Impact of capital structure on firm's value: Evidence from Bangladesh

Anup Chowdhury, Suman Paul Chowdhury

BRAC Business School, BRAC University, Bangladesh

e-mail: anup@bracu.ac.bd, spc@bracu.ac.bd

Modigliani & Miller (1958) show the impact of debt-equity ratio on firm value in their capital structure theory. Economist and financial researchers have spent time to develop new thoughts around this theory. Despite their effort the Modigliani & Miller (MM) model is still in vague. In this paper attempt has been made to empirically support the argument of MM. The paper tests the influence of debt-equity structure on the value of shares given different sizes, industries and growth opportunities with the companies incorporated in Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE) of Bangladesh. For the robustness of the analysis samples are drawn from the four most dominant sectors of industry i.e. engineering, food & allied, fuel & power, and chemical & pharmaceutical to provide a comparative analysis. A strong positively correlated association is evident from the empirical findings when stratified by industry.

Introduction

A company applies its assets in its business to generate a stream of operating cash flows. After paying taxes, the firm makes distributions to the providers of its capital and retains the balance for use in its business. If company is all equity financed, the entire after-tax operating cash flow each period accrues to the benefit of its shareholders (in the form of dividend and retained earnings). If instead the company has borrowed a portion of its capital, it must dedicate a portion of the cash flow stream to service this debt. Moreover, debt holders have the senior claim to a company's cash flow; shareholders are only entitled to the residual. The company's choice of capital structure determines the allocation of its operating cash flow each period between debt holders and shareholders.

The debate over the significance of a company's choice of capital structure is esoteric. But, in essence, it concerns the impact on the total market value of the company (i.e.; the combined value of its debt and its equity) of splitting the cash flow stream into a debt component and earn equity component. Financial experts traditionally believed that increasing a company's leverage, i.e. increasing the proportion of debt in the company's capital structure, would increase value up to a point. But beyond that point, further increases in leverage would increase the company's overall cost of capital and decrease its total market value.

Modigliani and Miller challenged that view in their famous 1958 article. They argued that the market values the earning power of a company's real assets and that if the company's capital investment program is held fixed and certain other assumptions are satisfied, the combined market value of a company's debt and equity is independent of its choice of capital structure. Since Modigliani and Miller published their capital structure irrelevancy paper, much attention has focused on the reasonableness of these "other assumptions", which include the absence of taxes, bankruptcy costs, and other imperfections those exist in the real world. Because of these imperfections, a company's choice of capital structure

undoubtedly does affect its total market value; the significance of corporate leverage is reflected in the articles that have appeared in the financial press following periods like the 1970s when leverage increased significantly. However, the extent to which a company's choice of capital structure affects its market value is debated.

This study analyzes capital structure of Bangladeshi firms, selected from four most leading sectors i.e. engineering, food and allied, fuel and power, chemical and pharmaceutical with a specific objective to examine the impact of capital structure on the firm value. This paper will help to understand the general practices of capital structure in Bangladesh including the sensitivity of leverage on each industry. This will also act as a guide for the financial managers to design their optimum capital structure to maximize the market value of the firm and minimize the agency cost.

Literature review

The essence of financial management is the creation of shareholder value. According to Ehrhard and Bringham (2003), the value of a business based on the going concern expectation is the present value of all the expected future cash flows to be generated by the assets, discounted at the company's weighted average cost of capital (WACC). From this it can be seen that the WACC has a direct impact on the value of a business. (Johannes and Dhanraj, 2007).

The choice between debt and equity aims to find the right capital structure that will maximize stockholder wealth. WACC is used to define a firm's value by discounting future cash flows. Minimizing WACC of any firm will maximize value of the firm (Messbacher, 2004).

Debt policy and equity ownership structure "matter" and the way in which they matter differs between firms with many and firms with few positive net present value project (McConnel and Servaes, 1995). Leland and Pyle (1977) propose that managers will take debt-equity ratio as a signal, by the fact that high leverage implies higher bankruptcy risk (and costs) for low quality firms. Since managers always have information advantage over the outsiders, the debt structure may be considered as a signal to the market. Ross's (1977) model suggests that the values of firms will rise with leverage, since increasing the market's perception of value.

