

---

## Corporate tax shield and capital structure of listed non-financial firms in Nigeria

---

\*Sugu Isa Hammawa and <sup>2</sup>Daniel Orsaa Gbegi

<sup>1&2</sup>Department of Accounting, Federal University of Kashere  
Gombe State, Nigeria

\*Corresponding Author: [hammawasugu@gmail.com](mailto:hammawasugu@gmail.com)

<sup>2</sup>Email: [gbegidan@gmail.com](mailto:gbegidan@gmail.com)



### ABSTRACT

This study is an empirical investigation of the impact of tax shield on the capital structure of listed non-financial firms in Nigeria. As having the rightful mixture in a company's capital structure is always a daunting task that often defines its fortune. Thus, a wrong combination can always lead to the collapse of a company. The study employed an exploratory research design where both secondary and primary data were sourced from the audited annual reports and account of 48 sampled size, with a population of 71 non-financial firms, quoted on the floor of the Nigeria Exchange Group (NGX), as at 31<sup>st</sup> December, 2022 out of the total 155 listed companies, and with a study period; 2018-2022. The study employed descriptive statistics and the regression technique to analyze data collected, while adopting the Trade-off Theory. The findings revealed a positive relationship between Non-debt tax shield and the short-term debt and debt tax shield. While the results of the random effects analysis show that there is a negative relationship between debt tax shield long-term debts of these firms, and that debt tax shield have a negatively influence the corporate debt of these firms. Therefore, recommending that the Joint Tax Board to ensure an efficient and effective tax system that would support business growth in this sector, with a feasible debt package. And the shareholders should permit the management to increase the use of an ideal debt financing in their capital structure.

**Keywords:** Capital Structure, Non-debt Tax Shield, Non-Financial Firms, Tax Shield

---

## 1. INTRODUCTION

One important strategic decision for managers in modern organizations is the decision on the best combination of debt and equity capital that would enhance performance and good returns on investment to the shareholders of their firms. Kraus and Litzenberger (2020) opined that the contributory effect of capital structure to the value of the firm has been a subject of an enduring debate in corporate finance, resulting in to various recommendations on the best possible alternatives. Indeed, Scholars both in the developed and developing countries without a consensus to its real importance to ensuring the maximization of firm value have viewed capital structure from a different perspective (Beneish, 2019; Faulkender & Petersen, 2006; Myers, 2014; Panier et al., 2013). On the issue of capital structure and the value of the firm, Modigliani & Miller (1958) argued under certain assumptions that the value of the firm does not depend on its capital structure but on the relative benefits in the form of tax shield and costs of debt such as financial distress and bankruptcy costs thus, Akinyomi and Olagunju (2013), Poole (2019) and Graham (2020) shared the same opinion.

However, a potential problem often arises when and how best to combine both the debt capital and the equity capital in a firm's ideal capital structure. A mismatch in this regard could always lead to either under or over trading, which both has its implications. Similarly, a capital structure decision is always a tactical decision that requires an efficient and effective strategies, as that always undermine the survival of the company ones the wrong combination is adopted, or missing out in the benefits of debt financing, which is the usual scene. Ayers, at, al (2001), and Mackie-Mason (2019), observed that, it is equally problematic when firms are unable to factor in the essence of the effect of taxes on the capital structure, so as to have an optimal capital structure in place, especially in debt financing for its attendance benefits. The benefits of which many companies fail to appreciate.

According to Amahalu, (2017), many companies do not appreciate this concept of greater debt than equity in the capital structure, hence forfeiting the attendance benefits and which this study is out to address. The right choice is to build an ideal capital structure that maximizes this benefit from debt financing than equity, in order to enjoy the benefits of tax shield. In the same vein, King (2004), following the revolutionary work of Modigliani & Miller (1963), argued the impact of tax shields on corporate capital structures enhances the firm's financial soundness. It is that bases therefore, this study is motivated so as to establish the realities of this perception.

---

## 2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This section review some related literatures, in respects to the following concepts; The review of the conceptual framework, the theoretical framework, the empirical framework, the concept of tax shield, comprises of both the non debt tax shield and the debt tax shield. Others are the concept of capital structure and the non financial service companies.

