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Financial Distress and Occurrence of Financial Crisis: A Study of Commercial Banks in Ghana

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Abstract – Financial distress has been stated by many researchers as one of the major causes of financial crisis; especially, among commercial banks. However, stakeholders of Ghana's financial sector in general and the banking industry, specifically, appeared to pay less attention to the possible nexus between financial distress and likelihood of occurrence of financial crisis; possibly due to scarcity of empirical literature in this area. This study, thus, assessed the relationship between financial distress and financial crisis among commercial banks in Ghana, employing annual data for the period 2010 – 2019 from 22 commercial banks selected using the criterion sampling technique. The binary logistic regression was used for estimation of the relationship between financial distress and financial crisis. Financial distress was proxied by Altman's Z-score, whilst financial crisis was dichotomised. Results revealed financial distress to have a significantly positive effect on the odds of occurrence of financial crisis among commercial in Ghana. It was recommended that leadership of commercial banks in Ghana be proactive in their actions towards minimising threats posed by financial distress to ensure that they do not escalate into crisis.

Keywords – Financial distress; financial crisis; commercial banks; Ghana

I. INTRODUCTION

Financial crisis is an issue of global importance among governments, agencies, policy makers and researchers, among others, caused by many factors including financial distress (Atinyo, 2021; Reinhart, & Rogoff, 2012). The last two decades of the 20th century witnessed a series of financial crisis. In the early 1980's and 1990's, a score of developed and developing countries, and some economies in the lane of transition encountered severe financial crises – particularly in the area of banking (Bhanot, Burns, Hunter, & Williams, 2014). According to Klomp and De Haan (2010), there were over 130 financial crises in about 110 countries since the 1980's. These crises devastatingly led to disruption of flow of credits to individuals, households, and business firms. Investment and consumption were reduced, forcing sound and viable businesses into bankruptcy and an ultimate shutdown (Bhanot et al., 2014).

According to Reinhart and Rogoff (2012), the devastating impacts of the crisis caused loss of sureness in the financial system, preventing healthy operation of the credit mechanism. This caused increase in credit costs, leading to the desertion of real sector borrowing and credit facilities. World economic growth rates fell sharply, indexes of industrial production shrank to an unprecedented level, and unemployment rates climbed up astronomically (Yilmaz, 2010). Though majority of these crises happened in more developed economies such as the United States, Russia and China, they had overwhelming effects on developing countries, such as Ghana, as there were declines in export volumes, drastic fall in commodity prices, and drastic fall in foreign capital inflows and remittances (Ajakaiye, Fakiyesi, & Oyinlola, 2010).

Considering how disastrous the effects of financial crisis could be on individual livelihoods and economies in general, there is the need to investigate the possible factors responsible for its occurrence. Nevertheless, many prior studies focused on developed economies (Winkler, 2010; Guloglu, & İvrendi, 2010; Roy, & Kemme, 2012), with no to little attention to developing countries such as Ghana which recently experienced a crisis in its banking sector. For instance, Winkler (2010), and Guloglu and İvrendi (2010) report lax financial regulatory conditions and failure to implement stringent corporate governance guidelines to be the factors responsible for the financial crisis experienced in the United States. Roy and Kemme (2012) are of the view that deregulatory measures eventually led to the financial crises experienced in Russia and Asia. Others also cited financial distress to be among the major causes of global financial crisis (Klomp, & De Haan, 2010; Yilmaz, 2010).

The possible causes of financial crisis if left without attention and possible solutions suggested to curb future occurrences, reoccurrence, especially in this era of Covid 19 pandemic, could wreak a serious havoc on economies including Ghana which is still recovering from a recent banking crisis (Bank of Ghana (BoG), 2018; Ministry of Finance (MoF), 2019). In its 2019 annual budget statement, the Ministry of Finance reported a 17.7% decline in the sector's growth, as the sector was left with only 23 commercial banks after the Government of Ghana through its central bank had embarked on a clean-up exercise sanctioned to build a robust and formidable financial system (Atinyo, 2021; MoF, 2019). This exercise rendered many commercial banks in Ghana defunct; unemployment rates sky-rocketed as those who lost their banking jobs had to join the existing masses of unemployed graduates; increased crime rates were also witnessed (Joy FM, 2020; Citi FM, 2020).

