

# **Topic: capital structure determinants of quoted firms in Nigeria and lessons for corporate financing decisions**

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## **Abstract**

Financial arrangements determine how and the amount of financing that can be obtained from fund providers. An optimal allocation between equity and debt is determined by the trade-off between the net tax advantage of additional corporate leverage and the costs associated with the increased likelihood of financial distress and reduced marketability of a firm's corporate debt, and agency costs. To ascertain the determinants of this capital mix, research results from the regression analysis of data obtained from seventeen financially successful quoted firms in Nigeria show that this mix is positively determined by cost of equity, existence of debt tax shield, covenant restrictions in debt agreements, firm dividend policy, competitor's capital mix and profitability; and negatively by cost of debt, parent

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company influence and fear of financial distress necessitating new and financially unsuccessful firms to reduce debt/equity ratios when there exists a likelihood of increased financial distress and high cost of debt and increase it when cost of equity, profitability and benefits from tax shield is high, ensuring optimal trade-off between costs and net tax advantage of additional leverage and costs and benefits of equity in firm capital structure.

**JEL classification numbers:** G3, M2

**Keywords:** capital structure, financing decisions, net tax advantage, leverage

## 1 Introduction

Financing arrangements determine how and the amount of financing that can be obtained from funds providers. The total value of a firm, depend on how well the firm made its investment decisions, as the higher the yield on investments the higher the earnings/income to the firm. The higher the firm's income/earnings, the higher the flow of gains to the owners of the company. Financing decisions determines the value of the firm's assets. Consensus on investment decisions and asset values among corporate finance managers of a firm also require decision of how the investments will be financed.

The decision on the finance sources according to Buckley et al (5), depend on five factors, namely:

- (a) tax-reliance on debts reduces taxes paid by the firm and taxes paid by some bondholders. He noted that if corporate tax rates are higher than interest rate on bond, there will be value from using debt finance;
- (b) types of assets the firm has, as financial distress depends on the type of such asset;

- (c) uncertainty of operating income as firm's in this situation have a high probability of experiencing distress even without debt; and
- (d) the Pecking Order theory effect, in which firm's decide for and prefer internal financing to external financing irrespective of the cost of external financing.
- (e) Cost-return payable on borrowed funds.

Decision on capital structure is a decision on a firm's debt/equity ratio. Finance managers choose the capital structure that maximizes the value of the firm for share holders. Conversely, changes in firm's capital structure hurt shareholders if the value of the firm decreases.

Ideally, Ross et al (17) suggested that the capital structure of a firm should be at the level where the debt/equity ratio makes the total value of the firm as big as possible. They opined that finance managers should choose the capital structure that they believe will have the highest firm value, because that will be more beneficial to the firm's stockholders.

Total firm value is a function of debt and equity. Assets available to a firm are applied in its business to generate a stream of operating cash flows. After tax payments, firms make distributions to the providers of its capital and retain the balance for its use in the business. If the firm is all equity financed, the entire after-tax operating cash flow each period accrues to the benefit of its share holders as dividend and retained earnings. Where part of the firm's capital was borrowed, it must dedicate a portion of the cash flow stream to the debt. The choice of a firm's capital structure determines the allocation of its operating cash flow each period between debt holders and share holders. Returns to debt and shareholders are costs to the firm. The total weighted average cost of raising capital, is the sum of the costs of both, denominated by the respective weights of each in the firms capital structure. Changes in the structure also lead to changes in this weighted cost of capital. Finnerty (7), noted that as a company increases its weight of debt in capital structure (leverage), its cost of equity and its cost of debt both increases

because of the increase in financial risk. But for low degree of leverage, the cost of debt increases very little with increasing leverage. As a result, substituting debt for equity initially, according to him lead to a lower weighted average cost of capital. The savings resulting from substituting a cheaper source of funds for equity according to him, more than offset the increase in the cost of equity capital. Beyond this point, the increase in the cost of equity capital more than offsets the savings resulting from substituting a cheaper source of funds for equity. The adoption of an optimal capital structure is the adoption of that mix of equity and debt in a company to minimize its weighted average cost of capital and maximize its total market value.