### Conceptual Review

#### *Capital Structures*

Capital structure is the mixture of the proportions of equity and debt in a firm's finance capital. Thus, Kraus and Litzenberger (2020) opined that the contributory effect of capital structure to the value of the firm has been a subject of an enduring debate in corporate finance, resulting in to various recommendations on the best possible alternatives

#### *Tax Shield and Firm's Capital Structures*

Tax Shield is the reduction in income taxes of a company that often results from taking an additional deduction from taxable income. For example, tax shield is usually created since interest on debt is a tax-deductible expense, which is often taking on debt as an offset against the taxable income, thereby lowering the total tax liabilities to be paid. Thus, Vasiliou and Daskalakis (2019) argued that, such as interest expense associated with mortgage which is tax deductible, from a company's total taxable income. Furthermore, according to Voeller and Overesch (2018), capital structure referred to the entire components of firm's resources of finance for its trading, which often comprises of both owners equity and borrowed funds. Several studies like; Booth et al.(2001), Graham and Leary (2011), Myers (2004), Huang and Song (2006), Saunders at, al (2013), have examined the capital structure and the value of the firm but with different views and perceptions on the debt aspects. More so, Modigliani and Miller(1963) proposed the pioneer theory of capital structure, which suggested the best alternatives amongst the various options of firm's financing.

#### *Non-debt Tax Shield and Firm's Capital Structures*

These comprises of other expenses, such as depreciation allowances on investments, tax loss carried forward (or backward) and expenses on Research and

Development (R&D). Thus, serving as benefit, since its always lowered that taxable income, leading to a lesser tax liabilities. Studies, such as Gvoly, et al., (1992) and Graham, (2020) examined the influence of non debt tax shield on the firm's debt found a negative relationship between the level of debt in a firm and the amount of NDTs. On the other hand, Awan & Amin (2014) reported a significantly and positively linkage between non-debt tax shield and financial leverage. Huang & Song (2006) used accounting and market data from a sample of more than 1,000 listed Chinese companies to investigate the determinants of capital structure.

### ***Investment Tax Credit and capital***

Graham & Leary (2011), observed that, an investment tax credit is usually federal tax incentive for business investments granted as a deduction of a certain percentage of an investment from the taxes of companies that lack some basic infrastructural facilities in it locations. Thus, as it reduces the tax burden it will increase the profitability level.

### ***Loss Carry Forward and capital structure***

The loss relief is usually granted to business that has incurred a huge losses and consecutively, which is permitted to be deducted from the profit before tax of the subsequent years, up to a period of three (3) years, which must then be absorbed. Accordingly, Fishcher at al. (2019) maintained that, it's often provides a lifeline to existing business under a poor trading periods.

### ***Depreciation/Donation and capital structure***

While depreciation is a mere provision, that does not involve the physical movement of cash, it is usually not allowable as it can be added back for an adjusted profit. Graham (2020), opine that it negates the overall capital of a firm, whereas donation which are not wholly and reasonably related to humanity and economy are also disallowable.

### ***Interest on Debt and capital structure***

Myers (2014), ascertained that, interest on mortgage loan, for instance is an option for finance, as it is an allowable deduction, which can add to the profitability margin of a firm, by lowering the total tax liability to be paid. It is on that basis that, this study is being motivated to be undertaking, in a search for the relationship

---

between the interest on debt and the debt capital in an ideal capital structure of a firm.

## Empirical Review

Beneish (2019), DeAngelo & Masulis, (2008), all found out that , the influence of non-debt tax shield and tax shield has a substitution effect on the capital structure of a firm, as the role of debt financing reveal the relationship between the capital structure, firm's value and other macroeconomic factor. Thus the study is in agreement with Misah at,al (2022), which observed that, there is always a U-shape relationship between debt and Tobin's Q, in mediation with income. In a similar vein, DeAngelo & Masulis (2008) observed that, firms with large non-debt tax shield relative to their cash flow usually have small debt ratios in their capital structure. Similarly, Duong (2021), found out that, the interest tax shield referred to the tax savings resulting from the tax-deductibility of the interest expense on debt borrowing, since the payment of interest reduces the taxable income and the amount of taxes due, which is a demonstrated benefits to a firm, of having debt and interest expense. Titman and Wessels (2008) and Brealey at. al, (2013), examined the influence of non-debt tax shield on debt and reported that non-debt tax shield has an insignificant relationship with debt.

