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The banking crisis in Ghana: Causes and remedial measures

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Abstract

This study examines the causes and remedial measures of the ongoing banking crises in Ghana using cross-sectional survey research. The respondent agreed that the bank-specific causes include poor corporate governance practices, severe capital impairment, severe liquidity impairment, high non-performing loan ratio, low profitability levels and small bank size. They also agreed that the banking industry-specific causes include poor banking regulation and supervision, high Treasury bill rate and high Ghana reference rate. We also find that both bank size and profitability were statistically insignificant. The multiple econometric regression analysis depicts profitability, liquidity risk, Treasury bill rate and banking regulation and supervision to have no significant effect on changes in the overall level of satisfaction of the respondents. Important policy implication for the continuous implementation of the capital requirement, corporate governance, fit-and-proper, and enterprise risk management directives, inter-alia are encouraged.

Keywords: Banking crisis; remedial measures; corporate governance; Ghana.

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1. Introduction

The transition to a stable and efficient banking industry has been a very long and laborious process in Ghana over the past two decades, and this is still ongoing. The legal framework for universal banking in Ghana was established in 2003 and that led to a massive improvement in the number of banks operating in the country, particularly the influx of many foreign banks into the local banking space. Several other reforms after the promulgation of the universal banking laws in Ghana in the early 2000s have been enacted by the Bank of Ghana (BOG) in a bid to make the system more vibrant and stable. However, the banking industry in Ghana, despite the many banking reforms, continued to be plagued with solvency challenges, poor corporate governance practices, weak risk management practices, liquidity challenges, and incessant regulatory breaches (Bank of Ghana, 2018). These challenges, according to the BoG, largely contributed to the ongoing banking crisis in Ghana. Some banking experts, however, attribute the banking crisis to the shallowness of the sector. Others attribute the ongoing crisis to technical, cost, profit, scale, etc. inefficiencies in the Ghanaian banking sector (Bank of Ghana, 2019b; Kamason, 2020).

The current banking crisis, in Ghana, has led to the closures of some 420 financial institutions licensed under the Banks and Specialized Deposit-Taking Institutions Act, 2016 (Act 930), (Bank of Ghana, 2019) between August 2017 and August 2019. Introducing new prudential requirements, corporate governance guidelines, minimum capital requirements, enterprise risk management models and banking Act (i.e. Act 930) – to repeal all the existing banking laws of Ghana – Bank of Ghana Act (to strengthen the regulatory and supervisory powers of the Bank of Ghana) and others. These are some of the events which characterized the ongoing banking reforms and remedial measures embarked upon by the policymakers or the regulator, and for that matter, some of the industry players to deal with the ongoing banking crisis in the country (Bank of Ghana, 2018a, 2019a). However, numerous actions to engender a strong and vibrant banking sector has not elicited the desired results. Additionally, the study is motivated by the urgent need to study – in detail; the issues, latent factors, potential and current banking dynamics regarding the crisis in Ghana as identified in (Affum, 2020; Kamason, 2020). The objectives of this study are twofold. The first is to examine the causes (i.e. how we got here) of the ongoing banking crisis in Ghana with the help of questionnaires sent to bank officials in the banks and the specialized deposit-taking institutions (SDI's) subsectors. The second objective is to examine the importance of the

ongoing remedial measures (i.e. the way forward) undertaken by the regulator, and or the industry players in mitigating the ongoing crisis in the Ghanaian banking industry.

The rest of the paper is outlined as follows. Section 2 presents the theoretical and empirical literature. Section 3 describes the research methodology. Section 4 shows empirical findings and section 5 presents the conclusion and policy recommendations.

2. Literature review

The ongoing banking crisis in Ghana has increased the awareness of the determinants of bank failures, bank closures, banking crisis, bank performance, or bank efficiency studies on Ghana. Few of the theoretical literature reviewed in this study has focused on the causes of banking crises in emerging economies including Ghana (Adeabah, Gyeke-Dako, & Andoh, 2019; Belkhir, Naceur, Candelon, & Wijnandts, 2020; Dadzie & Ferrari, 2019; Garriga, 2017; Kamason, 2020). According to Kamason (2020), the confidence in the Ghanaian banking industry had declined significantly as a result of the ongoing banking crises and the perspective of the Ghanaian bank customers about the future of the Ghanaian banking system is also gloomy. According to Noy (2004), many different ills can cause systemic distress within the banking sector. The causes of banking crises could be attributed to either bank-specific, banking industry-specific or macroeconomic specific. Some of the bank-specific causes may be due to weak internal control and risk management systems, opaque accounting standards, substandard corporate governance practices and legal framework. Lending booms (bubbles) and surges in inflows, liability or currency mismatches, weak regulatory and governance framework are some of the banking industry-specific causes of banking crises. Macroeconomic shocks, government involvement in the financial sector and lack of transparency could be some of the macroeconomic factors that may cause a banking failure or crises (Noy, 2004).

Numerous actions to engender a more resilient, sound, efficient and competitive banking system, according to the Bank of Ghana (2018b), is required to mitigate the ongoing banking crises. Accordingly, the system requires activating some prudential macroeconomic as well as regulatory and governance factors to keep the system more resilient and restore confidence in the banking system during the period of banking crises (Belkhir *et al*., 2020).

According to Kamason (2020), more is expected from the policymakers in restoring confidence in the Ghanaian banking sector. According to the author, the regulator or the policymakers should continue to streamline its banking supervision, governance and the entire regulatory environment to rebuild the dwindling confidence as a result of the ongoing crises. What more, Noy (2004) and Kamason (2020) posited that the players in the industry need to put cost control, revenue maximization, effective risk management mechanisms, etc. in place at the bank level to remain profitable during and after banking crises.

