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Regular Article

Effect of firm size and corruption on financial challenges of savings and loans companies: Evidence from Ghana

Eric Amankwaah [a,*], Nana Okyir Baidoo [b]

[a] Ghana Communication Technology University, PMB 100, Accra North, Ghana
[b] University of Ghana, P.O Box LG 1181, Legon, Accra, Ghana

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ABSTRACT

Savings and loan companies have attempted to satisfy the needs of their customers by raising assets and giving them credit. The study examines the financial challenges of savings and loan companies in Ghana from 2016 to 2021. The data came from the Savings and Loans Companies database and the Bank of Ghana (BoG) database. Using panel data analysis and the Whited-Wu Index, the results show that the firm shows a consistent higher level of financial constraints of −1.7 in 2016. From 2019 to 2021, the company will have easier access to funds compared to the period between 2017 and 2018. The study shows that cash holdings and private credit have a positive influence on the financial constraints of the companies. The study also found that firm size, collateral security, corruption index, and exchange rate significantly affect the financial challenges of companies negatively. It turned out that there was no connection between Ghana's economic growth and the company's financial challenges. The absence of sufficient financing significantly affects operations and profitability for the company. It is therefore recommended that there be business realignment at the savings and loan companies in Ghana. Company realignment is mostly done to get out of lines of business with poor margins and go into lines that are more naturally financially smart and boost performance.

1. Introduction

Ghana's financial landscape has seen a significant transformation in recent years with regard to the various institutions and zones of mediation. The situation has become uncertain, which has led to a decline in the Ghanaian economy (Odoom et al., 2019). This raises challenging questions concerning the persistence, growth, and maintenance of practicable development (Musso & Schiavo, 2008; Abuhommous, 2016). Savings and loan companies (S&LCs) have been collapsing and disappearing at an alarming rate recently, and the Bank of Ghana liquidated several financial institutions around the country in 2008. (Belnye, 2011). But the problem has persisted since 2013 and will continue to have disastrous effects. Thirty MFIs failed in Ghana during the first quarter of 2013 due to an alleged inability to "sustain their operations." In a related incident, the Bank of Ghana (BoG) withdrew the licences of 23 insolvent finance houses, businesses, and savings and loan organisations on Friday, August 16, 2019. In cases where a bank's insolvency is confirmed, Bank of Ghana (BOG) has declined to approve the institution. These steps were taken early this year in compliance with section 123 (1) of the Banks and SDI Act, 2016 (Act 930) (Belnye, 2011).

In the current environment, savings and loan businesses have made an effort to meet the demands of their clients by building assets and extending loans. Nevertheless, they have not had the opportunity to sufficiently increase their wealth by gathering enough institutional capital to finance irrecoverable fixed resources, providing a cushion to retain losses and reduce client deposits (Hassan, 2011; Olando et al., 2015; Feleke, 2016).

Although it is acknowledged that S&LCs have considerably reduced poverty, there are still issues with its development that need to be addressed. When the sector's prospects are properly utilised, it may successfully contribute to a feasible strategy to end poverty in Ghana (Bank of Ghana, 2007). The collapse of a number of MFIs in Ghana highlights important issues regarding the difficulties that institutions must face in performing their tasks. Despite several studies, including Obour (2013) and Odoom et al. (2019), the significant economic impacts of S&LCs have once again been proven. They were unable to analyse the industry's financial challenges. More specifically, the inapplicability of studies conducted on S&LCs by Bates et al. (2009), Obour (2013), and Odoom et al. (2019) is limited by their inability to clearly identify the financial challenges such institutions encounter in their

* Corresponding author.
E-mail address: eamankwaah@gctu.edu.gh (E. Amankwaah).

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operations. The glaring discrepancy between these findings may undermine efforts to explain operational problems and the effects of S&LCs on the economy.

Studies have shown that microfinance has greatly reduced poverty, so it is important to solve the development challenges it raises. A number of studies, including Obour (2013) and Odoom et al. (2019), once more demonstrated SLCs' significant economic contributions to Ghana. These studies could not dissect the financial challenges within the sector. More explicitly, the usefulness of studies led by Efthyyoulou & Vahter (2015), Obour (2013), and Odoom et al. (2019) on SLCs is constrained because they cannot unmistakably define the financial challenges that institutions face in their activities. The obvious gap between these investigations conceivably requires further study to explain operational issues and the ramifications of SLCs in the economy. Moreover, the inability to adequately highlight the financial challenges faced by SLCs complicates efforts to better place SLCs in the broader spectrum of national development and financial intermediation roles.

Most studies (Musso & Schiavo, 2008; Espinosa, 2015; Feng, 2011; Argawi, 2014; Kifle, 2014; Ergetew, 2014) have focused on the conceptual problems underlying the challenges facing manufacturing companies and have also focused on SMEs. Similarly, empirical studies to measure the financial challenges of savings and loan companies are very rare. This is due to the low presence of efficient savings and credit companies on this continent and, as a result, the lack of data. Hence, the study provides empirical evidence on how firm size and corruption are influencing the financial challenges of savings and loan companies in Ghana.

The study is set up as follows: The study's supporting literature is provided in Section 2. The procedure and resources for the study are described in Section 3. Section 4 gives a data description, and empirical findings are provided in Section 2. The procedure and resources for the study are described in Section 3. Section 4 gives a data description and presents empirical findings. The final section makes some concluding observations.

