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THE DETERMINANTS OF CAPITAL STRUCTURE OF LISTED FIRMS IN NIGERIA

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ABSTRACT: *The study is focused on the analysis of the determinants of capital structure of Nigeria companies for 2013. The cross-sectional least squares regression is applied to determine the impact of two independent variables on debt ratio. The independent variables are represented by company size and profitability. It is found that profitability is not a significant determinant and has a negative impact on leverage while the impact of company size was not confirmed in the model. The analysis of the determinants of corporate capital structure has valuable implications for finance managers who can make better capital structure decisions to maximise the wealth of the shareholders.*

KEYWORDS: Capital Structure, Firms in Nigeria

INTRODUCTION

Financing plays a prominent role in the management of any firm. Every enterprise requires funds both at the initial stage of operations and during the development and sustainable business stages (Panda, 2006). However, the views on what is the most efficient and effective way to source the funds differ due to various reasons. The inadequate level of the funds is associated with business deterioration and therefore the capital requirement of every company shall be determined in advance. Companies have different sources that are available to them to raise money. The selection of the most appropriate source and thus the identification of the optimal capital structure are crucial for the company (Vermaelen and Xu, 2010; Lasher, 2011). While the significance of capital structure is emphasised by Lasher (2011), the determinants of capital structure are not limited by those factors mentioned in previous empirical literature. Company's leverage can be related to the

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nature of the business, the purpose of financing, the legal requirements, the period of finance, the advices of financial specialists, the government policies, the attitude of the management, and other internal and external factors (Huang and Ritter, 2007).

This research is motivated by the observation that oftentimes the companies even in related industries and sectors can have different approaches to capital structure. For example, Apple operates in the electronics industry and has only 1/3 of its capital comprised of debt (Apple Annual Report, 2013) whereas Dell has to conduct its operations with the leverage where debt reached 76% of total assets (Dell Annual Report, 2013). Such dramatic differences in the capital structure of the related companies raise a question why the managers of one firm choose to use more leverage whereas the management of the other company uses more of own funds and equity financing.

Previous theoretical studies attempted to explain the capital structure and leverage of the businesses by several frameworks such as the trade-off theory, pecking order theory or the irrelevance hypothesis. It is observed that companies tend to seek the target or optimal leverage (Sogorb-Mira and Lopez-Gracia. 2003). However the analysis that is conducted by Vermaelen and Xu (2010) reveals that the trade-off theory does not hold for all firms.

If the companies followed a pecking order, the preference of financing will be arranged as follows: internal funds, debt and, finally, equity financing. However, empirical evidence that is obtained by Frank and Goyal (2003) contradicts the pecking order theory as net equity issues are related to the financing deficit closer than net debt issues. It is observed that large companies' display some terms of pecking order behaviour, but these observations are not confirmed when the conventional leverage factors are included (Frank and Goyal, 2003).

There were also attempts to explain the capital structure with the market timing theory. For example, the market timing theory is confirmed by the empirical investigation of Setyawan (2012) who studies a sample of Indonesian companies. It is found that market to book ratio negatively influences market leverage. Still Elliott et al. (2008) argue that market to book ratio may allow multiple interpretation and therefore is not an optimal method for confirmation of the theory. The authors test the market timing theory by employing an earnings-based valuation model. This way they are able to distinguish between equity mispricing, growth options, and time-varying adverse selection. Nevertheless, the market timing theory is confirmed as well, since market mispricing is significantly prominent for financing decisions (Elliott et al., 2008).

Besides the mentioned explanation of the capital structure decisions, some previous studies also found that the leverage could be related to the agency problems in the company. For example, Zhang and Li (2008) reveal that higher debt to asset ratio significantly affects the agency costs. Thus, when the company is overleveraged, the management will be more inclined to operate in the interests of shareholders because otherwise the company may become insolvent and the managers would lose their job. In light of the past findings, it is interesting to make a new contribution to the knowledge of capital structure and empirically tests the significance of specific determinants that

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affect leverage in Nigeria. Most of the discussed studies explored the determinants of capital structure in various markets.