Empirical studies on the determinants of bank failures, bank closures, banking crisis, or bank efficiencies in developing economies such as Ghana consider both bank-specific factors, banking industry-specific factors and macroeconomic factors (Adeabah *et al.*, 2019; Belkhir *et al*., 2020; Dadzie & Ferrari, 2019; Garriga, 2017; Kamason, 2020; Noy, 2004). The authors reported that both the bank-specific factors, banking industry-specific factors and the macroeconomic factors were significant causes of bank failures or inefficiencies in emerging or developing countries such as Ghana. As shown in the empirical literature, bank-specific characteristics include bank size, bank capitalization, asset quality, liquidity, profitability, specialization, ownership type, corporate governance. (Adeabah *et al*., 2019; Belkhir *et al*., 2020; Dadzie & Ferrari, 2019; Garriga, 2017; Kamason, 2020; Noy, 2004). Banking industry-specific characteristics may include bank market concentration or market power, banking supervision and governance, etc. The gross domestic product (GDP) growth, inflation, exchange rates and foreign direct investments were used as macroeconomic factors in the empirical bank failure studies in developing countries. From the empirical literature, the various bank-specific, banking industry-specific and macroeconomic specific characteristics could either positively or negatively impact the nature of financial intermediation (Adeabah *et al*., 2019; Affum, 2020; Belkhir *et al*., 2020; Dadzie & Ferrari, 2019; Garriga, 2017; Kamason, 2020; Noy, 2004).

From the empirical literature, the causes of banking crises and the remedial measures in developing or emerging African countries including Ghana had been the subject of few studies during the last few years (Affum, 2020; Belkhir *et al.*, 2020; Dadzie & Ferrari, 2019; Garriga, 2017; Kamason, 2020; Noy, 2004). Those analyses provide a determination of bank failures in Ghana taking into consideration only the bank-specific and macroeconomic factors. A gap this study would be filling by considering bank industry-specific factors into the equation. That is, the examination of the causes of the ongoing banking

crisis in Ghana taking into consideration bank-specific factors, banking industry-specific factors and macroeconomic factors. Also, the recent studies of Kamason (2020) and Affum (2020), the aftermath of the recent banking crises all identified the plausible causes of the banking crises but failed to elicit from their respondents the possible remedial measures in mitigating the ongoing banking crises. Another empirical literature gap this study will be filling.

3. Methodology

This part is divided into three sections. The data and data sources are presented in section 3.1. The research design is presented in section 3.2. This part concludes with the estimation techniques used in ascertaining the causes and the remedial measures in mitigating the ongoing banking crises in Ghana.

3.1. Data and data sources

The population for this research comprised of all the banks and specialized deposit-taking institutions in Ghana that are currently in operation, licensed and registered under the Banks and Specialized Deposit-Taking Institutions Act, 2016 (Act 930). This therefore excluded any financial institution that may have had its license revoked or gone under during the period under review, or been brought under statutory management of the Bank of Ghana. The reasons being and the difficulty in getting information from officials of these institutions, the paucity of funds and the time factor. According to the Bank of Ghana, there were 23 licensed universal banks, 25 licensed savings and loans companies, 11 finance houses, 1 licensed leasing company, 1 licensed mortgage company, 3 finance and leasing companies, 1 licensed remittance company, 137 licensed microfinance institutions, 31 licensed microcredit institutions and 144 licensed rural and community banks that operate in Ghana as at August 31, 2019 (Bank of Ghana, 2019). The focus of this survey research is the banking subgroups that fall under banks and specialized deposit-taking institutions that have been affected by the ongoing cleaning-up exercise as a result of the banking crisis. That is, a population comprising the remaining 23 universal banks, 36 savings and loans companies/finance houses and the 137 microfinance institutions after the clean-up.

3.2. Research design

Due to limited resources and restricted timing, this study has been conducted by using a non-probability convenience sampling technique to select a sample of 10 universal banks (out of the 23), 20 SDI's (comprising 10 out of

the 36 savings and loans/finance houses and 10 out of the 137 microfinance institutions) from the disaggregated banking subgroups in Ghana. The respondents were purposively selected confirmed Staff in the selected 30 financial institutions who are all head-quartered in Accra. They comprised 7 permanent Staff of each institution and hence a total of 210 respondents. The respondents were selected from the e-mail database of the National Banking College, the Chartered Institute of Bankers in Accra, Ghana and referrals from senior acquaintances from the selected banking subgroups in the sample. The respondents were informed about the intended study through email and some through personal visits. A total of 206 questionnaires were received back. A total of 12 incomplete questionnaires were received. Follow-up emails were sent back to rectify the incomplete questionnaires. In the end, a total of 200 usable questionnaires were used in the analysis and only 2 questionnaires out of the 12 incomplete questionnaires that were sent back are not usable.

"Micro Enabled" Microsoft Excel to design the questionnaires for the survey research was used. The main part of the questionnaire includes 7 questions; it mainly asked respondents' opinions on the causes of the ongoing banking crisis in Ghana and if they are satisfied with the measures taken by the regulator in addressing the crisis. All of the 7 questions are close-ended questions because they take less time to answer, easier to answer, easier to make comparisons, tabulate or analyze and potentially have fewer errors. A 5-point Liker scaled questions on which the respondents were asked questions on how satisfied they are with the ongoing remedial measures and the importance of each factor in addressing the ongoing crisis at their various disaggregated banking subgroups in Ghana was used. The scale used in our research is that "5" means "strongly agree" and "1" means "strongly disagree"; "5" means "very satisfied" and "1" means "very dissatisfied"; and "5" means "very important" and "1" means "very unimportant". Respondent was also asked to provide their demographic data – gender, age, employment level (i.e. senior management, management and non-managerial Staff) and employer category (i.e. universal bank; savings/loans & finance houses; microfinance & microcredit).