2. Literature review

Many earlier investigations have discovered a connection between a nation's degree of development and the limitations imposed on organisations (Desai et al., 2003; Love 2003; Beck & Demirguc-Kunt 2006; Beck 2007). The majority of research focuses on global constraints that impede corporate development. Other studies just concentrate on financial barriers. The extent of financial requirements for business and national development appears to be a never-ending cycle: poor business conditions make it harder for organisations to meet their financial obligations, and harder financial obligations have an influence on the growth and development of the economy because businesses perform worse. Gorodnichenko & Schnitzer (2011) found that national organisations' capacity to grow and thereby penetrate more developed economies was constrained by financial issues. According to their argument, businesses in developing nations cannot invest in innovative initiatives that may prevent them from getting better because of their financial troubles.

Corruption may really prevent a corporation that is having financial problems from expanding (Beck & Demirguc-Kunt, 2006; Chan, 2009; Love, 2003). According to Chan (2009), a 1 percent rise in insolvencies is correlated with a 0.22 to 0.26 percent drop in financially troubled enterprises. Businesses experience fewer financial constraints in nations with stronger legal frameworks. This includes laws, regulations, and organisations that support the creation, registration, and implementation of guarantees, just like a strong corruption framework. The results of Love (2003) showed that the efficacy of the legal system, the reduction of seizure risk, and the elimination of defilement had a substantial bearing on the removal of financial restrictions on both large and small enterprises.

After limiting the company's size, the outcomes for financial development remained vital, given the cyclical nature of the economy and the emergence of a legal framework. Beck and Demirguc-Kunt (2006) noted that the degree of property rights strongly influences both small and large enterprises' needs for external finance. The financial struggles of organisations should be alleviated through improved financial and legal growth. The financial heft of organisations will decline in a nation with stronger legal regulations. Financial specialists, for instance, will feel more certain that their financial contributions will be secure. Speculators' willingness to fund organisations is dependent on the level of legal security provided to them (Porta et al., 1997). Businesses in nations with weak financial development invested multiple times as much in capital as those in nations with good financial development (Love, 2003). Demirguc-Kunt and Maksimovic assert that the degree of financial middle-class growth significantly influenced how organisations were financed externally.

Financial requirements are becoming less important, especially for private investments, as a result of growing competition among banks and the establishment of locally held banks (Clarke et al., 2003). The potential of banks to cause financial difficulties will increase as the economy becomes increasingly dependent on them (as in Germany and Japan, for example). Ryan et al.'s (2014) findings support the market control hypothesis. The relationship between the convergence of banks and the main financial imperatives has also been discussed by Beck, Demirguc-Kunt, and Maksimovic (2004), although only for all monetarily and institutionally developed nations. The availability of adjacent external banks, a high level of institutional development, and a robust credit vault all undermine the link between bank focus and financial requirements (Beck et al., 2004).

According to Jakob and Kostet (2016), financial needs are calculated using a variable that considers the apparent level of obstacles businesses face in their current operations, and the determining factor for financial plausibility is whether or not businesses have undergone an examination. The World Bank's standard of legal conduct serves as our guiding principle. Regression analysis reveals a strong inverse link between financial requirements and financial credibility. This illustrates that increased financial disclosure veracity results in lower financial demands on businesses. The results have no bearing on the standard of the law's directing influence. In any event, we see that increased financial plausibility leads to tiny improvements in access to an external account when the degree of rule of law is strong.

Feng (2011) studied the effects of financial challenges on enterprises' fixed interests in China between 1998 and 2005. Using an Euler-condition investment model, they find convincing evidence that a "loan tendency" is at play. Exclusive corporations have greater financial obligations than state-owned and publicly traded companies. The evidence also suggests that public companies are better off financially than unlisted companies. The results also demonstrate that enterprises' perceptions of financial constraints are lessened by the proximity of outside ownership. Second, we evaluate the effects of financial requirements on businesses' stock interests in China with a focus on firm heterogeneity using a mistake adjustment model extended with income. We find that the stock investment of exclusive businesses, businesses with outside ownership, and businesses without political ties to the central or local governments is significantly influenced by income. The results also suggest that during the course of the study, enterprises' awareness of financial constraints grew in scope.

According to Adden's (2014) research, financially constrained organisations' investments have greater benefit-related scrutiny than flexible firms' investments. This study also reveals that this result is associated with differences in future write-downs and altruistic impedances, suggesting that the difference in tirelessness in productivity between the two groups of enterprises is associated with differences in investment quality. Finally, the fact that investment in financially constrained firms is associated with higher one-year odd returns than investment in adaptable firms indicates that speculators do not fully comprehend the role that financial requirements play in the link

between an endeavour and future profitability.

Espinosa's (2015) found that Jordanian businesses must meet financial obligations, but these obligations don't appear to be related to any features of the businesses. The results also indicate that Jordanian businesses support their investments with obligations rather than values. Access to outside financial resources, according to Musso and Schiavo (2008), has a favourable effect on how transactions, capital stock, and work grow for businesses, and financial requirements are unmistakably linked with short-term profitability growth. Financial constraints completely increase the likelihood of leaving the market. This final result is interpreted by us as a signal that obligated enterprises must reduce expenses in order to produce the assets they cannot raise in financial markets.

To assess the diversity of the effects of budgetary limitations, Efthyyoulou and Vahter (2015) suggest that the impact of direct financial boundary proportions varies by operational and administrative components as well as by the financial orientation of the organization. In particular, it appears that the creativity division has been more negatively impacted by financial needs than the administrative sector. Non-exporters respond more rationally to financial obligations than other types of businesses.