Rationale of the Research

Capital structure is the object of this research which is a combination of debt and equity capital. Since the Modigliani and Miller (1958) proposition that capital structure does not affect the company's value, numerous studies have been conducted (Ozkan, 2001; Graham and Leary, 2011; Flannery and Oztekin, 2011; Bancel and Mittoo, 2012; Antoniou et al., 2008). It is often argued that capital structure is determined by the type of ownership, the tangibility of assets and size of the business, overall risk of the company and tax issues (de Miguel and Pindado, 2001). This research will make a contribution by studying the latest observations for Nigeria. The recent evidence for the period of the global financial crisis is rather scarce. This paper will attempt to contribute to the research by studying the capital structure determinants in Nigerian companies during the year 2012. The study is conducted in the context of the Nigeria.

The current study contributes to the literature as it analyses a wide range of capital structure determinants and is based on 20 observations. It is assumed that the variety of observations and factors that can affect capital structure can provide a deeper insight into the determinants of firms' leverage. It is expected that the generalisation of the findings will be possible and the observations that will be obtained herein will be applicable to different cases and environments. The number of observations allows the researcher to expect that the findings of the study will be applicable to different companies. The results can be important and valuable to company managers who are interested in maintaining the optimal capital structure within their firms and adjust the levels of debt and equity in accordance with market requirements and company objectives. Besides, it is expected that the findings can be used by policy makers who can adjust the appropriate regulations in order to address the issues that are related to the levels of debt in enterprises.

Aims and Objectives

In this research, the key aim is to identify the main determinants of capital structure in Nigerian firms. The objectives of the research are the following:

- To assess the significance of the impact of ROA on capital structure;
- To assess the significance of the impact of the company size on capital structure;

LITERATURE REVIEW

This chapter discusses the conceptual framework of the research and empirical evidence. The conceptual framework is represented by the dominant capital structure theories such as: trade-off theory, pecking order theory, Miller and Modigliani hypothesis, (Bodie et al., 2009; Brealey and Myers, 2006). The second part of the chapter provides empirical evidence on the determinants of capital structure. The theories that are discussed in the chapter receive both support and criticism on behalf of different scholars. For this reason it is assumed that the discussion of the theories and

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the analysis of their strengths and weaknesses would shed light on the theoretical background of the work and help the researcher to direct further investigation.

Theoretical Framework

This part of the chapter aims to review the key theories of capital structure. The presentation of theories starts with the value irrelevance hypothesis and continues with the trade-off theory and pecking order theory. These theories emerged in order to give insight on the exact combination of debt and equity that a firm should adapt so as to achieve optimal capital mix.

Modigliani and Miller Theorem

Modigliani and Miller theorem that was offered in 1958 asserts that the value of a firm does not depend on its capital structure. This theory contradicts the beliefs that there has an optimal capital structure that may maximise the company's value. The hypothesis is however relevant in the absence of taxes and in the circumstances of an efficient market. The initial assumption of the theorem suggested that a company has a specific set of expected cash flows. The division of the cash flows among investors is made when the company selects a specific amount of debt and equity to finance its assets. The theory implies that if there are no taxes, higher leverage leads to no benefits with respect to value increasing. Under the theorem two companies are compared. One of them is not levered and financed exclusively by equity. The other one is levered and is financed by debt and equity. It is suggested that unless the companies are different in any other aspects they have the same value. It is suggested that a company's value is determined by optimal investments (Modigliani and Miller, 1958; Miller and Modigliani; 1961; Focardi and Fabozzi, 2004).

Trade-Off Theory

One of the theories that explain capital structure of companies is the trade-off theory. It suggests that a company finds the balance between the costs and benefits of debt. Thus a company borrows until the benefits from the tax deductibility of interests become lower than marginal bankruptcy costs (Baker and Martin, 2011). The benefits of leverage include tax deductibility of the interest payments and the ability to invest in more projects that can increase the value of the company. However, the main disadvantage of debt is that it can make the company insolvent if the funds are not invested wisely. Moreover, it will be more expensive to take additional financing. Thus, according to the trade-off theory, the capital structure will be represented by a specific debt ratio that minimizes the costs of debt and maximises its benefits (Brealey and Myers, 2006).

