot be over emphasized. In places where there is existence of strong information asymmetries, bank-based financing is preferable. Banks have developed expertise to distinguish between good and bad borrowers, (Duisenberg, 2001). As identified by (Levine, 2002) that economies with both well-developed banking sectors and capital markets have added advantage in economic growth.

However, systematic risk at the banking sector creates serious financial and economic crisis. According to (Mishkin, 2001), when financial markets become unable to function efficiently, economic activity briskly shrinks. The 2007-2009 global financial crisis and economic meltdown attest to this. Thus, there have been various suggestions by stakeholders in the financial market to greatly rely on market forces to safeguard banking systems from instability and crisis. Notably, long before 2007-2009 global financial crisis (Greenspan, 2001), had advocated that "the real pre-safety-net" emanate from the market, so a safe and sound banking system could be achieved by implementing policies that promote market discipline as first line of defense.

To this effect, regulatory and supervisory bodies' interest in the development of optimal prudential policies and structures in the assessment of the soundness and stability of banks continues to heighten up, (Crockett, 2002), (Basel III, 2011) and (Bank For International Settlement, 2017). This is to ensure greater robust banking system to forestall another financial crisis. Additionally, to encourage markets to efficiently assess and accordingly discipline firms with respect to their operational, financial and investment performance, various financial markets have been liberalized to create room for efficient banking infrastructure and good corporate governance systems to stimulate efficient fund allocation, firm capitalization, optimal capital investment and risk management, (Berger & Turk-Ariss, 2015). According to (Crockett, 2002) liberalized financial market allowed market forces to take principal role in determining financial outcomes of businesses. As cited in (Kwan, 2005), (Fama, 1980) noted that signals provided by an efficient capital market about the value of a firm's securities could potentially impact on firm performance and value as public ownership ensures managerial discipline to

resolve any potential agency problems. Allowing the market forces to take a central role in providing early signals for real pre-safety-net in the financial sector, among other things requires bank supervisors to employ market information to examine bank risk and other financial conditions, with view of controlling banks behavior, (Hoang, et al., 2014) and (Uchida & Satake, 2009).

As such, Bank for International Settlement in Basel II developed practical guidelines that utilises the principles of market discipline its regulatory schemes and strategies called "Pillars" (BIS, 2001) to guide banks' behavior and performance to safeguard the banking system. The market discipline theory assumes that, the market is expected to provide signals that constrain any abnormal behavior, including high risk-taking, of management through shares and bond prices, see (Bank for International Settlement, 2006), (Kwan, 2005) and (Benink & Wihlborg, 2002). (Kwan, 2005) expressed that this idea is motivated mainly by: 1) the growing complexity of large banking organizations, 2) concerns about the cost of bank supervision, and 3) limiting the bank safety net so that uninsured debtholders and equity holders still have incentives to monitor bank risks.

Despite this official interest, the question remains whether the capital market has been so efficient in providing the needed accurate signal to discipline publicly traded banks to achieve exceptional performance in terms of risk and returns. In particular, there is contention as to whether the new Pillar 3 of the Basel accord, (Bank for International Settlement, 2006), which emphasizes the reliance on market discipline as additional mechanism to control banks behavior and performance is actually effective in developing countries or emerging markets, Ghana, (Allen, et al., 2014) and (Caprio & Honohan, 2004)

Available empirical findings from relatively recent studies about the impact of capital markets' disciplinary role in improving banking firms' risk tolerance levels and profit efficiency levels have been contradictory. Based on evidence obtained from the market of bank equity, (Inoguchi, 2013) (Liu, 2011), (Afzal & Mirza, 2011), (Magalhaes, et al., 2010) and (Seppi, et al., 2007) concluded that the market is able to discipline commercial banks to improve their performance in the long term. They provide evidence that overall stock market movements significantly affect listed major banks' stock returns, cost and risk positively.

However, there are other strands of studies whose findings are contradictory to them. Among some these studies are (Gerum, et al., 2017), (Belkhir, 2010), (Allen, et al., 2014), (Paijmans, 2012) (TSOLAS, 2011), (Bliss & Flannery, 2001), (Wu, et al., 2009),(Kwan, 2005). For instance, (Gerum, et al., 2017) empirically, revealed that stock and bond-based financing has an indeterminate and varying time effect on performance of firm. (Allen, et al., 2014) find that market discipline is relatively less prominent in developing countries. Thus, the capital market might not necessary positively influence listed banks performance exceptionally in these economies. For U.S.A. commercial banks,(Paijmans, 2012) found unlisted commercial banks perform better than listed banks, contrary to Western-European Banks. (Wu, et al., 2009) and (Kwan, 2005) provided empirical findings which showed that private own banks were more economical efficient in terms of profit and cost than publicly traded banks on the average. This resulted show that publicly traded banks exhibited significantly higher operating costs per dollar of assets. These sets of empirical evidence suggest that capital market is not able to provide sufficient discipline or control mechanism to stimulate relatively higher performance for banks.