Wang (2016) examined how transactions were impacted by financial challenges in 26 developing countries between 2001 and 2013. The study used a firm-level informational index to find that forced enterprises are 61.5 percent less likely to send out, compelled exporters trade 74.2 percent less, and easing up financial restrictions increases firms' fares. Aside from the existing fare pricing systems, developing countries must find ways to improve their financial positions. The approach restricts what corporations may gain due to a flawed agreement's enforceability. Companies use retained income to accumulate cash, relax financial limitations, and begin sending. To address the endogeneity issue of financial imperatives, different ages and financial circumstances might be used.

3. Material and methods

3.1. Research design

Quantitative research strategies focus on number management techniques and everything that can be quantified effectively by examining phenomena and their relationships (Leedy 1993). To determine the association between financial problems and company success, this survey was done using ordinary least squares regression analysis. A more thorough examination of the relationship was conducted as part of an intriguing inquiry that would outline the historical background of the correlations between variables and make clear the goals of this relationship.

3.2. Data collection and source

Research information comes from secondary sources. With respect to quantitative data, this study adopted secondary data because the information can be collected and examined effectively. Panneerselvam (2006) stated that the collection of secondary data entails significant costs, time, and effort to acquire the data. Secondary data will be data that has just been created for first-time use by the company and for later use by others. The researchers used the annual financial report of five savings and loan companies; it was sourced from the company's website. The study used trend analysis as a strategy. This method was used in the study, in particular, to analyse trends in financial issues from 2014 to 2018. In other words, the examination looked at the firms' annual reports. The implications for the creation and accessibility of the work were extracted from the study.

3.2.1. Model specifications

Firm size, corruption, and financial challenges of the selected firms were estimated using the theoretical framework presented in this study. The following models were adopted to estimate the effects of firm size and corruption on financial challenges:

$$FC = \beta_0 + \beta_1 FS + \beta_2 COR + \beta_3 COL + \beta_4 PC + \beta_5 GDP + \beta_6 EXR + \varepsilon \quad (1)$$

where:

FC denotes the financial Challenges.
FS denotes Firm size,
COL denotes Corruption Index.
COR - Collateral Security.
PC – Private credit from bank.
GDP – Gross domestic product.
EXR-exchange rate
β is coefficient of the variables
ε = Error term.

The model assumes the error term is uncorrelated with the exogenous variables, meaning that the expected value of (x_{it} ε_{it}) is equal to zero. Furthermore, it assumes the errors to be autonomously and normally distributed, as well as independent of the lagged regressor, so the expected value of (C_{it-1} ε_{it}) is zero. It is also believed that the explanatory variables are correlated with the individual effect, leading to a non-zero expected value of (x_{it} v_i). The firm-specific effect and the disturbance error are considered to be independent, so E (vi it) and E (vi xit) are equal to zero. Finally, it is required to capture the dynamic impact of the dependent variable, as the past result will most likely influence the present, leading to a non-zero expected value of Cit Ci,t-1.

3.2.2. Description of variables and statement of hypotheses

3.2.2.1. Financial challenges. To evaluate the degree of financial restrictions imposed on businesses, the Whited-Wu index was adopted. In devising this index, Whited and Wu (2006) initiated from a model that proposes that external financing requirements affect the exchange of immediate investment for delayed investment through the virtual evaluation of restricted external resources. The index was formulated as follows:

$$-0.091\text{CFit} - 0.062\text{DIVPOSit} + 0.021\text{TLTDit} - 0.044\text{LNTAit} + 0.102\text{ISGit} - 0.035\text{SGit} \quad (2)$$

where:

CFit is a measure of cashflow in comparison to all of a firm's assets.

DIVPOSit indicates whether a company distributes money to shareholders or not, with a value of 1 representing a dividend and 0 indicatingno dividend.

TLTDitmeasures the portion of long-term debt relative to all the firm's assets.

LNTAit stands for the natural log of the firm's total assets,

while ISGit and SGit refer to the three-digit industry and sales growth of the business, respectively.

Compared to the Kaplan and Zingales (KZ) list of 1997, which was frequently used to measure the degree of restrictions, Whited-Wu (2006) has two noteworthy benefits: avoiding major sample selection, agreement, and estimation errors through structural estimations with a vast data set; and, in comparison to the World Bank database on fiscal constraints, yielding progressive results for financial obstacles by utilising financial statement data instead of survey data.

3.2.2.2. Firm size. Three measurements of corporate size—total assets, total liabilities, and total equity—are expressed in natural logarithms. Empirical results suggest a relationship between business size and investment strategy. (For examples, see Dang et al., 2018; Daunfeldt & Hartwig, 2014; Graham & Harvey, 2001; Hartwig, 2012). Evidence suggests thatcompanies in nations with better-established financial

sector are increasingly dependent on external sources of capital, such as debt and equity financing (Beck et al., 2002).

3.2.2.3. Corruption perceptions index (CPI). Transparency International provides this index as a way to measure public sector corruption across 180 countries. The scale runs from 0 (corrupt) to 100 (clean) (Transparency International, 2017). The best-known perception-based composite index is Transparency International's (TI) Corruption Perceptions Measure (CPM), which rates countries according to perceptions of corruption levels. It is a compilation of 13 other indices from 12 additional organisations.