Myres (1984) opines that if a firm follows trade off theory, the firm sets for its self a target debt to value ratio and then gradually drives towards the target. In order to determine the target, there is a balancing of bankruptcy against debt tax shield. A trade off of the costs and benefit of borrowing determines the firm's optimal debt ratio, holding the firm's investment plan and asset constant. The firm is expected to switch equity for debt till the firm's value is maximized. This implies that in order to maximize the value of a firm, various options may be applied but depends on where the firm finds advantage.

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According to Frank and Goyal, 2009) in a dynamic model, the exact financing decision usually lies on the financing margin that is anticipated by the firm in the next period. Some firms expect to raise fund in the next period, while others expect pay out money. It could be in the form of debt or equity. However, firms usually consider the combination of the two.

Pecking Order Theory

The trade-off theory fails to explain why some companies with high profitability level display little dependence on debt. Such companies pay large income taxes instead of saving these large amounts by using debt without any danger to their solvency. This dissonance may be explained by the pecking order theory (Chandra, 2008). The theory suggests that companies tend to follow the pecking order of financing. In the order the internal finance or retained earnings come first, followed by debt finance and then by external equity finance (Chandra, 2008). The rationale for following the pecking order is that firstly the company wants to employ the least costly financing. This is represented by its own retained earnings. A more expensive form of financing is debt which has interest payments. However, these payments are tax deductible and debt does not dilute the shareholders' earnings. Hence, it is considered more desirable. Eventually, when the company has projects and all other means of financing were already employed or are unavailable, they resort to equity financing. The latter is considered the method of last resort (Jong et al., 2011).

According to (Donaldson, 1961) the pecking order theory does not support the idea that companies should have a unique debt and equity finance combination which minimizes their cost capital. The theory is of the view that if a company is looking at the way to finance its long-term investment, it should follow a well-structured order of preference considering finance sources available to it. Its first choice is the use of internal finance or earnings that are retained instead of external sources. If internal finance is not enough, borrowing from bank and corporate bonds are preferred source of external finance. After these two possibilities are exhausted, the last and least preferred finance source is issuing of new share.

Myers (1984) puts forward a sophisticated explanation of the pecking order theory. He said that the preference order stemmed as a result of information asymmetry between capital market and the company. According to Myer (1984) if a firm wants to raise fund for a new investment and the benefit of that investment has been underestimated by the capital market. Due to the insider information known by the managers, they will know that the company has been undervalued by the market. The company's manager will then choose to finance the investment through retained earnings so that the existing shareholders will gain when the market sees clearly the real value of the project. If the retained earnings are not enough, debt financing will be chosen by the managers in preference to new share issue.

Empirical Evidence

The current sub-section investigates the empirical studies that explored the phenomenon of capital structure and the determinants of capital structure decisions that are made by managers. The factors that are explored in the sub-section include size and profitability. Different studies obtain ambiguous results with regard to the significance of these factors and therefore it is assumed that

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additional investigation of the possible determinants of capital structure can generate valuable observations. Although such factors as profit volatility and growth are not explored in the current research due to the absence of time-series analysis, these determinants are included in the literature review as they are considered to be significant for capital structure and further studies can expand the current research by including them in the analysis.

Profitability

Modigliani and Miller theorem is empirically tested by Abor (2005). The author studies the relations between capital structure and company profitability on a sample of listed firms of the Ghana Stock Exchange. The regression analysis is applied to test the relations between the return on equity and different measures of capital structure. The findings contradict the Modigliani-Miller theorem as it is observed that short-term debt is significantly positively related to total assets and return on equity. Besides, there is negative relation of the ratio of long-term debt to total assets and return on equity. Furthermore a significantly positive relation of the total debt to total assets ratio and the return on equity is observed. Thus it is concluded that higher profitability of a company implies that the company is more likely to choose debt as its major financing decision. In the analyses sample over 80% of the debt is represented by the short-term debt (Abor, 2005).