However, empirical evidence on the relationship between tax shields and the capital structure of corporate organizations have been mis placed (Givoly et al., 2002); Graham & Leary, 2011). Frydenberg (2004) and Fishcher at al, (2019), used data from Norwegian manufacturing firms found a significant negative relationship between non-debt tax shield and leverage. In a similar vein, Myers (2004),Huang & Song(2006),Graham & Leary(2011), and Booth et al. (2001), have examined the capital structure and the value of the firm but with different views and perceptions. Although Wrightsman (2022), discovered that, tax shield valuation and the capital structure decision could not give a precise analysis, in presence of corporate taxes and risky debt. Thus, tax shield and capital structure can be well conveyed, when the tax shield on interest is valued in the presence risky debt, when the debt and the interest element are risky, then the tax shield benefits on the debt interest becomes risky too. In all circumstances, credits goes to Modigliani & Miller(1963) as pioneer in the theory of capital structure, dividend policy and the benefits of debt financing to a firm, upon which these subsequent studies were built.

More so, Calvin (2021), in the study of debt to equity financing and the exact value of a firm, found out that, the substitutes for debt to equity in a firm's capital

structure often raise the value of the firm's debt. Thus, the value of a firm is invariably maximized by maximizing the debt capital. The study argued that, most essentially, since corporate tax is quite independence of leverage. The value of a firm is therefore increased in proportion with the quantum of debt financing. Therefore, in line with the aforementioned, the following null hypotheses is been developed in order to test whether there is any relationship between the proxies of the capital structure and the tax shield or the non-debt tax shield of these companies;

*H<sub>01</sub>: investment tax credit has no significant relationship with capital structure of quoted companies in Nigeria.*

*H<sub>02</sub>: loss carry forward has no significant relationship with capital structure of quoted companies in Nigeria.*

*H<sub>03</sub>: that depreciation has no significant relationship with capital structure of quoted companies in Nigeria.*

*H<sub>04</sub>: donation has no significant relationship with capital structure of quoted companies in Nigeria*

*H<sub>05</sub>: that debt interest has no significant relationship with capital structure of quoted companies in Nigeria.*

## Theoretical Review

The study employs the Trade-off Theory, as the underpinning theory. This is because, as one variable, for instance interest on debt decreases leading to a decrease in taxable income, the other variable (equity- profit) is increased. And as the Debt tax shield increases, the total debt eventually decreases. However, the Trade-off Theory is adopted amongst the Agency and the Debt- Market Theories. The bases for the trade-off theory pioneered by Myers (2014), is that the theory relied on the introduction of taxes to the original proposition to the irrelevance theorem of capital structure by Modigliani & Miller(1963), which created the tax benefits of using debt to finance economic activities. Myers (2014) argued in trade-off theory that the choice of a firm's capital structure is a function of the trade-off between the benefits of debt, which is the debt tax shield, and the costs of borrowed funds, such as agency costs, bankruptcy and financial distress costs.

### 3. METHODOLOGY

This study employed the exploratory research design to examine the impact of tax shield and non debt tax shield on the capital structure of quoted non financial companies in Nigeria. Out of the 155 total listed companies in Nigeria, the study population is 71, which were specifically the Non-financial service companies quoted in the Nigerian Exchange Group (NGX) from the year 2018-2022, adopting the Trade-off Theory. However, the final sample composed of 48 non-financial companies quoted in the NGX as of December 31, 2022, using the purposive sampling technique. The descriptive statistics and the regression analysis to run and interprets the data collected.

#### *Variable Definition and Measurement*

##### *i. Dependent Variable (DV)*

Capital Structure= Short- and Long-Term Debt.

