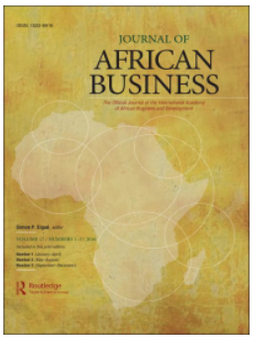

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Debt Financing, Information Sharing, and Profitability: Evidence from Listed Firms from an Emerging Economy

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ABSTRACT

This study investigates how credit information sharing conditions debt financing to boost the profitability of 20 listed enterprises on the Ghana Stock Exchange between 2003 and 2013. We employ robust least squares and simultaneous bootstrapping models in a panel setting. Our findings show that the impact of debt financing on profitability increases when it is subject to information sharing and takes the shape of short, long, and total debts. In the worst-case situation, contingent debt financing reduces the negative impact of debt financing on profitability. Therefore, authorities must adopt laws and legislation that deepen, widen, and strengthen credit information sharing to offset the negative impact of information asymmetry on loan financing and business profitability.

KEYWORDS

Credit information sharing; debt financing; profitability; listed firms; Ghana

1. Introduction

Every sort of corporate entity, including financial and non-financial, listed and unlisted, local and foreign, state-owned and privately owned firms, must make financial decisions, even if the purposes of capital structures or financing decisions differ from one another. According to Amidu (2007), nonfinancial organizations make capital structure decisions primarily to sustain the financing of machinery, plants, and equipment to support the pursuit of new and current businesses. Financial firms, on the other hand, require capital structure decisions to provide liquidity support to their clients through loans and advances. A major problem preventing corporate entities from getting financing at a reduced rate or cost from the debt or credit market is information asymmetry. According to Ross et al. (2008), the financial market's information asymmetry impedes the concept of an optimal capital structure, which requires integrating financing options at the lowest possible cost. In other words, the availability of asymmetric information between borrowers (including business entities) and finance providers raises the cost of external funding (especially debt finance providers). This prevents value creation or corporate profit maximization, which is accomplished by combining financing choices at the lowest financing cost possible (Kusi et al., 2021). As a result, information asymmetry increases the riskiness and uncertainty associated with external funding, raising

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the cost of external financing. Similar to this, the pecking order theory supports this assertion because it predicts that firms will initially rely on internally generated funds (in the form of undistributed earnings), where there is no information asymmetry, before turning to external funding (debt and equity financing), where there is information asymmetry, to fulfill their capital needs. Corporate entities make these financing decisions due to the greater cost of external credit caused by information asymmetry.

Based on this, we argue that minimizing information asymmetry may strengthen debt financing choices to enhance the impact of debt financing on the profitability of shareholders and stakeholders. According to earlier research (see Freimer & Gordon, 1965; Freixas & Rochet, 1997; Greenwald et al., 1984; Stiglitz & Weiss, 1981), credit information sharing in the financial market can be used to control asymmetric information. We acknowledge the recent empirical studies on how credit information sharing improves the lending activities of finance providers or lenders (Al-Shatnawi et al., 2021; Kusi & Opoku-mensah, 2018; Kusi et al., 2016a, 2017; Kusi et al., 2015; Boateng et al., 2018; Fosu et al., 2020; Tchamyou & Asongu, 2017; Tchamyou, 2019). However, there is scant data in the literature currently available about how credit information sharing enhances corporate borrowers' loan financing structures and how this influences the goal of profit maximization. In this paper, we argue that credit information exchange ensures debt financing is edified, sanitizes debt financing structure by minimizing risks and uncertainties, and improves corporate entity performance. We contend explicitly that credit information sharing serves as a conduit via which the debt financing structures of corporate entities may promote the maximization of shareholder and stakeholder interests. As a result, we introduce credit information sharing (which decreases information asymmetry) to provide evidence on how the debt financing structure of corporate entities is enhanced by credit information sharing to boost profitability in an emerging financial market. We add to the body of knowledge on shareholder and stakeholder profitability (see Kusi & Opoku-mensah, 2018; Kusi et al., 2017) by presenting data on the effects of edified debt financing structures on corporate entities' ability to generate profits for themselves and their stakeholders. Additionally, we investigate whether the conduit character of credit information exchange encourages debt financing in this financial system. The rest of the paper is organized into the literature review, methodology, empirical findings and discussions, robustness checks and diagnostics, and conclusions and policy recommendations.

2. Literature review

2.1 Theoretical foundation

Credit registries generally referred to as "credit agencies" or "information sharing offices," are organizations whose primary function is to gather data about the financial dealings of businesses and people. Information sources could include public sources like yearly reports, as well as banking data and credit card information (for consumers and merchants). The information is incorporated in a report that may be used by both current and potential creditors after being verified and cross-checked. According to Tchamyou (2019) such information can be both favorable (such as payment behavior) and negative (such as default rates) and are crucial for economic growth because they

lessen the asymmetry of information. The information asymmetry theory (Freixas & Rochet, 1997; Greenwald et al., 1984), suggests that lenders will either over- or under-price the cost of money supplied to businesses or borrowers, with the former typically happening most frequently. Thus, the cost of debt financing rises because of a lack of transparency and the credit market's opaqueness, which in turn lowers the use of debt financing choices due to high costs.

Two primary theoretical foundations for the connections between financial access and information sharing have been recorded, according to Claus and Grimes (2003). The first discusses the avenues via which banks could boost their liquidity, while the second focuses on changing the characteristics of hazards connected to the banking system. Additionally, these two components of the literature support the notion that a bank's primary function is financial intermediation, which involves turning deposits into credits for economic agents (such as investors and households). The pecking order theory is another important theory that tries to grasp capital structure and the costs associated with it. The theory contends that organizations favor internally generated funds over debt and equity financing because information asymmetry tends to raise the cost of debt and equity financing, which discourages the use of these financing choices (debt and equity) other than internally generated funds. This is evidence that the use of the debt financing option is impacted by knowledge asymmetry. There are two layers to the interaction between debt financing and information sharing: moral hazard from borrowers and adverse selection from lenders. Credit registries give lenders access to financial data, particularly the credit histories of consumers, enabling them to lower excessive interest rates, which are frequently prompted by adverse selection. Borrowers face moral hazard when a loan is given because they may conceal the financial actions on which the loan is obtained.