3.3. Estimation techniques

A Cronbach's Alpha test was conducted to test the internal consistency of the multi-item scales employed in this study. All the Alphas obtained in this study were above 0.80 scores which suggest that the multi-item scales of this study are consistent and reliable. Skewness and Kurtosis Tests conducted also

confirmed that the sample for this study was drawn from a normal distribution. The Descriptive Statistics, Student's t-Tests, Analysis of Variance (ANOVA) test and the empirical econometric regression analysis were conducted mainly in SPSS/PASW. The two means difference between the two main banking subgroups, that is, the universal banking subgroup, on one hand, and the SDI subgroup, on the other hand, were compared with the Student t-Test, for instance, to ascertain if there is any difference in mean between the two subgroups regarding the importance of each of the remedial measures undertaken by the regulator to each respective subgroups.

As shown in the econometric literature, the Student t-Test is appropriate to test the differences in only two groups, and so the ANOVA technique was used to examine the differences in the means of the three main banking sub-classification or Tiers within the banks and SDI subgroups – i.e. the importance of each remedial measure to Tier 1 financial institutions (i.e. universal banks), Tier 2 financial institutions (i.e. savings and loans/finance houses) and Tier 3 financial institutions (i.e. microfinance institutions) in our sample. In this study, an empiric multiple regression analysis was also employed to examine the relationship between the overall levels of satisfaction (i.e. the dependent variable) and all the significant remedial measures (i.e. explanatory variables) undertaken by the regulator to mitigate the ongoing banking crisis. The empiric multiple econometric regression models employed in this study could be a good predictor of the effectiveness of each of the remedial factors used in the regression model on the various banking subgroups in the sample. A 95% (i.e. **) confidence level was used to ascertain the significance of each p-value in this study. As shown in the statistics literature, both 95% (i.e. **) and 90% (i.e. *) confidence level are commonly used in empiric statistical studies.

Lastly, the questionnaires were pre-tested on a sample of 21 respondents comprising 7 respondents from each of the 3 banking Tiers to help refine the questionnaires before they are administered to all the 210 respondents. Pre-testing the questionnaires helped to ascertain that the questionnaires are easy, not time-consuming and user-friendly to the respondents with no ambiguities or errors. All of the 21 respondents reported that they had no difficulty in answering the questions except that one Staff reflected that he had problems with opening the attached "Macro-Enabled" Excel file. To solve this problem, a detailed cover letter with clear direction statements on how to solve such kind of technical Excel problems in the emails were written.

4. Results and discussion

We discuss our results in line with the three main objectives: - the causes of the ongoing banking crisis in Ghana, the importance of each specific remedial measures to the various disaggregated banking subgroups in Ghana and the relationship between the overall level of satisfaction and each specific remedial measures in mitigating the ongoing banking crisis in Ghana.

4.1. Causes of the ongoing banking crisis in Ghana

This study would like to know the causes of the ongoing banking crisis in Ghana based on the Participant's observation and working experience in the banking industry. As part of this survey research, information on the Staff perceptions on different causes considered to have led to the ongoing banking crisis in Ghana were collected. This study examined 12 variables that are metric and which could be used as independent variables in a multiple regression model. The variables comprised 6 bank-specific variables (i.e. endogenous variables that are within the control of the bank management), 4 banking industry-specific variables (i.e. exogenous variables that are not in the control of bank management but are specific to the banking industry) and 4 macroeconomic variables (i.e. exogenous variables that are not in the control of bank management but are specific to the Ghanaian economy in general). The Participants' perceptions are measured by using a 5-point Liker rating scale with "5"=strongly agree; "4"=agree; "3"=neutral; "2"=disagree, and "1"=strongly disagree.

Table 1 below summarizes the frequency and mean of all the bank-specific causes of the ongoing banking crisis in Ghana. The Participants have a relatively high scoring on corporate governance (mean=4.16) and bank capital (mean=3.63) and liquidity ratio (mean=3.55) and have a relatively low scoring on bank size (mean=2.96) and profitability (mean=3.15) and credit risk (mean=3.19). The Cronbach's Alpha of the bank-specific factors is 0.880, which is acceptable. Accordingly, the bank-specific factors shown in this study are significant determinants of banking crises in Ghana. This is consistent with the findings of Kamason (2020), Belkhir *et al*. (2020) and Noy (2004) that bank-specific factors such as capital, size, asset quality, etc. are important factors in determining the causes of banking crises in developing countries.

Table 1: Bank-specific causes in Frequency and Mean

	CAP	SIZE	PROF	CRDR	LIQR	GOV
Strongly disagree	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	18.0%	28.5%	21.4%	24.0%	18.5%	2.5%
Neutral	10.5%	46.0%	42.5%	33.0%	15.5%	2.55%
Agree	62.0%	25.0%	46.0%	43.0%	58.5%	71.5%
Strongly agree	9.5%	0.0%	0.0%	0.0%	7.5%	23.5%
Mean	3.63	2.96	3.15	3.19	3.55	4.16
Std deviation	0.887	0.734	0.746	0.798	0.878	0.580

Notes: Cronbach Alpha = 0.880

Table 2: Banking Industry-specific causes in Frequency and Mean

	GRR	MPCR	TBILLR	REG/SUP
Strongly disagree	15.0%	6.5%	0.0%	0.0%
Disagree	43.0%	35.5%	27.0%	7.0%
Neutral	35.0%	42.5%	36.5%	16.0%
Agree	6.0%	17.5%	36.5%	57.0%
Strongly agree	0.5%	0.0%	0.0%	20.0%
Mean	2.34	2.71	3.10	3.90
Std deviation	0.823	0.830	0.793	0.796

Notes: Cronbach Alpha = 0.817

Table 2 above summarizes the frequency and mean of all the banking industry-specific causes of the ongoing banking crisis in Ghana. The Participants have a relatively high scoring on regulatory and supervision (mean=3.90) and Treasury bill rate (mean=3.10) and have a relatively low scoring on Ghana reference rate (mean=2.34) and monetary policy rate (mean=2.71). The Cronbach's Alpha of the banking industry-specific factors is 0.817, which is acceptable. As shown, the banking industry's specific factors such as regulatory and supervision are important determinants of banking crises in Ghana. This is consistent with the study of Noy (2004), that improving the banking regulation and supervision in developing economies are very remedial measures needed in mitigating banking crises.