A confirmation of the pecking order theory is obtained by de Jong et al. (2011). The authors analyse the pecking order model on a sample of US companies and test the hypothesis that firms tend to issue debt until the debt capacity is achieved. The findings suggest that the companies' issue decisions are well explained by the pecking order model. However it is also found that when the repurchase decisions are analysed the trade-off theory is a better predictor of companies' capital structure decisions (de Jong et al., 2011). Some discrepancies with the pecking order theory are found by Ullah et al. (2010). But in contrast to the investigation of de Jong et al. (2011) the authors conclude that the relevancy of the pecking order model may depend on a company's industry and field of activity. Over 80 UK SMEs that operate in either software or biotechnology sphere are analysed or it is observed that software companies tend to use personal savings and house mortgage as the major source of financing. Biotechnologic companies use mostly venture capital financing. While software firms follow the pecking order theory, the biotechnology companies do not fully support the model (Ullah et al., 2010).

The hypotheses for profitability are stated below:

H_0: ROA does not have a statistically significant impact on the capital structure
H_1: ROA has a statistically significant impact on the capital structure

Size of the Company

Company size is found to be significantly positively related to capital structure, but in the expansion of previous investigations (Krishnan and Moyer, 1996; Antoniou et al., 2008) the analysis of Kurshev and Strebulaev (2007) tested whether a dynamic capital structure model can provide an explanation of the cross-sectional size-leverage relationship. The authors analysed the presence of fixed costs of external financing and found four firm-size effects on capital structure.

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It was concluded that small companies tend to choose higher leverage during refinancing to compensate for less frequent rebalancing. Longer waiting time between refinancing is associated with lower leverage level at the end of restructuring process. The relations between leverage and company size are negative within one refinancing cycle. Finally, the authors found a large number of companies that selected no leverage. The investigation of the dynamic economy showed that in cross-section the relations between leverage and size are positive. This implies that fixed costs of financing are able to explain the stylised size-leverage relations. Nevertheless, when the control for the presence of unlevered companies is introduced the sign of the relationship changes (Kurshev and Strebulaev, 2007).

The effects of company size on capital structure were also confirmed by Antoniou et al. (2008). The study expanded the research of Krishnan and Moyer (1996) since the authors included a wider range of countries in the investigation and divided the samples into two categories. The authors tested the differences in capital structure between market-oriented economies (the UK and the US) and bank-oriented economies (Japan, Germany, and France) and used panel data and two-step system-generalised method of moments. It was found that capital structure was positively associated with the size of the company. The trade-off theory is empirically tested in the paper by Hackbarth et al. (2007). The authors analyse the optimal balance and capital structure on the basis of the trade-off model and assume that debt structure is related to the bargaining power of the parties. Bank and market debt are included in the analysis and it is found that bigger companies have lower bank debt capacity. Thus it is confirmed that the trade-off model explains the exclusive use of bank debt by smaller companies and the mixed debt financing by larger companies (Hackbarth et al., 2007). Although the paper by Ivashkovskaya and Solntseva (2007) does not reject the trade-off theory of capital structure either, it is found that in some cases it is not as good in explaining capital structure as other theories. The analysis of Russian companies is undertaken and therefore an emerging market is investigated. The authors conclude that there are cases when the pecking order theory is a better predictor of capital structure. For example, this finding is true for the firms that are controlled by the government (Ivashkovskaya and Solntseva, 2007).

The hypotheses for size of company are stated below:
H_0: The size of accompany does not have a statistically significant impact on capital structure
H_1: The size of a company has a statistically significant impact on capital structure

METHODOLOGY

Sample

The dissertation uses quantitative data analysis and relies on secondary information gathered from CBN statistical bulletin, various company financial statement and Thomson One Banker for the financial year of 2012. Cross-sectional observations for 20 companies have been retrieved from CBN statistical bulletin and Thomson One Banker (2012) on 20 June 2013.The data were collected by downloading the spreadsheets with the balance sheet and income statement for the latest financial year.

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Data Variables

The dependent variable in the study is represented by the debt ratio of the Nigerian companies, which is estimated as follows: long-term debt to assets ratio

$$Debt\ ratio^{*} = \frac{long - term\ debt}{book\ value\ of\ assets}$$

The independent variables include profitability and size. Profitability is proxied with the return on assets (ROA):

$$ROA = \frac{Net\ Profit}{Total\ Assets}$$

Size is represented by the natural logarithm of total sales of each firm. Natural logarithm is preferred as it allows for easy conversion to growth rates by differencing; moreover, it helps to normalise the residuals of the regression.