2.2 Empirical review

Several studies have investigated how the debt financing structure of corporate entities affects performances. For example, Kusi et al. (2021) use a panel dataset of 20 listed non-financial enterprises on the Ghana Stock Exchange to explore the impact of credit information sharing on the debt financing structure between 2003 and 2013. Their results reveal that while the factor determinants simultaneously discourage long-term debt financing choices, information sharing, and coverage quality favorably support short-term debt financing possibilities. Fosu et al. (2020) examine whether exchanging credit information can lower loan default rates for banks with operations in emerging nations. They discover three novel conclusions using a sizable dataset that spans 879 distinct banks from 87 developing nations across every continent over a 9-year period (i.e. over 6300 observations). First, they discover that sharing credit information lowers the rate of loan default. Second, banking market concentration is a necessary condition for the association between credit information sharing and loan default rate. Thirdly, the influence of credit information sharing on loan default rates is not strongly moderated by the quality of governance at the national level.

Tchamyou (2019) uses the interactive Generalized Method of Moment to assess how information sharing moderates financial access and income disparity in 48 African nations between 2004 and 2014. The paper concluded from the findings that: first,

a threshold of 18.072% coverage of public credit registries is needed to counteract the unconditionally positive effect of banking system efficiency. Second, both the unconditional and the conditional effects on the contribution of private credit bureaus to financial depth are negative, suggesting a negative synergy. Information sharing was proxied with private credit bureaus and public credit registries. Overall, the findings show that contingent on the type of financial development dynamic, credit registries broadly play their theoretical role of decreasing financing constraints to ultimately reduce inequality.

Lee et al. (2021) examined the causes of corporate financing behavior using quarterly data from China's publicly traded enterprises from 2013Q1 to 2017Q3 via the channels of firm-level features, country-level factors, and policy-related risks. The analysis employs multidimensional measures of policy-related risks, such as economic policy uncertainty, geopolitical risk, and political risk. It also determines whether there are differences in the correlations between financing activities and policy-related risks when using debt financing and equity financing. According to the empirical results, policy-related risks can have a negative impact on company financing decisions. Policy-related risk has a greater impact on debt financing than it does on equity financing. Evidence also suggests that important drivers that influence corporate finance decisions include both firm- and country-level variables. Kodongo, Mokoaleli-Mokoteli, and Maina (2015) investigate the relationship between leverage (debt financing) and the performance of Kenyan listed enterprises. They discover solid evidence supporting a large negative link between leverage and business profitability but not firm value. Similar to this, Ebaid (2009) experimentally investigated the effect of capital structure decisions on Egyptian firm performance. The findings indicate that leverage has different effects on company performance, ranging from weak to none, showing that the effect of debt financing choices on performance is complex and unclear.

Furthermore, Nhung and Okuda (2015) investigate the impact of capital structure on the profitability of companies listed on the Ho Chi Minh and Hanoi Stock Exchanges in Vietnam. The findings show that business borrowings (debt financing) are excessive due to poor corporate governance in the form of insufficient supervision by creditors. Furthermore, state-controlled businesses have an advantage over private businesses in terms of borrowing and profit. Jaisinghani and Kanjilal (2017) investigate the non-linear link between capital structure and business performance in India's manufacturing industry. They used Hansen's (1999) threshold effect model to demonstrate that the varied regimes in which capital structure differentially influences profitability are dependent on company size.

Dierkes et al. (2013) use data from 2002 to 2005 to study whether and how business credit information sharing helps to better assess the default risk of private enterprises in Germany. They employ a probit model of 25,344 private enterprises and find that sharing information enhances the accuracy of default prediction, particularly for limited liability firms. This means that in the presence of information exchange, debt finance consumers tend to employ debt financing choices effectively. As a result, the literature appears to be inconclusive. We contribute to the existing debate about how credit information sharing improves debt financing structures and impacts company performance in Ghana. To put it another way, we hypothesize that credit information sharing may serve as a conduit via

which the potency of debt financing in increasing business performance is improved, based on the theories and empirical evidence discussed.

3. Methodology

The empirical model to be evaluated is based on Kusi et al. (2021) and Tchamyou (2019). Specifically, we alter the static model proposed by Kusi et al. (2021) to describe an unconditional fixed effect model, as demonstrated by Equation (1). We then follow Tchamyou (2019) to estimate the interaction or conditional model stated in Equation (2). The equations of interest are specified as follows.

$$Prof_{it} = \beta_1 + \beta_2 CAPSTRU_{it} + \beta_3 CIS_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 LIQUID_{it} + \beta_7 RISK_{it} + \beta_8 MARKSHARE_{it} + \beta_9 AGE_{it} + f_i + \varepsilon_{it} \quad (1)$$

$$Prof_{it} = \beta_1 + \beta_2 CAPSTRU_{it} + \beta_3 CIS_{it} + \beta_4 [CAPSTRU * CIS]_{it} + \beta_5 SIZE_{it} + \beta_6 GROWTH_{it} + \beta_7 LIQUID_{it} + \beta_8 RISK_{it} + \beta_9 MARKSHARE_{it} + \beta_{10} AGE_{it} + f_i + \varepsilon_{it} \quad (2)$$

Where *Prof* represents shareholder and stakeholder profitability measured with return on equity (ROE) and return on asset (ROA); CAPSTRU represents capital structure and is captured as the ratio of total debts (TLEV), short-term (SLEV), and long-term leverage (LLEV) to assets; CIS represents credit information sharing; SIZE represents firm size; GROWTH represents sales growth; LIQUID represents firm liquidity; RISK represents earnings variability; MARKSHARE represents the market share of a firm; AGE represents the firm age. Subscripts $i = 1, \ldots, N$ denotes the cross-sectional dimension of firms, and $t = 1, \ldots, T$ denotes the time series dimension; f_i is the firm-specific-fixed effect; β_i are the parameters to be estimated; ε_{it} is the error term assumed to be independent and identically distributed (iid). The variable choice followed previous studies including Batra and Kalia (2016), Qureshi and Yousaf (2014), Asimakopoulos, Samitas, and Papadogonas (2009), and Al-Shatnawi et al. (2021).