The above empirical results presented effect of capital markets' disciplinary role in ensuring publicly traded banks' efficient performance with respect to risk taking, cost and profit efficiency are inconclusive. In addition, most of these available related empirical studies have been conducted in advanced countries; however, there has been limited research on this question as it applies to banks in Ghana. Thus, this study recognizes the need for further empirical research in context of Ghana.
This is also follows from (Acquah-Sam & Salami, 2014) recommendation that developing countries such as Ghana should extensively develop its financial market to promote economic growth.

1.1 Research aim and objectives

The main aim of this study is to examine the effect of the capital market discipline on the performance of publicly traded banks on the Ghana Stock Exchange as against privately own banks. Specifically, it is to examine and identify which bank ownership type in Ghana;

i. is cost and profit efficient.
ii. has higher liquid asset quality and liquidity.
iii. is efficient at maximizing shareholders wealth.

Generally, due to additional monitoring listed banks receive from investors, other market participants, the public exchange and the central bank, the study assumes that publicly traded banks are more optimal than unlisted banks in financial performance. Correspondingly, it tests the following hypothesis;

i. The publicly traded banks have higher profits and lower cost than the privately own banks
ii. The publicly traded banks have better liquidity and credit risk levels than the privately own banks
iii. The publicly traded banks generate more returns for shareholders than the privately own banks

1.2 Significance of The Study

It is expected that the results will impact on banking business and regulation in Ghana. It has implication on bank management and the decision to go public or to remain as privately own banks. It will also help all stakeholders in the market development policies to improve on the efficiency of the capital market and banking sector terms of its soundness and stability for economic growth, as development of good national financial policies and reforms in support of the banking sector could prove crucial for boosting aggregate investment and growth for stronger economy, as banks has an effective solution to adverse selection and moral hazard problems that exist between lenders and borrowers.

Moreover, the study will help bank investors identify which areas of banks performance that need attention for improvement. Lastly, it contributes to the academic debate whether the markets in developing economies like Ghana is efficient at disciplining the banks in terms of performance and serve as additional regulatory body for banking operation.

1.3 Scope and Limitation of The Study.

This study employs financial data from the listed and unlisted banks. It spans from the year 2012 to 2016. There were not enough available published financial statements, so it could not cover more years. It used all listed banks and 19 unlisted banks financial statements. Thus, any future studies should expand the data coverage.

2.0 LITERATURE REVIEW

The study reviews literature on the theory of market discipline and empirical evidence of the effect of market discipline on Bank performance. Key in this is the signaling effect of securities prices, base on rational decisions of market participants, on the actions of managers and the integration of securities prices banks in the assessment of banks by supervisors. Timely and accurate scrutinizing of a firm's condition from all available information by the market participants influences the behavior of the firm either ex ante or ex post.

2.1 Market Discipline

It is not a new idea in banking, but its import has been modified over time. It has been an inherent and essential feature of schemes used by regulators controlling banks getting to end of 1980, in the U.S. and elsewhere see, (Min, 2015), (Min, 2014) and (Leathers & Raines, 2000). It is thought to have originated from the "free banking" time in Scotland (1695-1845) and it started 1838 in United States. It is fundamental base on the rational expectation theory. During that time, it was assumed that rational depositors with adequate information would select credible, stable and sound banks make their savings, such that banks that were not credible would fail, (Gup, 2003) . Market discipline is the theory that explains that short-term fund or loan providers can efficiently employ to restraint risk taking levels of banks by actively pricing the debt instrument to incorporate the level of exposure of the bank, (Min, 2015). It assumes that financial markets are generally efficient, in the sense that rational investors collectively determine assets prices that accurately reflect a firm's exact situation and performance. (Leathers & Raines, 2000) stated that total reliance upon competitive market forces imposes losses and ultimately failure on suppliers that do not operate efficiently. In (Flannery, 2014) view, it involves timely and accurate scrutinizing of a firm's condition such as firm value by stakeholders to influence the behavior of the firm. Such influence can occur either ex ante or ex post. With Ex ante, fund providers make banks pay higher financing cost when issue new funds for a new project if the bank's portfolio risk is relatively higher. (or vice versa for a risk decrease). In ex post discipline, when banking firm experience a negative shock such as large increase in loan losses, it would consequently impact negatively on the bank by paying higher coupon rate on any new bond issue. Existing bondholders would thus expect that the increment in costs will cause the bank to lessen its default risk by replacing the lost equity capital. (Federal Reserve, 1999) categorized these as direct and indirect market discipline. Direct market discipline is exerted through a risk-sensitive bond instrument when a banking organization's expected cost of *issuing* that instrument upsurges substantially with an increase in the organization's risk level. For such discipline to occur, investors must gather and analyze data about the banking organization's risks and future potentials and then incorporate that information into the decisions to purchase or sell the organization's debt. The anticipation of higher funding costs provides an incentive *ex ante* for the bank to

desist from increasing its risk. Indirect market discipline is manifested through a risk-sensitive debt instrument when private individuals and possibly regulatory and supervisory bodies examine secondary market prices of that instrument to identify the risk exposure (or default probability) of the banking firm.