3.3. collateral security

The phrase "collateral security" can be used to describe the insurance If, however, a borrower fails to fulfill their obligations as agreed, a specific asset gives a lender recourse. That is, if the borrower does not pay the agreed-upon loan instalments, the lender may sell the collateral to recoup all or a portion of the money advanced to the debtor. According to O'Sullivan and Sheffrin (2003), "collateral" is a guarantee made by a borrower to a lender to provide certain property as security for the repayment of a loan. If the borrower doesn't adhere to the conditions of the loan agreement about principle and interest payments, the collateral shields the lender from a borrower default that might be used to cancel the credit (Charya & Viswanathan, 2011; Biais et al., 2016; Inderst & Mueller, 2007). Kitale et al. (2016) found that the collateral requirements of financial institutions had a significant influence on access to credit. This resulted in subpar performance since businesses without collateral were unable to get loans.

3.4. Private credit from banks

Non-bank lending that involves the issuance of debt but not its trading on the open markets is known as private credit. Direct lending or private lending are other names for private credit. It falls under "alternative credit." One of the asset types with the highest growth has been private credit (Flanagan, 2018).

3.5. GDP

Growth in per capita income (PCI), a macroeconomic indicator, is used to measure economic growth (Levine, 1997). This research uses real per capita GDP as a metric of growth, as is common in the literature. We adjust for income level since a more developed financial sector is often seen in wealthy nations. Additionally, per capita income growth is crucial since nations with rapid economic growth tend to have higher credit demand and supply (Djankov et al., 2007; Emran & Farazi, 2009).

3.6. Cash holding

"Cash holdings," are the amount of cash and cash equivalents, highly liquid assets that a corporation may swiftly convert into cash (Hassanein, 2021).

3.7. Exchange rate

The cost of converting two distinct currencies between two different nations or economic areas is known as the exchange rate of a currency. It is used to determine how much one currency is worth in relation to another and is essential for estimating the movement of money and trade trends (CorporateFinanceInstitute.com).

3.7.1. Panel data

Using panels to organise data enables testing and analysis of more complex datasets (Brooks, 2014). Baltagi (2005) indicated that the principal benefits of using panel data include accounting for the heterogeneity of each individual, greater flexibility, a reduced chance of collinearity between variables, and more information in the data set. It is also easier to develop and test more complex models, and it is easier to examine the "dynamics of adjustment."

There are two types of panel data: balanced and unbalanced. If the data set needs to be balanced, cross-sectional and time-series observations must be collected. If there are the same number of observations in the time series for each cross-sectional unit, the panel of data is said to be balanced.

The dataset is considered to be unbalanced since the time series contains erroneous returns. Some companies' recent stock market listing is what accounts for the dataset's gaps. Panel data estimates use one of two types of effects models: fixed effects or random effects. Different approaches might be used in the panel data regressions depending on the data. Depending on the components of the fixed effects model, a disturbance term (u!) is predicted to have various cross-sectional effects on the dependent variable (y!). The following are the definitions of the terms:

$$u!" = \mu! + v!" \tag{3}$$

where v!" is the time-varying disturbance term and $\boldsymbol{\mu}!$ is the individual-specific effect.

It is crucial to keep in mind that! doesn't change throughout time. This model, sometimes referred to as the Least Squares Dummy Variable (LSDV) approach, is a relationship of several dummy-variables that change based on the object.

$$y!" = \beta x!" + \mu!1 + \mu!D2 + \mu!D3 + \ldots + \mu!DN + \upsilon!" \tag{4}$$

This equation may be used to determine whether pooled regression is appropriate for the dataset. For the first entity, the D1 is 1, and for each successive dummy, it is 0. A fixed effects model for the time series is also a choice (Brooks, 2014). The random effects model has separate intercepts that are consistent throughout time for different entities. It is important to note that with fixed effects, the intercept of each cross-sectional entity is affected by a separate intercept, which affects each entity. The heterogeneity among the entities will be illustrated in this example by a random term that varies cross-sectionally. The LSDV fixed effects model's dummy variables, which reflect the heterogeneity, serve as a representation of the cross-sectional element's variability.

The random effects in panel data are explained by the following equation:

$$y!" = \alpha + \beta x!" + \omega!" \text{ where } \omega!" = \varepsilon! + \nu!" \tag{5}$$

Using either of the two models presented, endogeneity problems, which are characterised by a link between the regressor and the error term, may be addressed (Brooks, 2014). The parameter estimate and inference will be skewed whenever the regression has endogeneity issues (Roberts and Whited, 2012).

4. Results and discussions

4.1. Descriptive statistics of the Analysis's sample

In this section of the study, the descriptive analysis of the selected variables are analyzed. Some descriptive statistics include the mean, median, maximum, minimum, standard deviation, asymmetry, kurtosis, sum, squared difference, and different observations. Table 1 provides a good illustration of these numbers.

The variables have a positive mean and median, as shown in Table 1. Given the model's variable inclusion, this is expected. Given that the variables' modest standard deviations are thought to indicate only moderate variation of these variables throughout the course of the research, for each of the model's variables, the maximum and minimum values fall between 1.6 and 0.009, respectively. Study variables,

Table 1
Descriptive Statistics of the variables.

