# Capital Structure Decisions Nexus on Listed Non-Financial Institutions' Performance in Ghana

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*Abstract*: The study examined capital structure decisions nexus on listed non-financial institutions in Ghana using quantitative research approach and secondary data in the form of financial statements obtained from the Ghana Stock Exchange for the period 2014 to 2020.

The study used a sample size of 22 from a population of 33 comprising total non-financial listed institutions on the Ghana Stock Exchange. Financial and insurance institutions totalling 9, were excluded to mitigate any impact of outliers since the financial market is highly regulated with varied set of rules and regulations.

Capital structure was determined using return on capital employed computed from the financial statements of the sampled firms. The findings showed an indirect negative association with debt finance and significant direct association with equity finance with respect to return on capital employed.

The study concluded that capital structure decisions positively affect equity source of finance and thus recommends that listed firms in Ghana should maximize equity funding due to the expensive nature of debt finance in developing countries. Equity finance also improves management by bringing in experts and experienced shareholders to facilitate the routine operations of the firms.

Basic words: Capital structure, performance, listed firms and Ghana.

## I. INTRODUCTION

Finance remains the wheels that engineer firm profitability and growth. A firm financial structure could foster its long term survival or distress. The financial structure of a firm could be in the form finance requires that a decision on capital structure should be one that maximizes shareholders wealth (Akomeah, Bentil & Musah, 2018).

Debt financing has grown in favour in the finance literature as a result of the tax deductibility of interest payments, which makes it less expensive than stock (Akomeah et al.,2018). This increases profitability and, as a result, meets the goal of maximizing shareholder value. Debt financing also ensures that the current control of equity stockholders is not diluted (Musah,2017). Overdependence on debt, on the other hand, leads to bankruptcy costs and financial trouble. Even if a company is not profitable, debt providers would demand on interest and principal payments.

There is a school of thought that believes that debt financing is preferable to equity financing. Firm owners have residual claims, therefore dividend payments would generally be withheld if the company is not profitable, giving the company some breathing room in difficult times. Dividends, on the other hand, are not tax deductible. Due to the lack of an optimal capital structure guideline and the fact that each source of finance has its own set of advantages and disadvantages, the golden rule for businesses is to maintain a capital structure that minimizes cost of capital and maximizes shareholder wealth.

Experts in corporate finance and academics disagree on whether capital structure is a significant element in determining a company's performance. Modigliani and Miller (MM), (1958), produced an initial capital structure theorem: the theorem of capital structure irrelevance, in the absence of any previously accepted capital structure theory (Ahmeti & Prenaj, 2015). The cornerstone of corporate finance theory is this theorem, which is well-known. Their theorem proposed that capital structure has no bearing on maximizing a firm's worth. The theorem considers capital structure in the absence of taxes, transaction costs, and other frictions in a perfect market economy (Modugu, 2013). Firms must be agnostic about the mix of their capital structure in such an economic climate. They came to the conclusion that debt, equity, or a combination of the two did not increase shareholder wealth or value, and hence leveraged firms' worth is comparable to that of unleveraged entities.

Other theories challenge the MM theorem's assumptions, arguing that capital structure matters in determining a firm's worth. The Trade-off Theory (TOT), Pecking Order Theory (POT), Bankruptcy Cost Theory, Signaling Theory, Agency Cost Theory (ACT), and Market Timing Theory are examples of such ideas (MTT). Several empirical study findings continue to refute the MM theorem, while others have backed up the MM's findings.

Capital structure decisions are critical, and they cannot be discussed without considering the financial sector's ramifications, particularly for commercial banks. Because of the particular function banks play in the economy, they are extremely risky. They provide financial intermediation by mobilizing and redistributing funds to economic participants (Qayyum & Noreen,2019). The majority of banks fail due to an insufficient level and composition of capital. Most banks in developing economies are heavily financed with short-term debts due to the nature of their business (mainly customer deposits). This is due to the inefficiency of financial markets (where long-term money can be accessed). As a result of short-term borrowing and long-term lending, any bank that exhibits signs of financial difficulties causes a loss of confidence in the whole industry, generating panic withdrawals that eventually lead to insolvency issues.