	Monitoring	Influence	
		Direct	Indirect
Non-banking firms	Stock and bond prices are Good estimates of a firm's true value and risk exposures	Actual or anticipated changes in security prices signal appropriate actions to managers	No such concept
Banking firms	Same as above	Same as above	Supervisors use security price changes to identify banks that might require oversight or corrective action.

Table 6 ***Matrix of market discipline***

Table 1 above gives a summary of the different aspects of 'market discipline'. Source (Flannery, 2014) *page 380* In response to an apparent increase in bank risk, such interested individuals could then pursue several actions that increase the bank's operational cost. For example, private individuals might demand relatively higher interest rate from the banking firm, limit its credit supply, or place some restrictions on its ability to engage in some types of contracts, such as counterparty positions in syndication agreements, derivative contracts or long-term commitments.

(Rose & Hudgins, 2013) and (Rose, 1999) also explained that market discipline occurs when private investors in the market penalize banks because of bad decisions banks make. The punishment may come in the form of having to pay higher interest rates on CDs and any other debt instrument, and lower stock prices.

As identified in (Leathers & Raines, 2000) ,(Hildreth, 1840), American free-banking activist asked some key questions concerning banking industry with respect to the system of banking that would best serve the public and as well be accountable to maximize shareholders' return. He advocated for state authorities to liberalize the market to make for free competition in the industry. These concerns and views are still relevant for today banking system as contemporary free-banking activists and leading international banking regulatory and supervisory institution like (Bank for International Settlement, 2006) and (Gup, 2003) , argue that greater reliance on "market discipline" to regulate banks is the best way to deal with recent difficulties associated with the global financial system such as high inflation, risk and financial crisis, and to meet the challenges presented by financial innovations that affect the payment system. According to (Barth, et al., 2001) accurate information disclosure, private sector and agents monitoring and controlling of banks through effective corporate governance are the elements that ensure good banking performance for stable and sound banking system. These constitute effectual regulatory and supervisory for the banking sector. Consistent with this view, (BIS, 2001) and (Bank for International Settlement, 2006) in Basel II Accord: Revised international capital framework, is in strong support for greater market discipline in banking. It explains that when disclosures are made at right time and is properly done it will have consequential positive impact on banks, investors and depositors and will cause the financial market to be more efficient and stable stability. Pillar 3 acknowledges that the controlling properties of the market has the capability to strengthen capital regulation and other supervisory efforts of central banks. Market discipline spurs and restrict banks to carry out the business of banking in a safe, sound and efficient way. It can also encourage banks to maintain adequate capital to be able to absorb potential future losses arising from its risk exposures. Effective market discipline serves as a lever to strengthen the safety and soundness of the banking system. It is of the view that timely public disclosure by banks with respect to capital levels use as a protection against losses, and other risk exposures that may arise would help interested individuals assess the bank's ability to meet it debt obligation towards such investors, (BIS, 2001) and (Bank for International Settlement, 2006). Thus, the Basel Committee has come out with disclosure standards that helps market participants to evaluate key pieces of information on capital risk exposures, risk assessment and management processes, and therefore the capital adequacy of the bank.

(Palfi, 2008) stated that effective use of market discipline which focuses on the development of a comprehensive set of disclosure requirements for supervisory authorities and the public increases transparency and minimizes informational asymmetry for risks to be more easily evaluated. Following, earlier (BIS, 2001)'s New Capital

Accord which had proposed greater emphasis on market discipline then by making it as one of it pillars, (Gup, 2003) investigated whether market discipline is real or fantasy. They study revealed that that market discipline is a good idea and real, but it has not been effective in the past. (Caprio & Honohan, 2004) contested the widespread belief that market discipline on banks cannot be effective in less developed financial environments given the disappointing record of governments around the world as monitors of stated own banks. Countries should build on this potential for market discipline by restricting the role of explicit deposit guarantees, lowering state ownership of banks where it is widespread, and not concentrating on government supervisors and regulators only. From the perspective of public choice theory, (Allison, 2014) stated categorically with certainty that market discipline is better than regulatory discipline. Premising his argument on that fact that regulatory discipline has always fail to reduce volatility and that the U.S. banking regulator (FDIC) has always fail to identify a significant bank failure in advance.

(Crockett, 2002) explained market discipline to mean an in-house or endogenous and exogenous governance structures in a liberalized market with no direct government interference and control. For it to be effective stakeholders must have access to timely and accurate information, the analytical skills to process the information to identify the true conditions about a banking firm, and the readiness to take appropriate actions to change the performance of the bank. This can be done by the signal investors give through security price change, see (Ward, 2002) and (Bliss & Flannery, 2000).