##### *ii. Independent Variable (I.V);* NDTS=Non Debt Tax Shield, measured by

Investment Tax Credit, lost Carry Forward, Depreciation, Donation and Interest on Debt

##### *iii, Control Variables (CV)*FS = Firm Size, measured by Market ROA= Return on Assets

#### *Model Specification and Presentation*

$$DEBT_{it} = \alpha_0 + \beta_1 ITC_{it} + \beta_2 LCF_{it} + \beta_3 DP_{it} + \beta_4 DN_{it} + \beta_5 DI_{it} + \mu_{it}$$

Where:

DEBT = Capital Structure, ITC= Investment tax credit, LCF= loss carried forward  
DP= depreciation, DN=Donation and DI=Debt Interest

#### *Control Variables*

ROA = Return on Assets

FSIZE = Firm Size

$\mu$  = error term

i = Companies under observation

t = Time of the observation

$\beta$  = Coefficient of the I.V

a = Constan

## 4. RESULTS AND DISCUSSION

### Descriptive statistics

The study examined the impact of tax shield on the capital structure of listed non-finance firms in Nigeria. The results of the descriptive statistics as presented below in Table 1 provide insight into the nature and activities of the listed companies in the sample study. The result shows that long-term debt has a mean value of 6.04, the standard deviation of 10.27 and the maximum value of 53.96. This result suggests that companies have more of equity to debt their capital structure. This may be due to the challenges to access the capital market for funds, to enjoy the debt tax shield. It implies too that there was high variation in capital structure among the companies listed in the NGX. This result shows too that the debts of the companies in the sample are moderate to finance their economic activities. The non-debt tax shields proxies have a cumulative mean of 68.51 and with a standard deviation of 36.98. The debt tax shield revealed a mean and standard deviation values of 17.36 and 1.87 respectively. This implies that firms with high levels of debt enjoy the benefits of tax shields that come with debt financing.

**Table 1**  
**Descriptive statistics of variables**

Variable	Obs.	Mean	Std. dev.	Min	Max	Sum
BEBT	240	6.04	10.27	-25.69	53.96	1056.79
ITC	240	7.13	4.26	0.63	21.99	1248.18
LCF	240	3.17	3.02	0.00	19.63	554.66
DP	240	41.59	16.68	4.82	101.18	7278.43
DN	175	16.62	13.02	0.00	79.08	2908.29
DI	175	17.36	1.87	13.89	21.23	3037.75

**Source:** Authors' Analysis (2023). ITC= Investment tax credit, LCF= loss carried forward DP= depreciation, DN=Donation and DI=Debt Interest

### Correlation statistics

The result of the correlation statistics is as presented in Table 2. The result shows that NDTs has a positive correlation coefficient of 0.45 and 0.09 with short-term debts and long-term debts of Nigerian quoted companies. The study also found a positive correlation coefficient of 1.00 and 0.07 between DTS and debts (short-term and long-term). This result implies the proxies of the Non-debt tax shields Nigeria companies derive in the use of debt financing. The study found a negative



correlation between debt interests as shown by the correlation coefficients of -0.01. The correlation matrix result suggests that there is no multi co linearity among the independent variables of interest. The possible existence of multicollinearity was further confirmed by computing for the variance inflation factor (VIF). The test result for multicollinearity as presented in Table 3 shows that there is no problem of multicollinearity. Specifically, the results show that the explanatory variables had a maximum variance inflation factor (VIF) of 2.55 with a mean value of 1.78, which suggests that there was no collinearity with the variables. According to Gujarati and Porter (2003), there is no consequence of multicollinearity if the mean VIF is less than 10. This means that it is safe to maintain the variables in the model and process with the regression analysis.

**Table 2**  
**Correlation coefficient**

Variable	ROA	ITC	LCT	DP	DN	DI
BEBT	1.00					
ITC	0.31	1.00				
LCF	0.39	0.76	1.00			
DP	0.25	0.45	0.51	1.00		
DN	0.05	0.09	0.06	0.27	1.00	
DI	-0.01	0.07	0.07	0.01	0.41	1.00

**Source:** Authors' Analysis (2023).

**Table 3**  
**Collinearity statistics**

Variable	VIF	1/VIF
DEBT	2.55	0.40
ITC	2.39	0.42
CLF	1.18	0.83
DI	1.01	0.99
Mean VIF	1.78	