3.1 Data description

The data for the study came from the audited annual financial statements of twenty (20) Ghana Stock Exchange-listed companies from 2003 to 2013. Based on restrictions on data availability, periodicity was chosen. The sample begins in 2003 since it was the first fiscal year in which listed corporations were required by law to disclose their annual financial report. Also, data on information sharing from WDI is only accessible from 2004 to 2013, with a jump to 2019 as the most recent. So, to guarantee a balanced panel, we remain with the chosen time frame of 2003 to 2013. Table 1 provides a detailed summary of the variable description and data source.

Table 2 shows the summary statistics for the variables used in this investigation. Outliers, which have the potential to alter the consistency, efficiency, and biasness of coefficients, were not found in the dataset based on the summary statistics. The Shapiro-Wilk's normality test is used to determine whether the data are normal. Thus, the

Table 1. Summary of Variables.

Variable	Measurement	Source	Expected Sign and Theory
ROE	Net Profit/total equity	Computed by authors based on data from audited financial statements	
ROA	Earnings before interest and tax/total assets	Computed by authors based on data from audited financial statements	
Capital Structure:			
TLEV	Total debts/total assets	Computed by authors based on data from audited financial statements	-/+
LLEV	Long-term debts/total assets	Computed by authors based on data from audited financial statements	-/+
SLEV	Short-term debts/total assets	Computed by authors based on data from audited financial statements	-/+
Info_Coverage	Percentage of population that have their information captured in the database of information sharing institutions	World Development Indicators	+
SIZE	Natural log of total assets	Computed by authors based on data from audited financial statements	±
GROWTH	Year on year changes in sales	Computed by authors based on data from audited financial statements	±
LIQUID	Current assets/current liabilities	Computed by authors based on data from audited financial statements	±
RISK	Volatilities in operating profits	Computed by authors based on data from audited financial statements	-/+
Marketshare	Sales of firm/total sales of industry	Computed by authors based on data from audited financial statements	-/+
Age	Years of listing	Computed by authors based on data from audited financial statements	+/+

Table 2. Summary Statistics.

Variable	Obs	Mean	Min	Max	SWILK
roa	172	0.053	−0.909	0.392	6.986***
roe	173	0.082	−0.892	0.651	4.858***
info_coverage	198	0.038	0.000	0.210	7.001***
tlev	175	0.524	0.045	0.994	3.355***
llev	176	0.546	−0.381	0.955	2.983***
slev	174	0.445	0.045	0.889	2.739***
size_sales	195	16.738	9.009	20.986	2.852***
growth_ta	150	0.144	−0.999	0.895	3.638***
liq	196	1.640	0.036	9.857	9.016***
risk	176	0.664	−68.164	78.005	10.195***
marketshares	190	0.099	0.000	0.944	9.401***
age	198	10.586	1.000	26.000	4.556***

Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Shapiro-Wilk's test has a null hypothesis of no normal distribution, which was rejected for all variables, suggesting that the variables were all normally distributed around their means. Similarly, the variance inflation factor (VIF) (see Appendix 1) is computed to show the acceptability of each variable in the model and shows that all variables are fit and accepted to be in the model given that their VIF values are less than the VIF maximum threshold of 10.

Interestingly, while total loans to assets average 52.4% of total capital structure, short-term debts to assets average 44.55% and long-term debts to assets average 54.6%, showing that firms on the Ghana Stock Exchange used more debt financing than equity between the years under examination. Firms tend to rely increasingly on long-term debt funding. The average information sharing coverage in Ghana is 3.81%, meaning that only 3.81% of the population has had their data or information collected by credit information sharing institutions. As a result, information sharing coverage is low and must be enhanced. Profitability as evaluated by ROE and ROA is on average 8.20% and 5.3%, respectively, while growth, as defined by asset growth, is on average 14.4%. Size is a recorded variable with a value 16.74. This result indicates that the firm's size increased around 16.62 times during the study period. Liquidity is 1.64 on average, showing that for every current liability created, there are 1.64 current assets to settle it, indicating that enterprises have sufficient liquidity to satisfy current liabilities. Pearson's correlation matrix (see Table 3) that serves as a mechanism for checking and controlling multicollinearity is shown in Table 3. The results presented in Table 3 show no evidence of multicollinearity.

4. Empirical results

Tables 4–9 offer empirical findings on how credit information sharing acts as a conduit to improve the influence of debt financing on profitability in Ghanaian listed enterprises. Each table displays the results of various estimating methodologies. For robust checking Tables 7 to 12 exhibit findings using simultaneous bootstrap quantile regression models, whereas Tables 4, 5 , and 6 present results using fixed effect, random effect, and ordinary least squares models, respectively. There is consistency seen across the fixed (see Models 1–3 and Models 7–9), random (see Models 13–15 and Models 19–21), and ordinary least squares (see Models 25–27 and Models 31–33) models.

The findings indicate that debt financing in the form of short, long, and total indebtedness has a negative significant influence on the profitability of Ghanaian listed enterprises, as indicated in columns 21–24 of Table 5 and 33–36 of Table 6. This implies that a firm's profit eventually decreases because of financing with debt. This result is in line with those reported by Ebaid (2009) and Kodongo et al. (2015), who noted a comparable adverse effect in Egypt and Kenya, respectively. Credit information sharing, on the other hand, has a mixed bag of positive and negative effects on profitability. In the short term, we observed a positive influence, as seen in Column 3 of Table 4, Column 16 of Table 5, and Column 28 of Table 6, and a negative nexus in the long run, as seen in Models 16 and 29. This confirms previous findings by Kusi et al. (2021) that information sharing coverage promotes the use of short-term debts while decreasing the usage of long-term debts for listed enterprises in Ghana.

