Effect of Credit Risk on Odds of Occurrence of Financial Crisis: Evidence from Ghana

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Abstract

Purpose: Credit risk has been stated in extant literature to be one of the predictors of financial crisis. Nevertheless, stakeholders of Ghana's financial sector seemed to pay less attention to the possible relationship between credit risk and financial crisis; possibly due to the limited empirical studies in this area. This study, therefore, assessed the effect of credit risk on the odds of occurrence of 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.

Methodology: The study was quantitative in nature, and employed the explanatory design. The binary logistic regression technique was used for the estimation of the relationship between credit risk and financial crisis.

Findings: It was revealed that credit risk has a significantly negative effect on the odds of occurrence of financial crisis among commercial in Ghana.

Recommendation: It was therefore recommended that management of commercial banks in Ghana pay attention to bank clients and their demands, level of risk to take, as well as risk management techniques, to ensure that the right decisions are taken at all times.

Keywords: *Credit risk, financial crisis, commercial banks, Ghana*

INTRODUCTION

Credit risk has been cited by numerous scholars as being one of the causes of all forms of financial and economic downturns experienced worldwide (Stubley, 2018). Credit risk has wreaked havoc on many financial institutions (Boadi, 2018). It has, in many cases, affected the profitability of financial institutions; especially, banks. Credit risk and its associated impacts on banks' financial performance have been devastating (Cucinelli, 2015). The devastating impacts of credit risk have caused loss of certitude in financial systems, preventing healthy operations of credit mechanisms (Yilmaz, 2010; Cucinelli, 2015). Bank credits to individuals, households, and business firms have been disrupted (Bhanot, Burns, Hunter, & Williams, 2014).

In most cases, borrowers default on their loan obligations to banks. In similar manner, security issuers, at times, default on their obligations to banks holding their securities. These, according to Cucinelli (2015), fall within the brackets of credit risk. Mostly, credit risk arises on the side of the borrowers due to low income, loss of income-generating business, death, unwillingness to pay back loans, among others (Owusu, 2019). Apparently, when borrowers default, banks can run into insolvency, and subsequently, into bankruptcy as asserted by the credit market theory (Patnaik, & Vasudevan, 1999). Though credit risk has been stated in literature to have had devastating effect on financial systems, there is paucity of empirical studies exclusively analysing credit risk as a cause of financial crisis (Yilmaz, 2010; Cucinelli, 2015).

Credit risk has been stated as one of the factors responsible for failure of many universal banks in Ghana (Boadi, 2018). According to Nyavor (2018) and Sikasem (2017), credit risk is termed as failure of borrowers to pay back loan principal and required interest to lenders – banks in this context – leading to disruption to lenders' cash flows and increase in collection costs. Financial crisis, on the other hand, has been termed as any massive variety of events or situations in which some assets, usually those related to institutions within a financial sector, lose a huge part of their nominal value (Danson, 2012; Berrios, 2013; Leung, & Horwitz, 2010).

It should be pointed out that the possible causes – particularly credit risk – of financial crisis, if left without critical analysis and lasting solutions implemented, the crisis may reoccur in the future, just as experts have predicted (Stubley, 2018; Hearit, & Hearit, 2020). Reoccurrence of this crisis can be more devastating, and may utterly collapse the banking systems across the globe. For instance, currently, in the case of Ghana, the financial sector is left with only 23 universal banks, 135 rural or community banks, and 11 savings and loans or microfinance institutions (Stephen, 2018; Nunoo, 2020). This has reduced volume of business in the country, leading to low revenue generation, and eventual halt of operations of some business firms.

Many were laid off from their jobs causing a rise in unemployment rates in the country, Ghana; standard of living fell as cost of living rose exponentially (Sikasem, 2017; Joy FM, 2020). The Bank of Ghana attributed the credit risk challenges faced by the banks to unscrupulous deals by some managing bodies of the banks; deals such as giving credits to members of the board of directors and individuals without proper credit assessment were cited to have landed the banks in a deep financial difficulty; ultimately, resulting in the financial crisis experienced by the sector (MoF, 2019). However, to the best of knowledge of the researchers, little attention has been given to how credit risk influences financial crisis, especially in the case of Ghana, as far as previous studies considering financial crisis are concerned (Stubley et al., 2018; Hearit, & Hearit, 2020), and the focus had mostly been on non-banking financial institutions in developed economies (Roy

& Kemme, 2012; Veronesi & Zingales, 2010; Ueda & di Mauro, 2010). As a result, findings from those prior empirical studies might not be applicable to the situation in Ghana due to differences in economic and financial environments, particularly in terms of the findings being used to assist policy formulation and implementation; hence, the need for the present study to fill the gap in the Ghanaian literature.