The financial regulator, Bank of Ghana, ascribed the challenges faced by the banks to incompetent and unscrupulous deals by some of the governing bodies of the banks; these deals, such as squandering of corporate funds by virtue of one's position on a board, were cited to have landed the banks in a deep financial distress; ultimately, culminating in the financial crisis experienced by the sector (MoF, 2019). This does not depart from the inferences that could be drawn from the agency theory that self-gratifying agents who engage in acts of fund embezzlement and misappropriation of resources could plunge their organisations into financial difficulties (Ross, 1973; Jensen, & Meckling, 1976). Surprisingly, the researchers have not come across any empirical study on the relationship between financial distress and financial crisis in Ghana. Related prior studies were carried out in developed countries (Stubley, Paparas, Tremma, & De Aguiar, 2018; Hearit, & Hearit, 2020), and the focus had mostly been on non-banking financial institutions (Roy, & Kemme, 2012; Veronesi, & Zingales, 2010; Ueda, & di Mauro, 2010). Consequently, outcomes of those prior empirical studies might not comprehensively represent the standing of Ghana's commercial banks, and this could impact decisions and policies directed towards fully revamping the financial sector. Hence, the need for a study like this to fill the lacuna in Ghanaian literature cannot be overemphasised.

This study was specifically aimed at determining whether financial distress predicts financial crisis. The current study, unlike the prior studies, focused specifically on all commercial banks within the financial sector in Ghana. A study of this nature will contribute to the body of knowledge on financial distress and financial crisis in developing countries – particularly Ghana – as the results will close the lacunae in literature. Also, the findings will have implications for policy making at both national and individual firm levels. Further, the relationship between financial distress and financial crisis will provide stakeholders and policy makers within the financial sector a great deal of insight into where to direct their efforts in order to achieve an improved financial system which will stand the test of time. Ghana is facing financial challenges; thereby, denying the youth employment into the public sector (Arthur, 2021). Thus, a robustly operational financial system could help reduce unemployment rates and contribute to achieving poverty eradication related SDGs within the set time.

II. Theoretical Background and Hypothesis Formulation

Agency Theory

The agency theory attempts to explain relationships and self-interest in business organisations (Ross, 1973; Jensen, & Meckling, 1976). This theory describes the relationship between principal and agent, and delegation of controls. It describes how best to organise relationships in which the principal spells out the work and the agent performs or makes decisions on behalf of the principal (Jensen, & Meckling, 1976). The theory also acknowledges that within business organisations, there is the likelihood of the problem of conflict of interest where principals or owners of organisations tend to pursue their own interests and agents or managers of the business tend to satisfy their personal interests too (Mitnick, 2015).

Consequently, self-interests of agents which might compel them to perpetrate acts such as fund embezzlement and mismanagement may lead to plunging the business organisation into difficulties. Also, principals' or owners' quest to satisfy their personal interests by using organisation's resources for their personal needs may lead to financial issues for the organisation (Mitnick, 2015). This implies that in a situation where management of a bank is separated from its ownership, the main issue to grapple with when managers and owners are not having their desires met will be conflict of interests. Thus, when managers use bank's resources to achieve their self-interests and owners also tend to use the bank's resources for their personal gains, the results will be low liquidity, inability to pay creditors leading to financial distress which may force the bank to dispose of assets to pay debts (Mitnick, 2015), and eventually plunging the bank into financial crisis. Considering this, it is not out of line to state that financial distress has the ability to predict financial crisis.

Financial Distress and Financial Crisis

Empirical studies on financial distress and financial crisis are scarce. Prior researches only studied financial distress and other concepts thought to have close relationships with financial crisis. This means, to some extent, these prior studies which mentioned financial distress have a close link with financial crisis, considering how close or related the concepts used were to financial crisis. For instance, Ajakaiye et al. (2010) assessed the relationship between financial distress and bankruptcy of banks in Nigeria. The study employed the quantitative method and used the correlational design. Results revealed that financial distress has a significantly positive relationship with bankruptcy. Bankruptcy was also identified to have contributed to folding up of banks. The study concluded that financial distress is responsible for non-performance of financial institutions.

