

CHAPTER 2

THE THEORY OF CAPITAL STRUCTURE

2.1 INTRODUCTION

The study of capital structure attempts to explain how listed firms utilise the mix of various forms of securities in order to finance investment. Modigliani and Miller (1958: 201) demonstrated that capital structure is irrelevant under certain restrictive assumptions. Ever since then, many researchers have approached the study of corporate capital structure under less restrictive assumptions. This has led to the confirmation of an existence of the optimal choice of capital structure. Unfortunately, there has been little consensus among researchers on what the optimal capital structure is. However, it is important to synthesise the literature on capital structure and where possible, to relate the literature to known empirical evidence.

2.1.1 Goal of this chapter

The goal of this chapter is to discuss the various theories that help to explain the determination of capital structure. The capital structure puzzle is unravelled and a clear picture is presented in terms of why capital structure matters. The patterns of corporate capital structures around the world are also discussed.

2.1.2 Layout of this chapter

This chapter is organised as follows: Section 2.2 provides a detailed justification on why capital structure matters. Section 2.3 discusses the principal theories of capital structure, namely, trade-off, agency, signalling, pecking order and contracting cost theories. Section 2.4 discusses the factors affecting the capital structure of firms throughout the world. Section 2.5 documents the differences in corporate capital structures between firms in the developed and developing countries. Section 2.6 concludes the chapter.

2.2 DOES CAPITAL STRUCTURE MATTER?

The concept of capital structure received much attention after Modigliani and Miller (1958: 261) demonstrated in their paper that the choice between debt and equity does not have any material effects on the value of the firm. This proposition indeed holds assuming perfect capital markets. A perfect market is one in which there are no frictions such as transaction and bankruptcy costs. However, in the real world, one may ask whether all capital markets are perfect. When market imperfections such as transaction and bankruptcy costs are considered, capital structure may well be relevant. As pointed out by Strabulaev (2007: 1787), small adjustment costs may cause large variations in capital structure.

Modigliani and Miller (1963: 433) subsequently corrected their capital structure irrelevance proposition for taxes. Because interest on debt is a tax-deductible expense, the firm effectively reduces its tax bill as it employs more debt. As the debt to equity ratio increases, the market value of the firm increases by the present value of the interest tax shield. This implies that the cost of capital will not rise, even if the use of leverage increases to excessive levels. Solomon (1963: 276) argues that, in an extreme leverage position, the cost of capital must rise. This is because excessive levels of debt will induce markets to react by demanding higher rates of return. Therefore, to minimise the weighted average cost of capital, firms will avoid a pure debt position and seek an optimal mix of debt and equity. Moreover, Kim (1978: 45) observes that during the period between 1963 and 1970, non-financial firms in the United States were financed by only one-third of debt. This finding provides circumstantial evidence that, in the presence of taxes, firms will avoid a pure debt position.

Baxter (1967: 395) provides two main reasons for the low debt ratios observed in levered corporations. Firstly, the interest rate on debt is positively related to the debt to equity ratio. This implies that as the firm borrows more, creditors will demand a higher rate of return on the borrowed funds. Secondly, higher debt levels could lead to the probability of default on interest payments, thereby leading to bankruptcy. For these reasons, firms will

seek a level of financing that maximises the tax savings induced by higher debt levels and, at the same time, minimising the possibility of bankruptcy costs.

Several studies have, however, confirmed the existence of an optimal debt-equity mix. This is based solely on the existence of market imperfections such as transaction and potential bankruptcy costs. For instance, Baumol and Malkiel (1967: 554) demonstrate by use of indifference curves that the introduction of transaction costs to the value irrelevance equation produces a disequilibrium, in which the shareholder seeks an optimal point in the mix of debt and equity.

A few years later, Stiglitz (1972: 458) considered the implications of bankruptcy on the value of the firm, and argues that under certain assumptions, there is an optimal capital structure. This argument is based on the basis that in the absence of bankruptcy, nominal rates on debt are independent of the debt to equity ratio. However, when there is a possibility of bankruptcy, the nominal rates on debt increase, thus rendering bonds to be more risky. Therefore, the market value of the firm will depend on the possibility of bankruptcy, even if transaction costs were ignored.

Kraus and Litzenberger (1973: 911) introduce corporate taxes and bankruptcy penalties into a state preference model of optimal financial structure, and they confirm the existence of an optimal capital structure. Pursuant to this, Turnbull (1979: 939) shows that the optimal capital structure of a value maximising firm will occur before the firm's debt capacity. This is the maximum amount of credit that can be extended by lenders. Furthermore, Brennan and Schwartz (1978: 103) argue that the possibility of bankruptcy costs increases the uncertainty of future tax savings, and they demonstrate that this uncertainty is sufficient to induce an optimal capital structure, even if bankruptcy costs are isolated from their model.

According to Miller (1988: 102), the capital structure irrelevance proposition was not intended to suggest that "... the debt-equity ratio was indeterminate ...". Given this backdrop, Myers (2001: 86) advises that the Modigliani and Miller (1958: 201) propositions

should be viewed as a benchmark, and not the ideal end result. The propositions are simply showing that financing does not matter, except for specific transaction costs.

In conclusion, the literature on the capital structure debate has progressed from the irrelevance propositions of Modigliani and Miller (1958: 201) to the counter arguments based on more realistic assumptions. The introduction of taxes and bankruptcy costs suggest the existence of an optimal capital structure, which financial theorists have failed to determine due to lack of precise capital structure models. The major competing theories of capital structure are discussed in the next section.

2.3 THEORETICAL DETERMINANTS OF CAPITAL STRUCTURE

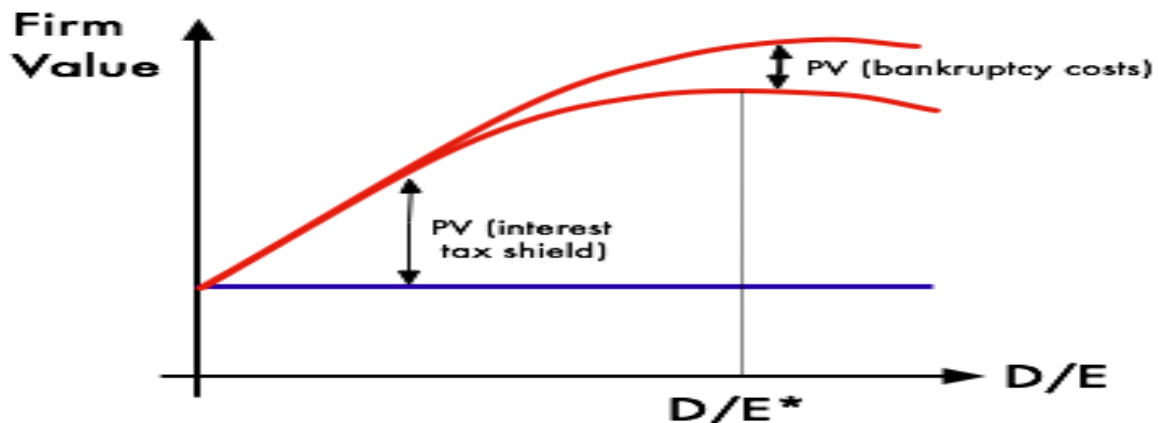
This section reviews the principal theories of capital structure. These are the trade-off, agency, contracting cost and information costs theories. The information costs theories comprise the signalling and the pecking order theory.

2.3.1 The trade-off theory

The trade-off theory of capital structure postulates that managers attempt to balance the benefits of interest tax shields against the present value of the possible costs of financial distress (Myers 2001: 88). This theory originated from the study of Kraus and Litzenberger (1973: 911), who formally introduced the interest tax shields associated with debt and the costs of financial distress into a state preference model. According to Chakraborty (2010: 296), the trade-off theory postulates that some form of optimal capital structure should exist pursuant to the balance between the present value of interest tax shields and the cost of bankruptcy. Bankruptcy costs can be classified under direct and indirect costs. As shown in Baxter (1967: 395), direct costs of bankruptcy include, *inter alia*, the administrative and legal expenses incurred by a firm that goes bankrupt. On the other hand, the indirect costs relate to the reduction in the market value of the firm due to the firm's inability to service its debt obligations. According to Barclay and Smith (1999: 10) the indirect costs of bankruptcy can constitute a substantial portion of the market value of the firm. Having said this, the dilemma in capital structure theory has been to determine to what extent debt can be employed in order to offset tax implications to the extent that the

risk of excessive debt is avoided. Figure 2.1 illustrates the trade-off that exists between the present value of the tax subsidy associated with an increase in leverage and the present value of bankruptcy costs. This provides a scenario whereby firms will seek for the optimal capital structure. This is the level at which the tax benefits are maximised while minimising the risk of bankruptcy, which arises from the use of excessive debt.