However, (Gup, 2003) stated that market signals *per* se are not market discipline. The key to market discipline is that the bank management must react in response to the market signals. Otherwise, market discipline is identical "closing the barn door after the horse is out". (Seppi, et al., 2007) concluded that the market can discipline commercial banks and thus it could enhance central banks' supervisory responsibility while reducing the total cost of supervision. (Baele, et al., 2014) market discipline has huge impact on banks performance and bank value as banks react to it by fine-tuning the selected strategic variable which measures the long-term goals of the bank. The study shows that banks which show markedly greater volatility in contrast to the most efficient or exceptional bank(s) with analogous features that Banks get a risk pointer from the market participants and respond by toping up their capital buffer and reducing risk associated with liquidity. Similarly, when they are undervalued relative to the average bank with equivalent features, they receive an adverse assessment signal. Consequently, they react by improving on their profit targets, by mainly reducing their cost whiles improving on revenue generation. The study therefore prove that the market can significantly influence banks performance directly.

2.2 Empirical Evidence of Market discipline on Bank Performance.

Banks' likelihood of failure call for a judicious supervisory and governance role on the part of the central bank. The financial sector is faced with different risks. This includes off-balance sheet, financial, operational, credit, market, liquidity and many others. They have impact on both short term and long performance on investment quality, returns and largely on the economy. Governments and all stakeholders such as savers, investors are concerned about it due to their critical nature. Risk exposure from a bank can have devastating systemic impact on the financial system, as is evident in almost all banking crises. To safeguard the interests of all market players and investors, the financial sector is strongly regulated in all economies. This involves scrutinizing banks' risk activities and making sure that that banks are adequately capitalized to be able to absorb losses by regulatory and monetary authorities who uses different regulatory instruments of control, such as statutory liquidity reserve requirements capital adequacy ratio and minimum paid-up capital, (Berger & Turk-Ariss, 2015)

Available empirical findings from relatively recent studies about the impact of capital markets' disciplinary role in improving banking firms' risk tolerance levels and profit efficiency levels have been contradictory. Based on evidence obtained from the market of bank equity, (Afzal & Mirza, 2011), (Magalhaes, et al., 2010) and (Seppi, et al., 2007) concluded that the market is able to discipline commercial banks to improve their performance in the long term. (Liu, 2011) found publicly listed Hong Kong banks' performance experienced improvement consistently over time after getting listed. The study examined the banks profit and risk metrics. (Djankov & Hoekman, 2000), found positive relationship between market discipline and firm productivity growth. (Kirkwood & Nahm, 2006) concluded overall stock market movements significantly affects listed major banks' stock returns positively.

(Inoguchi, 2013) showed that stock prices of banks in Korea, Malaysia and Thailand reflects in part the banks risk and cost levels. Thus, improving both the interbank market and the stock market efficiency disciplinary

effect to improve listed banks performance for stable and sound banking systems. Similarly, (Vennet, et al., 2011) and (Hancock, et al., 2004) confirmed from their study that stock market can monitor banks performance with respect to risk taking as poorly performing banks quickly adjust their risk exposure and improve their performance in response to a deteriorating risk inefficiency score, in order to avoid being penalize further by the market.

Thus, the above strands of studies provide empirical evidence of that indicate that publicly traded banks experience improved performance through capital market discipline. However, there are other strands of studies whose findings are contradictory to them. Among some these studies are (Gerum, et al., 2017), (Belkhir, 2010), (Allen, et al., 2014), (Paijmans, 2012) (TSOLAS, 2011), (Bliss & Flannery, 2001), (Wu, et al., 2009),(Kwan, 2005). For instance, (Gerum, et al., 2017) empirically, revealed that capital market-based funding has an ambiguous and time-varying impact on firm performance. (Allen, et al., 2014) find that market discipline is relatively less prominent in developing countries. Thus, the capital market might not necessary positively influence listed banks performance exceptionally in these economies. For U.S.A. commercial banks,(Paijmans, 2012) found unlisted commercial banks perform better than listed banks, contrary to Western-European Banks. Both (Morgan & Stiroh, 1999) and (Belkhir, 2010) found that the market is not able to influence performance of larger and less transparent banks, as they found evidence that the too-big-to-fail protection prevents markets to discipline even BHC-affiliated banks, stressing possible slippage in the disciplinary mechanism for banks such banks. Significantly, (Wu, et al., 2009) identified that listed China's banks optimal performance tend to rather reduce through a drop in operational performances. This was attributed to bad securities market regulation, less efficient governance of the corporate bodies, limited financial innovation capabilities, insufficient risk measures and control. Similarly, (Kwan, 2005) provided empirical findings which showed that publicly traded banks on average were less efficient than privately held. This resulted from significantly higher operating costs per dollar of assets incurred by the listed banks. Thus, higher operating inefficiency contributed to the public companies' subpar profitability. These sets of empirical evidence suggest that capital market is not able to provide sufficient discipline or control mechanism to stimulate relatively higher performance for banks.