**Source:** Authors' Analysis (2023).

## Regression analysis

### Diagnostic checks

Proceeding to the regression analysis, the study carried out basic diagnostic checks. The study performed the normality tests using the Jarque-Bera test to establish if the data set is normally distributed. The results of the normality test as presented in Table 4 show that the variables of interest are normally distributed and the results are significant at the 5% level. The conclusion was based on the rule of thumb that states if the probability value of the variables of interest is significant at 1% or 5%, then the variables are normally distributed otherwise not. The heteroscedasticity was performed using the Breusch-Pagan / Cook- Weisberg test. The result as presented in Table 6 and Table 7 with a probability value of 0.8541 for short- term debt and 0.0243 for long-term debt shows that there is no issue about heteroscedasticiry. In Table 6 and Table 7, the study used Ramsey RESET test for omitted variables/functional form and reported a probability value of 0.9201 for short-term debt and 0.7011 for long-term debt. Thus, it is safe to use the dataset for inferences.

**Table 4**  
**Results of the Normality test**

Variable	Obs	Pr (Skewness)	Pr (Kurtosis)	Adj chi2 (2)	Prob>chi2
DEBT	240	0.0000	0.0000	48.47	0.0000
ITC	240	0.0000	0.0212	24.51	0.0000
LCF	240	0.0000	0.0000	52.70	0.0000
DP	240	0.1357	0.9998	2.26	0.0000
DN	240	0.0000	0.0000	43.47	0.3238
DI	240	0.7050	0.0000	29.75	0.0000

**Source:** Authors' Analysis (2023).

### Discussion of findings

This study investigates the impact of tax shields on the capital structure of listed firms in Nigeria. To have a robust evaluation of this issue, the capital structure was proxies as short-term debt and long-term debt ratios. Table 6 presents the balanced panel random effect regression with short-term debt as the dependent variable. The choice for random effects for analysis was predicated on the Hausman test results in Table 5 with a probability value of 0.1506 for short-term debt ratio and 0.8892 for long-term debt ratio. This implies that the random effect results, when

compared with the fixed effect results, tend to be more appealing statistically for policy recommendations. The results in Table 8 shows the R<sup>2</sup> value of 0.228, which implies that the explanatory variables of NDTs and DTS account for about 23% cross-sectional variation of short-term debt of quoted companies in Nigeria. The Wald chi<sup>2</sup> (4) statistics (Pro > Chi<sup>2</sup>) of 39.34 with a p-value of 0.000 is less than the benchmark criterion of 0.05, which suggests that the coefficients are not simultaneously equal to zero. The result is significant and revealed a linear relationship between the dependent and the explanatory variables in the study.

**Table 5**  
**Result of Hausman Specification Test**

Test Summary	Short-term debt		Long-term debt	
	Chi <sup>2</sup> (4)	Prob > chi <sup>2</sup>	Chi <sup>2</sup> (4)	Prob > chi <sup>2</sup>
Cross-section random	9.46	0.1506	1.13	0.8892

**Source:** Authors' Analysis (2023).

**Table 6**  
**Results of the regression analysis with short-term debt**

Variables	Fixed Effects				Random Effects			
	Coef.	Std. Err	t-stat	p-value	Coef.	Std. Err	Z-stat	p-value
Const.	14.170	63.672	0.22	0.824	36.540	18.290	2.00	0.046
ITC	0.467	0.134	3.47	0.001	0.358	0.120	0.98	0.003
LCF	0.943	0.841	1.12	0.264	1.232	0.642	1.92	0.055
DP	0.160	0.697	0.23	0.818	0.290	0.499	0.58	0.561
DN	0.160	0.697	0.23	0.818	0.290	0.499	0.58	0.561
DI	-0.435	0.323	0.765	0.765	-0.765	0.876	0.762	0.567
R-sq	0.158				0.228			
F(4,136)	7.42							
Prob>F	0.000							
Waldchi2(4)					39.34			
(Probxhi2)					(0.000)			
Cnditional					0.03			
heteroscedas.					(0.8541)			