Increasing a company's leverage, generally in corporate finance theory has two effects on its return on equity. As long as the company's return on assets exceeds its cost of debt, increasing its leverage will increase its return on equity. When its return on assets fall below its cost of debt, leverage reduces the company's return on equity. Secondly, it magnifies the impact of changes in the return on assets, on the company's return on equity than on the riskiness of their investment. In this situation, the increase in cost of equity will not be high enough to off-set the substitution of lower-cost debt for equity. Further increase in leverage, increases the riskiness of the company's at an accelerating rate.

A firm must strike a balance between the increases in use of debt in its capital structure to boost equity value and ensuring its weighted average cost of capital (WACC) is less than the return on assets.

As firms differ in sizes, operating environment and exposed levels of risk, the WACC for firms will also differ and expected returns on assets and equity will also differ from firm to firm, because of differences in operation, profit maximization strategies and shareholders expectations. These differences invariably suggest that different firms will have different optimal capital structures.

## **1.1 Objectives of the study**

The objectives of this study is to ascertain the determinants of firm capital structure of quoted firms in Nigeria and how these determinants influence the capital structures of these firms.

## **2 Theoretical framework and review of literature**

### **2.1 Theoretical framework:**

The capital structure a firm opts for is only a choice between debt and equity in financing long term investments. The amount of debt a firm uses for finance depend on the interest on debt, corporate income taxes, withholding taxes, personal income taxes, costs of financial distress, and covenant restrictions in other financing agreements, and other market imperfections. The lower the rate of interest on long term debts, the higher will be the desire of a firm to opt for it; but higher leverage increases the risk of financial distress. In the extreme, a firm may find it unable to meet its service obligations, and forced into bankruptcy by disappointed creditors. This normally led to substantial legal and administrative expenses and in addition, costs implicit in selling assets at distress prices. If not forced into bankruptcy, high leverage can make the firm's stock less attractive to investors as the probability of financial distress increases. By implication, the firm will be in difficulty raising further funds quickly on favourable terms; lenders will require higher interest rate; trade creditors will transact business with the firm on more stringent terms in addition to competitors' aggressiveness to exploit the firm's perceived financial weaknesses. For any particular company, there is an optimal capital structure that is determined by the trade-off between the net tax advantage of additional corporate leverage and the costs associated with increased likelihood of financial distress and reduced marketability of corporate debt that would result from additional leverage. An optimal capital structure of a firm is a

function of its corporate tax shields, investment tax shields, bankruptcy costs, cost of finance and agency cost. Increasing the proportion of debt in a firm's capital structure, increases the firm value up to a point. Beyond that point, further increases in leverage increases the average company cost of capital and decrease the total market value of the firm. Firms lie at different points on this trade-off line.

## **2.2 Review of literature**

### **2.2.1 Theories of firm capital structure**

Explanations of what determines a firm's capital are based on taxes, contracting costs, and information costs. Modigliani and Miller (14) in their contribution to capital structure discussion argued that investors value a company based on the operating profitability of its real assets. According to them, investors apply a capitalization rate to operating income which does not vary with the firm's degree of leverage. In their argument, the value of a firm depends on the size of its operating income stream, and not on how the income stream is divided between debt holders and share holders. Thus to them, if two companies have identical profitability but different capital structures, arbitrage among investors would ensure that the two firms have equal market values. Both concluded that capital structure does not affect firm's valuation because investors are able to substitute their own leverage for the firm's leverage, and if at no additional cost, then corporate leverage is of no value; securities are free of imperfections such as transaction costs; there is no cost of financial distress as bankruptcy penalties; and there are no taxes.

In reality, these are fallacies because the market has various degrees of imperfections; there are tax payments and bankruptcy penalties such as legal fees and the cost of disposing of assets at distress prices. The universally accepted

theory of trade-off of debt for equity in capital structure, suggest a trade-off between the tax benefits of debt and a variety of costs as well as some benefits of incurring financial distress. Empirical evidences by Bradley et al (3), Long and Malitz(10), Titman and Wessels(18), and Rajan and Zingales(16), confirm the presence of trade-off in firms' capital structure.

Drawing from empirical evidences, Grinblatt and Titman (20) noted that firms in the same industry tend to choose similar capital structures. For example, financial services firms, tend to have high leverage ratios while makers of scientific equipment tend to have low leverage ratios indicating that optimal capital structure of firm's vary from industry to industry, reflecting the differential costs and benefits of debts which are related to a firm's line of business.