Managers, regulators, and shareholders, according to Akomeah et al. (2018), place a high value on bank capital structure decisions. Following the Bank of Ghana's instruction to boost the minimum capital ratio to Ghc400 million, many banks in Ghana failed to fulfil the requirement. Others were unable to achieve the criterion and were forced to consolidate their businesses; those with severe liquidity problems were dissolved. As a result, bank managers must carefully examine the relationship between leveraged capital structure and performance in order to make informed decisions about which combination of debts and equity is best for their operations. Inadequate literature on the subject matter informs the basis of this study.

This study was done to meet a need to add to the existing empirical findings on capital structure by critically examining capital structure's consequences on the performance of Ghanaian listed banks, particularly those listed on the Ghana Stock Exchange (GSE).

### **II. LITERATURE REVIEW**

Following developments on MM's initial premise of capital structure irrelevance, capital structure relevance on company financial performance has been postulated. We'll go over a few of these theories:

#### 2.1 Theoretical Review

## 2.1.1Miller and Modigliani Theorem

The capital structure theorem—the irrelevance of capital structure preposition—was published in 1958 by two university professors. The theory is based on the assumptions of a tax-free economy, the absence of transaction costs, and the existence of efficient capital markets. They came to the conclusion that the firm's worth is unaffected by its capital structure, thus finance executives don't have to worry about what proportion of equity or debt to use to fund their operations. They assumed there was no link between capital and shareholder wealth maximization. They felt that because there was no asymmetric information in the market, investors could freely trade assets based on the assumption of an efficient capital market. Again, if the fundamental benefit of debt financing—tax shelter—is not available, deciding between debt and equity should not be a difficult task.

However, a number of scientists and authors have questioned the assumptions that were used to develop the theorem. The assumptions were viewed as excessively abstract and theoretical (Danso & Adomako, 2014), as well as being too far removed from reality. The MM theorem was developed in a world that differed from the real world, which explains why economists continue to debate it (Ahmeti & Prenaj, 2015). In response to their critics, MM (1963) amended their prior argument and concluded that the inclusion of a corporate income tax lowers the weighted average cost of capital and hence increases the value of enterprises.

## 2.1.2 The Trade-off Theory

The TOT-Static Trade-off Theory-builds on the MM theorem by emphasizing the existence of optimality in capital structure and recognizing the need of assessing the benefits and drawbacks of debt usage in optimizing shareholder value. Debt provides tax benefits (shields) due to interest payments, lowering the weighted average cost of capital and increasing business value (Yakubu, Kapusuzoglu & Ceylan, 2021). Another advantage of debt financing is that it helps to reduce agency expenses between shareholders and management (Yakubu et al., 2021). Regardless, TOT recognizes the negative impact of leverage: the cost of bankruptcy. The likelihood of financial distress is increasing as more debts are used to finance projects (Yakubu et al., 2021). TOT concludes that each firm has a certain optimal debt ratio at which the trade-off between interest protection and financial distress costs is balanced. According to TOT, the value of a company is determined by the formula:

 $\mathsf{VF}=\mathsf{VU}+\mathsf{PV}$  (Interest Tax Shield) –  $\mathsf{PV}$  (Costs Associated with Financial Distress),

Where: VF = Firm's Value

VU = Unlevered firm's Value PV (Interest Tax Shield) = Interest Tax Shield' Present Value PV (Costs Associated with Financial Distress) = Present Value Associated with Financial Distress. The theory is explained graphically per Figure 1 as follows:



Figure 1, Source: Myers (1984: 577).

The value of an all-equity firm is pecked at the broken horizontal line, as seen above. However, if more debts are added to the capital mix, the present value of the interest tax shield grows faster than the present value of the bankruptcy cost until the ideal debt ratio is reached. At this stage, the tax savings have been completely eaten by the expenses of financial difficulty (Yakubu et al.,2021). As a result, any additional unit of debt used above this amount would result in the present value of bankruptcy costs exceeding the present value of interest tax savings, lowering the firm's worth.

## 2.1.3 Pecking Order Theory

Information asymmetry is central to POP. According to Yakubu, Kapusuzoglu and Ceylan,(2021),there is an information imbalance between business executives and fund providers, as well as investors and shareholders. Management is always present in the company and has access to a wealth of information about the company's operations, assets, and future prospects that external parties may not have. Investors become riskier as a result of the information gap, and thus demand higher returns on their investment, making external financing more expensive than internal financing.