In their second seminal paper on corporate capital structure, Modigliani and Mill (1963) show that firm value is an increasing function of leverage due to the tax deductibility of interest payments at the corporate level. In the 30 years since, enormous academic effort has gone into identifying the relevant costs associated with debt financing that firms presumably trade off against this substantial corporate tax benefit. Although direct bankruptcy costs are probably small, other potentially important factors include personal tax, agency cost, asymmetric information, product/input market interactions, and corporate control considerations. Surveys of this literature include Bradley, Jarrell, and Kim (1984), Harris and Raviv (1991), Masulis (1988) and Miller (1998).

Early empirical evidence on the trade-off theory (e.g., Bradley, Jarrell, and Kim, 1984) yielded mixed results. However, recent studies examining capital structure response to change in corporate tax exposure (Givoly et al., 1992; Mackie-Mason, 1990; Trezevant, 1992) provide evidence supporting the trade-off theory. Myers (1984) argues that the trade-off theory also fails to predict the wide degree of cross-sectional and time variation of observed debt ratios.

Return on stock increases for any announcement of issuer exchange offers. Overall, 55 percent of the variance in stock announcement period returns is explained (Masulis, 1983). Under some conditions capital structure does not affect the value of the firm. Splitting a fund into some mix of shares relating to debt, dividend and capital directly adds value to the company (Gemmille, 2001).

The issue of whether financial structure influences economic growth or not. Through heterogeneous panel it was found that significant effects of financial structure on real per capita output, which is in sharp contrast to some recent findings (Arestis and Luintel, 2004). Firms have increased their level of debt relative to their profit. As a result, firm debt in general has risen substantially. They found that those firms having lower debt have higher value than the firm, which has high debt. Thus, firm can maximize its value by choosing low debt or zero debt (Kinsman and Newman, 1998). When the firm's investment is large, countervailing incentives lead both high and low cost firms to choose the same capital structure in capital structure in equilibrium, thus decoupling capital structure from private information. When investment is small or medium size, the model may admit separating equilibrium in which high cost firms issued greater equity and low cost firms rely more on debt financing (Spiegel and Spulber, 1997). The presence of corporate tax shield substitutes for debt implies that each firm has a unique interior optimum leverage decision and when firms, which issue debt, are moving toward the industry average from below, the market will react more positively then when the firm is moving away from the industry average. The overall finding is that the relationship between a firm's debt level and that of its industry does not appear to be of concern to the market (Hatfield et al., 1994). Debt ratios are found to be decreasing in cash flow or profitability and increasing in the investment of the firm in both countries. The study found positive with pecking order approach and generally inconsistent with the tradeoff approach (Benito, 1999). The firm-specific nature of strategic assets implies that they should be financed primarily through equity; other less specific assets should be finance through debt.

Firms are likely to suffer increased costs and decrease performance if they do not adopt suitable governance structures in their transactions with potential suppliers of funds (Kochhar, 1997). It is considered "customer-driven" financial distress where prices for the firm output decline whenever firm has poor financial status. "Employee driven" financial distress originates from loss of intangible assets when firm revenue decline. Babenko (2003) examines the state tax effect on optimal leverage and yield spreads to find out the optimal capital structure at the time of financial distress. A negative relationship exists between the ownership of shareholders with large blocks, on the one hand, and the degree of control, on the other hand, with regard to firm value, the second relationship being significant. However, endogenous treatment of these variables then reveals a positive effect for the ownership of the major shareholders on firm value.

Leland and Pyle (1977) and Ross (1977) propose that managers will take debt/equity ratio as a signal, by the fact that high leverage implies higher bankruptcy risk (and cost) for low quality firms. Since managers always have information advantage over the outsiders, the debt structure may be considered as a signal to the market. Ross's model suggests that the value of firms will rise with leverage, since increasing leverage increases the market's perception of value. Suppose there is no agency problem, i.e. management acts in the interest of all shareholders. The manager will maximize company value by choosing the optimal capital structure; highest possible debt ratio. High-quality firms need to signal their quality to the market, while the low-quality firms' managers will try to imitate. According to this argument, the debt level should be positively related to the value of the firm.

Assuming information asymmetry, the pecking order theory (Myers and Majluf, 1984) predicts that firm will follow the pecking order as an optimal financing strategy. The reason behind this theory is that if the manager act on behalf of the owners, they will issue securities at a higher price than they are truly worth. The more sensitive of the security, the higher the cost of equity capital, since the action of the manager is giving a signal to the market that the securities is overpriced.