When debt financing is interacted with or conditioned on credit information sharing, we discover a substantial positive interaction for short-term and total debt financing but

Table 3. Pearson's Correlation.

	roa	roe	info_cover~e	tlev	Llev	slev	size_sales	growth_ta	liq	risk	marketshar~s	age
roa	1											
roe	0.5112*	1										
info_cover~e	0.0024	0.1283*	1									
tlev	−0.3783*	−0.0659	0.088	1								
llev	0.2729*	0.0071	−0.0958	−0.7638*	1							
slev	−0.2729*	0.0846	0.0956	0.7971*	−1.0000*	1						
size_sales	0.3352*	0.3339*	0.1201*	0.2079*	−0.2141*	0.2829*	1					
growth_ta	0.4404*	0.3722*	−0.1424*	−0.017	0.0833	−0.0904	0.2522*	1				
liq	0.3342*	0.1418*	−0.0382	−0.6746*	0.6324*	−0.6456*	−0.0499	0.1534*	1			
risk	0.0280	0.0416	−0.0718	−0.1497*	0.1195	−0.1275	−0.0123	0.0808	0.0692	1		
marketshar~s	0.1091	0.0484	−0.0852	0.2480*	−0.3018*	0.3480*	0.5412*	−0.0284	−0.1436*	−0.0417	1	
age	0.1801*	0.1972*	0.2523*	0.1428*	−0.2329*	0.2060*	0.3917*	−0.1157	−0.3277*	−0.0217	0.2495*	1

Significant Level: * $p < 0.1$.

Table 4. Robust Fixed Effect – Impact of Capital Structure and Information Sharing Coverage on Profitability.

VARIABLES	Model 1 ROE	Model 2 ROE	Model 3 ROE	Model 4 ROE	Model 5 ROE	Model 6 ROE	Model 7 ROA	Model 8 ROA	Model 9 ROA	Model 10 ROA	Model 11 ROA	Model 12 ROA
Slev	0.321			0.213			−0.0174			−0.0179		
	(0.224)			(0.211)			(0.124)			(0.120)		
Llev		−0.114			−0.00739			0.0174			0.0179	
		(0.218)			(0.223)			(0.124)			(0.120)	
Tlev			−0.109			−0.192			−0.0379			−0.0301
			(0.378)			(0.357)			(0.0679)			(0.0669)
Coverslev				1.826**						0.00839		
				(0.742)						(0.373)		
Coverllev					−1.603*						−0.00839	
					(0.782)						(0.373)	
Covertlev						1.762*						−0.118
						(0.934)						(0.275)
info_coverage	0.530**	0.549**	0.505*	−0.282	1.440***	−0.385	0.149	0.149	0.0551	0.145	0.154	0.119
	(0.191)	(0.192)	(0.244)	(0.411)	(0.435)	(0.534)	(0.113)	(0.113)	(0.113)	(0.170)	(0.265)	(0.142)
size_sales	0.196**	0.247***	0.230***	0.175*	0.231***	0.216**	0.146***	0.146***	0.132***	0.146***	0.146***	0.133***
	(0.0798)	(0.0671)	(0.0721)	(0.0847)	(0.0748)	(0.0769)	(0.0228)	(0.0228)	(0.0251)	(0.0248)	(0.0248)	(0.0267)
growth_ta	0.259**	0.223*	0.241**	0.266**	0.227*	0.245**	0.105	0.105	0.0583	0.105	0.105	0.0573
	(0.119)	(0.119)	(0.0986)	(0.118)	(0.119)	(0.0979)	(0.0696)	(0.0696)	(0.0432)	(0.0699)	(0.0699)	(0.0447)
Liq	0.0411**	0.0295*	0.0202	0.042***	0.0299**	0.0237	0.0269***	0.0269***	0.0223***	0.0269***	0.0269***	0.0221***
	(0.0162)	(0.0143)	(0.0146)	(0.0145)	(0.0137)	(0.0146)	(0.00882)	(0.00882)	(0.00755)	(0.00889)	(0.00889)	(0.00768)
Risk	0.000644	0.000405	7.18e-05	0.000419	0.000195	−0.000225	−0.000329	−0.000329	−0.000205	−0.000330	−0.000330	−0.000176
	(0.00106)	(0.00107)	(0.00125)	(0.00102)	(0.00102)	(0.00104)	(0.000489)	(0.000489)	(0.000407)	(0.000487)	(0.000487)	(0.000430)
marketshare_sales	−0.253	−0.236	−0.201	−0.227	−0.212	−0.184	0.0416	0.0416	0.00185	0.0418	0.0418	0.000146
	(0.149)	(0.160)	(0.162)	(0.142)	(0.154)	(0.156)	(0.0758)	(0.0758)	(0.0439)	(0.0756)	(0.0756)	(0.0449)
Age	−0.0343*	−0.0441**	−0.0391**	−0.0310	−0.0417**	−0.0371**	−0.0269***	−0.0269***	−0.0205***	−0.0269***	−0.0269***	−0.0208***
	(0.0190)	(0.0169)	(0.0157)	(0.0206)	(0.0187)	(0.0174)	(0.00522)	(0.00522)	(0.00464)	(0.00549)	(0.00549)	(0.00487)
Constant	−3.135**	−3.659***	−3.419***	−2.762**	−3.474***	−3.173***	−2.191***	−2.209***	−1.974***	−2.190***	−2.208***	−2.004***
	(1.099)	(0.980)	(0.930)	(1.186)	(1.058)	(1.015)	(0.348)	(0.342)	(0.381)	(0.379)	(0.366)	(0.406)
Observations	127	128	127	127	128	127	128	128	127	128	128	127
R-squared	0.375	0.371	0.370	0.397	0.387	0.391	0.353	0.353	0.356	0.353	0.353	0.357
Number of ids	20	20	20	20	20	20	20	20	20	20	20	20
Interaction				6.05**	4.20*	3.56*				0.00	0.00	0.19
Net Effect[1]				0.282	−0.068	−0.125				−0.018	0.014	−0.034

Robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5. Robust Random Effect – Impact of Capital Structure and Information Sharing Coverage on Profitability.

