Business Administration and Business Economics

Corporate Tax And Financing
Decisions: An Emerging Market Experience

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Abstract: The objective of this study is to determine the significance of the tax benefits in explaining observed leverage ratios amongst firms in Nigeria. To investigate how the results of previous studies and traditional theories on financial leverage compare with the real situation in the Nigeria corporate environment. The differential impact of tax treatment of debt on corporate financial policy in developed countries. The parameters of debt ratios are estimated by fitting multiple linear regression after this equation- l=f (τ r, s, v, π, m, c, σ). Our dataset covers a cross-section of 60 quoted firms from Nigerian stock Markets over a ten year period (1996-2005). The tax benefit of debt approximately equals fifteen (15) percent of firm value. However, this tax advantage does not seem to explain observed debt ratios since we could *not* obtain a statistically significant coefficient for the marginal tax rate. The provision of empirical evidence in support of known theories.

Keywords: tax shelter; capital structure; leverage; financing; firms

1 Introduction

The finance literature has long offered a simple model of how taxes affect financing decisions .The capital structure choice has long been an issue of great interest in the corporate finance literature. This interest is due to the fact that the mix of funds (leverage ratio) affects the cost and availability of capital and thus, firms' investment Tax shelters have received recent scrutiny in the financial economics literature because of their impact on firm decisions. Since the seminal capital structure irrelevancy proposition of Modigliani and Miller (1958), research

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and debate on capital structure have been intense but somewhat inconclusive .Tax shelters have brought to the fore the pervasive use of shelters and the many millions of dollars of profits that appear to have been sheltered. Accounting for debt tax shields and financial distress costs overturns the capital structure irrelevancy proposition and leads to an optimal gearing ratio which maximizes firm value (Kim 1978). A change in the corporate tax level can have a significant impact on rate making and capital structure for   companies. Financial economists recognize the importance of understanding the role and impact of tax shelters on financial decisions, and have recently initiated efforts to understand such transactions. Tax constitutes a potentially important consideration in firms' decisions. If a company is financed by debt capital, there will be tax relief available on interest payments.

Alternatively, if the company is financed with share holders' fund (that is equity capital), then dividend will be paid on the equity from the profit after tax, which will in turn give rise to a liability for personal income tax. In the presence of taxes, however, companies would generally favour debt, since the tax shield by deductible interest expenses increases the company value .Over the years, researchers have examined the differential impact of tax treatment of debt on corporate financial policy in developed countries .However the existing studies in this area are scanty in Nigeria. This is the lacuna this study attempts to fill. Studies on the incidence of company income tax and its impact on financing decisions of firms have concentrated on developed countries.

In Nigeria, corporate interests' payments are deductible before tax; 30% of corporate tax savings on interest deductions can lower the cost of debt to 70%. The rest of this paper proceeds as follows: In section 2, we briefly review the relevant capital structure literature. The dataset employed and methodology is discussed in section 3. The results are presented in section 4 while section 5 summaries the salient findings and concludes.

2. Capital Structure Theory and Evidence

Capital structure can be defined as the mixture of long-term financing sources such as debt, preference shares and equity interests which constitute the permanent capital used to finance an organization. It is simply the makeup of the permanent capital of the firm. Capital on the other hand is the amounts of wealth placed at the disposal of the firm to enable it carry out its functions.

A comprehensive summary of the capital structure literature is provided by such authors as Harris and Raviv (1991) and Frank and Goyal (2005). Central to our understanding of financing behavior is the trade-off theory which asserts that an optimal gearing ratio is reached by the firm at the point where the marginal benefits

of employing debt, such as interest tax shields, equal its marginal costs such as financial distress and bankruptcy costs (Kim, 1978).