Using similar approaches as Ajakaiye et al. (2010), Winkler (2010) found that financial institutions are forced to wind up activities because they are not able to meet financial demands of their clients or depositors. Failure to meet depositor demands puts financial pressure on the institutions and eventually leads to collapse of the institutions. These studies did not directly assess financial distress and financial crisis. In another study, Atinyo (2021) found that financial distress predicts occurrence of financial crisis, and concluded that as financial distress levels of firms heighten, the odds of financial crisis occurring increase. Considering the findings of these prior studies, it could be inferred that financial distress has a positive effect on the occurrence of financial crisis among firms. Therefore, this present study hypothesised that:

Hypothesis 1 (H1): *There is a significant positive relationship between financial distress and occurrence of financial crisis among commercial banks in Ghana.*

III. METHODOLOGY

Sample and Sampling Procedures

The study population included all commercial banks in Ghana – both state and private owned. The choice of commercial banks was informed by the fact that these banks were recently involved in a financial crisis, and some of them are still in recovery process (Atinyo, 2021; MoF, 2019). A total of 23 commercial banks sourced from the website of Bank of Ghana made up the population. However, 22 commercial banks were sampled for the study, based on the following selection criteria: First, the bank must have been duly registered and recognised by the Bank of Ghana; second, the bank should have published audited annual reports for the periods 2010 to 2019; and finally, the bank should be independent not consolidated.

With regards to data, annual data spanning a 10-year period, from 2010 – 2019, from the audited annual reports of the sampled commercial banks were used for the study. The audited reports were obtained from the official websites of the banks, and other related pieces of information necessary for the study were obtained from the website of the Bank of Ghana. A total number of 220 (22 commercial banks × 10 years) observations were obtained.

Measurement of Variables

Financial distress

This variable was assessed using the Z-score which has been used by many prior authors to assess distress levels of firms (Shahwan, 2015; Kamel, & Shahwan, 2014; Alkhawaja, & Görmüş, 2019). The Z-score was originally introduced by Professor Edward I. Altman in 1986. The Z-score formula had undergone many revisions to make it applicable to computations of distress levels or failure likelihood of firms in different industries (Altman, Marco, & Varetto, 1994; Kawor, 2019). For this study, since banks were being considered, the formula for computing the distress levels of non-manufacturing firms (Altman, 1993; Shahwan, 2015) was employed. If the computed average value of Z-score is greater than 2.99, it is predicted that the firm is not distressed; value smaller than 1.81 would indicate a failed or distressed firm; and values between 1.81 and 2.99, referred to as Grey Area, would indicate mixture of elements of distress and non-distress, and thus further investigation to determine financial health of such a firm might be required (Kawor, 2019). The assessment formula is specified below.

$$\mathrm{FD:Z-score} = 6.567\frac{\mathrm{WC}}{\mathrm{TA}} + 3.260\frac{\mathrm{RE}}{\mathrm{TA}} + 6.720\frac{\mathrm{REbIT}}{\mathrm{TA}} + 1.105\frac{\mathrm{MVE}}{\mathrm{BVTD}} \ldots\ldots\ldots\ldots\ldots \text{Equation 1}$$

Where:

FD = Financial distress

WC = Working capital

TA = Total assets

RE = Retained earnings

REbIT = Retained earnings before interest and tax

MVE = Market value of equity

BVTD = Book value of total debts

Financial crisis

Financial crisis has been identified in literature by employing different indicators. Some studies identified financial crisis by using dummy variables (IMF, 2018). Using dummy variables for financial crisis, periods of crisis are indicated "1" and periods of no crisis denoted "0". The dummy variable approach has been used in literature since the first recorded crisis experienced in the financial sector (Zouaoui, Nouyrigat, & Beer, 2011; IMF, 2018). However, the Morgan Stanley Capital International (MSCI) indices have been used in some special cases (IMF, 2018). The MSCI is a market-capitalisation-weighted index used to measure the stock performance of firms registered on a stock market. Also, the index is widely used at the national levels rather than institutional or firm levels (IMF, 2018). This means that at firm levels, the dummy variable approach is more appropriate to be used for financial crisis. Thus, the present study adopted the dummy variable measurement.