VARIABLES	Model 13 ROE	Model 14 ROE	Model 15 ROE	Model 16 ROE	Model 17 ROE	Model 18 ROE	Model 19 ROA	Model 20 ROA	Model 21 ROA	Model 22 ROA	Model 23 ROA	Model 24 ROA
Slev	0.206			0.0615			−0.152			−0.181*		
	(0.151)			(0.159)			(0.111)			(0.0987)		
Llev		0.0996			0.240			0.152			0.181*	
		(0.259)			(0.263)			(0.111)			(0.0987)	
Tlev			−0.189			−0.282			−0.176**			−0.202**
			(0.264)			(0.247)			(0.0871)			(0.0860)
Coverslev				2.450***						0.567		
				(0.591)						(0.424)		
Coverllev					−2.396***						−0.567	
					(0.713)						(0.424)	
Covertlev						2.434*						0.440
						(0.878)						(0.319)
info_coverage	0.297	0.288	0.264	−0.776***	1.656***	−0.939*	0.00835	0.00835	−0.0454	−0.237	0.330	−0.275
	(0.185)	(0.222)	(0.254)	(0.286)	(0.433)	(0.489)	(0.153)	(0.153)	(0.142)	(0.252)	(0.260)	(0.208)
size_sales	0.0347**	0.0492**	0.0529**	0.0265*	0.0385*	0.0448*	0.0149	0.0149	0.0227**	0.0136	0.0136	0.0207**
	(0.0152)	(0.0205)	(0.0253)	(0.0144)	(0.0203)	(0.0242)	(0.00967)	(0.00967)	(0.00907)	(0.00960)	(0.00960)	(0.00936)
growth_ta	0.368***	0.338***	0.343***	0.377***	0.350***	0.353***	0.192**	0.192**	0.135**	0.192**	0.192**	0.140**
	(0.122)	(0.124)	(0.113)	(0.122)	(0.123)	(0.113)	(0.0786)	(0.0786)	(0.0581)	(0.0783)	(0.0783)	(0.0599)
Liq	0.0483***	0.0298	0.0224	0.0497***	0.0306	0.0262	0.0308***	0.0308***	0.0248***	0.0309***	0.0309***	0.0252***
	(0.0171)	(0.0202)	(0.0165)	(0.0165)	(0.0215)	(0.0171)	(0.00900)	(0.00900)	(0.00716)	(0.00896)	(0.00896)	(0.00753)
Risk	0.000648	0.000233	−4.11e-05	0.000446	5.68e-05	−0.000327	−0.000524	−0.000524	−0.000517	−0.000572	−0.000572	−0.000614
	(0.00124)	(0.00137)	(0.00136)	(0.00120)	(0.00136)	(0.00116)	(0.000530)	(0.000530)	(0.000441)	(0.000497)	(0.000497)	(0.000406)
marketshare_sales	−0.186	−0.145	−0.140	−0.147	−0.0959	−0.109	0.0984	0.0984	0.0418	0.106	0.106	0.0488
	(0.121)	(0.138)	(0.142)	(0.112)	(0.129)	(0.133)	(0.0826)	(0.0826)	(0.0489)	(0.0816)	(0.0816)	(0.0514)
Age	0.00755	0.00442	0.00382	0.0100**	0.00762	0.00604	0.00407	0.00407	0.00369	0.00427	0.00427	0.00416
	(0.00516)	(0.00548)	(0.00625)	(0.00490)	(0.00544)	(0.00611)	(0.00340)	(0.00340)	(0.00335)	(0.00346)	(0.00346)	(0.00345)
Constant	−0.854***	−1.003**	−0.891***	−0.687***	−0.944**	−0.741**	−0.277*	−0.428***	−0.349***	−0.246	−0.427***	−0.308**
	(0.201)	(0.414)	(0.305)	(0.199)	(0.405)	(0.297)	(0.159)	(0.150)	(0.134)	(0.155)	(0.147)	(0.137)
Observations	127	128	127	127	128	127	128	128	127	128	128	127
Number of ids	20	20	20	20	20	20	20	20	20	20	20	20
R-Squared	0.300	0.261	0.269	0.327	0.276	0.291	0.222	0.222	0.224	0.223	0.223	0.223
Interaction				17.17***	11.28***	7.70***				1.79	1.79	1.90
Net Effect				0.153	0.218	0.190				−0.159	0.159	0.185

Robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6. Robust Ordinary Least Square – Impact of Capital Structure and Information Sharing Coverage on Profitability.