Table 3: Macroeconomic causes in Frequency and Mean

	FDI	EXCR	GDPGR	INFL
Strongly disagree	20.0%	11.0%	3.0%	0.0%
Disagree	42.5%	26.5%	18.5%	14.0%
Neutral	29.0%	41.0%	43.5%	13.5%
Agree	8.5%	21.5%	35.0%	63.0%
Strongly agree	0.0%	0.0%	0.0%	9.5%
Mean	2.26	2.73	3.11	3.68
Std deviation	0.875	0.923	0.804	0.831

Notes: Cronbach Alpha = 0.855

The above table summarizes the frequency and mean of all the macroeconomic causes of the ongoing banking crisis in Ghana. The Participants have a relatively high scoring on inflation (mean=3.68) and GDP growth rate (mean=3.11) and have a relatively low scoring on foreign direct investment (mean=2.26) and exchange rate (mean=2.73). The Cronbach's Alpha of the macroeconomic factors is 0.855, which is acceptable. The findings of this study is consistent with the findings of Belkhir *et al*. (2020) are significant determinants of banking crises and that prudential macroeconomic factors are required in mitigating banking crises. The importance of exchange rate as being an important determinant of banking crises is consistent with the findings of Gaies, Goutte, & Guesmi (2019).

4.2. Importance of each remedial measure to the various banking subgroups in Ghana

In this survey research, all the bank Staff in the sample were asked to provide their opinions about the importance of each remedial measure to their respective banking subgroups. 5-point Liker rating scale with 1=very unimportant; 2=unimportant; 3=neutral; 4=important; and 5=very important is used in this survey.

This section is in three parts. First, the importance of each remedial measure was examined by comparing means. Secondly, the difference of the importance in means for the major banking subgroups in Ghana, that is, universal banks (CODE1) and SDI's (CODE2) were examined. Thirdly, the difference of the importance in means by different banking Tiers in Ghana, that is, TIER 1 (CODE1), TIER2 (CODE2) and TIER 3 (CODE3) were examined. The Cronbach's Alpha of the importance of each remedial measure to mitigating the ongoing banking crisis in Ghana is 0.919, which is highly acceptable.

a) Examine the importance of each remedial measure (All respondents)

The mean of each remedial measure is shown below in Table 4. This could be seen by checking the mean value that improving banking regulation and supervision is the most important remedial measures for banks (mean=4.40), followed by adherence to good corporate governance practices (mean=4.06), then increase in the minimum capital requirement or improvement in the capital adequacy ratio (mean=3.91) and the adoption of enterprise risk management approach (mean=3.91), then bank size (mean=3.60), followed by improvement in the liquidity ratio for banks (mean=3.54), then-Treasury bill rate (mean3.26) and lastly profitability (mean=3.19).

From this result, it could be seen that increasing the market share, and for that matter, the size of the SDI's is the most important remedial measure for the SDI's (mean=3.47), followed by improving banking regulation and supervision for the SDI's (mean=3.22), then making SDI's profitable (mean=3.16), then improving corporate governance practices for the SDI's (mean=3.0), followed by improving the liquidity ratios of SDI's (mean=2.89), then-Treasury bill rate (mean=2.84), then credit risk (mean=2.59) and lastly increasing the minimum capital requirement for the SDI's (mean=2.14).

Table 4: Importance of Each Remedial Measure

Remedial measures	Mean value (all)	Mean value (banks)	Mean value (SDI's)
Bank capital	2.76	3.91	2.14
Bank size	3.52	3.60	3.47
Profitability	3.17	3.19	3.16
Credit risk	3.06	3.91	2.59
Liquidity ratio	3.12	3.54	2.89
Corporate governance	3.37	4.06	3.00
Treasury bill rate	2.99	3.26	2.84
Regulatory / supervision	3.64	4.40	3.22

Notes: Cronbach Alpha = 0.919

b) Examine the differences in the importance of each remedial measure by the two groups

The study would want to know if there are statistical differences between the means of the universal banking subgroup and the means of the SDI subgroup regarding each remedial measures. The study compared the two means with the t-Test. As shown in Table 5, the mean value between the universal banking

subgroup and the SDI subgroup is significantly different at the 5 percent significant level for bank capital (t-Stat=15.452; p-value=0.000), and for credit risk (t-Stat=12.619; p-value=0.000), and for liquidity ratio (t-Stat=4.481; p-value=0.000), and for corporate governance (t-Stat=8.947; p-value=0.000), and for Treasury bill rate (t-Stat=3.234; p-value=0.001) and for banking regulatory and supervision (t-Stat=9.021; p-value=0.000). The null hypothesis of no difference between the two banking subgroups is therefore rejected.

For the other remedial measures, bank size (t-Stat=1.060; p-value=0.291) and profitability (t-Stat=0.204; p-value=0.038), there is no statistically significant difference in the importance of means between the universal banking subgroup and the SDI subgroup as shown in Table 5 below. The study, therefore, fails to reject the null hypothesis of no difference between the two banking subgroups.

Table 5: Independence Sample Test about Importance of Means for each Subgroup

Remedial measures	Subgroups	N	Mean	Std deviation	Std error mean	t-Test for equality of means	Sig. (2 tailed)
Bank capital	Universal banking	70	3.91	0.608	0.073	15.452	0.000
	SD1	130	2.14	0.851	0.075		
Bank size	Universal banking	70	3.60	0.788	0.094	1.060	0.291
	SD1	130	3.47	0.855	0.075		
Profitability	Universal banking	70	3.19	0.708	0.085	0.204	0.838
	SD1	130	3.16	0.843	0.074		
Credit risk	Universal banking	70	3.91	0.654	0.078	12.619	0.000
	SD1	130	2.59	0.733	0.064		
Liquidity ratio	Universal banking	70	3.54	0.793	0.095	4.481	0.000
	SD1	130	2.89	1.066	0.093		
Corporate governance	Universal banking	70	4.06	0.413	0.049	8.947	0.000
	SD1	130	3.00	0.940	0.082		
Treasury bill rate	Universal banking	70	3.26	0.829	0.099	3.234	0.001
	SD1	130	2.84	0.896	0.079		
Regulatory / supervision	Universal banking	70	4.40	0.493	0.059	9.021	0.000
	SD1	130	3.22	1.029	0.090		