**Source:** Authors' Analysis (2023).

**Table7**  
**Results of the regression analysis with long-term Debt**

Variables	Fixed Effect Model			Random Effect Model		
	Coef.	t-stat.	p. value	Coef.	z-stat.	p. value
Constant	-58.067	1.24	0.216	6.190	2.24	0.025
ITC	0.051	1.05	0.602	0.022	0.250	0.804
LCF	0.650	1.44	0.293	0.462	0.947	0.346
DP	0.420	0.39	0.410	0.876	0.225	0.218
DN	0.230	0.657	0.989	0.659	0.678	0.122
DI	0.871	0.677	0.877	-0.861	0.431	0.671
R <sup>2</sup>		0.165			0.165	
F(4, 136)		0.85				
Prob>F		0.498				
Waldchi2(4)					11.21	
Prob (chi2)					0.024	
hettest					0.0243	

**Source:** Authors' Analysis (2023). ITC= Investment tax credit, LCF= loss carried forward DP= depreciation, DN=Donation and DI=Debt Interest

## 5. CONCLUSION AND RECOMMENDATIONS

### Conclusion

The study established empirical evidence to support the influence of a tax shield on the capital structure of listed non-financial firms in Nigeria. Although the investment tax credit, the loss carries forward and the depreciation (Non Debt Tax Shield) had a positive relationship on the capital structure, but the Debt Tax Shield, which is the debt interest has a negative impact on the Long- Term Debt of the companies. The findings of this study revealed a positive relationship between NDTs and the Short-Term Debt. The results of the random effects analysis show that there is a negative relationship between the DTS and the long-term debt. This result implies that a unit increase in ITC, LCF, DP, DN will leads to an increase in the capital structure while a unit increase in the debt tax shield of these companies in Nigeria lead to an decrease in the capital structure. This result confirms the postulation that NDTs serves as a substitution effect on the debt tax shield and it is in tandem with (Beneish, 2019). However, this result is contrary to Gao (2016) and Lie (2012) with a sample sizes of 10183 and 756 companies to examine this issue in China and reported non-debt-tax-shield as negatively related to the corporate debt.

---

## Recommendations

In line with the findings of this study, the following salient recommendations are offered to improve the value of the Non-financial Firms in Nigeria and the economy;

- i) The Joint Tax Board and the Federal Inland Revenue (FIRS) should strive to install an efficient and effective tax system that supports debt financing, new investments, business growth, expansion and diversifications.
- ii) Companies should strive to improve overall corporate performance in order to cover losses, boost public confidence and attract debt providers.
- iii) Shareholders should encourage the management to increase the use of an ideal debt to enjoy the associated tax benefits. However, this must be approached with caution so as to cover depreciation expenses
- iv) Advance marketing strategies informs of close customer's taste prioritizing is always required, in order to boost turnover and cover donations and other related allowable expenses
- v) The Debt management office should have a policy document that should guide companies on the efficient use of debt and the overall business activities, for an optimum benefits, for the purpose of enjoying debt interest as tax shield.

## Policy Implications of the Findings

The findings of the study has justified the arbitrary increases in bank's interest rate charges, by encouraging debt financing by companies for the tax shield on debt capitals. This is evidenced in the banking sector, as not all loan applications are often approved despite the high rate of interest (up to 32.6% in most cases), but yet the non-financial firms continue to depend heavily on the bank loans, which is often not secured.

## Suggestions for Further Study

The study is recommending a further investigation on the relationship between Debt financing and corporate optimal performance, in order to establish wither Loan Capital, have an impact on the Firm's Performance or not.