VARIABLES	Model 25 ROE	Model 26 ROE	Model 27 ROE	Model 28 ROE	Model 29 ROE	Model 30 ROE	Model 31 ROA	Model 32 ROA	Model 33 ROA	Model 34 ROA	Model 35 ROA	Model 36 ROA
Slev	0.173			0.00196			−0.149			−0.196*		
	(0.128)			(0.142)			(0.0960)			(0.106)		
Llev		0.0985			0.266			0.149			0.196*	
		(0.229)			(0.238)			(0.0960)			(0.106)	
Tlev			−0.150			−0.279			−0.210***			−0.245***
			(0.161)			(0.173)			(0.0740)			(0.0825)
coverslev				3.039***						0.872		
				(0.790)						(0.698)		
coverllev					−2.930***						−0.872	
					(0.865)						(0.698)	
covertlev						3.031***						0.710
						(0.948)						(0.537)
info_coverage	0.402*	0.444	0.438	−0.941**	2.080***	−1.097**	0.0559	0.0559	0.0228	−0.325	0.547	−0.352
	(0.238)	(0.272)	(0.283)	(0.421)	(0.548)	(0.433)	(0.163)	(0.163)	(0.154)	(0.308)	(0.455)	(0.290)
size_sales	0.0186	0.0301**	0.0336**	0.0146	0.0263*	0.0312*	0.00181	0.00181	0.0111	0.000965	0.000965	0.0102
	(0.0124)	(0.0149)	(0.0168)	(0.0120)	(0.0147)	(0.0166)	(0.00931)	(0.00931)	(0.00759)	(0.00911)	(0.00911)	(0.00748)
growth_ta	0.402***	0.374***	0.380***	0.403***	0.375***	0.385***	0.244***	0.244***	0.195***	0.242***	0.242***	0.197***
	(0.103)	(0.106)	(0.107)	(0.0993)	(0.103)	(0.104)	(0.0759)	(0.0759)	(0.0571)	(0.0756)	(0.0756)	(0.0572)
Liq	0.0557***	0.0347*	0.0271*	0.0559***	0.0347*	0.0305*	0.0348***	0.0348***	0.0219***	0.0348***	0.0348***	0.0223***
	(0.0148)	(0.0203)	(0.0162)	(0.0151)	(0.0204)	(0.0163)	(0.00779)	(0.00779)	(0.00792)	(0.00777)	(0.00777)	(0.00787)
Risk	0.000777	0.000380	0.000150	0.000514	0.000123	−0.000240	−0.000693	−0.000693	−0.000895*	−0.000761	−0.000761	−0.00102**
	(0.00150)	(0.00164)	(0.00150)	(0.00137)	(0.00154)	(0.00127)	(0.000613)	(0.000613)	(0.000526)	(0.000583)	(0.000583)	(0.000509)
marketshare_sales	−0.147	−0.0825	−0.0776	−0.110	−0.0457	−0.0578	0.126	0.126	0.0675	0.136	0.136	0.0743
	(0.126)	(0.135)	(0.136)	(0.120)	(0.131)	(0.133)	(0.0848)	(0.0848)	(0.0517)	(0.0857)	(0.0857)	(0.0523)
Age	0.0149***	0.0112**	0.00986**	0.0157***	0.0118***	0.0104**	0.00854***	0.00854***	0.00646***	0.00865***	0.00865***	0.00664***
	(0.00370)	(0.00449)	(0.00431)	(0.00366)	(0.00449)	(0.00433)	(0.00229)	(0.00229)	(0.00222)	(0.00230)	(0.00230)	(0.00226)
Constant	−0.662***	−0.770***	−0.670***	−0.534***	−0.814***	−0.577**	−0.118	−0.267**	−0.163	−0.0853	−0.281**	−0.134
	(0.167)	(0.285)	(0.227)	(0.163)	(0.283)	(0.226)	(0.144)	(0.135)	(0.109)	(0.141)	(0.135)	(0.108)
Observations	127	128	127	127	128	127	128	128	127	128	128	127
R-squared	0.396	0.354	0.359	0.428	0.382	0.391	0.437	0.437	0.469	0.443	0.443	0.476
Interaction				14.81***	11.48***	10.23***				1.56	1.56	1.74
Net Effect				0.135	0.155	−0.164				−0.163	0.229	−0.218

Robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7. Simultaneous Bootstrap Quantile Model – Effect of Short-Term Capital Structure and Information Sharing Coverage on Profitability.

VARIABLES	Model 37 ROE	Model 38 ROE	Model 39 ROE	Model 40 ROE	Model 41 ROE	Model 42 ROE	Model 43 ROE	Model 44 ROE	Model 45 ROE
Slev	0.0632	0.00136	−0.164	−0.193	−0.113	−0.0428	−0.0222	−0.153	−0.110
	(0.385)	(0.271)	(0.221)	(0.201)	(0.189)	(0.132)	(0.127)	(0.130)	(0.150)
Coverslev	3.770*	4.051	2.983*	2.483*	2.584**	2.585**	2.110***	2.367***	2.036***
	(2.111)	(2.503)	(1.622)	(1.308)	(1.177)	(1.000)	(0.796)	(0.498)	(0.684)
info_coverage	−0.708	−1.008	−0.982	−0.733	−0.759	−0.775	−0.617	−0.821***	−0.831**
	(0.941)	(1.329)	(0.840)	(0.605)	(0.533)	(0.503)	(0.474)	(0.298)	(0.329)
size_sales	−0.0115	0.00108	0.0492*	0.0477**	0.0250*	0.0213**	0.0126	0.00929	0.000724
	(0.0341)	(0.0330)	(0.0250)	(0.0189)	(0.0133)	(0.00868)	(0.00926)	(0.00876)	(0.00908)
growth_ta	0.590***	0.467***	0.397***	0.380***	0.392***	0.345***	0.351***	0.303***	0.267***
	(0.217)	(0.149)	(0.130)	(0.143)	(0.103)	(0.0741)	(0.0716)	(0.0614)	(0.0824)
Liq	0.0656***	0.0718***	0.0424	0.0289	0.0254	0.0310*	0.0313	0.0164	0.00185
	(0.0233)	(0.0198)	(0.0295)	(0.0262)	(0.0227)	(0.0187)	(0.0202)	(0.0189)	(0.0131)
Risk	0.00254	0.00132	−6.23e-05	−0.00127	−0.00164	−0.00142	−0.00123	−0.000570	3.85e-05
	(0.00846)	(0.0123)	(0.0133)	(0.0102)	(0.0108)	(0.0129)	(0.0126)	(0.0152)	(0.0155)
marketshare_sales	−0.0963	−0.156	−0.143	−0.117	−0.117	−0.134	−0.0711	−0.0995	−0.0353
	(0.202)	(0.175)	(0.186)	(0.201)	(0.209)	(0.182)	(0.160)	(0.158)	(0.0952)
Age	0.0228**	0.0199***	0.0120	0.00540	0.00853*	0.00863***	0.0111***	0.0127***	0.0138***
	(0.00916)	(0.00739)	(0.00914)	(0.00722)	(0.00453)	(0.00327)	(0.00334)	(0.00372)	(0.00258)
Constant	−0.509	−0.571	−1.062***	−0.862***	−0.476**	−0.425***	−0.291*	−0.103	0.117
	(0.506)	(0.417)	(0.329)	(0.269)	(0.224)	(0.152)	(0.152)	(0.157)	(0.165)
Observations	127	127	127	127	127	127	127	127	127
Pseudo R-Squared	0.365	0.336	0.276	0.274	0.260	0.265	0.253	0.247	0.280
Interaction	1.28	5.46**	2.08	2.33	3.69*	8.32***	2.85*	3.37*	4.81**
Net Effect	0.206	0.155	−0.051	−.0.099	−0.015	0.055	0.058	−0.063	−0.033

Standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8. Simultaneous Bootstrap Quantile Model – Effect of Long-Term Capital Structure and Information Sharing Coverage on Profitability.

VARIABLES	Model 46 ROE	Model 47 ROE	Model 48 ROE	Model 49 ROE	Model 50 ROE	Model 51 ROE	Model 52 ROE	Model 53 ROE	Model 54 ROE
Llev	−0.0632	−0.00136	0.164	0.193	0.113	0.0428	0.0222	0.153	0.110
	(0.216)	(0.229)	(0.205)	(0.224)	(0.153)	(0.122)	(0.135)	(0.126)	(0.217)
Coverslev	3.770	4.051**	2.983**	2.483**	2.584***	2.585***	2.110***	2.367***	2.036***
	(3.194)	(1.796)	(1.242)	(1.197)	(0.958)	(0.913)	(0.729)	(0.723)	(0.762)
info_coverage	−0.708	−1.008	−0.982	−0.733	−0.759*	−0.775**	−0.617	−0.821***	−0.831**
	(1.041)	(0.904)	(0.598)	(0.575)	(0.383)	(0.358)	(0.396)	(0.301)	(0.321)
size_sales	−0.0115	0.00108	0.0492**	0.0477**	0.0250	0.0213*	0.0126	0.00929	0.000724
	(0.0291)	(0.0262)	(0.0240)	(0.0223)	(0.0184)	(0.0116)	(0.0108)	(0.00981)	(0.0127)
growth_ta	0.590***	0.467***	0.397**	0.380***	0.392***	0.345***	0.351***	0.303**	0.267*
	(0.162)	(0.144)	(0.159)	(0.136)	(0.103)	(0.0930)	(0.0863)	(0.141)	(0.148)
Liq	0.0656***	0.0718***	0.0424	0.0289	0.0254	0.0310	0.0313	0.0164	0.00185
	(0.0181)	(0.0222)	(0.0257)	(0.0316)	(0.0277)	(0.0237)	(0.0253)	(0.0240)	(0.0308)
Risk	0.00254	0.00132	−6.23e-05	−0.00127	−0.00164	−0.00142	−0.00123	−0.000570	3.85e-05
	(0.00931)	(0.00683)	(0.00760)	(0.00929)	(0.00587)	(0.00239)	(0.00251)	(0.00400)	(0.00852)
marketshare_sales	−0.0963	−0.156	−0.143	−0.117	−0.117	−0.134	−0.0711	−0.0995	−0.0353
	(0.148)	(0.148)	(0.165)	(0.176)	(0.167)	(0.147)	(0.171)	(0.187)	(0.251)
Age	0.0228**	0.0199**	0.0120	0.00540	0.00853*	0.00863***	0.0111***	0.0127***	0.0138***
	(0.00873)	(0.00784)	(0.00817)	(0.00685)	(0.00496)	(0.00300)	(0.00269)	(0.00345)	(0.00253)
Constant	−0.446	−0.569	−1.226***	−1.055***	−0.589*	−0.468**	−0.313*	−0.256	0.00708
	(0.433)	(0.399)	(0.345)	(0.386)	(0.334)	(0.188)	(0.189)	(0.181)	(0.251)
Observations	127	127	127	127	127	127	127	127	127
Pseudo R-Squared	0.271	0.313	0.271	0.250	0.252	0.253	0.242	0.239	0.271
Interaction test	2.39	3.33*	2.39	2.50	4.29**	4.78**	2.74	3.33*	4.71**
Net Effect	0.080	0.153	0.277	0.287	0.211	0.141	0.102	0.243	0.187

Standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 9. Simultaneous Bootstrap Quantile Model – Effect of Total Debt Capital Structure and Information Sharing Coverage on Profitability.