Figure 2.1: The trade-off theory of capital structure



Source: Brealey, Myers and Allen (2007, 504)

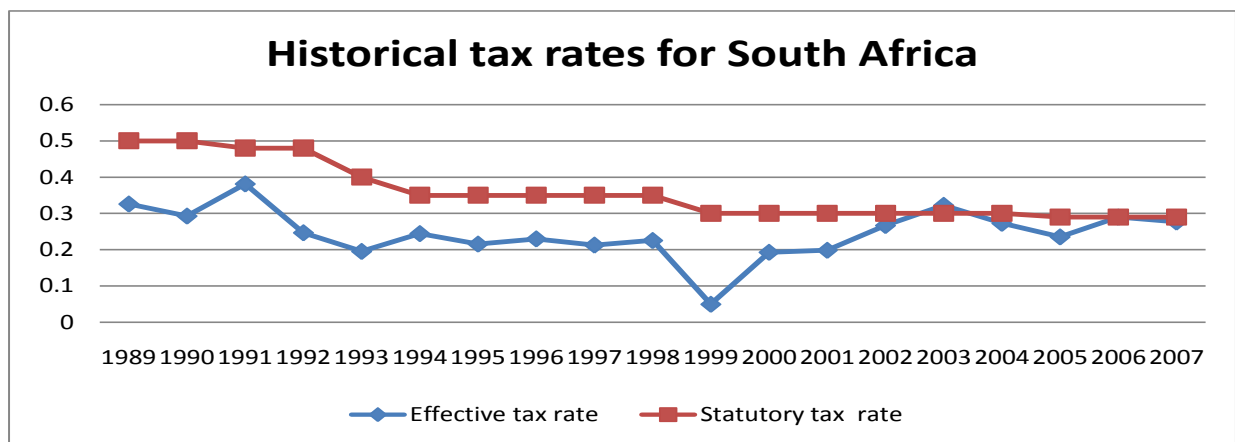
There are four main predictions of the trade-off theory. Firstly, the trade-off theory predicts that firms will have a target debt ratio and that these ratios will differ from firm to firm. This prediction is confirmed by Graham and Harvey (2001: 187) who report that the majority of the surveyed Chief Financial Officers agreed that they follow a target debt ratio.

Secondly, the trade-off theory predicts that firms with relatively safe tangible assets will be less exposed to the costs of financial distress, and will therefore, be expected to borrow more. Conversely, firms with risky intangible assets will be more exposed to the costs of financial distress, and will be expected to borrow less. This prediction is confirmed by Rajan and Zingales (1995: 1453) for firms in seven developed countries, Frank and Goyal (2009: 26) for non-financial firms in the United States and Qiu and La (2010: 283) for non-financial firms on the Australian Stock Exchange.

Thirdly, the trade-off theory predicts that higher marginal tax rates will be associated with higher levels of leverage. This is because of the tax deductibility of interest. Using tests based on incremental decisions, MacKie-Mason (1990: 1471) documents that firms faced with higher marginal tax rates are more likely to have higher debt ratios, and firms with low marginal tax rates will issue more equity compared to debt. Using data for more than 10 000 firms, Graham (1996: 41) finds a statistically significant positive association between debt ratios and marginal tax rates. Contrary to the prediction of the trade-off theory, Negash (2002: 25) reports a negative association between tax rate variables and debt for 64 firms listed on the JSE's industrial sector. This result is expected because for South Africa, the incentive to take advantage of the tax shields could have been mitigated by the declining tax rates over the period of assessment. Figure 2.2 shows that statutory and effective tax rates have been on a general declining trend for the past 20 years.

Fama and French (1998: 819) utilise cross-sectional regressions to determine the effect of taxation on firm value. They find no evidence that interest tax shields contribute to the market value of the firm. If this is the case, there may be no incentive for firms to add more debt to take advantage of the tax shields. On balance, the documented evidence suggests that taxes seem to play a moderate role in explaining the capital structure of firms.

Figure 2.2: Statutory and effective corporate tax rates in South Africa



Source: Author's calculation using study data set

Finally, the trade-off theory predicts that firms with more taxable income and relatively few non-debt tax shields such as investment tax credits and depreciation will have more

incentives to borrow (DeAngelo & Masulis, 1980: 4). Therefore, in order to take advantage of the interest tax shields, firms with fewer non-debt tax shields should be expected to borrow more. Conversely, firms with more non-debt tax shields should have less debt in their capital structure.

Bradley, Jarrell and Kim (1984: 873) find contrasting evidence to this prediction. They report a positive relationship between non-debt tax shields and firm debt to value ratios. This outcome is confirmed by Chakraborty (2010: 310) for firms in India. This positive association could also mean that firms with high non-debt tax shields such as depreciation have tangible assets in place. This enables them to support more debt. On the contrary, Titman and Wessels (1988: 13) report an insignificant negative association between non-debt tax shields and leverage. Likewise, Ozkan (2001: 187) employs a dynamic capital structure model for firms in the United Kingdom and reports a significant negative relationship between non-debt tax shields and leverage.

In sum, there is substantial evidence for the first three main predictions of the trade-off theory. The fourth prediction is moderately supported. Most studies show that firms with more non-debt tax shields have more debt in their capital structure.

2.3.2 The agency theory

The agency theory is based on the notion that managers will not always act in the best interest of the shareholders. Jensen and Meckling (1976: 305) further elaborate on this concept by identifying two main conflicts between parties to a company, firstly, between the managers and shareholders, and secondly, between the shareholders and the creditors. In the first instance, managers are tempted to pursue the profits of the firms they manage to their own personal gain at the expense of the shareholders. In the latter instance, debt provides shareholders with the incentive to invest sub-optimally. Harris and Raviv (1991: 301) argue that if an investment yields returns higher than the face value of the debt, the benefits accrue to the shareholders. Conversely, if the investment fails, the shareholders enjoy limited liability by exercising their right to walk away. This leaves the debt holders with a firm whose market value is less than the face value of the outstanding debt.

Another potential agency cost of debt is pointed out by Myers (1977: 149). He notes that when firms are on the verge of bankruptcy, there is no incentive for shareholders to invest more equity capital, even if positive NPV projects are available. This is because the value derived from the projects will accrue mainly to the debt holders. The implication is that high debt levels may result in the rejection of value increasing projects.

Stulz (1990: 4) argues that debt payments may affect shareholders both positively and negatively. On the positive note, debt payments force managers to pay out interest thereby reducing the potential overinvestment problem. On the negative side, excessive debt may lead to high interest repayments, which may lead to the rejection of profitable projects, thus leading to the underinvestment problem. Capital structure is therefore determined by a trade-off between the benefits and costs of debt.

Considerable work has been done to test the validity of the agency cost hypothesis. For example, Kim and Sorensen (1986: 139) detect the presence of agency costs in Compustat listed firms in the form of a strong relationship between insider ownership and leverage. Vilasuso and Minkler (2001: 65) employ a dynamic model of capital structure on a set of 28 publicly held firms, and demonstrate that agency costs are associated with shifts in leverage. Harvey, Lins and Roper (2004: 3) investigate whether debt can control the effects of agency costs for a set of emerging market firms, and they observe that the benefits of debt are concentrated among firms with high expected agency costs.

Berger and Bonaccorsi di Patti (2006: 1069) develop a profit efficient indicator as a measure of firm performance, and they confirm the predictions of the agency theory that higher leverage is positively related to profit efficiency. However, Brounen, DeJong and Koedijk (2006: 1409) survey managers in European countries and they find no evidence to suggest that agency costs influence capital structure decisions. Overall, evidence suggests that there is some support for the agency theory.

2.3.3 Information costs theories

Information costs are based on the information disparities between corporate managers and investors. This information disconnect is also known as asymmetric information. This has led to the development of the signalling and pecking order theories.

- **The signalling theory**

The signalling theory emanates from information asymmetries between firm management and shareholders. If managers believe that their firms are undervalued, they will issue debt first and then issue equity as a last resort. Conversely, if management believes that their firm is overvalued, they will issue equity first. The signalling theory was first coined by Ross (1977: 23) who posits that if managers have inside information, their choice of capital structure will signal information to the market. Leverage may well be influenced by the theoretical premise that increases in debt are a positive sign that managers are confident about future earnings. Debt contracts are a commitment by managers to make future interest payments. Failure to repay debt could lead to bankruptcy. This signals confidence to the market that the firm will have sufficient cash flows to service debt.