To De Angelo and Masulis (6), the value of a firm is a function of its capital structure. Masulis (21) continuing in this line of thinking, said a change in the debt tax shield affects the value of the firm. Thus a change in taxes affects the capital structure of a firm, as managers willing to take advantage of the tax shield realign their capital structure to take of its full advantage. In addition, they noted that investment tax shields are economically related to debt tax shields, thus investment tax shields indirectly determines the capital structure of a firm.

Warner (19) concluded from his study of railroad firms in USA that bankruptcy costs (at 1% of market value of a firm prior to bankruptcy), influences the capital structure of a firm. The higher the perceived costs of bankruptcy, the more restraint will a firm be toward debt financing.

### **2.2.2 Determinants of firm capital structure**

The capital structure a firm opts for is only a choice between debt and equity in financing long term investments. The amount of debt a firm uses for finance depend on the interest on debt, corporate income taxes, withholding taxes, personal income taxes, costs of financial distress, and covenant restrictions in

other financing agreements, and other market imperfections. The lower the rate of interest on long term debts, the higher will be the desire of a firm to opt for it; but higher leverage increases the risk of financial distress. In the extreme, a firm may find it unable to meet its service obligations, and forced into bankruptcy by disappointed creditors. This normally led to substantial legal and administrative expenses and in addition, costs implicit in selling assets at distress prices. If not forced into bankruptcy, high leverage can make the firm's stock less attractive to investors as the probability of financial distress increases. By implication, the firm will be in difficulty raising further funds quickly on favourable terms; lenders will require higher interest rate; trade creditors will transact business with the firm on more stringent terms in addition to competitors' aggressiveness to exploit the firm's perceived financial weaknesses.

Higher leverage also increases the likelihood of tight covenant restrictions from lenders to protect their interests. These covenants according to Finnerty (7), are normally negative limiting the borrower's ability to incur additional debt, use of cash to pay dividends or make share purchases, mortgage assets, borrow through one of its subsidiaries, sell major assets, merge with or into another company or sell substantially all assets to another company, and sell assets and lease them back.

In addition, he noted that others require affirmative covenants which impose obligations on the borrower requiring the borrower to maintain properly, its properties; keeping accurate financial records; complying with applicable laws and regulations; payment of taxes; and at times the requirement to furnish lenders with financial statements at regular intervals. Interest payments are tax deductible, and impart a bias in its favour.

The withholding or personal income taxes, different from corporate tax rates, treats interest income and equity-related income differently. Long term gains are taxed at a lower rate than interests and dividends, and also differed until the gain is realized. The lower the personal income taxes compared to corporate taxes,



the better for the firm to use debt. An increase in the degree of leverage in a company's capital structure increases the variability of the returns to its shareholders, a financial risk, which also affects debt holders. The higher the financial risk of a firm, the lesser the ability of the firm to borrow more funds. Thus, a low operating risk company would support higher leverage because of its capability of taking on a higher degree of financial risk.

The proportion of funds raised through equity depends on the expected income streams to investors from such issue, security of such investments, its marketability and withholding and capital gains taxes payable on such investments. These factors indirectly affect the amount of equity finance that is available to a firm.

Business strategy a firm intends to adopt also determines its capital structure, so also the activities of customers, suppliers, employers and government (when financial guarantees are involved).

The Modigliani-Miller (14) theorem on capital structure and firm value, though commendable was described by them as too abstract. Grinblatt and Titman (20) described the real world as very different from the frictionless market model set forth by Modigliani and Miller (14). Frictions abound in the market in which managers can create value for their firms by making astute financing decisions. One of such frictions is tax (corporate and personal). From basic financial theory, taxes have a major effect on cash flow of firms, and as a result, strongly influence capital structure decisions. The tax-deductible nature of debt interest favours debt financing. Since interest expense is tax deductible, firms reduce their tax liabilities and increase the amount distributable to its shareholders by issuing additional debt. This favour will increase the preference for debts by managers, and increasing the proportion of debt in a firm's capital structure.

Personal income tax bracket to which an investor belongs, determines his predilection for income taxable under personal income tax Act or the capital gains tax Act. Grinblatt and Titman (20), noted that investors who pay high personal

income tax prefer to receive their income in the form of capital gains; because the gains can be deferred and taxable at lower rate (10% in Nigeria). With a high proportion of a firm's shareholders in this tax bracket, such firm will prefer to reinvest its earnings in high return bearing investments, boost the value of the firm and share value to maximize gains to equity holders. This financing plan will favour the use of retain earnings for financing investments, instead of debt. Invariably, such firm will have a high proportion of its financing from shareholders fund. Thus personal taxes, as corporation tax, alter firm capital structure. The preference for capital gains by equity holders is deduced as the reason for some preferring firms with low level of leverage.