This study was specifically meant to determine the effect of credit risk on the odds of occurrence of financial crisis in Ghana. Also, unlike the prior studies which focused non-banking institutions (Ueda et al., 2010; Veronesi et al., 2010), this study focused specifically on the commercial banks within Ghana's financial sector. The findings of the study will contribute to the existing body of literature on credit risk and financial crisis in developing countries – particularly Ghana – as the results will close the gaps identified in literature. Findings will also help in policy making at both national and individual firm levels. Further, the relationship between credit risk and financial crisis will provide stakeholders and policy makers within the financial sector, particularly banks, an understanding of where to commit their efforts in order to achieve an improved banking system and a financial system in general. It should also be pointed out that Ghana is currently facing financial challenges; thus, inhibiting employment of graduates into public institutions. A resilient financial system could help reduce unemployment rates and further contribute to achieving the 'no poverty' target of the Sustainable Development Goals within the stipulated time (United Nations (UN), 2015).

Theoretical Background and Hypothesis Formulation

Credit Market Theory

The credit market theory was developed by Patnaik and Vasudevan (1999).This theory postulates that only interest rate is the price mechanism in the credit market, holding constant all other restrictions; as demand for credit increases, with a given number of customers demanding for credit, the interest rate is likely to increase, and the reverse is true (Patnaik, & Vasudevan, 1999). Just as asserted by the loan pricing theory, as the failure risk of the customer increases, the interest premium increases (Ewert, Schenk, & Szczesny, 2000). When borrowers fail to pay their interest installments and loan principal, and considering the time value of money, the banks will have to make provision for the losses and as this provision appreciates against profit, profit eventually dwindles, thereby, affecting financial stability of the banks. Considering this theory, failure on parts of borrowers to pay back loans and interest installments is what results in nonperforming loans. When nonperforming loans build up on banks' financial statements, banks' liquidity is affected adversely, causing financial pressure on the banks as depositors' demands for cash increase. Eventually, as the pressure continues to mount, banks may be forced to resort to selling off some of their assets to enable them meet depositor cash demands. This lands many banks in bankruptcy and ultimately a crisis.

LITERATURE REVIEW

Credit Risk and Occurrence of Financial Crisis

A number of studies have been conducted to assess the influence of credit risk on a firm's sustainability and profitability. For instance, using the ratio of non-performing loans (NP) to loans and advances (LA) (NP/LA) as a proxy for credit risk, return on equity (ROE) for profitability, and employing the analysis of covariance model, Poudel (2012) assessed the effect of bank credit

risk on profitability. The study considered five (5) commercial banks in the Nepal. The results showed a positive and significant effect of credit risk on bank performance. Poudel concluded that a relative improvement in credit risk management practices might lead to saving of the banks from potential financial distress which could eventually lead to a crisis. The study, though considered credit risk and described the transmission process leading to crisis, it did not specifically consider financial crisis; hence, paucity of studies in this area.

To analyse the effect of credit risk on bank sustainability, Kargi (2011) used ROE and ROA for sustainability, and found sustainability to be negatively related to, and predicted by the ratio of non-performing loans to loans and advances (NP/LA) of financial institutions. The study employed the fixed effect regression analysis. Six (6) financial institutions were involved in the study. It was concluded that as NP/LA increases, banks becomes more unstable, financially. Though this study considered NP/LA in its analysis, there is still space for financial crisis to be directly investigated in the light of credit risk to produce more insightful results.

Assessing the influence of bank credit risk characteristics and overall banking environment on the performance of 43 universal banks over the period of 1998 – 2008, Al-Khouri (2011) found that credit risk was the major factor that affects banks' finances. The study employed the fixed effect regression, and was quantitative in nature. A similar study conducted in Middle East and North Africa countries using commercial bank data from 1989 – 2005, Naceur and Omran (2011) found a positive and significant impact of credit risk on bank cost efficiency and profitability. On the other hand, Baldacci, Gupta and Mulas-Granados (2013) using similar approaches as above, found bank credit risk to have unwanted effects on bank's profits and safety. Also, Salah and Fedhila (2012) found that credit risk significantly influences the occurrence of unsound financial performance. Moreover, Larnyoh (2018) examined the relationship between bank credit risk and financial performance and liquidity in Ghana. The study employed the quantitative method, using the correlational design. Secondary data were used. The findings revealed that many banks got undercapitalised due to high volumes of non-performing loan, and these are the antecedents of financial crises.