	Financial challenges	Collateral	Cash holding	Firm size	Corruption index	GDP	Private credit	Exchange rate
Mean	−0.570947	0.054536	0.112042	8.216435	44.16667	4.755061	34.16915	3.787883
Median	−0.448266	0.053175	0.112136	8.237311	44.5000	4.523896	34.60376	3.997800
Maximum	−0.075221	0.103340	0.168284	8.374579	48.0000	8.143447	38.20729	4.83000
Minimum	−1.729414	0.008634	0.066914	8.001132	40.0000	2.178207	30.55150	2.161600
Std. Dev.	0.612678	0.046573	0.035562	0.142098	3.311596	2.292173	2.874416	0.981106
Skewness	−1.247794	0.017185	0.337776	−0.395328	−0.123334	0.312590	−0.017801	−0.667313
Kurtosis	3.265986	1.049428	2.222073	1.824851	1.387875	1.707717	1.825525	2.238757
Jarque-Bera	1.574677	3.503722	0.265385	0.501528	0.664948	0.515212	0.345165	0.590180
Probability	0.455054	0.173451	0.875734	0.778206	0.717147	0.772900	0.841489	0.744465
Sum	−3.425684	0.327217	0.672255	49.29861	265.0000	28.53037	205.0149	22.72730
Sum Sq. Dev	1.8768	0.010845	0.006323	0.100959	54.83333	26.27030	41.31134	4.812846
Observation	60	60	60	60	60	60	60	6

Source: Author's Construct, 2022

including financial constraints and the log of assets, are negatively skewed in terms of skewness, whereas collateral and cash hold are positively skewed.

The Jarque-Bera measurement that demonstrates the null hypothesis that all the series are gotten from a normally distributed random process cannot be rejected for financial constraints (total asset, collateral, cash hold), implying that they are normally distributed. As a result, ordinary regression analysis was used to determine the determinants of the financial challenges faced by Ghanaian savings and loan companies.

Table 1 also shows that financial challenges, total assets, collateral, and cash holdings make it impossible to reject the Jarque-Bera measurement, which shows the null hypothesis that all the series are obtained through a normally distributed random process. This suggests that the series are normally distributed. In order to identify the factors that contribute to the financial difficulties experienced by Ghanaian savings and loan organisations, conventional regression analysis was performed.

4.1.1. Correlation matrix

The correlation matrix is displayed in Table 2. The highest correlation (0.449) between the two variables, financial challenges and firm size, can be seen, demonstrating the strong relationship that exists between the two. It is acknowledged that the high correlation does not pose a problem for this model because the link is positive and that it is reasonable to anticipate similar relationships between the independent factors and the dependent variable given the high correlation. Since no two variables were substantially linked, multicollinearity was not a problem in these estimations, according to coefficients among most of the variables.

As shown in Table 2, cash holdings have a negative correlation with financial challenges and the corruption index, while private credit from banks and GDP have positive correlations with financial challenges. Finding multicollinearity between the variables is the main goal of the connection between the variables. Collinearity, according to econometrics references, raises parameter difference evaluations, produces high R-squares despite low parameter hugeness, and causes parameters to have incorrect signs and impermissible extents (Mela and Kopalle, 2002). For the negative impact of collinearity, Green et al. (1988) and Lehman et al. (1998) separately suggest 0.9 and 0.7 as edges of bivariate connections. The correlation matrix's results reveal that the independent variables don't exhibit any multicollinearity when the edges are taken into consideration.

4.1.2. The level of financial challenges of firms

The Whited-Wu index was utilised in this section to determine the company's level of financial challenges. The analysis is summarized Table 3 and Fig. 1.

Table 3 illustrates the log total assets (LTA), cash flow (CF), dividend payments (DIVP), total long debt to equity (TLDD), firm sales growth (FSG), and industrial sales growth (ISG) that were used to determine the level of financial challenges of the firms. In 2016, the cash flow-to-total-assets ratio was 251.6, and the long-term debt-to-total-assets ratio was 0.21, with a growth rate of 54.1% (the industrial growth rate was 5.1%). This translated into a higher level of financial challenges of −1.7 from 2016 to 2017, meaning the company had easier access to funds compared to the period between 2017 and 2018 (Fig. 1). The Bank of Ghana's financial sector reorganisation restricted enterprises' access to capital in 2021 (−0.33667), raising the minimum amount of capital that financial firms are required to have.

4.1.2.1. Panel unit root. Despite the fact that a dataset covering 6 years is not especially long, it is very probable that the economic indicators will possess a unit root (Nelson and Plosser, 1982). We apply the panel unit root test to determine the pattern of integration for each of the series in our sample. The study used the Fisher-type panel unit root test since the dataset was unbalanced. If the variables to be examined are I (0) and I(1), it is not required to examine the order of the variables' integration when using the dynamic fixed effect, mean-group, or pooled mean-group estimators (Pesaran and Smith, 1995; Pesaran, 1997; Pesaran et al., 1999). No series should exceed the I (1) order of magnitude; however, we do these tests.

Table 4 shows the results of the unit root tests, which show that one of the variables under investigation (GDP) is stationary in order I(0), whereas firm size, collateral security, cash holdings, the corruption index, and private loans from banks are integrated in order I(1). The results show that all variables are stationary at the first difference

Table 2
Correlation matrix for the variables.

	Financial challenges	Collateral	Cash holding	Firm size	Corruption index	GDP	Private credit	Exchange rate
Financial challenges	1.000							
Firm size	0.4490	1.000						
Collateral	0.2535	0.2402	1.000					
Cash holding	−0.0592	0.4705	0.2458	1.000				
Corruption index	0.4004	0.4094	0.2266	0.483	1.000			
Private credit from banks	0.3207	0.2751	0.1947	0.4162	0.4800	1.000		
GDP	0.3037	0.1920	0.1613	0.3945	0.4162	0.4654	1.0000	
Exchange rate	0.0846	0.0583	0.1884	0.1649	0.1332	−0.1967	0.1714	1.0000

Table 3
The Level of Financial Challenges of the firms.