Miller (11) relaxing the no tax assumption of Modigliani and Miller (14), concluded that the tax deductibility of interest on debts, favours the use of debt financing. He also agreed that the favourable tax treatment of income from stocks, lower the required rate of return on stocks and thus favour the use of equity financing. Though there is no consensus among researchers on the net tax effects of these two factors, most of them believe that interest deductibility has the stronger effect. Hence tax systems favour corporate debt (Brigham et al, 4). They however, added that this effect is reduced by the lower capital gains tax rate (10% in Nigeria).

From financial theory, we know that debt has tax advantage, yet firms are judicious in their use of leverage. Higher leverage increases the risk of financial distress. In the extreme case, a company that is highly leveraged will find itself unable to meet its debt service obligations and can be forced into bankruptcy by disappointed creditors Finnerty (7). This, he added, often lead to substantial legal and administrative expenses as well as costs implicit in selling assets at distress prices. When not forced into bankruptcy, high leverage can impose significant costs on the firm; investors may likely find the firm's stock less attractive as the probability of financial distress increases; the firm may find it difficult to raise funds quickly on terms acceptable to it; lenders may require higher interest rate, if

they are willing to lend at all; and trade creditors may require stringent terms before advancing credit to the firm. In addition, competitors may become more aggressive in order to exploit the firm's perceived financial weakness. This fear of bankruptcy and its attendant costs limit the use of more debts and thus restrict adjustments in firm capital structure in favour of debt.

Higher leverage increases the likelihood of lenders requiring tight covenant restrictions in dealings with firm customers to protect their interest. This may include restrictions on taking more debts, which will affect a firm's capital structure which would have being in favour of debts (Graham and Harvey, 8).

Market imperfections according to Finnerty (7), work in opposite direction to a firm's capital structure decisions. To him, many institutional investors, particularly pension funds, are restricted in their level of stock and bond investments. Capital structures of such firms are determined by the level of investments they are restricted to. The desire to change firm capital structure in favour of debts will not be possible.

The Nigerian capital market is a platform for raising funds for financing purposes. Both debt and equity instruments are traded in the market. Specifically, these are the fixed income securities (bonds issued by the federal, state and local government bonds, corporate debentures and preferred stocks), variable income securities (common stock) and derivatives. (Osaze, 15). The desire of firms to raise funds from the Nigerian capital market is allegedly hampered by the stringent listing requirements and high floatation cost currently, at 5.4% of raised funds, these reduces the ability of firms to raise funds via equity issues, and undertake changes to their capital structures. Thus equity financing of firm will be restricted to only contributed funds by promoters of the firm. These stringent requirement accounts for the paltry 214 equities traded on the Nigerian Stock Exchange. High interest rates of banks on loans average averaging 22% in the Nigerian financial market, adversely affects firms willingness to alter its capital structure in favour of debt issues.

On the fixed income securities, the market is inactive because of the long term risk aversion of Nigerian investors. This affects the ability of a firm to raise debt in its capital structure. Thus the dynamism expected in firm structure occasioned by changes in objective, strategies and fiscal policies are not witnessed in quoted firms in Nigeria.

### **2.2.3 Optimality and dynamism of firms' capital structure**

The total financing of a firm is the sum of debt and equity. The amount obtained of each is a function of its cost, objective of the finance managers, agency costs, bankruptcy costs, and effective use of tax shields available to the firm. Small firms are observed to be riskier than larger firms; thus the cost of obtaining finance from debt will be higher. Levered firms have an element of risk. The expected earnings from a security are a function of the risks associated with the security. Thus the higher the level of leverage, the higher the risk and expected returns from that security. In addition, higher leverage increases bankruptcy cost (Baharuddin et al, 1). As the level risk is unique to a firm, so is the expected return on security instrument issued by such firm. Prudence in corporate financial management requires firms to minimize risk while improving on earnings.