The shareholders of a firm are the residual claimants to the firm's cash flows. This is because promised interest payments are an obligation and have priority over dividends. As a consequence, share prices are more sensitive to financial structure announcements than bond prices. If managers are optimistic about their firm's future prospects, the firm's share price will appear more undervalued than bond prices.

Smith (1986: 12) empirically tests the signalling theory, and finds an average reduction of three percent in the share price of firms that announced new equity offerings. By contrast, there was a negligible decline in the share prices following debt issue announcements. In addition, increases in debt were associated with an increase in share price returns of about 14 percent for debt for equity substitutions.

Barclay, Smith and Watts (1995: 4) classify the firms whose earnings increased the following year as undervalued firms, and those firms whose earnings decreased the

following year as overvalued firms. They find a very small statistically significant positive association between leverage and unexpected earnings.

The implication of the signalling theory is that corporate managers will attempt to time equity issues based on the market's assessment of their shares. For example, Baker and Wurgler (2002: 1) report a strong relationship between firm financing decisions and historical market values of equity. In essence, the capital structure of a firm is the cumulative result of corporate managers' past attempts to time the market. However, Brounen *et al.* (2006: 1435) do not find any evidence to suggest that European managers signal their private information to influence capital structure. The evidence provided thus far suggests that, on average, the signalling theory holds.

- **The pecking order theory**

The pecking order theory takes the signalling theory one step further by suggesting that the information costs are substantial enough to warrant managers to issue the security with the least information costs (Barclay & Smith, 1999: 13). This theory was originated by Myers and Majluf (1984: 188) who demonstrate that a share issue is generally perceived negatively by the investors. This is because managers tend to issue shares when they are overpriced. Stated in simple terms, the pecking order theory suggests that in order to avoid the information effects of new share issues, a firm is more likely to issue debt than equity. This prediction is conditional on the managers' belief that their firm's securities are underpriced.

The pecking order theory implies that managers will follow the path of least resistance, and that they will work down a pecking order by opting to issue the cheapest form of financing. In this case, firms will opt for retained earnings as it has no adverse selection problems. When retained earnings are exhausted, the firm can then issue debt. When it does not make any more sense to issue more debt, equity can be issued as a financing source of last resort.

The pecking order theory suggests that firms with few investment opportunities and high free cash flows will have low debt ratios. Conversely, high growth firms with low free cash flows will have high debt ratios. A number of studies have confirmed the existence of the pecking order theory. Rajan and Zingales (1995: 1454) utilise a data set from seven industrialised countries, and they find some evidence for the pecking order theory in the form of a negative association between leverage and profitability. Using a sample of 157 firms in the United States, Shyam-Sunder and Myers (1999: 219) find support for the predictions of the pecking order theory. Although this is an influential result, a sample of 157 firms is relatively small compared to all the listed firms in the United States.

According to Frank and Goyal (2003: 218), this raises questions as to whether the theory is broadly applicable. Using funds flow data for a broader cross-section of American firms, they discover that net equity issues track the financing deficit more closely than net debt issues. This finding offers contrasting evidence to the predictions of the theory. Helwege and Liang (1996: 429) provide a direct test of the pecking order theory by examining the capital structures of 500 small firms that went public in 1983. They find that the use of external financing does not follow the pecking order.

On the contrary, Flannery and Rangan (2006: 478) adopt a partial adjustment model of firm leverage for firms listed on the Compustat (CRSP) database, and they confirm the existence of a pecking order. Leary and Roberts (2010: 351) utilise simulation techniques to test the accuracy of the pecking order theory. They perform their analysis by allowing firm debt capacity to vary with alternate variables associated with the trade-off theory. They find that the predictive power of the pecking order theory increases significantly with the variation. This finding suggests that the pecking order and the trade-off theories play an important role in explaining financing decisions.

Seifert and Gonenc (2010: 11) regress net debt issues on a financial deficit variable for firms in 23 emerging market economies. They conclude that pecking order financing is prevalent only in those emerging markets where there are issues of asymmetric information and significant agency costs. This finding lends support to the theory that financing decisions are a function of the prevailing market conditions firms are operating

in. Additionally, Bessler and Drobetz (2011: 123) examine the effects of asymmetric information on firm financing decisions, and they conclude that information asymmetry is the primary driver of dynamic pecking order behaviour. Specifically, the probability of issuing equity is documented to be more pronounced with reduced information asymmetries.

From the facts discussed, it appears that the evidence on the pecking order theory is mixed, mainly because of the methodology used and that financing decisions are subject to a number of factors that may influence capital structure differently.

2.3.4 Contracting cost theories

The contracting cost theories hinge on the underinvestment problem suggested by Myers (1977: 147). The underinvestment problem can be illustrated as follows; highly levered firms are more likely to pass up investment opportunities because of the risk of default. This problem is further exacerbated by the higher costs of equity associated with firms with the prospect of default. This may cause financially distressed firms to forgo both capital and investment opportunities. The prediction of the contracting cost hypothesis is that firms whose value consists mainly of the present value of intangible investment opportunities will choose lower debt ratios. This conservative approach to debt issuing is followed in order to minimise the adverse effects of the underinvestment problem. Conversely, large mature firms with fewer investment opportunities will choose high debt ratios because of the lower possibility of financial distress costs. This prediction is contrary to the pecking order theory which posits that high growth firms with relatively fewer cash flows will have higher debt ratios.

Several studies have tested the contracting cost hypothesis by using the volatility of earnings, growth in assets, growth in sales and the market to book ratio as a proxy for growth opportunities. For example, Bradley *et al.* (1984: 873) use the standard deviation of earnings before interest, taxes and depreciation divided by average book assets as a proxy for growth opportunities. They confirm a statistically significant negative relationship between leverage and volatility. This relationship is observed for both non regulated firms

and all firms in the sample. Barclay and Smith (1996: 210) use the market to book equity ratio as a proxy for growth opportunities, and they confirm a negative and statistically significant relationship between growth opportunities and leverage. Mutenheri and Green (2003: 166) use the percentage change in total assets as a proxy for growth for a sample of Zimbabwean listed firms, and they report a significant and positive relationship for the post reform period.

Abor and Biekpe (2005: 44) use growth in sales as a proxy for growth opportunities for firms in Ghana, and they report a positive and significant relationship between firm growth prospects and leverage. This positive association implies that growth firms require additional funds to finance investment opportunities. Adam and Goyal (2008: 41) demonstrate that the market to book assets ratio "... has the highest information content with respect to investment opportunities ...". Hence, Frank and Goyal (2009: 15) use this proxy to evaluate its relationship with leverage. They report a negative and statistically significant relationship between the market to book assets ratio and three of the four measures of leverage². Ovtchinnikov (2010: 249) utilises difference-in-differences tests to estimate the dynamics of capital structure of firms in deregulated industries, and finds that firm growth opportunities are associated with lower debt ratios.

The preceding evidence suggests that when the market to book ratio (market to book assets and market to book equity) is used as a proxy for investment opportunities, a negative relationship is usually documented. However, when the growth in sales and assets is used, a positive association is normally detected. The intuition is simple; growth in a firm's asset base provides financiers some form of collateral for loan advancement. On the other hand, the market to book ratio may constitute a high proportion of intangible investment opportunities. Consequently, such firms will choose lower debt.

² Rajan and Zingales (1995: 1422), Ozkan (2001: 180) and Ngugi (2008: 620) use market to book assets ratio and find a similar relationship.

2.3.5 The difficulties in testing the theories of capital structure

Despite the evidence provided regarding the theories of capital structure, Barclay and Smith (1999: 9) argue that there is no model that convincingly tests the many competing theories of capital structure because of three reasons. Firstly, with the current tests, it is difficult to reject one theory in favour of the other. In other words, the theories are not mutually exclusive. In fact, with respect to the pecking order and trade-off theories, Fama and French (2005: 581) conclude that each of these two theories has an element of truth in explaining financing decisions. Secondly, it is not easy to measure many variables that affect the optimal capital structure, for example, it is not easy to determine managers' proprietary information, especially when you are testing the signalling theory. Finally, rather than being reducible to a precise mathematical formula, theories of optimal capital structure culminate in a qualitative prediction, hence less reliable than the asset pricing models.

2.3.6 Summary of the origins and evidence of the main theories of capital Structure

Table 2.1 shows a summary of the origins and evidence of the main formal theories of capital structure. The next section elaborates on the factors affecting the capital structure of firms in the developed and developing economies.