VARIABLES	Model 55 ROE	Model 56 ROE	Model 57 ROE	Model 58 ROE	Model 59 ROE	Model 60 ROE	Model 61 ROE	Model 62 ROE	Model 63 ROE
Tlev	−0.788**	−0.557***	−0.576***	−0.533***	−0.240	−0.128	−0.0347	0.202	−0.0205
	(0.306)	(0.200)	(0.152)	(0.107)	(0.188)	(0.167)	(0.147)	(0.132)	(0.111)
Coverslev	5.077**	4.871**	3.414**	2.654**	2.739***	2.745***	2.181***	1.187	1.791**
	(2.545)	(1.898)	(1.630)	(1.138)	(0.975)	(0.699)	(0.738)	(0.775)	(0.834)
info_coverage	−1.811	−1.863	−1.108	−0.661	−0.757	−0.781**	−0.638	−0.276	−0.720
	(1.458)	(1.191)	(1.087)	(0.600)	(0.600)	(0.394)	(0.424)	(0.413)	(0.445)
size_sales	0.0483	0.0515**	0.0627***	0.0558***	0.0286**	0.0214***	0.0139	0.00401	0.00189
	(0.0420)	(0.0253)	(0.0181)	(0.0147)	(0.0140)	(0.00807)	(0.0107)	(0.00947)	(0.00868)
growth_ta	0.392***	0.438***	0.434***	0.565***	0.410***	0.377***	0.387***	0.278**	0.253**
	(0.132)	(0.0881)	(0.112)	(0.110)	(0.0921)	(0.0522)	(0.0747)	(0.118)	(0.114)
Liq	0.0152	0.0194	0.00483	−0.00171	0.0162	0.0201	0.0285	0.0470**	0.0101
	(0.0256)	(0.0221)	(0.0163)	(0.0116)	(0.0173)	(0.0206)	(0.0182)	(0.0218)	(0.0268)
Risk	−0.00121	−0.00139	−0.00199	−0.00234	−0.00138	−0.00117	−0.00131	−0.000618	0.000157
	(0.00460)	(0.00512)	(0.00537)	(0.00530)	(0.00643)	(0.00792)	(0.0103)	(0.0135)	(0.0166)
marketshare_sales	−0.128	−0.229	−0.0121	−0.00971	−0.100	−0.131*	−0.0609	−0.0294	−0.0749
	(0.297)	(0.179)	(0.113)	(0.0986)	(0.0796)	(0.0733)	(0.104)	(0.144)	(0.137)
Age	0.0157	0.0128*	0.00770	0.00593	0.00954**	0.00924***	0.00998***	0.0131***	0.0147***
	(0.0110)	(0.00741)	(0.00552)	(0.00547)	(0.00472)	(0.00223)	(0.00339)	(0.00214)	(0.00307)
Constant	−0.845	−0.913**	−0.978***	−0.832***	−0.477***	−0.380***	−0.297**	−0.228	0.0347
	(0.621)	(0.383)	(0.294)	(0.200)	(0.168)	(0.0801)	(0.120)	(0.187)	(0.191)
Observations	126	126	126	126	126	126	126	126	126
Pseudo R-Squared	0.372	0.353	0.313	0.283	0.258	0.254	0.240	0.239	0.264
Interaction test	1.71	2.80*	1.41	2.80*	2.53	3.37*	2.51	0.78	2.41
Net Effect	−0.595	−0.372	−0.446	−0.432	−0.136	−0.024	0.069	0.247	0.047

Standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

a significant negative interaction for long-term debt financing (see Models 4–6; 16–19; and 28–30). This implies that credit information sharing acts as a channel for improving or strengthening the impact of debt financing on corporate profitability. Thus, credit information sharing improves debt financing conditions and has a beneficial influence on profitability. According to Tchamyou (2019), such positive pass-through minimizes information asymmetry, riskiness, and uncertainties associated with debt financing. Our findings also confirm the perspective of Kusi et al. (2021) that information sharing encourages the use of debt financing, but only for short-term, and total debt financing in specific cases. In addition, we compute the net effect of debt financing and credit information sharing on profitability. We find that the positive net effect outweighs the negative net effect, supporting the claim that debt financing is enhanced and well-utilized because of credit information sharing theory, causing a favorable impact on profitability (Asongu & Odhiambo, 2020).

In terms of control variables, we find that firm size improves profitability, supporting the assertion that there are efficiency gains and size advantages resulting from the economies of scale principle (see Lee et al., 2021; Batra & Kalia, 2016; Qureshi & Yousaf, 2014). Similarly, we discover that asset growth promotes profitability. This is consistent with the assertion in finance and accounting that assets are the economic resources of legal entities that help operations improve performance. Again, we demonstrate that liquidity drives profitability, despite the liquidity-profitability trade-off. However, it is argued that liquidity fosters business confidence in firms, attracting more deals and operations and thus improving performance. Finally, we find that age has a positive correlation with profitability. As a result, older companies have experience that can boost their profit performance.

4.1 Robustness checks

We estimate the simultaneous bootstrap quantile models of the short-term, long-term, and overall debt structure to ensure consistency, reliability, and efficiency. These models seek to determine whether level effects are related to debt financing that is contingent on credit information sharing. We find that when debt funding is contingent on credit information sharing, the effect on profitability is positive and significant for nearly all quantiles. Furthermore, the favorable net impacts outweigh the negative effects, supporting earlier findings that conditional debt financing on credit information sharing either enhances the impact of debt on profitability or mitigates the detrimental impact of debt financing on profitability.

5. Conclusion and policy recommendation

This study examines how credit information sharing conditions debt financing to increase the profitability of listed firms on the Ghana Stock Exchange between 2003 and 2013. We use robust ordinary least squares, simultaneous bootstrapped quantile, fixed effect, and random effect models on a panel data set of 20 listed non-financial enterprises in Ghana. Our findings reveal that when debt financing in the form of short, long, and total debts is conditional on information sharing, the effect of debt financing on profitability improves. In the worst-case scenario, debt financing

contingent on credit information exchange mitigates the negative impact of debt financing on profitability. Furthermore, we discover that when debt financing is contingent on credit information sharing, the conditioned debt financing drives the profitability of these listed enterprises at all levels. These findings imply that credit information sharing can mitigate the detrimental impact of debt financing on profitability caused by information asymmetry.

These findings have policy ramifications for Ghanaian leaders and researchers. As a result, governments must establish rules and legislation that deepen, broaden, and improve credit information sharing to mitigate the detrimental impact of information asymmetry on loan financing and business profitability. To promote business performance, lenders must again condition debt financing activities on credit information sharing. Researchers are also urged to investigate the consistency of these findings in order jurisdictions by utilizing different datasets on enterprises in and outside of Ghana.

Note

1 Net Effect = debt financing coefficient + [interactive term coefficient X mean of credit information sharing coverage].

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Appendix 1: Variance Inflation Factor

	ROA	ROE
tlev	2.46	2.49
llev	2.05	1.91
slev	2.05	2.13
liq	1.99	2.54
size_sales	1.79	1.9
marketshar~s	1.72	1.68
age	1.42	1.54
growth_ta	1.15	1.19
info_cover~e	1.14	1.12
risk	1.05	1.07