Thus far, majority of the prior studies did not specifically study financial crisis as a variable; rather, other variables that are potential triggers of financial crisis have been extensively studied, thereby, leaving gaps in literature as far as a study on the effect of credit risk on financial crisis is concerned. Thus, the present study hypothesised that:

Hypothesis 1: There is no statistically significant effect of credit risk on the odds of financial crisis occurrence in Ghana.

METHODOLOGY

Sample and Sampling Procedures

The study was quantitative in nature, and employed the explanatory design. 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, & Kawor, 2022; MoF, 2019). A total of 23 commercial banks made up the population. Nonetheless, 22 commercial banks were sampled for the study, based on the following selection criteria: One, the bank must have been duly registered and recognised by the Bank of Ghana; two, the bank must have published audited annual reports

for the periods 2010 to 2019; and three, the bank must be independent not consolidated. With regards to data, annual data spanning a 10-year period, from 2010 to 2019, from the audited annual reports of the 22 commercial banks were used for the study. The audited reports were obtained from the official websites of the respective banks, and the websites of the Bank of Ghana and the Ministry of Finance. A total number of 220 (22 commercial banks × 10 years) observations were obtained.

Measurement of Variables

Credit Risk

Credit risk was the predictor variable in this study. It was proxied by ratio of nonperforming loans to loans and advances (NPL/LA). Many extant studies employed this proxy as a measure for credit risk (Al-Khouri, 2011; Naceur, & Omran, 2011; Salah, & Fedhila, 2012). This makes the use of the ratio of nonperforming loans to loans and advances justifiable.

Financial Crisis

Financial crisis was the outcome variable in this study. Financial crisis has been evaluated in literature by employing different indicators. Some studies measured financial crisis by using dummy variables (IMF, 2018; Atinyo et al., 2022). By 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 a more appropriate measure for financial crisis. Thus, the present study employed the dummy variable measurement approach.

Statistical Analysis

The analysis was done in two parts. Firstly, descriptive statistics of mean and standard deviation were computed for both the predictor variable – credit risk – and the outcome variable – financial crisis. This enables a simple exploration of the study variables. Next, a binary logistic regression was conducted to assess the relationship between credit risk and financial crisis in Ghana. The binary logistic regression was employed for the estimation due to the dichotomous nature of the outcome 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.

$$P(\text{Financial Crisis}) = \frac{e^{\beta_0 + \beta_1 \text{Corporate governance}}}{1 + e^{\beta_0 + \beta_1 \text{Credit risk}}} \quad \cdots\cdots\cdots\cdots[1]$$

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 credit risk

e = base of natural log = 2.71828…

Results and Analysis

Table 1 shows the descriptive statistics of the study variables. The results indicated the average value (*Mean* = 0.05; *SD* = 0.03) for credit risk of the banks involved in the study was closer to the minimum credit risk of (*Min.* = 0.00) than the maximum risk of (*Max.* = 0.33). This, in general, indicates that the level of credit risk in the Ghanaian financial sector was not that alarming. This means non-performing loans were way below the total loans given and advances made to the bank clients within the periods under consideration. This is to say that majority of the borrowers were able to honour their loan obligations to the banks.

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, SD = 0.46*), 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.
Credit risk	0.0477	0.0317	0.0000	0.3335
Financial Crisis	0.30	0.46	0.00	1.00

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

Moreover, as presented in Table 2, the logistic regression was performed to ascertain the effects of credit risk on the likelihood that financial crisis would occur. The logistic regression model was statistically significant, as the reported p-value was less than 0.05, with considerably high Wald statistics. The model explained about (52%) to (68%) of the variation in the occurrence of financial crisis. 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 financial crisis reliably explained by the model was (68%), using the Nagelkerke R Square, and correctly classified (70%) of the cases. This implies that credit risk explains about (68%) of variation in the likelihood of financial crisis occurring in Ghana. The remaining (32%) could be said to have been explained by factors other than credit risk.