Managers must follow a hierarchical order prescribed by the POP when sourcing funding to finance profitable projects. First, managers would reinvest retained earnings rather than distributing dividend payments to equity shareholders. Managers would turn to debt financing if internal resources were insufficient. Debt financing is less expensive than stock financing since interest payments are tax deductible, and debt holders have a higher claim to assets than equity shareholders in the event of bankruptcy (Yakubu et al., 2021). When a company issues debt instruments, it indicates that its stock is undervalued and that it is a good time to invest. However, issuing equity shares to fund initiatives sends out negative signals, implying that the stock is overvalued and that management is obtaining funds by diluting the company's capital. According to POT, the last option to consider is to use equity finance as a last resort.

## Market timing theory

Baker and Wurgler (2002) discovered a substantial link between US enterprises' capital structure and prior market prices, concluding that organizations should timing stock issue based on market valuations. Firms could lessen their debt by increasing the issuing of equity shares if market prices are higher than their book and previous market prices, as measured by market-to-book ratios. If market prices are lower than the book and previous market prices, the firm would do the opposite, i.e., increase leverage by repurchasing equity shares. They concluded that low leveraged firms would raise funds when they have high market valuations whilst a highly geared firm would raise funds when their market valuation is low.

To put it another way, finance managers see high stock prices relative to book values as overvaluation of the firm's stock, and low stock prices relative to book values and historic market prices as undervaluation of the firm's stock. According to Graham and Harvey (2001), roughly 2/3 of the 392 Chief Finance Officers polled agreed that the amount to which their shares were under or undervalued was a critical consideration in issuing stock. Baker and Wurgler (2002) define the MTT as having two timeframe measures: short-run and long-run. Market timing was verified to direct leverage variations in the short run, but its persistence effect in the long run could not be confirmed.

## 2.1.4 The Agency Cost Theory

According to the ACT, there is a distinction in business between owners and managers, and as a result, managers have a fiduciary obligation with the firm owners. Corporate executives are entrusted with acting in the best interests of shareholders by making decisions that maximize shareholder wealth. This trust is frequently breached, as management seeks to pursue actions that benefit them at the expense of the owners. According to Murphy (1985), there is a link between executive salary and company growth. As a result, they are compelled to pursue growth plans to the point where they occasionally over-grow the business beyond its ideal capacity, resulting in the production of free cash flows.

The agency theory was proposed by Jensen (1986). When there are free cash flows, according to his idea, managers are more likely to spend them in projects with negative net present values or net present values below the firm's cost of capital rather than paying dividends to shareholders. Managers may misuse free cash flows on perquisites at the expense of shareholders once again. Jensen (1986) looked at the power of debts in resolving the agency problem through what he called the "control hypothesis" for debt formation in order to reduce monitoring and agency costs. Managers are left with fewer free cash flows that would otherwise be spent unproductively when they acquire additional debts (whether through stock for debt or stock for cash). Debt agreements also require managers to commit to debt servicing, failing which the company may be sued in court. Because debts have a control impact, managers have less free cash flow to spend on perquisites, act effectively, and pursue interest that benefits the firm as a whole, keeping in mind that leveraged can lead to bankruptcy, and they risk losing their jobs if anything unexpected happens.

## 2.2 Empirical literature review

Over a five-year period, Abor (2005) investigated the relationship between capital structure and profitability of companies listed on the GSE. His research discovered a strong link between capital structure (short-term debt to total asset) and corporate profitability (return on equity). The researchers discovered a strong positive link between total debt to total capital as a proxy for capital structure and return on equity (profitability); nevertheless, they discovered a negative but significant relationship between long term debts and return on equity. Furthermore, his research indicated that Ghanaian businesses prefer short-term debt to long-term debt, with short-term debt accounting for 85 percent of overall debt in Ghanaian businesses.

The impact of capital structure on the profitability of cement companies in Pakistan was explored by Ashraf et al. (2017). Their research was based on panel data collected and evaluated from 18 companies listed on the Karachi Stock Exchange (KSE) from 2006 to 2015. Profitability measurements (return on asset and return on equity) and capital structure measures have a substantial unfavourable relationship, according to their research (total debt to total asset and long-term debt to total asset ratios). Return on asset and return on equity were found to have strong positive connections with short-term debt.