The empirical case for the trade-off theory is not as strong as it looks. First, statistical results "consistent" with the trade off theory can be consistent with other theories as well. Second, there are too many examples of successful, highly profitable firms operating at low debt ratios. These firms are not "the exceptions that prove the rule; because studies of the determinants of actual debt ratios consistently find that the most profitable companies in a given industry tend to borrow the least. For example, Wald (1999) found that profitability was "the single largest determinant of debt/asset ratios" in cross-sectional tests for the U.S, U.K; Germany, France and Japan. Booth, et al. (2001) reached a similar conclusion for a sample of ten developing countries. High profits mean low debt, and vice versa. But if managers can exploit valuable interest tax shields, as the trade off theory predicts, we should observe exactly the opposite relationship. High profitability means that the firm can service more debt without risking financial distress. Debt is a contract that forces the firm to pay out cash. A high debt ratio can be dangerous, but it can also add value by putting the firm on a diet and curbing overinvestment. Stulz (1990) presents a model of how the diet works. He assumes that managers will always invest free cash flow; even in negative- NPO projects, unless the cash is required for debt services. The ideal level of debt (and debt service) leaves just enough cash to fund all-and only-positive-NPO projects. Thus leverage should depend on the investment opportunity set. Firms with valuable growth opportunities should choose low debt ratios to free up cash for expansion. Firms with limited growth opportunities should operate at high debt ratios to constrain management. Debt plays a similar role in leveraged restructurings, where a public firm all at once borrows a large fraction of the value of its assets and pays out the proceeds to stock holders. Wruck (1995) provided a fascinating case study of the leveraged restructuring at sealed Air Corporation. Lemmon and Zender separate firms into two groups on the forgone tax benefits associated with debt financing. They documented that a large fraction of firms are conservatively financed, and that neither the pecking order nor the trade off theory of capital structure adequately explain this result. In their corrected version of the classics MM'S propositions, Modigliani and Miller (1963). Show that when corporate tax is taken into consideration, the firm value becomes an increasing function of debt. Debt financing is viewed as more advantageous than equity because using more debt reduces the expected tax liability and increases the after tax cash flow. This result also implies that, giving the existence of bankruptcy costs or reorganization section costs due to debt usage, there should be an optimal capital structure that equates debt tax shields and the cost of financial distress. The analysis in Modigliani and Miller (1963) considers the impact of corporate tax while ignoring the effect of personal income tax. Miller (1997) explicitly takes into account the effect of the latter tax code and demonstrate that in equilibrium, the total amount of tax saving

will be equal to zero. In other words, the advantage of the corporate tax is cancelled by the disadvantage of the personal tax. The author further suggests that there should be no optimal debt ratio for any individual firms.

Determinants of Capital Structure

This section describes firm characteristics that existing theories of capital structure suggest may be related to the debt-equity choice made by firms. Our primary variables of interest is the tax benefits debt of quoted firms. In addition, we control for size, profitability, growth, collateral value of assets, non-debt tax shields.

A. Tax Benefits Variables.

Extrapolating from the argument in DeAngelo and Masulis (1980) that there exists a negative relation between leverage and the level of non-debt tax. In addition to the above factors, the effective tax rate has been used as a possible determinant of the capital structure choice. According to Modigliani and Miller (1958),as interest payments on debt are tax-deductible, firms with enough taxable income have an incentive to issue more debt. It must also be pointed out that higher corporate tax rates reduce firms' internal funds and increase their cost of capital. In other words, higher taxes might decrease the formation of fixed capital and demand for external funds (Kremp et al., 1999). Based on this between arguments, we expect a negative relationship in the level of debt and the effective tax rate

B. Profitability

Due to the tax deductibility of interest payments, it is argued that highly profitable companies tend to have high levels of debt (Modigliani and Miller, 1963). However, The pecking order theory of Myers (1984), Myers and Majluf (1984), and Shyam-Sunder and Myers (1999) suggests that firms prefer to finance investments first from retained earnings, second from debt, and third from equity. According to this theory, more profitable firms should have lower leverage ratios than less profitable firms since they are able to finance their investment opportunities with retained earnings.

C. Firm Size

Previous literature suggests that leverage ratios may be related to firm size. Warner (1977) and Ang, Chua, and McConnell (1982) provide evidence that direct bankruptcy costs increase as firm size decreases. Further, larger firms tend to be more diversified and less prone to bankruptcy. These observations suggest that large firms should be more levered than small firms. However, size can also proxy for asymmetric information and access to capital markets. Because of these two factors, Smith (1977) shows that issuing equity is more expensive for small firms than for large firms, suggesting that small firms may be more levered than large

firms. In addition, it is argued that smaller firms tend to have less long-term debt because of shareholder – lender conflict

D. Non-Debt Tax Shields from Operations

DeAngelo and Masulis (1980) suggest that tax deductions for depreciation and tax-loss carry forwards are substitutes for debt, and thus firms with large non-debt tax shield should have less debt.