Notes: Cronbach Alpha = 0.919

c) Examine the differences in the importance of each remedial measure by the Banking Tiers

In this study, a sample of 70 respondents from each of the disaggregated banking Tiers, that is, comprising 7 Staff from each of the 10 universal banking (i.e. Tier 1) subgroups in the sample; 7 Staff from each of the 10 savings and loans/ finance houses (i.e. Tier 2) subgroups in the sample; and 7 Staff from each of the 10 microfinance institution (i.e. Tier 3) subgroups in the sample were collected. So it could be interesting to take a look at the statistical differences in the means of the three disaggregated banking subgroups regarding the importance of each remedial measure, under the circumstances. The analysis of variance (ANOVA) technique was used here. As shown in the statistics literature, ANOVA is used to assess the statistical differences between the means of two or more groups. The "One-way" ANOVA variation of the ANOVA technique was used in this study. Statistical researchers used the "One-way" ANOVA when there is only an independent variable in the empiric econometric model. Finally, as this study compares the importance of the means in the three banking Tiers, and so, the t-Test could not be used.

This paper compared the three means with the ANOVA Test. As shown in Table 6, the mean value between Tier 1, 2 and 3 banking subgroups is significantly different at the 5 percent significant level for bank capital (F-Stat=118.888; p-value=0.000), and for credit risk (F-Stat=79.217; p-value=0.000), and for liquidity ratio (F-Stat=9.992; p-value=0.000), and for corporate governance (F-Stat=39.823; p-value=0.000), and for Treasury bill rate (F-Stat=6.582; p-value=0.001) and for banking regulatory and supervision (F-Stat=40.506; p-value=0.000). The null hypothesis of no difference between the three banking Tiers is therefore rejected.

For the other remedial measures, that is, bank size (F-Stat=0.656; p-value=0.520), and profitability (F-Stat=0.046; p-value=0.955), there is no statistically significant difference in the importance of means between Tier 1, 2 and 3 banking subgroups as shown in Table 6 below. This study, therefore, fails to reject the null hypothesis of no difference between the three banking Tiers.

TABLE 6: TEST OF HOMOGENEITY OF VARIANCES AND ANOVA FOR EACH BANKING TIER

Remedial measures	Banking tiers	N	Mean	Std deviation	Std error	Levene stat (mean)	Test of homo-geneity of variance (Sig)	ANOVA (F-stat)	ANOVA (Sig)
Bank capital	Tier 1	70	3.91	0.608	0.073	10.689	0.000	118.888	0.000
	Tier 2	68	2.12	0.856	0.104				
	Tier 3	62	2.16	0.853	0.108				
	Total	200	2.76	1.148	0.081				
Bank size	Tier 1	70	3.60	0.788	0.094	1.127	0.326	0.656	0.520
	Tier 2	68	3.50	0.801	0.097				
	Tier 3	62	3.44	0.917	0.116				
	Total	200	3.52	0.833	0.059				
Profitability	Tier 1	70	3.19	0.708	0.085	0.906	0.406	0.046	0.955
	Tier 2	68	3.18	0.791	0.096				
	Tier 3	62	3.15	0.903	0.115				
	Total	200	3.17	0.796	0.056				
Credit risk	Tier 1	70	3.91	0.654	0.078	8.451	0.000	79.217	0.000
	Tier 2	68	2.59	0.758	0.092				
	Tier 3	62	2.60	0.712	0.090				
	Total	200	3.06	0.947	0.067				
Liquidity ratio	Tier 1	70	3.54	0.793	0.095	8.957	0.000	9.992	0.000
	Tier 2	68	2.90	1.053	0.128				
	Tier 3	62	2.89	1.088	0.138				
	Total	200	3.12	1.025	0.072				
Corporate governance	Tier 1	70	4.06	0.413	0.049	44.725	0.000	39.823	0.000
	Tier 2	68	3.00	0.946	0.115				
	Tier 3	62	3.00	0.941	0.119				
	Total	200	3.3.7	0.942	0.067				
Treasury bill rate	Tier 1	70	3.26	0.829	0.099	0.717	0.490	6.582	0.002
	Tier 2	68	2.72	0.912	0.111				
	Tier 3	62	2.97	0.868	0.110				
	Total	200	2.99	0.894	0.063				
Regulatory / supervision	Tier 1	70	4.40	0.493	0.059	17.455	0.000	40.506	0.000
	Tier 2	68	3.24	1.038	0.126				
	Tier 3	62	3.21	1.026	0.130				
	Total	200	3.64	1.043	0.174				

Notes: Cronbach Alpha = 0.919

4.3. Satisfaction of the current remedial measures in mitigating the ongoing crisis

This paper would like to know how satisfied the Participants are with the current remedial measures in mitigating the ongoing banking crisis in Ghana based on their observations and banking experience. As part of this survey research, this study collected information on Staff perceptions on different remedial measures

being undertaken to mitigate the banking crisis. The study has 8 variables that are metric and could be used as independent variables in a multiple regression model. The variables are categorized into 6 bank-specific variables that are within the control of the various banking subgroups and 2 banking industry-specific variables that are within the control of the regulator. The perceptions are measured by using a 5-point Likert rating scale with 1= "very dissatisfied"; 2= "dissatisfied"; 3= "neutral"; 4= "satisfied"; and 5= "very satisfied".