Besides, the odds ratio ($e^B < 1$) was less than one, indicating a negative relationship between credit risk and odds of occurrence of financial crisis. This negative relationship was confirmed by the logit coefficient (B = -22.53) as well as the confidence intervals which were both less than one (Lower CI < 1, Upper CI < 1). This relationship showed that financial crisis was less likely to occur. More specifically, this means that for every unit of credit risk, the odds of financial crisis occurring decrease by a factor of $2.718^{-22.53}$ (approximately, 1.65^{-10} or 0.000 as shown in Table 2), holding all other factors constant. In other words, the odds of financial crisis occurring are 1.053^{-10} times lower than the odds of non-occurrence of financial crisis.

Table 2: Results of binary regression analysis

		Logit (B)	S.E	Wald	Sig.	e^B	95% CI for e^B	
							Lower	Upper
Variable	Credit risk	-22.528	7.257	9.635	0.002	0.000	0.000	0.000
	Constant	-0.847	0.144	34.675	0.000	0.429		
Model summary	-2 Log likelihood			250.770				
	Cox & Snell R Square			0.523				
	Nagelkerke R Square			0.675				
Classification				0.70				
The cut value is 0.500								

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

DISCUSSION

From the analysis, the results showed that credit risk had a significant effect on odds of financial crisis occurring. However, and rather surprisingly, increase in credit risk was found to have caused a decrease in the odds of financial crisis occurring. This, in a more direct sense, means increase in credit risk does not translate into the likelihood of financial crisis occurring. On the other hand, a decrease in credit risk rather causes increase in the odds of financial crisis occurring. This could be that high or increased credit risk does not necessarily mean that non-performing loans remain non-performing till the banks write them off. It could be that, eventually, these loans, both the principal and interests, are paid back to the banks. Banks being paid interests by clients only go a long way to put the banks in a good standing, financially; hence, saving the banks from issues of banking panic and eventual crisis.

Further, in a typical banking business, the higher the loan value, the higher the interest amount to be paid by the borrowers to the bank. This means that, in the short-run, high loan values, recorded in banks' financial statements, which may appear non-performing may not necessarily end up becoming costs to the banks as the borrowers may, eventually, pay them off; hence, reducing credit risk. Nonetheless, since banks make most of their profits from loans given to clients and from other short-term investments, advancing loan amounts whose values will not yield enough interest income to the banks will only lead to dwindling profits which may adversely affect the banks' solvency. Though this may result in decreased credit risk, as the results have shown, the odds of financial crisis occurring will increase because of the possible fall in profits, due to the low loan amounts given to clients, which may likely affect banks' solvency negatively.

This finding is consistent with Kargi (2011). Kargi averred that non-performing loans to loans and advances (measure of credit risk in current study) has a significant negative effect on the sustainability of financial institutions. Kargi's findings, by extension, showed that increased credit risk does not result in an increase in the odds of financial crisis occurring within a financial sector. The present finding is, however, inconsistent or consistent with Al-Khouri (2011) who intimated

that credit risk may either have a positive or a negative effect on the odds of financial crisis occurring. The current finding fits into the negative effect aspect of Al-Khouri's finding. Just as explained above, this aspect of Al-Khouri's findings suggested that an increase in credit risk of banks leads to a decrease in the likelihood of financial crisis occurring. Naceur and Omran (2011) found a positive effect of credit risk on cost efficiency and profitability. This implies that as credit risk increases, cost efficiency and profitability increases; thereby, decreasing the odds of occurrence of financial crisis. Therefore, the present finding, to some extent, corroborates the finding of Naceur and Omran, though their study was conducted in the Middle East and North Africa countries.

Furthermore, it is possible that credit risk may not in itself directly induce the occurrence of financial crisis; rather, its influence on other factors may cause the occurrence or nonoccurrence of financial crisis. This is affirmed by Paola (2011) who found an unwanted effect of credit risk on bank's profit and safety which then serve as the basis for the occurrence of financial issues among banks. This assertion is supported by Salah and Fedhila (2012) who found that unsound financial performance, as a result of credit risk, influences the occurrence of financial crisis in the long run.