3.0 METHODOLOGY

This section presents the research methodology employed to achieve the objectives. It considers the entire research design including the methods adopted in the sampling technique; sample size of the study; the nature and source of data, and the way these data were collected and analyzed. As shall be seen, the methodology is influenced by the purpose of this study and is based on an assessment of the optimal strategy for responding to the research questions. As such, the current section discusses the statistical tools used to analyze data for answering the research questions.

3.1 RESEARCH DESIGN AND APPROACH

The research employs quantitative approach and a Descriptive research design. It specifically adopts ratio analysis examine the banks performance. Descriptive analysis is used to describe the central tendencies and variability of the selected variables. The study examined financial statements, that is the income statements and balance sheets from the annual reports of the unlisted banks and listed Banks on Ghana stock exchange. It purposively took 5 unlisted banks as a sample of the unlisted banks based on data availability. All the 5 listed banks were used except UT bank.

There are five publicly traded banks in Ghana out of thirty-six licensed banks.

The study adopts ratio analysis.

Examining the profitability and cost efficiency of the banks the study considered these ratios;

"Interest Margin (IM), Profit before tax margin (PBT) and, Cost income ratio" (CIR).

$$\text{Profit before tax}=\frac{\text{Profit after extraordinary items and beforetax}}{\text{Total Operating Income}}$$

$$\text{Net Interest Margin}=\frac{\text{Net Interest Income}}{\text{Average Operating Assets}}$$

This indicator identifies the range between the bank revenue from interest and cost of interest taking into consideration the entire assets of the bank. It shows how the bank has been able to utilize the assets and has been able to obtain the low-priced s funding in originating the financial portfolios of assets. It is also a metric that shows the management of bank has been able to optimize all the resources of the bank. Thus, if the ratio is higher it is relatively better.

Return on assets (ROA) and Return on equity (ROE) ratio were used to measure and examine return on shareholders fund.

$$\text{Return on assets(ROA)} = \frac{\text{Profit after tax}}{\text{Average total assets}}$$

Return on equity(ROE) = $\frac{\text{Profit after tax}}{\text{Average share holders' fund}}$

The ratio $\frac{\text{Liquids funds}}{\text{Total deposits}}$ (LLq/Dp) was used to measure the banks liquidity:

To measure the quality level of the banks' assets the study adopted $\frac{\text{Impairment charge(non-performing loans)}}{\text{gross loans and advances}}$,see(Alhassan, et al., 2014). Asset quality of bank loans refers to the timely manner with which borrowers meet their contractual obligations. A higher ratio indicates lower bank asset quality. Asset Quality evaluates risk, controllability, adequacy of loan loss reserves, and acceptable earnings; and the effect of off-balance sheet earnings and loss.

Cost income ratio" (CIR)= Total cost/Total Income

The ratios of all the measures above were calculated for each year for each bank within each category of bank group.

The average ratio for each group of banks was then determined for each year for five years.

The study then adopted Two-Sample T-Test to conduct hypothesis test if there exist a significant difference between the means of each variable for the listed and unlisted banks.

The following assumptions were made base on market discipline theorem, that the variances of the samples taken from each group of banks are assumed to be unequal. Hence,

i. The means of the Interest Margin, ROE, ROA, and liquidity ratios of the listed banks are significantly greater than that of the unlisted banks. Thus,

Null hypothesis: $H_0: \mu_1 - \mu_2 = 0$

Alternative hypothesis: $H_1: \mu_1 - \mu_2 > 0$

where μ_1 and μ_2 are means of the measures of the samples of listed and unlisted banks respectively.

ii. The means of ratio measuring the asset quality and cost of the listed banks are significantly lesser than that of unlisted bank. Thus,

Null hypothesis $H_0: \mu_1 - \mu_2 = 0$

Alternative hypothesis $H_1: \mu_1 - \mu_2 < 0$

where μ_1 and μ_2 are means of the measures of the samples of listed and unlisted banks respectively.

3.3 Data description

The bank level data were extracted from the year-end income and balance sheet statements of the banks. At the end of 2018, 36 banks had been registered to carry on banking business in Ghana. Out of the 36 registered banks 6 are publicly traded on the Ghana stock exchange. For this study, 6 listed banks were chosen and 19 unlisted banks where sampled base on availability of data.

4.0 RESULTS AND ANALISIS

This section presents the data analysis and discusses the major findings identified from the study. It presents test for the profitability, returns, liquidity, etc.