Table 7 below summarizes the satisfaction frequency and mean of all the current remedial measures undertaken to mitigate the ongoing banking crisis in Ghana. The Participants have a relatively high satisfaction score on the overall level of satisfaction as shown in Fig. 1 below (mean=3.65) and on credit risk (mean=3.38) and banking supervision (mean=3.23) and corporate governance (mean=3.19) and bank capital (mean=3.15) and liquidity ratio (mean=3.05) and have a relatively low scoring on bank size (mean=2.73) and Treasury bill rate (mean=2.83) and profitability (mean=2.94). The Cronbach's Alpha of the satisfaction on the current remedial measures is 0.903, which is acceptable.

Table 7: Satisfaction of the Remedial Measures in Frequency and Mean

	OVLL	**SIZE**	**CAP**	**CRDR**	**PROF**	**LIQR**	**GOV**	**TBR**	**REGSUP**
Very dissatisfied	1.5%	18.0%	3.5%	2.5%	2.5%	0.0%	3.5%	6.0%	2.5%
Dissatisfied	11.0%	28.5%	25.5%	13.0%	35.5%	35.5%	35.5%	35.5%	35.5%
Neutral	26.5%	42.5%	36.5%	16.0%	57.0%	57.0%	57.0%	57.0%	57.0%
Satisfied	6.0%	17.5%	36.5%	57.0%	57.0%	57.0%	57.0%	57.0%	57.0%
Very satisfied	0.5%	0.0%	0.0%	20.0%	57.0%	57.0%	57.0%	57.0%	57.0%
Mean	2.34	2.71	3.10	3.90	-0.214	-0.214	-0.214	-0.214	-0.214
Std deviation	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214
Skewness	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214	-0.214
Kurtosis	-0.214	-0.988	-0.865	-0.079	-0.905	-1.053	-1.072	-0.633	-0.889

Notes: Cronbach Alpha = 0.903.

This survey research would want to know how each remedial measure (i.e. explanatory variables) relates to the participant's overall satisfaction level (i.e. dependent variable). The empiric multiple regression model could be a good predictor for the industry players and the regulator on future banking business and or policy decision concerning banking crisis. The static equation (1) follows the static panel equation model of Adjei-Frimpong, Gan, & Hu (2014) and Staub *et al*. (2010) where the estimated customer satisfaction (SAT) on the various

remedial measures is regressed on the explanatory variables, that is, vectors of bank-specific, banking industry-specific and macroeconomic explanatory variables for the study period:

$$SAT_{it} = \alpha_1 CAP_{it} + \alpha_2 PROF_{it} + \alpha_3 SIZE_{it} + \alpha_4 LIQ_{it} + \alpha_5 CRR_{it} + \alpha_6 GOV_{it} + \alpha_7 SUP_{it} + \alpha_8 TBR_{it} + \eta_1 + \mu_t \quad (1)$$

where:

the individual bank is represented by *i* and time is denoted by *t*,

α = parameters to be estimated,

η_i = individual bank-specific and bank industry-specific effect,

μ_{it} = error term,

SAT_{it} = overall level of satisfaction (i.e. the dependent variable),

CAP_{it} = capitalization, capital adequacy ratio could be used as a proxy

$PROF_{it}$ = profitability, either ROE or ROA could be used as a proxy,

$SIZE_{it}$ = bank size, the natural logarithm of total assets could be used as a proxy,

LIQ_{it} = bank liquidity, banks total assets could be divided by total deposits,

CRR_{it} = loan loss provision or nonperforming loan ratio could be used as a proxy,

GOV_{it} = board size, independence of the board, committees could be used as a direct proxy,

SUP_{it} = banking laws, guidelines, directives and sanctions could be used as a proxy,

TBR_{it} = the annualized Treasury bill rates could be used as a proxy.

All the explanatory variables specified in this econometric model are assumed to be strictly exogenous, and as such, could not be influenced by the dependent variable. As shown in Table 8 below, the F-Test depicts a statistically significant p-value of 0.000 ($p \geq 0.05$) at a 1% significant level confirming that the coefficients of all the explanatory variables used in this study for the empiric multiple econometric regression model are jointly significant. The adjusted coefficient of determination (Adjusted R-squared) is at 63.9%, suggesting that the model fits moderately. The study needs to increase the explanatory variables to increase the predictive capability of the empiric regression model. However, insignificant terms or variables have been excluded from the econometric regression model to attain parsimony. The parameter estimates of four of the

explanatory variables are also significant ($p \geq 0.05$) at a 5% significance level as can be seen from the table below.

The performance of bank-specific remedial measures is sensitive to the overall level of satisfaction perceived by the bank staff in the sample. The results show that a percentage increase in bank capital, CAP, induces a 0.154% increase in the overall level of satisfaction at the 5% significant level (i.e. p-value=0.005). This implies that, for all banks, an increase in bank capital (preferable, high capital adequacy ratio – i.e. CAR) has a strong positive response to mitigating a banking crisis. This confirms the recent increases in the minimum capital requirements of financial institutions that are licensed under Act 930 by the regulator.

The bank size, SIZE, standardized coefficient of +0.34 from the results also indicates that a percentage increase in bank size induces a 0.34% increase in the overall level of satisfaction at the 5% significant level (i.e. p-value=0.000), implying that large banks have the propensity to mitigate the ongoing banking crisis in Ghana. This could be explained as due to the existence of market power of the "too big to fail" Tier 1 universal banks, where those banks potentially use monopoly power in setting their lending and deposit rates and thereby outperforming their smaller banking subgroups in the markets share for bank assets and deposits. This, therefore, suggests that size matters in mitigating the ongoing banking crisis in Ghana.

The coefficient of the Credit Risk, CRR, a variable of +0.111 indicates that a percentage increase in the credit risk management practices of a bank leads to a corresponding 0.111 percentage increase in the overall level of satisfaction at the 5 per cent significant level (i.e. p-value=0.034). The positive sign of this coefficient suggests that the adoption of enterprise risk management or Basel 2 and 3 risk management pillars, which provides banks with a cushion against nonperforming loans and other related risks could go a long way to help mitigate the ongoing crisis in the Ghanaian banking industry. Hence banks with sound risk management practices stand a better chance of surviving the ongoing banking crisis.