The advantage of tax shield of debt financing increases the value to a firm, and the level of risk unique to it. Prudence requires a firm to balance the gains from tax advantage with the cost of future financial distress that will be occasioned by the debt itself. As risk levels differ among firms, with different levels of advantages from tax shields, different levels of trade-off of tax shield and cost of financial distress, different levels of agency cost, so will be the different levels of debt financing in firms. Invariably, each firm will have a level of financing mix optimal to it. Different levels of financing mix results in different capital structures for different firms. Thus, for any particular company, there would appear to be an optimal capital structure that is determined by the trade-off

between the net tax advantage of additional leverage on one hand, and the costs associated with increased likelihood of financial distress and reduced marketability of corporate debt that would result from additional leverage on the other.

Companies exercise great care in choosing an appropriate capital structure. The choice from the above analyses may seem difficult because it involves complex factors, which impact is under debate in corporate finance theory. In principle, Finnerty (7) recommended that a firm should balance the net advantage of additional leverage against additional costs that would result. Unfortunately, the net advantage to a particular company's shareholders of an increase in corporate leverage: the change in the present value of the expected costs of financial distress, and the cost of reduced marketability of a firm's debt do not lend themselves to precise measurement. He suggested the use of judgment in the choice of capital structure, and for any firm a range of reasonable capital structures instead of a singular structure.

The choice of a particular mix of financing in a period does not preclude the firm from deciding for a different mix in another period when circumstances that warranted the earlier choice no longer exist. Increase in company tax rate, reduction in withholding taxes and decrease in cost of debt will require an adjustment to the financing structure to accommodate more debt, as such will increase the value of the firm. On the other hand, a decrease in withholding tax and increase in cost of debt will require an adjustment in the financing structure of the firm to accommodate equity finance because of the higher after-tax cost of debt. This need for dynamics in the capital structure of a firm according to Grimblatt and Titman (20), confirms the static capital structure theory as capital structures are optimized period by period. To harness the benefits of the theory, they advised firms to weigh the cost of having too much debt when they are doing poorly against the tax benefits, and when they are doing well to arrive at their

optimal capital structure. Thus optimal capital structure of a firm varies from time to time. A structure optimal in a period may not be optimal in another period.

Buckley et al (5), noted that changes in capital structure benefit the shareholders if and only if the value of the firm's increases. Conversely, these changes will hurt them if it decreases. They advised managers to choose the capital structure that they believe will give the highest firm value because this will be most beneficial to the firm's shareholders.

### **3 Methodology**

#### **3.1 Population of the study**

The population for this study is all the non-bank quoted firms in Nigeria. Banks were excluded because their capital structures are exogenously determined by the monetary regulatory authorities with no reference to the investment, operational and fiscal considerations of these banks.

#### **3.2 Study sample**

One firm with the highest capitalization was selected from each of the thirteen Nigerian Stock Exchange categorization (except the banking sector), with additional two each from the healthcare and foods and beverages, and additional one from the breweries categories for the study.

#### **3.3 Data collection and description**

Data for this study were obtained from annual reports of respondent firms and administered questionnaires on respondent quoted firms covering 2008 to

2010. Identified factors (cost of debts, COD; cost of equity, COE; benefits of tax shield, DTS; covenant restrictions in debt agreement, CRDA; firm dividend policy, FDP; parent company influence, CPI; corporation tax, CTR; fear of financial distress, FIND; competitors' structure, COS; and profitability, PFT) and regressed on the debt-equity ratios of the firms.

### 3.4 Data analysis

The multiple regression model is employed for this study for identifying the determinants of capital structure of quoted firms in Nigeria. Regression results show that capital structure of quoted firms in Nigeria is determined by the model:

$$DEQ = -4.812 - 1.066COD + 0.44COE + 1.650DTS + 0.644CRDA + 0.78FDP - 0.591PCI - 0.530FIND + 0.649COS + 0.163PFT$$

with  $R^2$  of 0.834 significant at 0.043 (in table 2 in appendix).