E. Growth

Myers (1977) argued that due to information asymmetries, companies with high leverage ratios might have the tendency to undertake activities contrary to the interests of debt holders (under-invest in economically profitable projects).If firms with high growth opportunities have high information asymmetry, then we would expect these firms to have less debt. In addition, as suggested by Titman and Wessels (1988), if growth opportunities are viewed as capital assets that do not generate current taxable income, one would expect a negative relation between growth Opportunities and leverage .Finally, as suggested by Galai and Masulis (1976),Jensen and meckling (1976),and if stockholders have the incentive to expropriate wealth from bondholders by investing in a suboptimal fashion and the cost associated with this agency problem is higher for firms with high growth opportunities, then again, one would expect leverage to be negatively related to growth opportunities

F. Collateral value of Assets.

Myers and Majluf(1984) argue that if a firm's managers have better information about a security than outside shareholders, then there may be costs associated with issuing such securities. Since issuing debt that is secured by assets whose values are known would avoid these costs, firms with more collateral would tend to issue more debt. The agency arguments in the previous section, that suggest a negative relation between growth opportunities and leverage, would also imply a positive relation between collateralization and leverage. Firms with higher collateral assets should be able to take o more debt than other firms since there is less information asymmetry involved in these assets.

3. Methodology

To derive a proxy for the tax benefits of debt in the Nigerian corporate environment, we use TcB. Tc represents the corporate tax rate while B represents average debt issues for the selected firms and for the ten year period. Marginal corporate tax rate is measured as follows:

$$\zeta = \frac{\text{Taxation as per P \& L}}{\text{Operating Cash flow before taxes}}$$

This definition is consistent with (Homaifar, et. al. 1994:11). The basic model for establishing the nature and extent of relationship between the leverage ratio (ị) and firm's attributes identifies eight exogenous variables. these variable are the corporate tax rate (ζ), the non-debt tax shelter ratio (r), firm size (s), future growth opportunities (v), profitability (π), capital market conditions (m), tangible assets (c) and earning volatility (σ).

The parameters of debt ratios are- estimated by fitting multiple linear regression after this equation- l=f (τ r, s, v, π, m, c, σ).

The expected sign is that firms' leverage is an increasing function of their respective tax positions.

4. Empirical Results

Table 4.1. Average market values of Outstanding Debt and Net Assets of Sample Firms (1996 – 2005)

s/n	Name of company	Average outstanding debt (β_i)(N'b)	Net assets (NA$_i$)(N'b)
1	Dunlop	1, 231,032	3,470,421
2	R.T. Briscoe	845,763	1,514,570
3	Guinness	2,019,007	46,826,773
4	Nigerian Breweries	10,241,765	126,111,065
5	Ashaka Cement	2,664	13,753,664
6	WAPCO	10,659,102	34,470,938
7	First Bank (FBN)	160,646,842	207,084,034
8	UBA Plc	105,065,122	120,951,322
9	Union Bank (UBN)	169,523,200	220,222,800
10	CAP Plc	244,895	905,555
11	John Holt	1,748,200	3,297,000
12	Unilever	1,750,364	33,273,409
13	PZ Industries	1,021,851	18,931,344
14	UAC	4,244,709	10,640,361
15	7-UP Bottling Company	1,397,129	4,876,588
16	Cadbury	2,740,938	27,084,404
17	Flour Mills	5,565,057	13,911,759
18	Nigerian Bottling Company	2,603,398	36,685,639
19	May and Baker	230,862	810,816
20	Neimeth	476,971	967,944
21	Vita Foam	364,256	1,854,545
22	Mobil	2,850,103	29,268,428