TABLE 8: RELATIONSHIP BETWEEN OVERALL SATISFACTION AND THE CURRENT REMEDIAL MEASURES

	CONS	CAP	SIZE	PROF	CRDR	LIQR	GOV	TBR	REGSUP
Unstandardized B0.827	0.153	0.267	-0.005	0.116	-0.003	0.355	-0.082	0.105	
Coefficients Std error	0.196	0.054	0.054	0.060	0.054	0.068	0.079	0.061	0.068
Standardized C.Beta	-	0.154	0.340	-0.005	0.111	-0.003	0.389	-0.082	0.108
T-values	4.211	2.863	4.941	-0.083	2.137	-0.041	4.512	-1.347	1.546
P-values (significant)	(0.000)	(0.005) ***	(0.000) ***	(0.934)	(0.034) ***	(0.967)	(0.000) ***	(0.180)	(0.124)
Mean	3.65	2.73	3.15	3.38	2.94	3.05	3.19	2.83	3.38
Std deviation	0.945	1.203	0.948	0.905	0.928	1.043	1.034	0.941	1.105
Adjusted R-square		0.639							
Probability (F-stat)		0.000 ***							
F-statistics (ANOVA)	0.000 ***								
Durbin-Watson	1.858								
Number of observations	200								

Notes: P-values in parentheses defines the significance of the standardized coefficient estimates. *, ** and *** indicate significant levels at 10%, 5% and 1%, respectively. F-Statistic is for the joint significance of the explanatory variables' coefficient.

The coefficient of the corporate governance variable, GOV, is positive at 0.389% and statistically significant at the 5% level (i.e. p-value=0.000). This implies a percentage improvement in corporate governance (i.e. the required board number in place, board independence guaranteed, appropriate board committees in place, etc.) leads to a 0.389 increase in overall satisfaction. This is confirmed by the issuance of a revised corporate governance directive by the regulator in recent time to help mitigate the ongoing banking crisis in Ghana. For the remaining two bank-specific variables, that is, bank profitability (improvement in ROA and ROE), and liquidity ratio (improvement in asset/ deposit ratio), there are no significant differences in the coefficients of the overall level of satisfaction and the two remedial measures as shown by their p-values in Table 8 above.

In the case of the banking industry-specific variables, Treasury bill rate (TBR) and banking regulation and supervision (REG/SUP) were employed in this study. The coefficient of the TBR is negative (i.e. -0.082) at the 5% significant level (p-value=0.180), suggesting that changes in the Treasury bill rates by the MPC will not affect mitigating the ongoing banking crisis in Ghana. Improvement in banking regulations and supervisions (i.e. implementing the banking laws, guidelines, directives and sanctions including revocation of banking licenses) is positively related to the improvement in the overall level of satisfaction in the remedial measures, given the positive coefficient of 0.108 as shown in Table 8 above. However, this coefficient is statistically insignificant at 5% (p-value=0.124) suggesting that the ongoing regulatory and supervisory measures are undertaken by the regulator, including the revocation of banking licenses, will have no significant effect in mitigating the ongoing banking crisis in Ghana.

5. Conclusion and policy implications

The transition to a stable and efficient banking industry has been a very long and laborious process in Ghana over the past two decades, and this is still ongoing. The legal framework for universal banking in Ghana was established in 2003 and that led to a massive improvement in the number of banks operating in the country, particularly the influx of many foreign banks into the local banking space. However, the banking industry in Ghana, despite the many banking reforms, continued to be plagued with solvency challenges, poor corporate governance practices, weak risk management practices, liquidity challenges, and some regulatory breaches (Bank of Ghana, 2018). These, according to the BOG, largely contributed to the ongoing banking crisis in Ghana.

Using 210 respondents from 30 financial institutions regulated under the Banking Act (930), this paper examines the causes and remedial measures of the ongoing banking crisis in Ghana using a cross-sectional survey research approach. As shown in Table 1, the bank-specific causes of the ongoing banking crisis in Ghana are ranked in the following order, 1) corporate governance, 2) capital, 3) liquidity ratio, 4) credit risk, 5) profitability and 6) bank size. The respondents, as shown in Table 2, ranked banking regulation and supervision as the highest banking industry-specific causes followed by the Treasury bill rate, then MPC rate, and lastly, the Ghana reference rate. The macroeconomic variables were ranked by the respondents in the following order, on top of is inflation, followed by the GDP growth rate, then foreign exchange rate and, lastly foreign direct investments.

The t-Test conducted for this study revealed that the mean value between the universal banking subgroup and the SDI subgroup is significantly different at the 5 per cent significant level for bank capital, credit risk, liquidity ratio, corporate governance, Treasury bill rate and banking regulation and supervision. The t-Test, however, showed that Bank size and profitability were statistically insignificant. To test the significance in the mean value of the three banking tiers, the ANOVA technique was employed in this study. The ANOVA-Test revealed that the mean value between Tier 1, 2, and 3 banking subgroups in Ghana regarding bank capital, credit risk, liquidity ratio, corporate governance, Treasury bill rate and banking regulation and supervision are significantly different at the 5 per cent significance level. Bank size and profitability, per the ANOVA method, were statistically insignificant at the 5 per cent significance level.

Our regression analysis depicts that profitability, liquidity risk, Treasury bill rate and banking regulation and supervision have no significant effect on the overall level of satisfaction. The findings also show that bank capital, bank size, credit risk and corporate governance have a significant influence on the overall level of satisfaction and that suggest that these factors should be accounted for in determining the effectiveness of the current remedial measures in mitigating the ongoing banking crisis in Ghana.