4.1 Profitability Test.

Interest Margin

Two-Sample T-Test and CI: Interest Margin of listed banks verse Unlisted banks

Method Descriptive Statistics

μ_1: mean of Interest Margin of listed banks.	Sample	N	Mean	StDev	SE Mean
μ_2: mean of Interest Margin of unlisted banks	Listed.Int.M.	5	0.12440	0.00961	0.0043
Difference: $\mu_1 - \mu_2$	Unlisted.I.M	5	0.09746	0.00425	0.0019

Equal variances are not assumed for this analysis.

Estimation for Difference Test

Difference	95% Lower Bound for Difference	Null hypothesis	$H_0: \mu_1 - \mu_2 = 0$	T-Value	DF	P-Value
0.02694	0.01747	Alternative hypothesis	$H_1: \mu_1 - \mu_2 > 0$	5.73	5	0.001

Table 7:Two-Sample T-Test and CI: Interest Margin of listed banks verse Unlisted banks

Looking at the table 2 above, the sample mean of the interest margin of the listed banks is approximately 12.4% whiles that of the unlisted bomb is about 9.7%.it further shows that the difference between the two groups of banks is about 2.7% with a lower bound of about 1.8%. The t- test of no difference between the interest margin means of the two groups of banks with respect to ownership produce a P-value of an 1%. Thus, the null

hypothesis is rejected at 5% significant level. Hence there is statistical evidence that there is a significant difference among the interest margin of the publicly traded banks and the privately own banks. It implies that the listed banks are more efficient at utilizing their operating assets in generating more interest income as against interest expense.

Profit before Tax

Two-Sample T-Test and CI: Profit before Tax of listed banks verse Unlisted banks

Row1		Row1	
Mean	44.4%	Mean	35.1%
Standard Error	0.064036	Standard Error	0.035327
Median	0.516	Median	0.363615
Mode	#N/A	Mode	#N/A
Standard Deviation	0.14319	Standard Deviation	0.078993
Sample Variance	0.020503	Sample Variance	0.00624
Kurtosis	-2.75182	Kurtosis	2.059624
Skewness	-0.51928	Skewness	-1.3304
Range	0.3186	Range	0.204659
Minimum	0.268	Minimum	0.222556
Maximum	0.5866	Maximum	0.427214
Sum	2.2224	Sum	1.756216
Count	5	Count	5
t-Test: Two-Sample Assuming Unequal Variances			
	26.8%	22.3%	
Mean	48.9%	38.3%	
Variance	1.4%	0.1%	
Observations	4	4	
Hypothesized Mean Difference	0		
df	4		
t Stat	1.674657		
P(T<=t) one-tail	0.084657		
t Critical one-tail	2.131847		
P(T<=t) two-tail	0.169313		
t Critical two-tail	2.776445		

Table 8:Two-Sample T-Test and CI: Profit before tax of listed banks verse Unlisted banks

The table 3 above shows the mean of the profit before tax of the listed firms and the unlisted banks. The average profit before tax to the listed banks is about 44% and that of the Unlisted banks is approximately 35% for the period between 2012 to 2016, with corresponding variance 1.4% and 0.1 % respectively. Thus, after consideration of extraordinary items the profit generated by the listed banks is about 44% of the total operating income as against about 35% on the average of the privately own banks. On the face of it, it seems the listed banks generate more profit out of their total operating income than the Unlisted banks by 10%. it suggests that the publicly traded banks are relatively efficient at minimizing their operating expenses.

The table 3 also shows test of Significant difference between their means. It hypothesized that the difference between the means of the listed banks and Unlisted banks is Zero. The result of the t-test shows a p-value of

about 17%. At 5% significance level the null hypothesis is accepted. Hence, statistically there is no significance between the profit they both generate.

Return on Equity

Two-Sample T-Test and CI: ROE of Listed Banks verse Unlisted Banks

Method Descriptive Statistics

μ_1: mean of ROE of Listed	Sample	N	Mean	StDev	SE Mean
μ_2: mean of ROE of Unlisted	ROE Listed	5	0.308	0.108	0.048
Difference: $\mu_1 - \mu_2$	ROE Unlisted	5	0.1888	0.0438	0.020

Equal variances are not assumed for this analysis.

Estimation for Difference Test

Difference	95% Lower Bound for Difference	Null hypothesis	H_0: $\mu_1 - \mu_2 = 0$	T-Value	DF	P-Value
0.1190	0.0137	Alternative hypothesis	H_1: $\mu_1 - \mu_2 > 0$	2.28	5	0.036

Table 9:Two-Sample T-Test and CI: ROE of Listed Banks verse Unlisted Banks

On ROE table 4 shows the average returns on equity, of the two different banks with respect to ownership. The ROE of the publicly traded banks averages approximately 34.2% whiles that of the privately own banks is 20.5% with a difference of about 13.7%. The null hypothesis is rejected in favor of the alternative hypothesis as the reported P-value of 2.2% is lesser than 5% significance level. Thus, the t-test reveals that the difference in mean between the two sets of banks is significant statistically. It implies that the stock exchange has some significant controlling and disciplinary effect to constrain banks in Ghana to pay up relatively higher returns to equity investors Compare to debt providers and depositors.