Method of Analysis

Cross-sectional regression analysis is used as the main method of research. The analysis is conducted in Eviews 6 and the regression model is represented by the equation provided below:

$$Debt\ ratio = \beta_0 + \beta_1 ROA + \beta_2 Size + \varepsilon$$

In total 20 observations are included in the model. Some of the companies were excluded from the sample as the data for the required period for the calculation of the ratios that are involved in the analysis is not available for these firms

FINDINGS AND ANALYSIS

The Model

Long-Term Debts to Assets Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.0007	0.0956	0.0072	0.9943
ROA	-0.3782	0.3480	-1.0867	0.2801
SIZE	0.0000	0.0000	-0.6362	0.5263
R-squared	0.4823	Mean dependent var		0.3962
Adjusted R-squared	0.4478	S.D. dependent var		0.2465
S.E. of regression	0.1831	Akaike info criterion		-0.4876
Sum squared resid	3.0188	Schwarz criterion		-0.3018
F-statistic	13.9741	Hannan-Quinn criter.		-0.4125
Prob(F-statistic)	0.0000	Durbin-Watson stat		1.9375

Source: result from eviews

Using LTD to assets as the dependent variable, ROA was statistically insignificant in determining the capital structure. The p-value of the variable is considerably higher than the 0.05 significance

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level and therefore the relations between this independent variable and the dependent variable are not significant. The observations of Krishnan and Moyer (1996) confirmed that company profitability is associated with lower leverage ratio. These observations are in line with the findings of the paper when the capital structure was represented with the debt ratio, although there were differences in the selection of the samples and in the proxies that were used in the estimations. Krishnan and Moyer (1996) explored a wide range of countries and included the firms from the UK, the US, Japan, Germany, and France in the investigation. Besides, they used profit volatility as an independent variable and it was found to be a significant determinant of leverage ratio. At the same time the authors found the differences between the countries as they concluded that the degree of the influence of the determinants can be related to the legal and financial traditions. While one of the samples of the authors included both the UK and the US companies, the sample of the current study is based on Nigerian firms only. Nevertheless, there are no differences in the findings. At the same time it can be assumed that the inclusion of such factors as institutions and corporate governance measures can be found to be significant determinants of companies' capital structure, as suggested by the work of Antoniou et al. (2008).

The negative relations between profits and market leverage were also found by Frank and Goyal (2009) as the authors explored the US companies for the period from 1950 to 2003. The findings are in line with this research only in case of the association between the ROA and debt ratio. However, it can be assumed that the selection of another proxy for profitability can generate different results. The study that was similar to the current investigation in terms of methodology was conducted by Degryse et al. (2012) as the authors undertook a one-country study and used ROA as a proxy for profitability. Nevertheless, the authors concluded that higher profits were associated with lower short-term debt. At the same time the authors concluded that industries can have peculiarities that affect capital structure of companies. Thus it can be assumed that an inclusion of an industry dummy variable would provide evidence on the effects of industry on capital structure. The differences between the observations of Degryse et al. (2012) and the current study can be explained by the country that was analysed, since the authors were concentrated on Dutch small and medium-sized enterprises, while the current research covered the Nigerian companies of different sizes.

The logarithm of company revenue was used as a proxy for company size. It was found that size had an insignificant impact on the debt ratio. This implies that there is no significant difference in the leverage in small and large firms. The research results are in contradiction with Krishnan and Moyer (1996) who found a significant impact of the firm size on capital structure in a cross-country analysis. At the same time, the authors found cross-country differences with regard to the levels of leverage. The current investigation revealed that company size is an insignificant determinant of capital structure of the Nigerian companies.