Table 2.1: Summary of the origins and evidence of the main theories of capital

Theory	Origin of theory	Evidence for	Evidence against
Trade-off theory	Kraus and Litzenberger (1973: 121)	Mackie-Mason (1990: 1471), Graham (1996: 41) and Graham and Harvey (2001: 187) Qiu & La (2010: 283)	Fama and French (1998: 819), Wald (1999: 161)
Contracting Cost theories	Myers (1977: 147)	Bradley, Jarrell and Kim (1984: 857), Barclay and Smith (1995:14), Frank and Goyal (2009: 15)	Abor and Biekpe (2005: 44) and Mutenheri and Green (2003: 166)
Signalling theory	Ross(1977: 23)	Myers and Majluf (1984), Smith (1986: 12), Brennan and Kraus (1987), and Baker and Wurgler (2002: 1)	Barclay and Smith (1996: 17), Barclay and Smith (2005, 15) and Brounen <i>et al.</i> (2006)
Pecking order theory	Myers and Majluf (1984: 188)	Kester (1986: 5), Titman and Wessels (1988: 1) & Rajan and Zingales (1995: 1421), De Miguel and Pindado (2001: 91), Flannery and Rangan (2006: 478) Leary & Roberts (2010: 351)	Helwege and Liang (1996: 429) and Frank and Goyal (2003: 218)

Agency cost theory	Jensen and Meckling (1976: 305) and Myers (1977: 149)	Kim and Sorensen (1986: 131) Vilasuso and Minkler (2001: 65), Harvey <i>et al</i> , (2004: 3) and Berger and Bonaccorsi di Patti (2006: 1069)	Brounen, DeJong and Koedijk (2006: 1409)
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2.4 EMPIRICAL EVIDENCE ON FACTORS AFFECTING CAPITAL STRUCTURE

Corporate finance literature advocates for a number of factors that can be attributed to the cross-sectional variation in firm capital structure. This section provides an analysis of prior empirical literature on the most prominent factors that have been correlated to leverage.

2.4.1 Institutional, legal and financial factors

La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998: 1114) elaborate on access to external financing as being influenced by the legal and financial environment. Consequently, weak financial systems pose a significant hurdle to growth, as firms operating in this environment obtain less external financing. Demirguc-Kunt and Maksimovic (1998: 2107) attribute the variations in capital structure to differences in the development of stock markets and banks, as well as differences in the underlying legal framework. Fan, Titman and Twite (2008: 2) examine a cross-section of firms in a heterogeneous sample of firms in 39 countries, and they conclude that institutional differences are an important determining factor of capital structure choices compared to other factors like industry affiliation. For example, they document that firms tend to use less debt in countries where dividends are preferentially taxed.

2.4.2 Size

Size can be considered as an explanatory predictor for variations in firm leverage. Larger firms are more likely to take on more debt than smaller firms. Eriotis, Vasiliou and Ventoura-Neokosmidi (2007: 325) argue, firstly, that larger firms can negotiate for loans on more favourable terms. This enables them to take on more debt at lower interest rates. Secondly, because larger firms are less risky than smaller firms, banks are willing to loan them more funds. This lowers their probability of default. Hence, a positive association is likely to be observed between size and leverage. On the contrary, Drobetz and Wanzenreid (2006: 948) argue that large firms have sufficient analyst coverage and are subject to lower costs of information asymmetries. Hence, they should access equity markets with relative ease. Moreover, the fixed costs associated with equity issues should be smaller for large firms. On that account, size should be inversely correlated to leverage.

The empirical evidence regarding size as a possible determinant of firm leverage is mixed. Marsh (1982: 121) examines the debt-equity choice for firms in the United Kingdom and reports a positive relationship between the size of the firm and leverage. This direct relationship is later confirmed by Bennet and Donnelly (1993: 52). Booth, Aivazian, Demirguc-kunt, and Maksomovic (2001: 112) use the natural logarithm of sales to measure the importance of size in a sample of emerging market economies, and they find size to be positively correlated with leverage for most of the countries in their sample. On the other hand, Deesomsak, Paudyal and Pescetto (2004: 399) use the natural logarithm of total assets, and they find a strong and statistically significant positive relationship between size and the debt to capital ratio for firms in the Asia-pacific region.

Huang and Song (2006: 28) use the natural logarithm of sales as a proxy for size for Chinese firms and they report strong and significant positive correlations between size and total leverage. Eriotis *et al.* (2007: 328) also use the natural logarithm of sales and they confirm a statistically significant positive correlation between size and leverage for Greek firms. Alternatively, Gwatidzo and Ojah (2009: 10) use the logarithm of total assets as a

proxy for size. They confirm a statistically significant positive relationship between leverage and size for firms in South Africa and Zimbabwe³.

Rajan and Zingales (1995: 1456) examine a cross-section of firms in seven industrialised economies and find that size is negatively related to leverage for firms in Germany and France. The plausible explanation for this inverse association is based on information asymmetries. According to the pecking order hypothesis, the information asymmetry between large firms and the capital markets should be low, thus enabling larger firms to issue informational sensitive securities such as equity with ease. This tends to lower the debt levels relative to equity.

Chen (2004: 1347) uses the natural logarithm of total assets and documents a negative association between size and the long term debt ratio for Chinese firms. The author argues that the negative association may be due to larger firms' reputation that enables them to access the equity markets with relative ease, and the fact that the Chinese public bond market is virtually nonexistent. Delcours (2007: 411) documents a similar inverse relation between size, measured by the natural logarithm of total assets, and long term leverage for firms in European transition economies. Nunkoo and Boateng (2010: 987) use the GMM technique to estimate capital structure determinants for 835 Canadian firms. They also document a negative correlation between size, measured by the natural logarithm of total sales, and the long term debt ratio.

To summarise, the picture that is emerging is that irrespective of the proxy being used, size tends to be strongly and positively correlated with leverage. However, in some studies, long term leverage is found to be inversely related to the size variable. This is due to the low information asymmetries associated with large firms.

³ The exception was for Nigeria where there was a significant negative relationship between leverage and size. The coefficients for Kenya were negative but insignificant with the exception of the long term debt ratio

2.4.3 Profitability

Myers and Majluf (1984: 188) predict that a negative relationship should exist between firm profitability and leverage. They contend that firms that are more profitable will prefer to use retained earnings, and thus will have lower debt ratios. However, the trade-off theory posits that, in order to take advantage of the interest tax shields associated with higher leverage, more profitable firms will have higher debt ratios. Similarly, the free cash flow theory hypothesises that profitable firms should issue more debt. This is a measure to bond the future cash flows and to discipline managers by paying out cash to bondholders instead of wasting the funds on negative NPV projects. The pecking order theory hypothesises that profitability is inversely related to leverage. In contrast, the trade-off and the free cash flow theories suggest that profitability is directly related to leverage.

A number of researchers have tested the effect of profitability on firm leverage. Kester (1986: 13) compares capital and ownership structure of manufacturing firms in the United States and Japan. The author finds that there is a negative relationship between profitability and leverage, measured in terms of the total debt to book and market value of equity. Rajan and Zingales (1995: 1453) and Wald (1999: 174) draw similar conclusions for the United States, United Kingdom and Japan.

Booth *et al.* (2001: 112) find a negative correlation between leverage and profitability for a sample of firms in emerging markets. This relationship is however, stronger than the Rajan and Zingales (1996: 1453) observation. Mutenheri and Green (2003: 166) find no significant relationship between leverage and profitability for firms in Zimbabwe. In fact, the observed coefficients for the fixed and random effects models are positive. Bauer (2004: 16) uses restricted OLS models to test the effect of profitability on leverage for Czech firms, and finds a negative and significant association between profitability and the debt ratio. Delcoure (2007: 411) uncovers statistically strong and negative correlations between profitability, measured as the return on total assets, and all measures of leverage. Chang, Lee and Lee (2009: 209) utilise the structural equation model to test the determinants of capital structure for firms in the Compusat industrial files. They confirm a

significant negative association between profitability (measured by the ratio of operating income to total assets) and all measures of leverage.

Strebulaev (2007: 1747) utilises dynamic trade-off models with adjustment costs and also shows that profitability is inversely related to book and market measures of leverage. Likewise, Gwatidzo and Ojah (2009: 9) find a negative and significant relationship for firms in South Africa and Ghana. The relationship for firms in Zimbabwe is only negative and significant for the short term debt ratio. The only exception is Nigeria where the coefficients are positive and significant for the total and long term debt ratio. This positive association confirms the trade-off and free cash flow theories of capital structure.