23	Oando	8,619,471	27,793,913
24	Total Plc	232,842	27,282,966
25	Longman	119,565	489,430
26	Nestle	159,646,835	207,084,034
27	Texaco	104,765,124	120,951,322
28	Berger Paints	1,335,030	3,670,451
29	CFAO	741,763	1,714,177
30	First Aluminum	302,640	14,955,600
31	Julius Berger	169,222,834	219,020,864
32	Trans Nationwide Express	444,899	937,509
33	Nigerian Enamel Ware	1,758,602	4,295,050
34	Lennards Nigeria	1,550,360	32,271,309
35	Vono Products	1,611,853	18,903,440
36	Academy Press	4,234,307	11,540,341
37	Cement Co. of N/Nigeria	10,049,100	33,570,958
38	Poly Products Nigeria	9,881,765	124,100,060
39	SCOA Nigeria	2,219,057	48,837,778
40	Triple Gee	433,963	810,816
41	AVON	464,236	1,754,044
42	CAPPA AND D'ALBERTO	1,297,129	4,977,086
43	Northern Nig. Flour Mills	5,265,007	15,901,750
44	International Breweries	2,640,738	27,063,400
45	Alumaco Plc	2,703,598	34,695,648
46	Nigerian Wires and Cable	2,650	29,268,428
47	Nigerian German Chemical Plc	432,871	27,482,966
48	Glaxosmithcline Consumer	576,942	988,948
49	Okumo Oil	8,419,451	27,993,943
50	Afriprint	319,585	489,137
51	United Textile	464,276	1,954,551
52	Evans Medical	10,376,951	31,967,944
53	Morison	9,252,939	25,710,810
54	IPWA	10,659,502	32,297,000
55	Capital Oil Plc	232,842	26,482,966
56	Thomas Wyatt Plc	10,119,165	21,489,137
57	NCR	10,244,895	26,905,585
58	Presco	2,845,662	9,514,570
59	Costain	38,220,488	109,877,881
60	B.O.C. Gases	105,065,122	118,951,322
TOTAL		**1,186,668,259**	**2,430,910,613**

Source: Computed from Handpicked Data from the Annual Reports and Accounts of 60 Sampled Quoted Firms for Various Years.

Average outstanding debt is the aggregate data of each firm for the period under study(1996-2005).Debt for purpose of this study includes all borrowings or credit arrangement for which the firm (beneficiary) incurs periodic charges such as interest, rent, discount, commissions etc that are expensed over the periods to which they relate and are thereby tax-deductibles. The choice of total debt (long and short term) is best in countries where accounting data are not uniformly available. This is against the practice in some other countries where some researchers made use of long term debt. Average outstanding debt was computed for each firm thus:

$$\overline{\beta i} = \frac{\sum_{t=1}^{n=10} \beta it}{n} \qquad 4.1$$

Average market value of net assets was computed for each firm thus:

$$NA_i = \frac{\sum_{t=1}^{n} NA_{it}}{n} \qquad 4.2$$

These computations are consistent with Realdon (2006)

Given the results in Table 4.4 and the fact that the corporate tax rate equals 30 percent for the study period (1996 – 2005), we derive the tax benefits of debt (T_D) as follows:

$$T_D = \tau cB \qquad 4.3$$
$$= 30\% \times N1,186,668,259$$
$$= N356,000,477.7$$

In absolute terms, the tax benefits of debt for the sample firms are over Three Hundred and Fifty Six Billion Naira.

The percentage of these benefits that is captured in net assets can also be derived:

$$_PT_D = \frac{356000477.7}{2430910613}$$
$$= 14.6\%$$

Given that the values of net assets are equivalent to aggregate market valuation of firms; our results reveal that tax benefit of debt approximately equals 15 percent of firm value.

Graham's (2000) study of US firms indicates that the tax benefit of debt equals 9.7 percent of firm value. This might suggest that Nigerian companies derive greater tax advantages in the use of debt relative to their US counterparts. Paradoxically, the regression results presented earlier indicate that the tax rate (τ) is insignificant in the borrowing decisions of

firms.

4.1. Time-Series Results of the Determinants of Capital Structure

Table 4.2 below presents the results of our time-series leverage regression on our eight (8) regressors.