These findings also contradict to the observations of Antoniou et al. (2008) and Kurshev and Strebulaev (2007). The latter study found the significant relationships between size and leverage. In contrast to the current research the authors found that there were cycles of refinancing when the relations between leverage and firm size could be negative. In addition to this, different authors

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(e.g. Nguyen et al., 2012; Krishnan and Moyer, 1996) found the impact of revenue growth on company leverage, which is also in contradiction with the present research. Nevertheless, the current study uses only cross-sectional data and no time series analysis is conducted. This limitation does not allow for investigating the effect of growth on leverage. It can be assumed that an inclusion of a time-series data in the investigation would allow for capturing the effects of growth on the debt ratios of the Nigrian companies.

CONCLUSIONS

In this chapter conclusions are made and recommendations are provided. The observations that are related to the impact of the explored variables on companies' capital structure are discussed in view of the empirical papers of other authors. The discrepancies and differences between the findings are explained. The implications for further studies are suggested on the basis of the limitations of the current research. The limitations are derived from the comparison of the observations that are obtained herein with the evidence from other studies.

LIMITATIONS AND IMPLICATIONS

The current research is based on cross-sectional analysis and does not include any time-series data. This limits the ability to analyse some of the determinants of capital structure such as earnings volatility or company growth. While some previous papers captured the effects of these determinants it can be assumed that the inclusion of time-series variables in the research would enhance the model and provide more opportunities for deeper understanding of the determinants of capital structure of the Nigerian companies. On the other hand it is evident that some variables can have cross-country differences and the impact of some factors on capital structure can depend on institutions, corporate governance measures, financial and legal environment and other factors that can vary from country to country. This implies that an analysis of the companies from a wider range of countries would allow the researcher to capture the peculiarities of the determinants of debt ratios under different circumstances. It can be also assumed that the inclusion of the industry dummy variable into the research would allow for identifying the inter- and intra-industry characteristics with regard to capital structure. While such factors as company size or liquidity are explored with respect to their impact on capital structure in can be suggested that these factors can depend on the industry of the firm. It is therefore recommended to expand further studies with an inclusion of an industry variable in order to figure out the effects that industries can have on debt ratios. One of the limitations of the study is also associated with a limited sample that was analysed. The financial information of some companies was not available for the selected financial year and therefore the sample was limited to 20 observations. At the same time it can be assumed that an inclusion of a larger number of observations would generate more accurate and precise results and therefore make the model even stronger.

Further studies can address the limitations of the current paper and improve the model by eliminating the issues that are observed herein. The cross-country time-series analysis with an

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inclusion of an industry dummy variable can generate valuable results that would be much more extensive than the findings of the current paper. At the same time the uniqueness of the investigation lies in the focus on the particular range of companies for a single time span. It is therefore assumed that the current study can adequately complement the existing literature and expand the observations that are related to capital structure. Further analyses can supplement the observations by the inclusion of more variables and thus by providing a deeper insight into the phenomenon of debt ratios of companies.

CONCLUSIONS AND RECOMMENDATIONS

The current study answered the main research question about the determinants of capital structure. It was explored why firms use different capital structure and the conclusions about the significance of the impact of different variables are made. ROA was insignificant in explaining the corporate capital structure decisions. However, the impact of the company size on the capital structure was not confirmed in the regression models. The conclusions led to a range of recommendations to company managers as well as generated the scope for further possible studies of the matter.The findings of the current paper led to some recommendations to company managers and policy makers with respect to capital structure decisions. For the selected sample it is evident that the capital structure of the firms is not associated with the variables that were explored herein. At the same time the regression showed that the ROA could be negatively associated with the debt ratio. These findings can be applied by financial managers of the Nigerian enterprises when capital structure decisions are made.

The study applied the statistical methods to answer its research question and achieve its aims and objectives. The achievement of the aims and objectives of the investigation proves the relevance of the selected methods and justifies the approaches to the study that have been chosen herein. It is therefore concluded that the research contributes to existing knowledge on the decisions that are related to company capital structure. While previous empirical studies and theories provided ambiguous results with regard to the determinants of capital structure, the current research was able to identify no strongest determinants of the debt ratio for a specific sample of companies for a particular period of time. As the statistical significance of different variables is estimated, the objectives of the study are achieved. Consequently, the aim of the study is successfully achieved.

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