---

## REFERENCES

- Akinyomi, O., & Olagunju, A. (2013). Determinants of capital structure in Nigeria. *International Journal of Innovation and Applied Studies*, 3(4), 999–1005.
- Amahalu, N. (2017). Determinants of audit quality: Evidence from deposit money banks listed on Nigeria Stock Exchange. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(2), 117–130.
- An, Z. (2012). Taxation and capital structure: empirical evidence from a quasi-experiment in China. *Journal of Corporate Finance*, 18(4), 683–689.
- Awan, A. G., & Amin, M. S. (2014). Determinants of capital Structure. *European Journal of Accounting Auditing and Finance Research*, 2(9), 22–41.
- Ayers, B. C., Cloyd, C. B., & Robinson, J. R. (2001). The influence of income taxes on the use of inside and outside debt by small businesses. *National Tax Journal*, 54(1), 27–55.
- Beneish, M. D. (2019). The detecting of earnings manipulation. *Financial Analysts Journal*, 55, 24–26.
- Booth, L., Aivazian, V., Demircuc-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance*, 56(1), 87–130.
- Brealey, R. A., Myers, S. C., & Allen, F. (2013). *Principles of Corporate Finance—Global Edition with Connect Plus*. McGraw-Hill Education: New York City, NY, USA.
- Calvin, M. (2021). Capital structure and taxes: What happens when you (also) subsidize equity. *Unpublished Working Paper. Stanford University*.
- DeAngelo, H., & Masulis, R. W. (2008). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics*, 8(1), 3–29.
- Duong, V. T. (2021). Capital structure and taxes: What happens when you (also) subsidize equity. *Unpublished Working Paper. Stanford University*.
- Engel, E., Erickson, M., & Maydew, E. (2019). Debt-equity hybrid securities. *Journal of Accounting Research*, 37(2), 249–274.
- Faulkender, M., & Petersen, M. A. (2006). *Does the source of capital affect capital structure? The Review of financial studies*. 19(1), 45–79.
- Fischer, E. O., Heinkel, R., & Zechner, J. (2019). Dynamic capital structure choice: Theory and tests. *The Journal of Finance*, 44(1), 19–40.
- Frydenberg, S. (2004). *Determinants of corporate capital structure of Norwegian manufacturing firms* (No. 1999; 6). <https://ssrn.com/abstract=556634>
- Gao, R. (2016). An empirical study on the influence of non-debt tax shield on the choice of corporate debt levels---based on the tax preference policy. *International Journal of Business and Social Science*, 7(1), 201 – 212.

- Givoly, D., Hahn, C., Ofer, A. R., & Sang, O. H. (2002). Taxes and capital structure: Evidence from firms' response to the Tax Reform Act of 1986. *Review of Financial Studies*, 5(2), 331–355.
- Graham, J., & Leary, M. (2011). A review of empirical capital structure research and directions for the future. *Annual Review of Financial Economics*, 3(1), 309–345.
- Graham, J. R. (2020). How big are the tax benefits of debt? *The Journal of Finance*, 55(5), 1901–1941.
- Gujarati, D., & Porter, D. (2003). Multicollinearity: What happens if the regressors are correlated. In *Basic econometrics* (4th ed., Vol. 363). McGraw-Hill Boston, MA.
- Huang, S., & Song, F. (2006). The determinants of capital structure: Evidence from China. *China Economic Review*, 17(1), 14–36.
- King, M. (2004). Taxation and the cost of capital. *The Review of Economic Studies*, 41(1), 21–35.
- MacKie-Mason, J. K. (2019). Do taxes affect corporate financing decisions? *The Journal of Finance*, 45(5), 1471–1493.
- Misah, S., Yousaf, S.U., Anser, M.K, Khan, H.R & Sriyanto S. (2022). Capital structure and taxes: What happens when you (also) subsidize equity. *Unpublished Working Paper. Stanford University*.
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261–297.
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American Economic Review*, 53, 433–443.
- Myers, S. C. (1984). Capital structure puzzle. In *NBER Working Paper* (No. 1393).
- Panier, F., Pérez-González, F., & Villanueva, P. (2013). Capital structure and taxes: What happens when you (also) subsidize equity. *Unpublished Working Paper. Stanford University*.
- Poole, W. (2019). Moral hazard: The long-lasting legacy of bailouts. *Financial Analysts Journal*, 65(6), 17–23.
- Saunders, M., Lewis, P., & Thornhill, A. (2013). Research methods for business students. In *Essex: Prentice Hall: Financial Times*.
- Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance*, 43(1), 1–19.
- Vasiliou, D., & Daskalakis, N. (2019). Institutional characteristics and capital structure: A cross-national comparison. *Global Finance Journal*, 19(3), 286–306.
- Voeller, D., & Overesch, M. (2018). *The Impact of Personal and Corporate*



---

*Taxation on Capital Structure Choices* (No. 08–020; ZE W Discussion Papers).

Wessels C. (2008). Capital structure puzzle. In *NBER Working Paper* (No. 1393).

Wrightman, D (2022). Capital structure and taxes: What happens when you (also) subsidize equity. *Unpublished Working Paper. Stanford University.*