Return on Asset

Two-Sample T-Test and CI: ROA Listed Verse Unlisted

Method Descriptive Statistics

μ_1: mean of ROA Listed	Sample	N	Mean	StDev	SE Mean
μ_2: mean of Reenlisted	ROA Listed	5	0.0463	0.0144	0.0065
Difference: $\mu_1 - \mu_2$	ROA Unlisted	5	0.03100	0.00781	0.0035

Equal variances are not assumed for this analysis.

Estimation for Difference Test

Difference	95% Lower Bound for Difference	Null hypothesis	H_0: $\mu_1 - \mu_2 = 0$	T-Value	DF	P-Value
0.01532	0.00105	Alternative hypothesis	H_1: $\mu_1 - \mu_2 > 0$	2.09	6	0.041

Table 10:Two-Sample T-Test and CI: ROA Listed verse Unlisted

Similarly, from table 5, the result from the t-test for ROA suggests that the listed banks are more efficient at generating more return on their assets than the unlisted banks. It indicates that listed banks in Ghana relatively utilize the entire assets better than unlisted banks. The average return for the period of five years is about 5% and 3% for the listed and unlisted banks respectively. The t-test for the difference between the means of the listed and unlisted banks produce a p-value of approximately 4.1% which is lesser than 5 significance level. Thus, the null hypothesis that the ROAs of the two categories of banks are equal is rejected.

Thus, it suggests that the stock market provides relatively more disciplinary measures for the publicly traded banks to be efficient to some extent to generate more net earnings from debt and equity funding or from the total assets than the privately own banks. And they are more efficient in improving shareholders wealth or value than the privately own banks as they give more return on equity and assets.

Cost efficiency.

Two-Sample T-Test and CI of cost to income ratio(CIR) of Listed verse Unlisted Two-Sample Assuming Unequal Variances		
	0.654	0.702778
Mean	0.585	0.554476
Variance	0.001647	0.001227
Observations	4	4
Hypothesized Mean Difference	0	
df	6	
t Stat	1.138859	
P(T<=t) one-tail	0.14909	
t Critical one-tail	1.94318	
P(T<=t) two-tail	0.298181	
t Critical two-tail	2.446912	
accept		

Table 11:Two-Sample T-Test and CI of cost to income ratio of Listed Verse Unlisted

From the table 6 above, the mean cost to income ratio(CIR) of the listed banks is approximately 58.5% while that of the Unlisted banks 55.5%. From the result of the hypothesis test, there is no significant difference between the listed and Unlisted banks, even though, on the face of it the listed banks average percentage Cost to income seems to be higher than the unlisted banks. The test of no difference between the means of their respective cost to income ratio as against the mean difference of them been less than zero yielded a P-value of approximately 15% which indicates the null hypothesis is accepted at a significant level of 5%. Thus, there is no strong evidence statistically that the listed firms manage their cost effectively than the unlisted firms. Hence, the capital market is not able to constrains the listed banks to minimize their cost.

Liquidity and Risk

Two-Sample T-Test and CI: Liquid asset to Deposit of Listed Verse Unlisted Banks

Method Descriptive Statistics

μ_1: mean of LLq to Dp	Sample	N	Mean	StDev	SE Mean
μ_2: mean of Ulf to Dp	LLq toDp	5	0.8248	0.0499	0.022
Difference: $\mu_1 - \mu_2$	ULLq to Dp	5	0.05711	0.00603	0.0027

Equal variances are not assumed for this analysis.

Estimation for Difference Test

Difference	95% Lower Bound for Difference	Null hypothesis	H_0: $\mu_1 - \mu_2 = 0$	T-Value	DF	P-Value
0.7677	0.7198	Alternative hypothesis	H_1: $\mu_1 - \mu_2 > 0$	34.16	4	0.000

Table 12:Two-Sample T-Test and CI: Liquid asset to Deposit of Listed Verse Unlisted Banks

The table 7 above shows T-Test results concerning the liquidity management. It specifically shows there exist significant difference between the means of the listed and unlisted banks. The null hypothesis is rejected at 5% significant level as the p-value is approximately 0%. Thus, the alternative hypothesis is accepted, indicating that the listed banks remain more liquid than the unlisted banks. Mean of the listed banks liquid assets is about 82.5% depositors fund as against 5.7% for the privately own banks. From table 7 the difference is about 76.8% at a lower boundary of about 72% at 95% Confidence level.

Asset Quality.