The evidence presented in the preceding discussion suggests that most firms in both developed and developing countries follow a pecking order in their financing decisions. These findings confirm the predictions of Myers and Majluf (1984: 188).

2.4.4 Asset tangibility

The general consensus among researchers is that asset tangibility is directly related to leverage. Jensen and Meckling (1976: 305) point out the possibility of risk shifting strategies whereby managers may shift to riskier investments at the expense of the bondholders. These agency costs of debt can be mitigated if the collateral value of assets is high. Hence, asset tangibility is likely to be positively associated with leverage. Furthermore, in the event of bankruptcy, a higher proportion of tangible assets could enhance the salvage value of the firm's assets. The lenders of finance are thus willing to advance loans to firms with a high proportion of tangible assets.

Haris and Raviv (1991: 341) observe that non-debt tax shields and firm assets are usually regarded as proxies for asset tangibility. Bradley *et al.* (1984: 873) use non-debt tax shields as a proxy for asset tangibility, and they find a statistically significant positive relationship between firm leverage and non-debt tax shields. Alternatively, Friend and Lang (1988: 277) use the ratio of net property, plant and equipment to total assets and they report a strong positive relationship between leverage and asset tangibility for both

closely held and public corporations. On the other hand, Titman and Wessels (1988: 16) incorporate the ratio of inventory plus gross plant and equipment to total assets and they confirm a positive association between collateral value and leverage.

Rajan and Zingales (1995: 1453) use both the book and market values of leverage and they report a positive and significant relationship between leverage and asset tangibility for firms in most of their sampled countries⁴. Booth *et al.* (2001: 112) observe a similar relationship for a sample of emerging market economies. In contrast, Mutenheri and Green (2003: 166) examine the determinants of capital structure for firms in Zimbabwe. They observe a strong negative association between asset tangibility and leverage for the pre reform period (1986-1990). However, a strong positive association is detected for the post reform period (1995-1999).⁵ The negative association observed for the pre reform period could be associated with the lack of proper contract enforcement systems associated with underdeveloped capital markets. Therefore, asset tangibility may not be used actively as a criterion for advancing loans.

Abor and Biekpe (2005: 43) report a negative and significant relationship between asset tangibility and leverage for Ghanaian firms. They attribute this observation to the higher operating risk associated with a higher proportion of fixed assets. Huang and Song (2006: 30) perform robustness analyses by examining, *inter alia*, first difference regressions for Chinese firms and a strong positive correlation is observed between asset tangibility and leverage. Gwatidzo and Ojah (2009: 15) use fixed and random effects models and confirm a statistically significant positive relationship for firms in Nigeria and South Africa⁶ suggesting that financiers in these countries require collateral to issue long term debt. Contrary to the predictions of the theory, Sheikh and Wang (2011: 127) document a strong negative correlation between book leverage and asset tangibility for listed manufacturing firms in Pakistan. The authors note that the negative association

⁴ There are two exceptions to this observation; when book values are used, the relationship is positive but insignificant for Italy, and when market values are used, a positive and insignificant association is observed for France

⁵ This strong relationship is found using the fixed and random effects models. The pooled least squares approach yields no statistically significant results.

⁶ The only exception for South Africa is the short term debt ratio, which is significantly negatively related to asset tangibility

could be due to the tendency for managers to “... empire build ...” at the expense of collateralised assets.

Overall, the empirical evidence discussed so far provides strong support for the positive association between asset tangibility and leverage predicted by capital structure theorists. A negative association is observed only in exceptional circumstances. This is because of the influence of the institutional environment on the providers of loan capital.

2.4.5 Age

Age plays a significant role on firms’ ability to acquire debt. Older firms are deemed to be more stable and thus more reputable due to their ability to survive over a longer period of time. Therefore, the prediction is that older firms will have more long term debt in their capital structures. Johnson (1997: 60) reports a significant positive association between age and publicly held debt for a set of firms drawn from the Compustat database. This suggests that the reputational capital held by older firms is sufficient to ensure that the risk of default on public debt is minimised.

Ojah and Manrique (2005: 463) document a positive but insignificant effect of this variable on corporate debt structures of Spanish firms. Gwatidzo and Ojah (2009: 15) find conflicting evidence for firms in five African countries. Particularly, age is strongly negatively correlated to leverage in Zimbabwe. A positive correlation is observed for Kenyan and Nigerian firms. The coefficients for South Africa are significantly positive only for long term debt and significantly negative for short term debt.

2.4.6 Growth prospects

Capital structure theories suggest that growth opportunities are correlated to firm financing behaviour. The general consensus among researchers is that growth opportunities are negatively related to leverage, principally because future growth prospects are intangible and hence cannot be easily collateralised (Barclay and Smith, 2005: 10). However, the effect of growth is dependent on the measure used to capture growth. Gupta (1969: 520)

uses the annual compounded growth rate in sales and finds that growth firms tend to have higher leverage than non-growth firms. This is partly due to their ability to access external finance in a relatively unconstrained manner.

Titman and Wessels (1988: 4) use the percentage change in total assets and they arrive at a similar conclusion for the ratio of long term debt to the book value of equity. This evidence is consistent with the prediction that growth firms add value to the firm and hence increase the firm's debt capacity. Delcours (2007: 414) pools data for firms in western European transition economies and fails to find a statistically significant association between firm growth prospects and leverage.

A contrary view is pointed out by Myers (1977: 150) who argues that firms with growth potential will tend to have lower leverage. This is because firms with intangible growth prospects will generally avoid debt to mitigate the potential loss underinvestment problem associated with financial distress. Eriotis *et al.* (2007: 324) concur with this viewpoint by positing that growth causes variations in the value of the firm. Larger variations are therefore interpreted as high risk. This presents a significant hurdle for growth firms to raise capital with more favourable terms. Rajan and Zingales (1995: 1453) use the market to book ratio of total assets to proxy growth opportunities and they find evidence supporting Myers' (1977: 150) prediction. Barclay and Smith (1999: 13) and Ngugi (2008: 620) reach the same conclusion for a sample of 6700 firms covered by Compustat and Kenyan firms respectively. On the contrary, Al Najjar (2011: 12) finds a positive relationship between leverage and growth opportunities (measured by the market to book ratio) for Jordanian firms. This finding is contrary to the predictions of Myers (1977: 150) suggesting that growth firms in Jordan prefer to finance investments with debt.

The preceding evidence shows that most studies that use the growth rate of assets as a proxy for firm growth opportunities tend to exhibit strong positive correlations. On the other hand, most studies that use some form of a market to book value of assets ratio reveal negative associations between growth and leverage. This is because growth in the asset base of a company provides an incentive for creditors to advance loans to growth firms.

Conversely, the market to book ratio reveals intangible growth opportunities which may not easily be collateralised.

2.4.7 Corporate taxes

The introduction of taxes to the Modigliani and Miller (1958: 261) irrelevance model suggests that corporate taxes are a vital element in the determination of firm leverage. Modigliani and Miller (1963: 433) demonstrate that the tax savings associated with interest tax shields induce firms to take on more debt. Therefore, a positive association between tax and leverage should be observed. The bone of contention, however, has been to determine a reliable proxy for the tax rate. Most studies use the ratio of taxes paid to total taxable income and the empirical evidence has, at most, been conflicting.

Homaifar, Zietz and Benkato (1994: 1) utilise a general autoregressive distributed lag model to test Modigliani and Miller's (1963: 433) tax relevance predictions for both the short run and the long run. They document a long run positive relationship between leverage and corporate tax. However, no significant relationship is observed in the short run. Graham (2001: 41) uses a sophisticated simulation technique in an attempt to derive a more accurate measure of the effective tax rate and concludes that taxes affect leverage in a positive manner.

Negash (2002: 26) argues that, where there is a change in the tax regime, the use of simulation to estimate the effective tax rate may not be appropriate. In his study of firms operating in a tax regime where firms are not progressively taxed, he finds that taxes are negatively associated with leverage. This finding is confirmed by Abor and Biekpe (2005: 44) for Ghana. However, Ngugi (2008: 620) and Gwatidzo and Ojah (2009: 13) find insignificant correlations for Kenya and South Africa respectively. Likewise, Frank and Goyal (2009: 15) confirm strong negative correlations for the book value measures of leverage. However, strong positive associations are observed for the market value leverage ratios.

In summary, it appears that attempts to determine the effect of tax on leverage have yielded inconclusive results. While Modigliani and Miller's (1963: 433) prediction is confirmed by some studies, the negative association depicted in other studies cannot be ignored. It is therefore necessary to review the corporate tax debate in the context of non-debt tax shields.