Table 1: Regression coefficients of determinants of firm capital structure

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-4.812	12.028		-.400	.001		
	COD	-1.066	.659	-1.089	-1.617	.015	.052	19.095
	COE	.444	1.572	.114	.283	.006	.146	6.841
	DTS	1.650	.691	1.570	2.389	.048	.055	18.172
	CRDA	.644	1.414	.260	.455	.003	.073	13.709
	FDP	.078	.772	.025	.101	.002	.386	2.591
	PCI	-.591	.359	-.616	-1.645	.001	.169	5.900
	FIND	-.530	.699	-.422	-.758	.004	.077	13.066
	COS	.649	.674	.350	.962	.003	.179	5.577
	PFT	.163	1.037	.040	.157	.008	.371	2.694

a Dependent Variable: DEQ

## **4 Discussion of findings, lessons therefrom for corporate finance decisions and conclusions**

### **4.1 ANOVA result**

The resultant regression equation with  $R^2$  of 0.834 is significant at 0.043 (table 2 in appendix) indicating a high predictive value of debt/equity ratios of quoted firms in Nigeria using the model.

### **4.2 Regression results**

Regression results significant at  $\alpha=0.05$  show that capital structures of quoted firms in Nigeria (measured by debt/equity ratios) is positively determined by the cost of equity, existence of benefits of debt tax shield, profitability and firm dividend policy implying that the higher the cost of equity, existence of benefits of debt-tax shield and level of operating profits the higher the debt/equity ratio of the firm. Thus debts in firm capital structure increases as firms replace expensive equity with a comparatively less expensive debt; use more debt when debt-tax shields exists with higher levels of profit capable of increasing the times interest earned, leaving more income to meet other expenses.

Positive changes in firm dividend policy (measured by dividend pay-outs) increases debt/equity ratio implying that the higher the amount paid out to shareholders as dividend, the more the firm will seek external financing for investments as retained earnings will be unavailable. The positive relationship between firm debt/equity ratios of sampled firms and competitors' capital structure (measured by the debt/equity ratios of competitors) implies that firms pattern their capital structures after that of competitors, holding on to financing patterns as they operate in similar business environment ensuring they do not



deviate significantly from their debt interest expense and dividend payment structure maintaining/increasing profits and market shares. Positive relationship existing between covenant restrictions in debt agreement and firm debt/equity ratio counter established finance theory as its existence should reduce debt in firm capital structure.

Cost of debt, parent company influence and fear of financial distress inversely affect firm capital structure. Thus the higher the cost of debt, increased possibility of financial distress and heightened caution from parent company (where there exists the likelihood of local debt exceeding foreign contributed capital increasing risk of liquidation and subsequent loss of their investment), reduces the amount of debt in firms' capital structure.

The regression operation excluded corporate income tax from the model implying its non-importance in itself in determining firm capital structure but on the benefits of the tax.

Corporate financial managers should ensure that identified positive determinants should positively determine their firm capital structures and identified negative determinants, negatively determine their firm capital structures as sampled firms have no history of financial distress and shareholders' complains of firm dividend policies.

### **4.3 Test for multicollinearity**

The variance inflation factor (VIF), in table 1, of 5 identified determinants (COE, FDP, FCI, COS and PFT) are less than 10 evidencing low level of multicollinearity among these variables. VIF values of 19.055 for COD, 18.172 for DTS, 13.109 for CRDA and 13.066 for FIND, in Table 1, evidences levels of multicollinearity among the variables though low.

## 5 Recommendations

For a firm to obtain an optimal capital structure, finance managers of quoted firms in Nigeria should:

- (a) reduce debt in the capital structure of their firms when there exists a likelihood of increased financial distress and high cost of debt;
  - (b) increase debt in the capital structure of their firms when cost of equity, profitability and benefits from tax shield is high;
  - (c) ensure optimal trade-off between costs and net tax advantage of additional leverage and costs and benefits of equity in firm capital structure;
  - (d) ignore corporate income tax itself in determining their firm capital structure  
but take cognizance of tax benefits of debt in their firm capital structure;
- and
- (e) identify his firm's operating risk using ratio analysis, a successful firm with similar characteristics, and adopt its capital structure, as competitors' capital structures positively affect firm capital structure.

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## Appendix

Table 2: Regression model of capital structure determinants

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.913 (a)	.834	.620	1.33581	.834	3.899	9	7	.043

a Predictors: (Constant), PFT, FIND, FDP, COE, PCI, DTS, COS, CRDA, COD

b Dependent Variable: DEQ

Table 3: ANOVA table of the regression model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	62.618	9	6.958	3.899	.043(a)
	Residual	12.491	7	1.784		
	Total	75.109	16			

a Predictors: (Constant), PFT, FIND, FDP, COE, PCI, DTS, COS, CRDA, COD

b Dependent Variable: DEQ