Table 4.2 a. Results Of Market Leverage Regression Using Time Series Data

Constant	Marginal tax rate (τ)	Non-debt tax shetter (r)	Size (s)	Growth (v)	Capital market (m)	Collateral (c)	Profitab ility	Earnings volatility (σ)	Std. error of estimate	R^2	Adjusted R^2	Durbin Watson	N
0.14	-0.01	0.75	0.09	-0.00	-0.00	-0.24	-0.03	-0.00	0.18	0.59	0.58	2.12	600
(3.05)	(-0.91)	(3.44)	(4.75)	(-1.36)	(-0.47)	(-15.42)	(-4.33)	(-0.33)					

Table 4.2b. Results of Book Leverage Regression Using Time Series Data

Constant	Marginal tax rate (τ)	Non-debt tax shetter (r)	Size (s)	Growth (v)	Capital market (m)	Collateral (c)	Profitability (π)	Earnings volatility (σ)	Std. error of estimate	R^2	Adjuste d R^2	Durbin Watson	N
0.27	-0.01	0.03	0.07	-0.00	-0.00	-0.21	-0.03	-0.00	0.23	0.43	0.42	1.88	600
(4.96)	(-1.53)	(0.13)	(3.07)	(-1.21)	(-0.11)	(-10.82)	(-3.59)	(-0.62)					

Source: Computed From Data In Table4.2 (using special package for social sciences SPSS computer statistical package

The results presented in Table 4.2 shows an inverse relationship between leverage and marginal tax rate for the years 1996-2005 and statistically significant at ten percent (0.10). This result contradicts the notion that firms leverage is an increasing function of their respective tax positions.

Interco-Relation Matrix Of The Relation Between Market Leverage (Ml) And The Eight Regressors

		ML	T	R	S	V	M	c	Π	Σ
	ML	1.00								
	T	-0.09	1.00							
	R	0.08	-0.04	1.00						
	S	-0.33	-0.06	0.32	1.00					
	V	-0.10	0.01	-0.05	0.02	1.00				
	M	-0.06	0.00	-0.03	-0.06	0.00	1.00			
	C	-0.69	0.03	0.18	0.72	0.05	0.03	1.00		
	Π	-0.13	-0.01	0.05	0.13	-0.01	-0.04	0.00	1.00	
	Σ	-0.08	-0.06	0.23	0.47	-0.09	-0.05	0.26	0.05	1.00
Sig (1-tailed)	ML									
	τ	.09								
	r	.11	.26							
	s	.00	.18	.00						
	v	.06	.47	.21	.40					
	m	.17	.48	.30	.17	.48				
	c	.00	.34	.00	.00	.23	.35			
	π	.02	.47	.23	.02	.45	.26	.49		
	σ	.12	.19	.00	.00	.08	.24	.00	.23	

Table above indicates that the explanatory variables are not highly multi-collinear. Thus, the regression estimates in Table 4.2a are quite reliable.

Source: Computed From Pooled OLS Regression Analysis.

Firms with higher collateral should be able to take on more debt, Ceteris paribus. Consistent with this hypothesis; we find that firms with tax benefits have lower ratios of property; plant & equipment to assets and marginally higher ratios of intangible assets to total assets, than firms without tax benefits. The marginal tax positions of firms do not influence managerial decisions on corporate finance in Nigeria. Without adjusting for bankruptcy costs, we report the tax benefit of debt to be as high as 14.6 percent of firm value.

5. Conclusion

There is clearly no discussion in capital structure in corporate finance literature without a strong emphasis on the impact of tax. Tax constitutes a potentially important consideration in financing a firm. Recorded in literatures are that the presence of different kinds of tax creates one of the most important sources of imperfection in financial leverage decision. The much acclaimed benefits of debt financing rests on the finding that with corporate taxes, interest payment become tax deductible as an expense. Firm tend to make strategic changes in leverage in response to tax law changes. Governments in different countries use the said tax benefits arising from debt financing to moderate investment financing among firms.

The Nigerian Government taxes corporate income, but interest is tax-deductible expense. A taxpaying firm that pays an extra naira amount of interest receives a partially offsetting "interest tax shield" in the form of lower taxes paid. Financing with debt instead of equity increases the total after-tax return to debt and equity investors, and should increase firm value. The present value of interest tax shields could be a very big number.

Our result might suggest that the substitution effect, brought about by the existence of tax shelter substitutes, is greater than the income effect of increasing debt in order to reduce the corporate tax liability. On the basis of our empirical results, the tradeoff theory is in immediate trouble on the tax front, because it seems to rule out conservative debt ratios by taxpaying firms. If the theory is correct, a value-maximizing firm should never pass up interest tax shields when the probability of financial distress is remotely low. Our results fail to confirm a statistically significant positive tax coefficient in the observed debt ratios of Nigerian quoted firms.

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