2.4.8 Non-debt tax shields

The presence of non-debt tax shields such as depreciation, operating losses carried forward and investment tax credits in a firm's financial statements reduces the firm's tax bill, thereby lowering the effective tax rate. Recall that figure 2.2 shows that the effective tax rates in South Africa have been lower than the statutory rates. This observation can partly be explained by the use of non-debt tax shields in the South African corporate sector.

DeAngelo and Masulis (1980: 3) have illustrated that the tax advantages of debt are lower for those firms with opportunities to avoid tax through other related non-debt tax shelters such as depreciation, investment tax credits and tax loss carry forwards. It follows that firms with higher non-debt tax shields are less likely to issue more debt. Therefore, an inverse relationship is expected between non-debt tax shields and leverage.

Again, the empirical evidence regarding non-debt tax shields has yielded mixed results. For example, Bennet and Donnelly (1993: 54), Saa-Requejo (1996: 55), Wiwattanakantang (1999: 394), De Miguel and Pindado (2001: 77), Ozkan (2001: 187) and Ngugi (2008: 620) confirm the prediction of DeAngelo and Masulis (1980: 3) that non-debt tax shields are a substitute for debt. However, Bradley *et al.* (1984: 873), Barclay *et al.* (1996: 210) and Boyle and Eckhold (1997: 434)⁷ provide evidence suggesting that non-debt tax shields have a positive impact on firm leverage. Chang *et al.* (2009: 209)

⁷ Boyle and Eckhold (1997: 434) report a positive correlation for the long term debt ratio for the pre liberalisation period and insignificant positive correlation for the post liberalisation period. The short term debt ratio is positively correlated to leverage for the pre liberalisation period and negatively correlated to leverage for the post liberalisation period.

confirm a positive association between leverage and non-debt tax shields for Compustat-listed non-financial corporations.

This contradiction is not surprising because of two main reasons provided by Barclay and Smith (2005: 15). Firstly, firms with higher non-debt tax shields have higher proportions of tangible assets in their balance sheet. This provides an increased potential to accumulate more debt. Therefore, non-debt tax shields may not only be a proxy for low taxes, but rather a proxy for low contracting costs associated with debt. Secondly, firms with tax loss carry forwards are often in financial distress. Consequently, the market value of equity for such firms is eroded thereby increasing the debt ratio. It is therefore not clear whether tax loss carry forwards are a reliable proxy for non-debt tax shields.

2.4.9 Dividend policies

Miller and Modigliani (1961: 411) have argued that dividend policy does not affect the value of the firm or the cost of equity. If this is true, then dividend policy is irrelevant. Pursuant to this proposition, several financial theorists have argued otherwise, that dividend policy is relevant. Lintner (1962: 243) and Gordon (1963: 264) have argued that investors value the next dollar of dividends more than future capital gains. In effect, the perceived riskiness of a dividend paying firm should be lower than that of a non dividend payer. Consequently, the required return of a dividend paying firm reduces with an increase in dividends. This proposition has been termed the “bird-in-hand theory”.

On the other hand, the introduction of market imperfections such as taxes into this debate could sway the argument to the other side. Boyle and Eckhold (1997: 431) reason that if capital gains are taxed lower than dividend income, then an increase in dividends will reduce the after tax return of shareholders who may in turn require a higher pre tax expected rate of return. Consequently, the increased cost of equity may induce firms to issue more debt relative to equity. In this case, dividend payout may be positively correlated with leverage.

If dividend policy is relevant, then the subsequent change in the market value of equity should affect capital structure. If the bird-in-hand theory holds, an increase in dividends should be inversely related to the debt ratio. The dividend relevancy argument is consistent with Jensen's (1986: 323) free cash flow hypothesis that increases in dividend and debt interest payments reduce the firm's free cash flows. Consequently, firms with higher dividend payments are forced to seek external financing from the capital markets. If more debt is issued, then dividend payout may be directly related to the debt ratio. If more equity is issued, then dividend payout may be inversely related to the debt ratio.

Empirical evidence on the relevancy of dividend policy has provided conclusive evidence on the dividend signalling theory, which suggests that dividend increases are associated with managements' confidence of future stability of cash flows. Specifically, Bhattacharya (1979: 259) and John and Williams (1985: 1053) predict a positive correlation between dividends and future cash flows. This prediction should translate to a positive association between dividends and shareholder wealth.

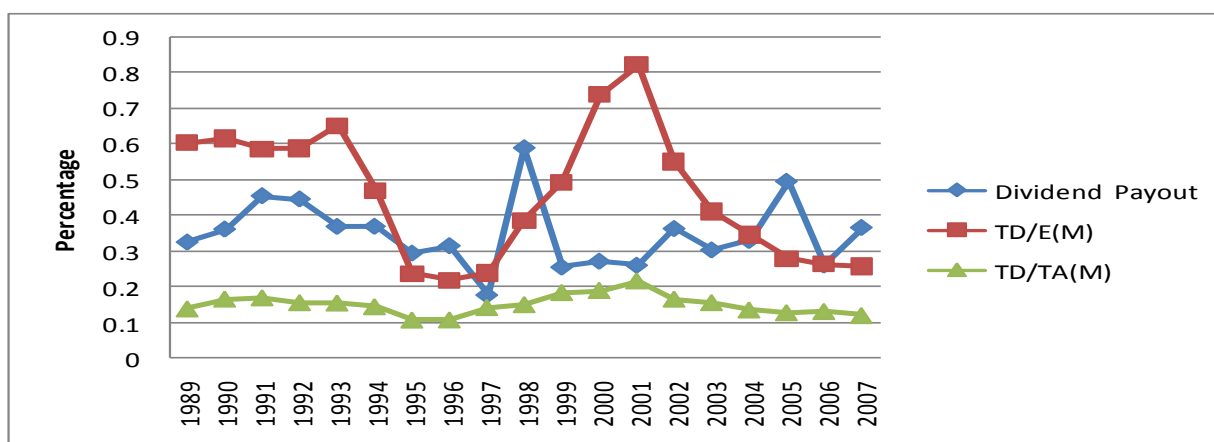
Woolridge (1983: 1618) examines unexpected dividend announcements for a sample of New York Stock Exchange (NYSE) listed firms and reports a statistically significant relationship between unexpected dividend changes and shareholder wealth. Dhillon and Johnson (1994: 282) report a positive association between large dividend increases and share prices and a simultaneous inverse relationship between bond prices and dividend changes. This finding is consistent with both the dividend signalling and the wealth redistribution hypotheses. If this is the case, the wealth redistribution observation builds a stronger case for the argument that dividend increases are negatively associated with leverage.

Grullon, Michaely and Swaminathan (2002: 387) have examined both the short and long term wealth effects of dividend changing firms and they find a significant increase in share prices for dividend increasing firms for both the short and long run. They attribute this positive wealth effect to a reduction in the systematic risk of dividend paying firms. This observation is consistent with Lintner (1962: 243) and Gordon's (1963: 264) "bird-in-hand" theory.

From a South African perspective, inspection of figure 2.3 suggests two schools of thought. Firstly, large dividend payments reduce firms' free cash flows thereby reducing funds available for investment projects. This forces corporate managers to seek additional finance from the capital markets. This conjecture is consistent with Jensen's (1986: 323) free cash flow hypothesis discussed earlier. Secondly, many listed firms use dividends as a credible signal that their future earnings prospects are sound. This gives them the incentive to seek further borrowing from the capital markets. An inspection of figure 2.3 shows that there was an increase in the dividend payouts in the year 1998. This spike in dividend payouts is followed by a general rise in the debt ratios in the following two years. Likewise, for the 1991 to 1997 period, it can be noted that declining dividend payouts are associated with lower debt ratios. From this viewpoint, dividend payout in South Africa may be positively associated with leverage.

The literature documented in the preceding discussion suggests a strong support for the dividend signalling hypothesis which is consistent with the "bird-in-hand" theory. This empirical evidence suggests that, dividend policy does matter. If this is the case, dividend changes may be negatively correlated with leverage. However, the South African perspective suggests that dividend payout may be positively associated with leverage.

Figure 2.3: A comparison of dividend payouts and market value total debt ratios



Source: Author's calculations from study data set

2.4.10 Similarities in capital structure determinants

Rajan and Zingales (1995: 1422) observe that the variables (asset tangibility, log of sales, profitability and market to book ratios) used to determine the choice of capital structure in the United States are similarly correlated in the other seven developed nations. For example, leverage increases with size in all countries, with the exception of Germany. The plausible reason for this finding is that larger firms have a lower possibility of financial distress. Booth *et al.* (2001: 117) perform a cross country analysis of capital structure determinants among developing countries, and they confirm that, despite the institutional differences, financing choices in developing countries are also affected by the same variables as in the developed countries.