Year	Log total asset	Cash flow	Dividend payment	Long term debt to asset	Firm sales growth	Industrial sale growth	Financial constraints
2016	8.001132	251.5894	0	0.209546	54.14129	5.1	−1.72941
2017	8.113798	248.2191	0	0.194963	20.44207	5.1	−0.55987
2018	8.191198	245.9958	0	0.744128	24.57972	5.8	−0.63334
2019	8.283425	243.3776	0	0.751532	11.67592	6.8	−0.09118
2020	8.334481	242.0067	0	0.064938	5.718913	5	−0.07522
2021	8.374579	240.9673	0	0.083386	10.82736	4.2	−0.33667

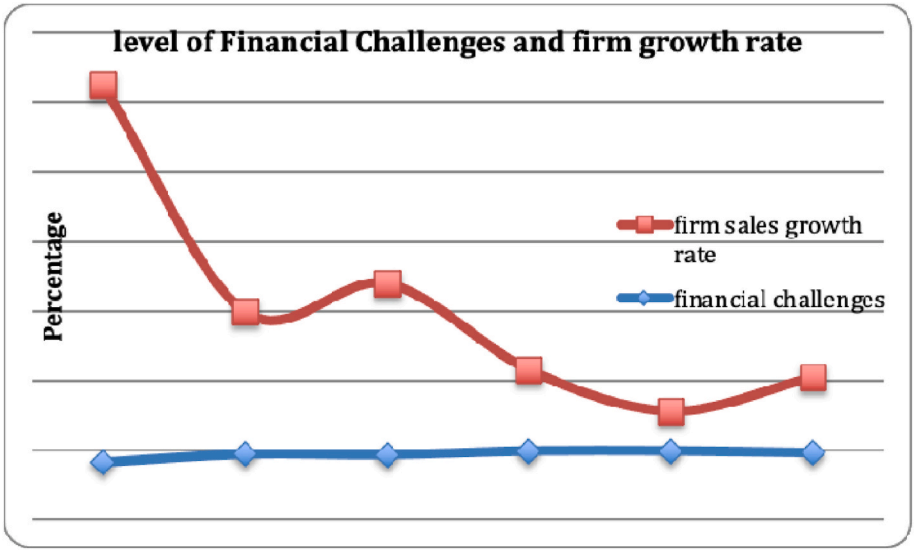

Fig. 1. The level of financial challenges and firm growth rate.

Table 4
Results of the panel unit root tests.

	Fisher-type test			
	Levels		1st Difference	
Variables	Test values	p-value	Test value	p-value
Financial challenges	−0.976	0.08	−14.6847	(0.00)***
Firm size	−0.8174	0.1734	−12.38	(0.000)**
Collateral	−0.7800	0.1816	−13.8457	(0.00)***
Cash holding	1.2812	0.0992	−12.364	(0.000)**
Corruption index	−0.6456	0.2612	−15.0936	(0.00)***
Private credit from banks	−1.2536	0.0902	−17.93	(0.00)***
GDP	−5.976	0.00	−14.6847	(0.00)***
Exchange rate	−1.1740	0.2116	−16.36	(0.000)**

Table 5
Results of the Westerlund (2007) panel cointegration test.

Financial Challenges			
	Value	Z-score	P-value
Gt	−4.085	−11.769	0.000
Ga	−14526	−1.318	0.000
Pt	−17.003	−7.878	0.225
Pa	−17.608	−7.882	0.000

The Westerlund (2007) tests consider the absence of cointegration to be the null. A constant and a range of lags (1–2) and leads are used to fit the test regression (1 2).
Source: Author's constructs, 2022

(Amankwaah et al., 2022).

4.1.2.2. Panel Co-integration. The cointegration test shows if the integrated variables have any long-term associations. Too short delays may not adequately represent the dynamics of the 55 system, causing variables to be excluded, biassing the remaining coefficients, and even resulting in serially linked errors. A latency that is too lengthy, however, causes over-parameterization and a quick loss of degrees of freedom (Kireyev, 2000).

The results of the Westerlund (2007) cointegration test are summarized in Table 5. The cointegration test reveals that while firm size, corruption, and financial challenges are not correlated, they are correlated with each other. However, when examining the possibility of a long-term connection between firm size, corruption, and financial difficulties, only Pt test statistics accept the null of no cointegration. There is therefore some evidence of cointegration.

The results of the cross-sectional independence Pesaran test, which show a significant absolute correlation, are 39.857, Pr = 0.0000, and the average absolute value of the off-diagonal components is 0.381. This blatantly implies that the cross-sectional units are affected by cross-sectional dependence or a common cause.

For the test statistics' dependable critical values, we bootstrapped. Bootstrapping decreases the discrepancy between the actual and nominal rejection probability and corrects crucial values in tests. Our findings show that for the entire sample, the null of no cointegration is acceptable in PT test statistics, whereas GT test statistics accept the null of no cointegration for financial challenges. However, when Pt is constrained to be homogeneous, at the 5% level for Gt and the 10% level for Pt, the null hypothesis of no cointegration is rejected, indicating that the entire panel is cointegrated for financial challenges. The outcomes using bootstrapped p-values offer more convincing proof of cointegration. The computed asymptotic and bootstrapped p-values are shown in Table 6.

4.2. Hausman Test (fixed effect/random effect)

To choose between the fixed effect and the random effect, the

Table 6
Results of the Westerlund (2007) panel cointegration test, bootstrapped.