In some situations, financial performance and liquidity are underrated by the incidence of credit risk. Thus, poor performance and continued liquidity issues occasioned by credit risk are likely to induce the occurrence of financial crisis. This assertion is in line with the findings of a study conducted in Ghana by Larnyoh (2018). Larnyoh found that non-performing loan, which is a major aspect of credit risk operationalisation, serves as the basis for the occurrence of financial crisis in Ghana. This means increase in credit risk is associated with an increase in the odds of financial crisis occurring. Larnyoh's finding, however, is inconsistent with the finding of the present study.

Additionally, the current finding shows inconsistency with Patnaik and Vasudevan's (1999) credit market theory which proposes an inverse relationship between credit risk and firm stability and profitability which contribute to an increase in the odds of financial crisis occurring. The difference in the position or assertion of the theory and the current finding may be due to factors related to location, the kind of financial institutions considered in previous studies, and the sample size used. The researcher also realised that in the Ghanaian financial system, though expected to meet international standards, the individual banks seem to have their own internal policies, and all these might have influenced the outcome of the current study.

CONCLUSION

In summary, the results revealed that, despite the evidence that credit risk as a predictor of financial crisis has a direct effect on the odds of financial crisis occurring as asserted by a number of previous studies, the elements of the current study showed that credit risk has an inverse effect on the odds of financial crisis occurring. As credit risk increases, the odds of financial crisis occurring decrease, and the reverse holds true. The current finding is consistent with the findings of many prior studies. Similarly, the finding does not correlate with the findings of other extant studies. Nevertheless, generically, credit risk has been found to have a significant effect on the odds of occurrence of financial crisis. Specifically, the present finding might be due to the fact that as credit risk increases, the management of the commercial banks in Ghana put strategies in place to enhance other aspects of the banks' overall operations to ensure that performance is improved;

thereby, leading to decreased likelihood of financial crisis occurring despite the increase in credit risk.

RECOMMENDATIONS

In respect of the finding and the conclusion, recommendations have been made for practice, policy and theory. For practice, leadership of commercial banks in Ghana should still focus on credit risk management practices to ensure that the high rates of non-performing loans and advances are reduced. With regards to policy, Ghana Association of Bankers, the Bank of Ghana, and other financial and banking regulatory bodies in Ghana should formulate and implement rules and regulations that touch on how commercial banks in Ghana should deal with credit transactions with their clients; specifically, by ensuring that loans are reduced to amounts manageable enough for the clients to pay back on time. Additionally, in terms of theory, the present finding violated the assertion of the credit market theory (Patnaik &Vasudevan, 1999); therefore, it is recommended that future researchers employ this theory and test it in related studies.

Next, taking into account the fact that secondary data were used for this study, there could be the possibility that there was more to the issues of credit risk not reflected in the secondary quantitative data – being limitation of the study; thus, creating opportunity for further studies to look at the effect of credit risk on financial crisis, employing primary quantitative data. Also, further studies should control for management styles of bank managers.

Author Contributions

Conceptualisation, S.K. and D.A.; methodology, S.K. and D.A.; validation, S.K., D.A. and G.A.; formal analysis, S.K., D.A., E.K.; data curation, E.K., K.N.D, S.A.; writing – original draft preparation, D.A., C.C.; writing – review and editing, S.K., D.A, C.C, G.A. and K.N.D.; supervision, S.K. All authors have read and agreed to the final version of the manuscript.

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Informed Consent Statement

Informed consent was obtained from all subjects involved in this study.

Conflict of Interest

The authors declare no conflict of interest.

References

[1] Al-Khouri, R. (2011). Assessing the risk and performance of the GCC banking sector. *International Research Journal of Finance and Economics*, *65*(1), 72-81.

[2] Allen, F., Otchere, I., & Senbet, L. W. (2011). African financial systems: A review. *Review of Development Finance*, *1*(2), 79-113.

[3] Amah, O. E., & Oyetuunde, K. (2020). The effect of servant leadership on employee turnover in SMEs in Nigeria: the role of career growth potential and employee voice. *Journal of Small Business and Enterprise Development, 16*(13), 76-92.

www.ajpojournals.org

[4] Atinyo, D., & Kawor, S. (2022). Relationship between corporate governance and financial crisis: A study of Ghana's banking sector. *The International Journal of Business & Management, 10*(2), 79-85.

[5] Baldacci, E., Gupta, S., & Mulas-Granados, C. (2013). Fiscal adjustment and growth: Beware of the credit constraints. *VoxEU. org*, *31*, 16-30.