To summarise, the evidence documented suggests that firm specific characteristics such as size, age, profitability, asset tangibility, growth prospects, taxes, non-debt tax shields and dividend policy have an impact on firm financing. Firm profitability tends to be negatively related to leverage. However, with regard to size, the evidence is mixed with some studies reporting a positive relationship between size and firm leverage, while others suggest that a negative relationship exists. Asset tangibility appears to be positively correlated to leverage and growth coefficients tend to be negative when the market to book ratio is used as a proxy for growth prospects.

The empirical evidence regarding taxes and non-debt tax shields is mixed, partly due to methodological differences and the nature of the tax regime within which firms operate. Dividend payout ratio is theoretically predicted to be negatively correlated to leverage due to the positive association between dividend payout and the market value of equity. The other pattern that is emerging is that variables used to determine the choice of capital structure are similar among developing countries and between developing and developed countries.

2.5 CORPORATE CAPITAL STRUCTURES AROUND THE WORLD

This section distinguishes between the practice of corporate capital structures in developed and developing economies. Atkin and Glen (1992: 377) succinctly point out that there is no reason to suggest that firms in developed countries have different objectives from firms in the developing countries. However, because capital markets in the developing countries are less developed than the capital markets in the developed nations, there is reason enough to believe that capital structure behaviour may differ. The idea is to document notable differences in firm financing and to see whether patterns in financing exist across countries.

2.5.1 Corporate capital structures in the developed economies

Numerous studies have documented the manner in which capital is structured in firms selected from different industrialised economies. For example, Marsh (1982: 121) empirically tests the choice between debt and equity for firms in the United Kingdom and finds some evidence that firms “appear” to have target levels of debt in mind. Borio (1990: 10) reviews capital structures of firms in industrialised countries and finds that, by international standards, leverage ratios in the United States are low, when the 1980s are taken into account. However, a closer inspection of the trend in financing reveals that, during this period, leverage ratios were rising at a “... fast rate...” Rajan and Zingales (1995: 1433) review the 1987-1991 period based on both book and market values, and they conclude that firms in Germany and the United Kingdom are relatively under levered compared to the United States.

In terms of internally generated funds, the first and perhaps most important observation made by a number of researchers is that firms in industrialised economies principally rely on retention of earnings as a dominant source of finance. For example, Mayer (1988: 1172) examines flow of funds data for non-financial firms in the United Kingdom for the period 1970 to 1985. He finds that retentions accounted for a large proportion of investment in the United Kingdom. Atkin and Glen (1992: 377) observe an increase in the use of retained earnings for firms in the United States in the post World War II era. They

argue that equity has never been the popular choice of finance among firms in the United States. This is mostly due to a high proportion of bond issues as opposed to equity during the post World War II era.

Corbett and Jenkinson (1996: 71) study corporate capital structures in Japan, Germany, United Kingdom and the United States. They confirm that the main source of finance for all countries in their sample was internal funds. Lemmon, Zender and Jaime (2010: 1161) review CRSP and Compustat listed firms for a period ranging from 1971 to 2001, and they confirm that firms in their sample principally rely on internally generated funds. These observations suggest that corporate managers consider information costs of issuing external finance when financing corporate investments.

Borio (1990: 4) observes that countries are either “high leverage” such as Japan, Germany and France, or “low leverage” such as Canada, the United Kingdom and the United States. However, there are some qualifications in respect to these observations. The results of the various studies on corporate capital structures are dependent on the measures of leverage. Rajan and Zingales (1995: 1430) argues that if leverage is measured as a ratio of debt to total assets at book values, then Canadian firms are the most highly geared at 36 percent, and the lowest being German firms at 20 percent. If market values are considered, then Italian firms have the highest gearing at 28 percent, and firms in the United Kingdom and Germany have the lowest gearing at 16 percent.

These findings lead Corbett and Jenkinson (1996: 71) to conclude that, if market values are used for leverage, both British and American firms are more highly geared than German firms. De Jong, Kabir and Nguyen (2008: 1957) perform a more extensive analysis of long term leverage of firms from 42 countries. They confirm the observation by Rajan and Zingales (1995: 1430) that German firms are the lowest geared among firms in industrialised economies (See figure 2.4).

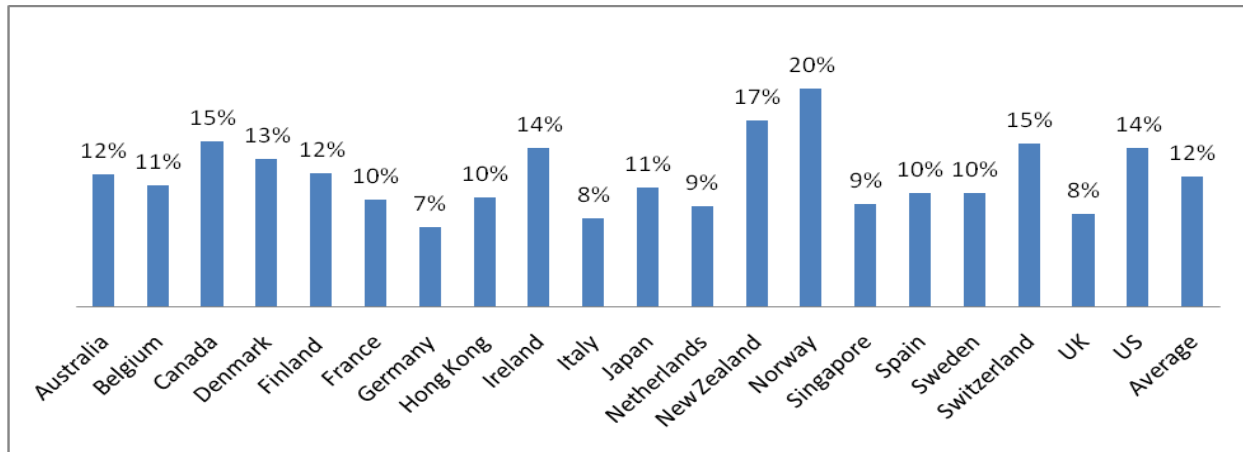
Financial systems in different countries can either be classified as bank or market based financial systems. Bertero (1994: 69) states that the French system was until the mid 1980s classified as a bank based system. This is because of the over reliance on bank

overdrafts by French firms as compared to their Japanese and German counterparts. However, French firms, have recently increased their reliance on retained earnings, as is the case in Japan, and reduced their reliance on short term debt with a further increased reliance on equity and bonds. This is a result of capital market efficiency brought about by reforms in the French capital market.

Although firms in the United States and the United Kingdom are situated in a market based financial system, Corbett and Jenkinson (1996: 76) report that the proportion of internal funds utilised by firms in the United States increased by 29.2 percent over a period of 19 years, from 1970 to 1989, while firms in the United Kingdom and the United States reduced their reliance on market based financial sources during this period. This has been attributed to financial innovation on the part of the financial institutions that operated during the period of study. Most recently, Antoniou, Guney and Paudyal (2008: 59) examine the dynamics of leverage for firms operating in these two financial systems and they conclude that leverage is largely influenced by the market conditions prevailing in the two financial systems.

A more comprehensive study by Lemon, Roberts and Zender (2008: 1605) reveals a surprisingly stable leverage pattern for a sample of non-financial Compustat listed firms for the period 1965 to 2003. Firms that are high (low) leverage maintain this pattern over time. They conclude that the variation in corporate capital structures is mostly driven by relatively stable factors over time.

Figure 2.4: Long term debt ratios for firms from select industrialised countries



Source: De Jong, Kabir and Nguyen (2008: 1957)

The evidence presented by the different studies shows that there are notable differences in leverage ratios for firms across the developed countries, and these differences are partly due to methodological differences. The pattern that is emerging is that, despite the differences in financing behaviour, firms in developed countries rely more on retained earnings than on debt and equity.

2.5.2 Corporate capital structures in the developing economies

Data on corporate finance for firms in developing economies is scarce. However, the International Finance Corporation (IFC) embarked on a program to compile a database on balance sheet data for 50 of the largest publicly traded manufacturing firms in 9 developing economies for the period 1980 to 1988. This has made it possible for further analysis of financing patterns on the part of firms in developing economies. Atkin and Glen (1992: 371) utilise this database and find notably, that firms in developing economies operate in capital markets that are less developed and therefore access to finance is restricted to a few financing options.