Financial Challenges				
	Value	Z-score	P-value	Robust P-value
Gt	−3.202	−0.847	0.039	0.025
Ga	−8.912	−3.948	0.049	0.031
Pt	−10.374	−9.573	0.042	0.026
Pa	−9.284	−1.264	0.063	0.057

Source: Author's constructs, 2022

researchers used the Hausman Test. The standard is that if the Chi-square measurement acquired by the Hausman Test is bigger than the basic Chi-square X2 = 21.03, then the random effect estimator is the fitting model for the study. The outcomes showed a Chi-square value of 86.18 for financial challenges. This is more prominent than the Chi-square basic worth at the 5% significant level. This means that the distribution of the co-efficient is ordered and gives proof for the random effect model. The result is recorded in Table 7.

4.2.1. Impact of firm size and corruption on financial constraints

This section analyse the effect of corruption index, firm size on financial constraints of the firms using panel analysis.

According to Table 8, there is a negative and statistically significant correlation between total assets and financial difficulties. All other things being equal, a rise in total assets will result in a general decline in financial difficulties. More significantly, a change in the total assets as a percentage will result in a 95.2% reduction in financial difficulties. This means that as a company grows, its ability to pay off debt becomes less problematic.

According to Table 8, there is a link between financial issues and the collateral needed by the business to obtain a loan that is both negative and statistically significant. All other things being equal, a rise in collateral will result in a general decline in financial challenges. A percentage adjustment in the collateral will lessen financial difficulties by 113.58 percent, which is more significant. This could be due to firms' lack of good collateral for obtaining external funds to support their activities. Collateral constraints Because of the downturn in the financial market, a reduction in resource costs brings about a lower estimation of the assurance and, accordingly, a lower estimation of the credit that can be obtained with this guarantee.

The financial difficulties of the company are positively and statistically significantly correlated with the bank's cash holdings (Table 8). More crucially, with everything else being equal, a change in the firm's cash holdings will lead to an increase in financial difficulties of 113.6%. The implication is that holding more cash will lead to a low level of fixed assets and, hence, a reduction in the net return on fixed assets, which depend on capital turnover.

With respect to the corruption index (a measure of institutional development), statistics has determined that the calculated coefficients in Table 8 are significant ($P < 0.05$). The corruption index is positive and statistically significant in relation to financial challenges. This implies that, all other things being equal, the percentage increase in corruption reduces financial challenges by about 21.6%. This confirms a prior prediction of a negative relationship. Inferentially, corruption frequently results in the loss of assets through theft and graft. Assets that could be used to carry out corporate strategies either fail or are used inefficiently. The action could result in the loss of clients who lose faith in the company and turn to competing products, causing disasters. In addition, internal or external corruption may drive an organisation to inflate its costs to recoup lost assets. Competing firms may take advantage of this fortunate break to outperform the influenced firm, resulting in a significant loss of market share and, as a result, financial difficulties. The degree of financial imperatives for business and nation development appears to be an endless loop: a terrible business condition will increase financial challenges for organisations, and heavier financial challenges will negatively affect the economic growth and development of the nation because of lower business performance. Desai et al. (2003) noted that capital limitations because of institutional defects affect business passage and development limits, particularly in less developed nations. This conforms to Chan's (2009) findings that defilement can have a genuinely negative effect on the development of organisations confronting financial challenges.

Private credit and the financial difficulties of the enterprises are statistically significantly correlated in Table 8. This suggests that a 28.6% increase in financial issues followed a percentage gain in financial progress. This, however, confirms a prior prediction that financial development has a positive effect on the firm's financial challenges. Financial development has the potential to transform firms' existing financial activities to meet the current needs of customers, which may result in financial challenges. If the available funds for funding such activities are not there, Beck et al. (2008) show that since independent companies think it's increasingly hard to get to financial services because of higher information and exchange costs, financial development will help them lopsidedly. Small organisations are more averse to acquiring money at market interest rates and, consequently, are liable to credit proportioning (Audretsch & Elston, 2002). Love (2003) found that financial development remained critical in the wake of controlling the size of the company, monetary cycles, and the development of the legitimate framework. Similar findings were made by Beck and Demirguc-Kunt (2006), who found that the degree of property rights significantly influences whether or not small and large businesses can close the external finance gap.

Further, findings from the table show that the economic development (measured by GDP) of Ghana is statistically insignificant compared to the financial challenges of the firm. This means that the percentage increase in economic development does not influence the financial challenges of the firms. This clearly indicates that economic

Table 7
Results of the Hausman test.

	Financial Challenges
H0:	Random Effect Model
H1:	Fixed Effect Model
Chisq	86.18
P-value	0.0001

Table 8
Results of the Long-Run and Short run Coefficient.