From 2002 to 2009, Niresh (2012) investigated the influence capital structure has on the profitability of listed banks in Sri Lanka. He came to the conclusion that total debt is a significant determinant of bank profitability in Sri Lanka (as measured by return on capital employed). Sri Lankan banks were also found to be heavily geared, with a debt-to-total-capital ratio of 87 percent.

Sadiq and Sher (2016) investigated the impact of capital structure on the profitability of listed companies in Pakistan's automobile industry. From 2006 to 2012, data was collected from 19 vehicle businesses listed on the KSE and examined using regression analysis using data from their publications and the Stat Bank of Pakistan's website. The SPSS results revealed that capital structure (debt/equity) and profitability indicators have an inverse connection (ROE, ROCE, ROE and Net Profit Margin).

Musah (2017) looked at the impact of capital structure on commercial bank profitability in Ghana for six years, from 2010 to 2015. Through descriptive statistics, correlation, and panel regression analysis, panel data from annual reports of 23 sampled banks were acquired and evaluated. According to the data, Ghanaian banks are highly leveraged, with debt financing accounting for 84 percent of total capital and shortterm debt accounting for 77%. The study also discovered that total debts have a positive association with profitability, whereas short and long-term debts have an inverse link with profitability.

Amidu (2007) looked at the elements that influence Ghanaian banks' capital structure once more. Profitability, corporate tax, growth, asset structure, and bank size were found to influence bank financial decisions. He also backed the fact that Ghanaian banks are heavily geared, with debts accounting for 87 percent of total capital needed to fund total assets, and short-term debt accounting for more than 75 percent of total capital.

Using panel regression methods, Gatsi and Akoto (2010) investigated the capital structure and profitability of 14 Ghanaian banks. They came to the conclusion that capital structure proxies (short-term debts, long-term debts, and total debts) had no bearing on profitability in Ghana. They also validated Ghanaian banks' significant leverage by establishing that debts account for 87 percent of total capital, with short-term debt accounting for 65 percent and long-term debt accounting for 22 percent, respectively.

On the basis of the arguments raised in the literature and in an attempt to support the arguments raised in three theories (Miller, 1958, Alan Kraus, 1973 & Stewart C. Myers, 1984), following framework has been drawn



Figure 1: Research framework above figure showing the influence of debt to equity and debt to total funds on return on capital employed. It shows the relationship between variables but further analysis and findings state its significance

## III. METHODOLOGY

#### 3.1 Research Approach and Design

The study uses the quantitative research design and descriptive statistics. Quantitative research approach deals with the numerical expression of data for concrete efficacies (Creswell & Creswell, 2017).

## 3.2 Population and Sample Size

The population of the study included 33 non-financial institutions listed on the Ghana Stock Exchange. The exclusion of 9 financial and insurance institutions was to

mitigate the impact of outliers since the capital market of Ghana is highly regulated with varied set of rules and regulations.

The sample size represented 22 non-financial institutions depicting 67% of the population, selected using purposive sampling framework. Availability of data and timeliness of data informed the choice of the sample size.

### 3.3 Data Source

Secondary data involving extraction of financial statements from the published accounts of the chosen firms from the

Ghana Stock Exchange was used, covering a period of seven y

years from 2014 to 2020.

Variable	Abbreviation	Measurement	Authors' Designation
Return on capital employed	ROCE	Earnings prior to tax divided by total assets less current liabilities	Sadiq and Sher,(2016); Niresh (2012)
Long-Term Debt expressed over total equity	LTD/TE	Measured as total long term debt divided by total equity	Akomeah et al.,(2018)
Current debt to equity	TCD/TE	Measured as total current debt divided by total equity	Akomeah et al.,(2018)
Total debt to total equity	TD/TE	Measured as total debt divided by total equity	Akomeah et al.,(2018)
Total short-term assets to total assets	TSA/TA	Measured as total short term assets to total assets	Akomeah et al.,(2018)
Total Non-Current Assets to Total Assets	TNCA/TA	Measured as total non-current assets divided by total assets	Akomeah et al.,(2018)
Firm size	FS	Natural logarithm of total assets	Akomeah et al.,(2018)

Table3.1 Description of variables

Source: Authors' Construct (2021)