There has been a fairly strong consensus among most researchers that firms in developing economies rely less on retentions and more on external finance. For example, Singh and Hamid (1992: 1) examine 50 largest manufacturing firms in nine developing countries by utilising balance sheet data, and they find more reliance on external finance

than on retentions. Singh (1995: 1) perform a more robust analysis by including a larger sample, and where possible, a longer time period. The results of the study confirm the findings of Singh and Hamid (1992: 1). Mutenheri and Green (2003: 159) document a similar phenomenon for the Zimbabwean corporate sector.

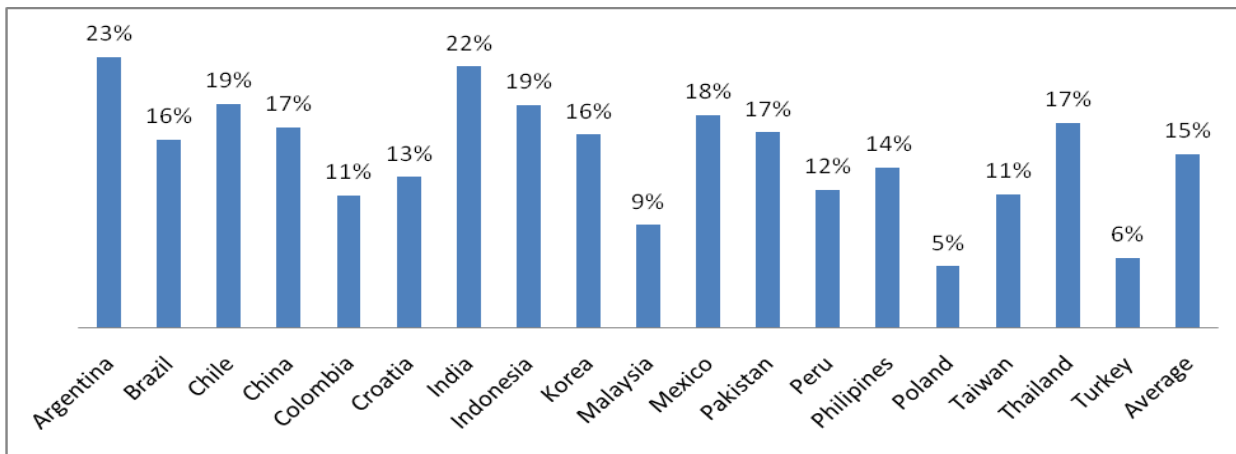
Cobham and Subramaniam (1998: 1035) examine the Singh and Hamid (1992: 1) sample for India by using net sources of finance data. They conclude that although capital structure patterns in India are similar to those of the Mediterranean countries there were considerable differences with the Anglo Saxon countries. This is mainly due to differences in the choice of methodology. De Jong *et al.* (2008: 1957) document long term leverage ratios for non African firms in emerging economies. An analysis of their data shows that the average non African firms in emerging economies is about 15 percent, which is higher than the 12 percent documented for firms in industrialised economies (see figure 2.5). This finding is contrary to the earlier observations made by Glen and Singh (2004: 162) that firms in emerging markets have lower leverage than their counterparts in the developed economies. However, these observed differences could be due to the measures of leverage used in the different studies.

Figure 2.6 shows the debt ratios for firms in five African countries. When total debt ratios are used, Nigerian firms tend to have the lowest debt. Ghanaian firms tend to have lowest long term debt ratios, an observation also noted by Abor and Biekpe (2005: 42). The average long term debt ratio for African firms is 11 percent, which is slightly lower than that of firms in other non African emerging economies. Another important finding from this analysis is that firms in Africa rely principally on short term debt, which averages 49 percent. Gwatidzo and Ojah (2009: 17) conclude that firms in African countries exhibit similar patterns of leverage to their counterparts especially in Brazil, Mexico, Thailand, South Korea, Jordan and Turkey.

The evidence on corporate capital structures in the developing countries indicates a non uniform pattern as per the different studies conducted at different times. This has mainly been attributed to each firm's unique circumstance and the data definitions. However, firms in developing countries rely less on internal financing and more on external

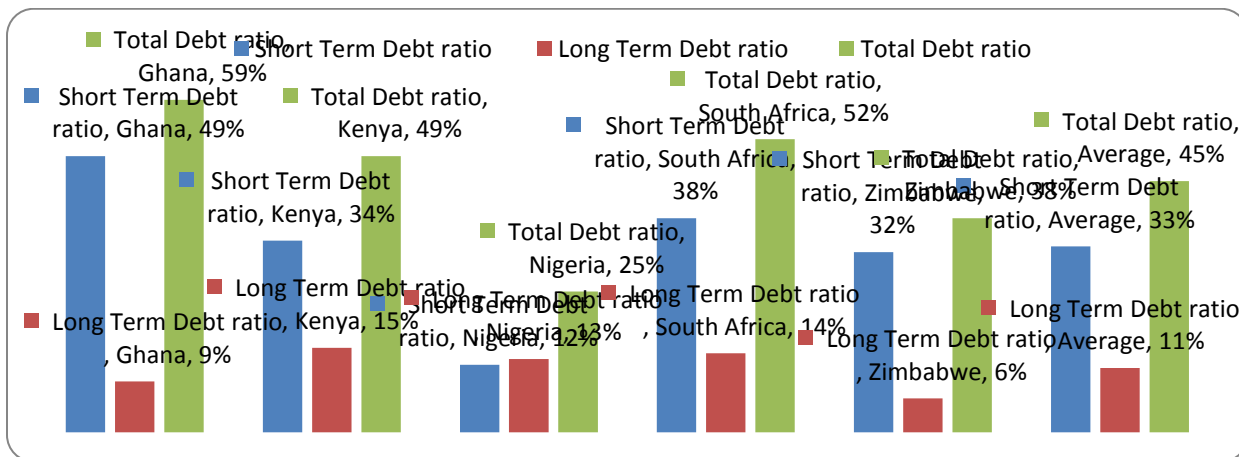
financing. Furthermore, firms in African countries exhibit similar levels of leverage to firms in other developing countries.

Figure 2.5: Long term debt ratios for firms from select developing countries



Source: De Jong *et al.* (2008: 1957)

Figure 2.6: Debt ratios for select African countries



Source: Gwatidzo and Ojah (2009: 7)

2.6 CHAPTER SUMMARY

This chapter has focused on the theory and practice of capital structure. The discussion commenced with the capital structure irrelevance debate. The train of thought in the capital structure irrelevance propositions has developed to a general consensus among researchers that there is an optimal capital structure. This is principally because as market

imperfections are introduced, managers will attempt to balance the tax benefits of debt against the present value of the costs of financial distress. The practical significance of this notion is that although debt presents a tax shield that translates to fairer market valuations, financial managers are aware of the dangers of excessive debt.

The main theories of capital structure have been discussed. These are the trade-off, agency, signalling and pecking order theories. Several reasons have been suggested on why the tests of the competing theories of capital structure fail to yield conclusive results. Firstly, it is difficult to include proxies for some variables that affect the optimal capital structure. Secondly, the theories cannot be reduced to a precise mathematical formula, but rather predict in qualitative terms, thus making them less reliable than asset pricing models. Lastly, the theories are not mutually exclusive.

A broad literature review on the factors that affect the choice of capital structure has been presented. The major factors that have been cited by researchers are legal, institutional and financial factors. Cross country studies also reveal that the choice of capital structure in developed countries is affected by the same variables.

The effect of firm characteristics on the capital structure of firms has also been documented. The researchers have found conflicting results on the correlation between size and leverage. The empirical relationship between profitability and leverage is mostly negative. Growth is usually negatively correlated to leverage when the market to book ratio is used and mostly positively related to leverage when growth in assets is used. Asset tangibility is usually positively correlated to leverage and evidence is mixed regarding the effect of age on firm leverage.

Finally, the pattern of capital structure for both the developed and developing countries has been discussed. Each country observed shows a unique pattern because of the circumstances that the firms in that particular regime are operating in. The main finding by the researchers is that debt levels in the sampled industrialised countries were relatively stable, with the exception of the United States. The other finding is that debt levels in bank based financial systems were higher than those in the market based financial systems.

From a developing economies perspective, firms rely more on external financing as compared to their counterparts in the developed world. The corporate capital structures in the developing countries indicate a non uniform pattern as per the different studies conducted at different times. This has been attributed to each firm's unique circumstance and the data definitions. The next chapter discusses the theory of financial liberalisation.