	Financial Challenges			
Variables	Coefficient	Std. Err.	Z-score	P>|t|
Long run Coefficients rowhead				
Intercept	−2.945085	1.16461	−2.53	0.020
Firm size	−9.516842	1.2265	−7.76	0.000
Collateral	−11.35841	2.4568	−4.62	0.000
Cash holding	10.69209	2.0637	5.18	0.000
Corruption index	0.216087	0.0562	3.84	0.001
Private credit from banks	0.2856639	0.0511	5.59	0.000
GDP	−0.0040695	0.0283567	−0.14	0.887
Exchange rate	0.5745877	0.0506871	−2.53	0.020
Short run coefficients rowhead				
Error Correction Coefficient	−0.104	0.022	−6.68	0.000
Firm size	−0.2643	0.071	−3.70	0.001
Collateral	−0.060	0.025	−2.41	0.021
Cash holding	0.006	0.005	2.16	0.037
Corruption index	0.012	0.010	−2.38	0.022
Private credit from banks	−0.375	0.082	−5.094	0.000
GDP	0.018	0.0103	1.75	0.088
Exchange rate	−0.07	0.0561	−7.882	0.000
Intercept	0.5169	0.5096	−1.01	0.316

development cannot pose any challenges to retaining skilled employees in the firm, which can result in upward pressure on wages, hence no financial challenges for the firms. This supports Gorodnichenko & Schnitzer's (2011) findings that financial challenges restrict the capacity of national organisations to advance and, in this manner, arrive at progressively developed countries. They claim that institutions in less industrialised nations face financial difficulties and won't have adequate funds to put resources into imaginative exercises that may keep them from receiving better advancements. For instance, Love (2003) shows that monetary cycles can likewise influence business financing.

The negative relationship between exchange rate and financial challenges shows that the exchange rate significantly influences the financial challenges of a firm. Private investments have greater exchange costs and risk premiums due to fixed exchange charges and information asymmetries since they are less clear-cut, have fewer promises to make, and generally don't have the same risk. examined financial statements that may provide a more complete view of the firm and its expected profit (Beck, 2007). Higher advances are a result of fixed exchange costs related to credit evaluation and handling.

4.2.2. Model evaluations and stability checks

The assessed characteristics of a time series may alter with time, according to Hansen (1992). To avoid model misspecification that might occur from unstable parameters and, as a result, cause a bias estimate, it is imperative to do parameter testing (Amankwaah et al., 2022). Table 9 displays the model diagnostics and goodness of fit findings.

Table 9 demonstrates that the errors are evenly spaced out, then the model is valid both the white heteroskedasticity test and Ramsey's RESET for accurate model specification (Amankwaah et al., 2022).

5. Conclusion

All things considered, the firm's operations and profitability are greatly impacted by a lack of adequate capital. There is a strong correlation between the firm's operations and enough finance. This just implies that the accessibility of satisfactory financing helps support the operations of savings and loan companies. This record infers that there should be adjusted prudential guidelines for savings and loans at all levels in Ghana, and this arrangement is occasionally explored. The study noted that total assets, collateral, and cash holdings have a big impact on how much money savings and loan firms may borrow. The researchers noted that issues identified with the minimum capital requirement, capital adequacy, liquidity, and reporting requirements should be less friendly for savings and loan companies. As a result, supervision and monitoring became less viable and were identified as a significant reason for the company's expanding financial challenges.

5.1. Policy recommendations

Savings and Loan Companies should review their deposits and asset mix on an annual basis to ensure that they are in compliance with regulations while also not settling for increased profitability. Banks should intentionally expand cross-selling activities and enhance customer relationship management in order to keep deposits. The Bank of Ghana has recommended new guidelines for the liquidity coverage ratio (LCR) and the supplemental leverage ratio (SLR), which should be adhered to.

The research advises savings and loan firms to restructure their commercial operations. Company realignment is mostly done to get out of lines of business with poor margins and go into lines that are more inherently fiscally sound and boost bank profitability. Leading banks use a robust planning approach, examining the base cost of assets anticipated to compete in a certain industry and looking for opportunities to differentiate themselves from rivals. This suggests that S&L corporations may elect to enter atypical organisations in a number of circumstances, such as by investing in other ventures that might generate steady revenue. This might aid the business in successfully and efficiently competing with other players in the financial sector.

The study also recommends firm strategies for channel optimization. Channel optimization is an important part of bank advancement, with branches being closed, merged, sold, and bought. The personnel, functions, and responsibilities of banks' branches are being reorganized, and new criteria are being used to evaluate the effectiveness and worth of each branch.

There is a need to improve market share to enhance performance and reduce financial challenges. This can be done through business channel optimization solutions. The goal of channel improvement is to assess the various customer communication channels and create a mix of financial literacy that is tailored to each bank's unique clientele.

Table 9
Model goodness of fit and model diagnostic tests.

Test Statistics	LM Version		F Version	
A: Serial Correlation	*CHSQ(1) =	.40044(.841)	F(1, 59)	.30539 [.862]
B: Functional Form	*CHSQ(1) =	.26429(.607)	F(1, 59)	.20263 [.656]
C: Normality	*CHSQ(2) =	29.0231 (.000)	Not applicable	
*D: Heteroscedasticity	*CHSQ(1) =	.27887[.597]	F(1, 40)	.26737 [.608]

5.2. Limitations

The results of this investigation depend generally on the analysis of secondary data. Subsequently, the results of the investigation are dependent upon the impediments in the bank's financial statement as unveiled to the public, which was under the supervision of the Bank of Ghana. The available information for the study periods of 2013 and 2018 was difficult to come by. The management of Savings and Loans Company felt reluctant to provide their annual report, making it difficult to draw generalised conclusions.

Ethics approval and consent to participate

The manuscript has been consented and ethically approved by the authors.

Consent for publication

The authors agreed to publish the manuscript.

CREDIT AUTHOR STATEMENT

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Availability of data and materials

The datasets used during the current study are available from the corresponding author on reasonable request.

Abbreviation

BoG	Bank of Ghana
S&LC	Savings and Loans Companies

UNDP	Human Development Report
SDI	Specialized Deposit-Taking Institution
PNDC	Provisional National Defence Council
GHASALC	Ghana Association of Savings and Loans Companies
LSDV	Least Squares Dummy Variable

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