### 3.4 Model Specification

For effective perusal of capital structure decisions nexus on listed non-financial institutions in Ghana, the study adopted the panel regression technique to test the hypotheses and ascertain the significance of the relationship between the regress and (ROCE) and the regressors. The panel regression technique was employed on the basis that it controls individual heterogeneity. Thus, the panel regression technique takes in to consideration the individual heterogeneity and homogeneity of firms (Louhichi & Zreik, 2015). Also, the panel regression technique combines cross-sectional and time series characteristics and therefore gives more informative results with greater variability, less collinearity, and a better degree of freedom. Moreover, panel regression is an effective technique for detecting and measuring effects that cannot be easily observed using either cross-sectional or time series techniques.

The model below has been propounded by the researcher using eleven independent variables.

 $ROCE_{it} = \alpha + \beta_1 LTD/TE_{it} + \beta_2 TCD/TE_{it} + \beta_3 TD/TE_{it} + \beta_4 TSA/TA_{it} + \beta_5 TNCA/TA_{it} + \beta_6 FS_{it} + YD + E_{it}$ 

Where:

ROCE connotes returns on capital employed which is the regress and,  $\alpha$  is the constant, B1 to B5 are the regressors, YD is year dummies and Eit is error term

### 3.5 Estimation Technique

To ensure that the assumptions of multiple regression were not violated, the study conducted various test to ascertain the normality, appropriateness and robustness of the regression model and other diagnostic test. Specifically, the following tests were conducted: wald test, Durbin Watson Stat, and Housman specification test.

## 3.5.1 Housman Specification Test

In panel regression, one has the option of choosing amongst three models: Pooled OLS model. the Fixed Effects (FE) or least squares dummy variable (LSD V) model, and the Random Effects Model (REM). The pooled OLS model assumes that the regression coefficients are the same for all individuals, which means that there is no correlation between the regressors and the disturbance or error term thereby ignoring the panel nature of the data by applying ordinary least squares (OLS). The model specifies constant coefficients like in cross-sectional analysis and assumes parameter homogeneity, which implies that subjects have same intercept ( $\alpha$ ) which does not vary over time or across individuals though this assumption may prove otherwise.

The assumption underlying the pooled OLS model that the effect of each explanatory variable may remain constant over time is refuted by the argument of the proponents of FE model and the RE model that individual-specific effects capture unobserved heterogeneity across individual variables. Hence, it is necessary to check whether the unobserved individual-specific effects correlate with the regressors.

The FE model allows for heterogeneity among subjects by allowing each entity to have its own intercept value. When the unobserved individual-specific component is correlated with the regressors, using the OLS estimator to obtain the betas  $\beta$  would be inconsistent and therefore the FE model is deemed the most appropriate in this situation because it allows individual-specific effects to be correlated with the regressors. As the name implies, the FE model ensures that though the intercept may differ across subjects, each individual's intercept is time-invariant and does not vary over time.

The RE model also called the error components model (ECM) is based on the assumption that unobserved individual-specific effects are distributed independently of regressors and do not correlate. Under the RE model, each individual has the same intercept value and a composite error termw<sub>it</sub> = ( $\epsilon_i + u_{it}$ ).The

### In

order to choose between FE model and RE model for the pan el regression, a Hausman specification test was conducted to check which of the two models is suitable for the panel regression. To apply the test, the following hypotheses were formulated:

### H0: Random effects model is appropriate

*Ha:* Fixed effects model is appropriate

As a rule of thumb for selecting one model over the other, if the test produces a significant p-value then the null hypothesis will be rejected and the fixed effects model will be deemed appropriate. On the other hand, if the p-value is insignificant then the null hypothesis will be accepted and the random effects model will be deemed appropriate.

## IV. ANALYSIS AND DISCUSSION OF FINDINGS

Analysis of research findings begins with the cluster of normality test, followed by descriptive statistics and then discussion of main findings.

### 4. 1Normality Test

The findings of group normally test presented in figure 4.1 reite rates that the data are normally distributed, evidenced by kurtosis of 3.