Statistical analysis

The analysis was done in two parts. Firstly, descriptive statistics of mean and standard deviation were computed for both the predictor variable – financial distress – and the outcome variable – financial crisis. This enables a simple exploration of the study variables. Secondly, the binary logistic regression was conducted to assess the relationship between financial distress and financial crisis. The binary logistic regression was employed for the estimation due to the dichotomous nature of the dependent variable – financial crisis (Hosmer, Lemeshow, & Sturdivant, 2013). All analyses were conducted employing the IBM-SPSS (version 23.0), and level of significance was $p < 0.05$ (2-tailed). The estimation model is as specified below.

$$\mathrm{P(Financial\ Crisis)} = \frac{e^{\beta_0+\beta_1 \mathrm{Financial\ distress}}}{1+e^{\beta_0+\beta_1 \mathrm{Financial\ distress}}} \ldots\ldots\ldots\ldots\ldots\ldots \text{Equation 2}$$

Where:

P = Odds of financial crisis occurring

β_2 = Magnitude of effect on the odds of financial crisis occurring with respect to a unit change in financial distress e = base of natural log = 2.71828…

IV. Results and Analysis

Table 1 shows the descriptive statistics of the study variables. The results indicated a good average value of financial distress for the commercial banks (Mean = 5.79±0.81SD). This mean score was greater than 2.99; thus, indicating that, on the average, commercial banks in Ghana were financially healthy (Kawor, 2019; Shahwan, 2015). For the distribution of values for financial crisis, the analysis showed that the maximum value that could occur was (Max. = 1.00) indicating occurrence of financial crisis whilst the minimum that could occur was (Min. = 0.00) indicating otherwise or non-occurrence of financial crisis. Thus, considering the mean score (Mean = 0.30±0.46SD), there was less likelihood of the occurrence of financial crisis as the mean score tilted more towards zero (0.00) than one (1.00).

Table 1: Results of descriptive analysis

Variables	Mean	(±SD)	Min.	Max.
Financial Distress	5.79	0.81	3.75	7.92
Financial Crisis	0.30	0.46	0.00	1.00

Note: SD = Standard deviation; Min. = Minimum; Max. = Maximum

Additionally, as shown in Table 2, the logistic regression was performed to ascertain the effect of financial distress on the likelihood that financial crisis would occur. The logistic regression model was statistically significant (*Wald* = 8.095, *DF* = 1, $p < 0.05$). The model explained (4.00%) to (6.00%) of the variation in the likelihood of occurrence of financial crisis among commercial banks in Ghana. However, due to the fact that Cox and Snell R Square cannot equal one, the usual approach is to use Nagelkerke R Square for the coefficient of determination (Lund, & Lund, 2018); hence, the variance in the odds of occurrence of financial crisis reliably explained by the model was (6.00%), using the Nagelkerke R Square, and correctly classified (70.00%) of the cases.

Further, from Table 2, the odds ratio ($e^B > 1$) was shown to be greater than one, indicating a positive relationship between financial distress and the odds of financial crisis occurring. This positive relationship was confirmed by the logit coefficient (β = 0.61) as well as the confidence intervals which were both greater than one (*Lower CI* = 1.21, *Upper CI* = 2.79). This relationship indicated that financial crisis was more likely to occur. Specifically, this implies that, holding all other factors constant, for every unit of financial distress, the odds of financial crisis occurring increase by a factor of 1.84. In other words, the odds of financial crisis occurring are 1.84 times higher than the odds of non-occurrence of financial crisis, with a (95.00%) confidence intervals of 1.21 to 2.79.

Table 2: Results of binary regression analysis

		Logit (B)	S.E	Wald	Sig.	e^B	95% CI for e^B	
							Lower	Upper
Variable	Financial distress	0.61	0.21	8.10	0.004	1.84	1.21	2.79
	Constant	-4.42	1.28	11.90	0.001	0.01		
Model summary	-2 Log likelihood			271.59				
	Cox & Snell R Square			0.04				
	Nagelkerke R Square			0.06				
Classification				0.70				

The cut value is 0.500

Note: S.E = Standard error; e^B = Odds ratio; CI = Confidence interval

V. Discussion and Conclusions

From the results, it has been shown that financial distress has a significant effect on odds of financial crisis occurring. Just as expected by the researchers, an increase in financial distress was found to have caused an increase in the odds of financial crisis occurring. In other words, an increase in financial distress translates into the likelihood of financial crisis occurring among commercial banks in Ghana. On the other hand, a decrease in levels of financial distress would cause a decrease in the odds of financial crisis occurring. This finding is possible as commercial banks facing financial distress are likely to experience financial issues which could lead to disposal of some tangible assets, among others, in order to meet financial obligations to the banks' clients or depositors. Consequently, the banks may lose the ability to carry on its primary operations due to liquidity and solvency issues. Eventually, the possibility of financial crisis occurring increases as bank financial distress level deepens.