Two-Sample T-Test and CI: Asset Quality (LAQ) of listed Verse Unlisted Banks (ULAQ)

Method Descriptive Statistics

μ_1: mean of LAQ	Sample	N	Mean	StDev	SE Mean
μ_2: mean of ULAQ	LAQ	5	0.0394	0.0260	0.012
Difference: $\mu_1 - \mu_2$	ULAQ	5	0.0343	0.0123	0.0055

Estimation for Difference Test

Difference	95% Upper Bound for Difference	Null hypothesis	H_0: $\mu_1 - \mu_2 = 0$	T-Value	DF	P-Value
0.0051	0.0311	Alternative hypothesis	H_1: $\mu_1 - \mu_2 < 0$	0.40	5	0.646

Table 13:Two-Sample T-Test and CI: Asset Quality (LAQ) of listed Verse Unlisted Banks (ULAQ)

The table 8 shows the descriptive statistics and the t-test of the difference between the means of the percentage of impairment allowance on gross loans and advances of the two categories of banks, which give a measure of the bank's asset quality. The table reports the mean of the listed and unlisted banks' impairment allowance on loans and advances as 9.8% and 7.5% respectively. The difference between them is approximately 2.3% with -1.7% as lower boundary at 95% confidence level. The t-test revealed a p-value of 14.4 % hence it is accepted that there is no significant difference between the two forms of banks as far as this measure of asset quality is concerned.

Similarly, on the percentage of impairment charge on loan and advances, the table reports the mean of the listed and unlisted banks' impairment charge on loans and advances as 3.94% and 3.43% respectively. The difference between them is approximately 0.5% with 3.11%% as upper boundary, at 95% confidence level. The hypothesis revealed a p-value of 65% hence it is accepted that there is no significant difference between the two forms of banks as far as this measure of asset quality is concerned.

The tests therefore confirm that in terms of asset quality management the publicly traded banks are not more efficient than the privately own banks. They equally behave the same. Thus, the market is not able to discipline the listed banks to cut down their loan losses to improve on the quality of credit.

5.0 Summary of Findings and Conclusion

- **For objective one;** The ROE of the publicly traded banks averages approximately 34.2% whiles that of the privately own banks is 20.5% with a difference of about 13.7%. In terms of ROA, listed and unlisted banks averagely generate 4.63% and 3.1% respectively. The study found there is significant difference between them statistically and that listed banks outperform the unlisted banks.

- **Objective two;** The study identify mean of the interest margin of the listed banks is approximately 12.4% whiles that of the unlisted bomb is about 9.7%. The study found significant difference among the interest margin statistically. Hence listed banks are more efficient in terms interest margin. In terms of profit before tax, mean profit generated by the listed and unlisted banks is about 44 and 35% respectively of the operating income. However, the study finds no significance difference among them. Again, there is no strong evidence statistically that the listed firms are cost efficient than the unlisted firms. Hence, the capital market is not able to constrains the listed banks to minimize their cost.
- **For objective three;** The study show that the listed banks are significantly liquid than the unlisted banks. Averagely, the listed banks liquid asset is about 82.5% depositors fund as against 5.7% for the privately own banks. As far as asset quality is concerned there is no significance difference between them after considering banks' impairment allowance and the percentage of impairment charge on loan and advances. It therefore indicated that in terms of asset quality management the publicly traded banks are not more efficient than the privately own banks. They equally behave the same. The capital market is not able to discipline the listed banks to cut down their loan losses to improve on the quality of credit.

5.1 Conclusion

The result of the study is mixed.

The study identified that publicly traded banks are efficient at maximizing shareholders wealth than privately own banks. They also maintain significant liquidity level than the unlisted banks and thus less risky than the unlisted banks. Thus, the stock exchange has some significant controlling and disciplinary effect to constrain banks in Ghana to pay up relatively higher returns to equity investors compare to debt providers and depositors.

It further, suggests that the stock market provides relatively more disciplinary measures for the publicly traded banks to be efficient to some extent to generate more net earnings from debt and equity funding or from the total assets than the privately own banks.

With respect to cost efficiency, the publicly traded banks are not efficient than the privately own banks, but they are more efficient at generating more revenue from interest income than unlisted banks unlike profit before tax. Hence the listed banks are not significantly profit and cost efficient than the unlisted banks. For asset quality listed banks are not better than the unlisted banks.Overall, the capital market of Ghana market is not able to discipline or influence the behaviour of banks significantly to be more optimal in profit generating and expenditure.

5.2 Recommendation from the study:

Base on the results, the study recommends that the private participants and bank investors such as debtholders and stockholders in Ghana, should scrutinize the operational and financial cost of the banks as well as their profit generating activities to maximize their returns than the current level.

The study further recommends more studies to widen the scope to cover all other financial firms listed on Ghana stock exchange as against non-listed ones and to identify banks stocks that exceptionally outperforms the stock market. Again, other study can examine the relationship that exist between risks and returns of the publicly traded banks on the Ghana Stock Exchange.

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