Figure 4.1 Histogram for Cluster Normality Test

Series: Standardized Residuals Sample of 22 listed firms from 2014-2020(Ghana) Total observations 154 Mean 2.02e-16 Median -0.00277 Maximum 0.041669 Minimum -0.028175 Std. Dev. 0.01671 Skewness 0.824226 Kurtois 3.0454 Jarque-Bera 12.50966 Probability 0.001948

Source: SPSS Construct (2020)

#### 4.2 Model Diagnostics

The dependent variable (ROCE) was run against the independent variables using the Fixed Effect and Random Effect models respectively as well as Hausman Test to ascertain the suitability or otherwise, of the model. The Hausman test results for the dependent variable is illustrated below:

Table 4.1:	Hausman	Test
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Variables	Chi-square
ROCE	0.2862

Source: SPSS construct(2020)

The results illustrated in table 4.1 show that the chi-square value of 0.2862 for ROCE appears greater than the alpha level of 0.05 hence, the random effect model was apt and accordingly, adopted for the study.

## 4.3 Descriptive Statistics

Table 4.2 outlines the descriptive statistics of the study.

The mean and standard deviation for total short term assets to total assets were 48% and 37% respectively indicating that 48% of listed firms' current assets are financed by capital employed.

Similarly, total non-current assets to total assets had a standard deviation of 22% and an average of 45% reiterating that averagely, 45% of listed firms' non-current assets are funded by total assets or capital employed.

Additionally, total current debt to total equity had an average value of 3.49% and a standard deviation of 35.71% whilst total long term debt to total equity scored an average of 6.3% and 66.58%. Overall, listed firms within the period relied more long term liabilities than short term liabilities perhaps to cushion liquidity whilst managing solvency.

Lastly, firm size, which is an intalog of total assets had a standard deviation of 1.77% and an average of 17.55% as summarized in table 4.2. The overall observations were 154 thus 22 listed firms by a 7- year period

Variable	Observation s	Mean	Std. Dev.
TSA/TA	154	0.48	0.37
TNCA/T A	154	0.45	0.22
TCD/TE	154	3.49	35.71
TLD/TE	154	6.30	66.58
TD/TE	154	11.81	101.13
SIZE	154	17.55	1.77

Table 4.2: Summary of Descriptive Statistics of Data

Source: Author's Construct,(2021).

4.4. Capital Structure Decisions Nexus on Listed Firms' Return on Capital Employed

Table 4.3 indicates statistical significance at varied levels. Total short-term debt had negative co-efficient of 27% meaning 27% of the variations in ROCE are affected by short-term debt, followed negative co-efficient of 15% for long term debt to equity and negative 10% for total debt to equity at statistical significance of 10%. The findings contradict that of Musah (2017) who focused on capital structure decisions on the profitability of listed Ghanaian banks discovered that total debts have a positive association with profitability, whereas short and long-term debts have an inverse link with profitability.

Current assets to total assets showed negative insignificant associations with ROCE. The outcome of total current assets to total assets corroborate with Saddiq and Asher (2016) who found that capital structure (debt/equity) and profitability indicators have an inverse connection among listed firms in Pakistan(ROE, ROCE, ROE and Net Profit Margin). However, total non-current assets to total assets showed direct significant correlation with ROCE.

Lastly, firm size had direct insignificant relationship with return on capital employed.			
Nexus with ROCE			
Variable	1	2	3
TSD/TE (short term debt to equity)	-0.268***		
TLD/TE (long term debt to equity)		- 0.151* **	
TD/TE (total debt to equity)			0.103* **

TCA/TA (current assets to total assets	-0.171	-0.741	-0.550
TNCA/TA (non-current assets to total assets)	0.074	0.061	0.063
SIZE (natural log of total assets)	0.184**	0.764	0.116
Prob (F)	0.0000	0.0000	0.0000
Rsqd	97.96%	94.96%	96.35 %
Adj. Rsqd *1% significance, ** 5% significance, *** 10% significance	97.89%	94.77%	96.21 %

Source: Author's Construct,(2021)

#### V. CONCLUSION AND RECOMMENDATION

It is concluded that capital structure decisions directly and significantly affect firms' return on capital employed especially equity funding (Non-Current Assets to Total Assets) whilst buttressing an inverse relationship with debt finance (Short term and long term debts to equity).

It is recommended that equity source of finance is the best capital structure decision for listed firms in Ghana. The justification is that debt finance has become expensive in recent years especially in developing countries. Furthermore, equity funding introduces additional ownership structure who bring in competence and expertise to facilitate the routine operations of firms.

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