The main business of commercial banks in Ghana involves giving loans to individuals, groups and organisations, as well as taking up investment activities. These expose the commercial banks to issues of defaults on part of the borrowers as well as the investment partners. This is not surprising because many are the borrowers who fail to pay their interest installments to the commercial banks. As this persists, the financial status of the banks is adversely affected. This happens because irrespective of the fact that borrowers default on paying their interest installments and loan principal to the banks, depositors may still be visiting these banks to withdraw part of their deposits or even take everything. As the number of depositors withdrawing their cash from the banks increases, the banks' financial positions are negatively affected as the banks may have to withdraw some capital investments in order to pay depositors. Profitability and sustainability are then affected, culminating in crisis.

This finding is consistent with the findings of Ajakaiye et al. (2010) who found a significant positive relationship between financial distress and bankruptcy leading to financial crisis. According to Ajakaiye et al., bankruptcy occasioned by financial distress is one of the main contributory factors to non-performance of financial institutions in general, and folding up of banks' operations. If these continue without the banks benefitting from any external assistance to revamp their activities and operations, the likelihood of a full-fledged financial crisis is bound to occur. The present finding also correlates with the findings of Winkler (2010) who asserted that financial institutions are forced to wind up activities because they are unable to meet financial demands of depositors. He went ahead to explain that failure to meet financial demands of depositors puts pressure on commercial banks. This, eventually, leads to the collapse of the banks.

Similarly, the present finding is consistent with the findings of Atinyo (2021) who reported a significant positive relationship between financial distress and the odds of occurrence of financial crisis. Also, the finding is in line with Altman's (1968) model which posited that increase in financial distress causes bankruptcy and, subsequently, financial crisis. Thus, as issues of financial distress escalate, the likelihood that financial crisis will result increases. This is not surprising as, according to a set of existing literatures, financial distress has usually been cited to have contributed to the failure of many commercial banks (Dybvig, & Warachka, 2015; Alkhawaja, & Görmüş, 2019; Shahwan, 2015; Kamel, & Shahwan, 2014).

The present finding can also be linked to the manner in which commercial banks operate in Ghana. How some of the commercial banks in Ghana deal with their clients who have deposited money at the banks is not to the standard that might have been expected by many people. Communication has, in many cases, been poor between banks and depositors causing depositors to panic at the slightest hitches in the financial system. The depositors are then forced to listen to rumors and act on them accordingly. When this happens, and for the fear of losing savings, depositors tend to rush to the banks to withdraw their deposits; this puts pressure on the banks as they are unlikely to meet the sudden high demands of all depositors. The commercial banks are then forced to sell off noncurrent assets, other investments, and also increase their borrowings in order to settle their clients. Eventually, this distress places the banks in unfavourable financial standings leading to crisis.

In a nutshell, the results showed that financial distress is a significant predictor of the occurrence of financial crisis among commercial banks. Though the present study specifically considered commercial banks within the Ghanaian context, the finding, as far as financial distress as a predictor of financial crisis is concerned, has been consistent with many prior studies conducted outside Ghana. Factors considered to have influenced commercial banks in Ghana, making them suffer financial distress leading to the issues of financial crisis, are linked to the management style of leaders of these banks, as conflict of interest has been on the rise, and as could be inferred from the agency theory, conflict of interest can wreak havoc on firms' and their operations (Jensen, & Meckling, 1976). Considering these, it is recommended that management of commercial banks in Ghana pay profound attention to customers and their demands. Also, taking into account the fact that secondary data were used for the present study, there is the possibility that there are more to the issues of financial distress, among commercial banks in Ghana, not reflected in the secondary data; thus, creating opportunity for further studies to look at the relationship between financial distress and financial crisis employing primary data.

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