[6] Bell, S., & Morse, S. (2013). *Measuring sustainability: Learning from doing*. Routledge.

[7] Bhanot, K., Burns, N., Hunter, D., & Williams, M. (2014). News spillovers from the Greek debt crisis: Impact on the Eurozone financial sector. *Journal of Banking & Finance*, *38*, 51-63.

[8] Boadi, S. (2018, August 16). How Capital Bank blew GH₵620m: The inside story. *Daily Guide Network*. Retrieved from http://www.dailyguidenetwork.com [Accessed 23 December 2020].

[9] Cucinelli, D. (2015). The impact of non-performing loans on bank lending behavior: evidence from the Italian banking sector. *Eurasian Journal of Business and Economics*, *8*(16), 59-71.

[10] Ewert, R., Schenk, G., & Szczesny, A. (2000). Determinants of bank lending performance in Germany. *Schmalenbach Business Review*, *52*(4), 344-362.

[11] Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (Vol. 398). John Wiley & Sons.

[12] IMF. (2018). *Financial crisis, macroeconomic shocks, and government balance sheet: A panel analysis* (IMF Working Paper No. WP/18/93). International Monetary Fund.

[13] Kargi, H. S. (2011). *Credit risk and the performance of Nigerian banks*. Ahmadu Bello University, Zaria.

[14] Larnyoh, M. T. (2018, September 8). Here are the auditing firms for the 7 collapsed banks. *Pulse.* Retrieved from http://www.pulse.com [Accessed 23 December 2020].

[15] MoF. (2019). *2019 budget statement*. Accra, Ghana: Ministry of Finance.

[16] Naceur, S. B., & Omran, M. (2011). The effects of bank regulations, competition, and financial reforms on banks' performance. *Emerging markets review*, *12*(1), 1-20.

[17] Nyavor, G. (2018, August 10). UT Bank collapse: ₵30m loan for ₵1m collateral; MP cited. *My Joy Online.* Retrieved from myjoyonline.com.

[18] Owusu, I. (2019, February 14). New capital requirement by BoG - Panacea for bank failures? *Business Ghana.*

[19] Patnaik, I., & Vasudevan, D. (1999). *Interest rate determination: An error correction model*. National Council of Applied Economic Research.

[20] Poudel, R. P. S. (2012). The impact of credit risk management on financial performance of commercial banks in Nepal. *International Journal of arts and Commerce, 1*(5), 9-15.

[21] Roy, S., & Kemme, D. M. (2012). Causes of banking crises: Deregulation, credit booms and asset bubbles, then and now. *International Review of Economics & Finance*, *24*, 270-294.

www.ajpojournals.org

[22] Salah, N. B., & Fedhila, H. (2012). Effects of securitization on credit risk and banking stability: Empirical evidence from American commercial banks. *International Journal of Economics and Finance*, *4*(5), 194-207.

[23] Sikasem, K. (2017). UT and Capital Bank takeover: A few clarifications for stakeholders. Retrieved from http://www.sikasem.org [Accessed 23 December 2020].

[24] Stubley, D. J., Paparas, D., Tremma, O., & De Aguiar, L. (2018). An investigation into the price transmission between producers and retailers within the UK milk market. *Advances in Business-Related Scientific Research Journal*, *9*(1), 14-43.

[25] Ueda, K., & di Mauro, B. W. (2010). The value of the too-big-to-fail subsidy to financial institutions. In S. Claessens, M. Keen, & C. Pazarbasioglu (Eds.), *Financial sector taxation: The IMF's report to the G-20 and background material* (pp. 14-29). Washington, DC: The International Monetary Fund.

[26] UN. (2015) *Sustainable development goals*. New York, NY: United Nations. Available at https://www.ghana.un.org (Accessed 23 December 2021).

[27] Veronesi, P., & Zingales, L. (2010). Paulson's gift. *Journal of Financial Economics*, *97*(3), 339-368.

[28] Yilmaz, K. (2010). Return and volatility spillovers among the East Asian equity markets. *Journal of Asian Economics*, *21*(3), 304-313.

[29] Zouaoui, M., Nouyrigat, G., & Beer, F. (2011). How does investor sentiment affect stock market crises? Evidence from panel data. *Financial Review*, *46*(4), 723-740.