The findings in this study would offer important policy implications for the policymakers or the regulator and the universal banking managers in Ghana, particularly, policy implications relating to reforms to mitigate the ongoing banking crisis in Ghana in the country. For instance, the positive impact of the bank-specific measures suggests that the financial institutions in Ghana have what it take, from increasing their minimum capital, through to the adherence of best corporate governance practices in mitigating the ongoing crisis in Ghana. Also, the positive and significant impact of bank size on the overall level of satisfaction suggests that the larger banks in Ghana are in a position to attract more deposits and increase lending activities than their smaller counterparts. The increase in lending at the expense of a proper enterprise risk management regime may result in increases in nonperforming loans and hence an adverse impact on bank profitability in Ghana. Therefore, policymakers and regulators should emphasize enterprise risk management practices in all the banking subgroups in Ghana to check not only credit risk but all the other forms of risk.

The study did not cover the rural and community banks licensed in Ghana under Act 930, since that sub-sector has not been affected by the ongoing cleaning-up exercise by the regulator. Also, there is a possibility that the quality

of available data on the banks in Ghana could be questionable. But to prove the reliability and integrity of the research findings, the available data were carefully crosschecked where possible and adjusted against best practices. Future research should consider all the financial institutions that currently operate in the country under Act 930. Another future research area will be to consider the entire financial industry in Ghana – i.e. banks, asset management firms, insurance companies, etc.

Biographical notes

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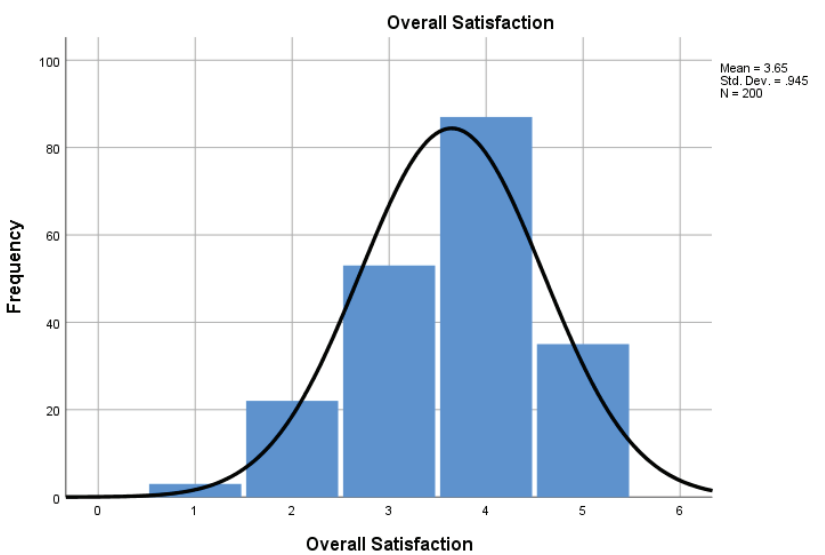
Appendix A: Overall level of satisfaction

Figure 1: Histogram - Overall Satisfaction Regarding the Remedial Measures



Appendix B: Development in the Ghanaian Banking Sector

Table 9: Major Reforms in the Ghanaian Banking Industry from 2008 to 2019

Year	Key Reforms
2008	Borrowers and Lenders Act, 2008 (Act 773), Non-Banking Financial Institutions Act, 2008 (Act774), Home Mortgage Finance Act, 2008 (Act 770) and Anti-money laundering Act, 2008 (Act749).
2008	Banks to comply with International Financial Reporting Standards (IFRS)
2008	Introduction of E-zwich, the biometric smart card
2008	BOG's notice for the requirement of the minimum stated capital of GH¢60 million to Maintain Class 1 (Universal) Banking status
2009	Introduction of the cheque-codeline clearing system
2010	The guideline for licensing and operations of Credit bureaux under the Credit Reporting Act 2007 (Act 726) was published by the Bank of Ghana.
2011	Introduction of collateral registry in Ghana backed by Act 773
2011	Bank of Ghana reduced the Net Open Position (NOP) of Banks to make the cedis attractive
2012	BOG's notice for the requirement of the minimum stated capital of GH¢120 million to maintain Class 1 (Universal) Banking status
2013	Introduction of the gh-link mobile by GhIPSS
2013	Introduction of a new Base Rate calculation formula by the Bank of Ghana
2013	Introduction of the limit on over-the-counter cheque payments to third parties
2013	Introduction of a new VAT law on the business of banking
2014	Introduction of Instant Payment Schemes by GhIPSS
2015	The Energy Sector Levies Act 2015 (Act 899) was passed by Parliament
2015	Introduction of the guidelines for E-money Issuance in Ghana
2016	Banks and Specialised Deposit-Taking Institution's Act, 2016 (Act 930) passed to repel all the Existing Banking Laws of Ghana; Depositors' Protection Act, 2016 (Act 931) passed into law
2016	Adoption of IFRS-9 for Banks in Ghana
2017	BOG's notice for the requirement of the minimum stated capital of GH¢400 million to maintain Class 1 (Universal) Banking status
2017/19	Licensing of new financial institutions put on
2018	Bank of Ghana Annual Report
2019	Bank of Ghana Annual Report

Appendix C: Structure of the Banking Industry in Ghana

Access Bank (Ghana) LTD

Agricultural Development Bank LTD

Bank of Africa Ghana LTD

Barclays Bank Ghana LTD

CalBank LTD
Consolidated Bank LTD (not included in this study)
Ecobank Ghana LTD
FBNBank Ghana LTD
Fidelity Bank Ghana LTD
First Atlantic Bank LTD
First National Bank LTD
GCB Bank LTD
Guaranty Trust Bank (Ghana) LTD
National Investment Bank LTD
OmniBank/BSIC LTD (not included in this study)
Prudential Bank LTD
Republic Bank Ghana LTD
Societe General Ghana LTD
Stanbic Bank Ghana LTD
Standard Chartered Bank Ghana LTD
United Bank for Africa (Ghana) LTD
Universal Merchant Bank LTD
Zenith Bank (Ghana) LTD

25 Savings and Loans Companies
144 Rural and Community Banks
11 Finance Houses
137 Microfinance Institutions
*31 Microcredit Institutions
*1 Mortgage Company
*1 Leasing Company
*3 Financial and Leasing Company
*1 Remittance Company
* Non-SDI's