Stulz (1990) argues that debt can have both a positive and negative effect on the value of the firm (even in the absence of corporate taxes and bankruptcy cost). He develops a model in which debt financing can both alleviate the overinvestment problem and the

Business and Economic Horizons

underinvestment problem. Stulz (1990) assumes that managers have no equity ownership in the firm and receive utility by managing a larger firm. The "power of manger" may motivate the self-interested managers to undertake negative present value project. To solve this problem, shareholders force firms to issue debt. But if firms are forced to pay out funds, they may have to forgo positive present value projects. Therefore, the optimal debt structure is determined by balancing the optimal agency cost of debt and the agency cost of managerial discretion.

Methodological framework

This study aimed to provide a status on the extent to which a firm's capital structure may differ and how value of firm change and it includes data collections, sources of data and techniques of analysis.

To study the impact of capital structure on the value of firm, this study analyzed 77 companies from four different dominant sectors of Bangladesh capital market, i.e. pharmaceuticals and chemicals, fuel and power, food, and engineering industry. This study used only secondary data, which are essential from the selected companies' balance sheets and income statements from January 1, 1994 to December 31, 2003. This study carefully attempted to select a number of factors that are essential to enhance the present status of the capital structure of firms as well as to take a further movement towards success. The limitation of this study is that the data set is somewhat old, but this is done due to availability of required information.

From its balance sheet and income statements the 30 divers' ratios and parameters were calculated to aid the empirical model, where value of firm was represented by the market capitalization. This is significantly related to the market price of each company's stock assuming no new public issues (seasoned issues) in between the years of analysis.

This study used cross sectional tie series fixed effect model to analyze available data to find out the impact of capital structure on the firm value (expressed by the share price in the market). Cross sectional regression analysis measures the observations at the same point in time or over the same period but differ along another dimension. Time series analysis identifies the nature of phenomenon represented by the sequence of observation and forecast the future and observes a trend.

This study also used descriptive statistics to describe and to understand the basic features of the data that are used in this study, because it is provided simple summaries about the sample and the measures. Using this tool one will be able to know the minimum, maximum value, the mean and standard deviation of each variable.

Correlation analysis is a statistical tool that could be used in this study to describe the degree to which one variable is linearly related to another. Through conducting correlation analysis this study shall be able to identify the degree of association among the variables.

This model put value of the firm (share price) as dependent variable; firm size, profitability, public ownership in capital structure, dividend payout, asset and operating efficiency, growth rate, liquidity and business risk were taken as independent variables. Firm size is represented by share capital, profitability is measured through EPS, public ownership is in percentage, capital structure is represented by the ratio of long term debt to total assets, dividend payout at actual, efficiency is measured through fixed asset turnover, growth rate is noted through sales growth rate, liquidity is measured by current ratio, and business risk is represented by operating leverage. All the variables used as independent variables were considered as proxy for the capital structure decision of respected firm.

The equation of this model is,

$$Price = a + b_1\,eps + b_2\,dpratio + b_3\,public + b_4\,fato$$
$$+ b_5\,ltdebtas + b_6\,curatio + b_7\,operlev + b_8\,salesgr$$
$$+ b_9\,sharecap + e_i$$

Where, *eps* - earnings per share; *dpratio* - dividend payout ratio; *public* - % of public shareholding; *fato* - fixed asset turnover; *ltdebtas* - long term debt to total assets; *curatio* - current ratio; *operlev* - operating leverage; *salesgr* - sales growth; *sharecap* - share capital; *a* - constant, ε - residual component; $i = 1, \ldots, 77$; *t* - time $1, \ldots, 10$.

This analysis is based on financial ratios and parameters extracted from each company's financial statements and markets.

Financial data analysis

The present study on capital structure and firm's value is based on selected four sectors out of total ten economic group or sectors of Bangladesh economy. These four sectors include - engineering sector, food and allied sector, fuel and power sector, and pharmaceuticals and chemicals sector.

The analysis section of the paper is based on published data of 77 non-financial companies listed on the two Stock Exchanges of the country (i.e. Dhaka and Chittagong) out of total 157 listed non-financial companies. Paper considered information from year 1999 to 2003. For convenience, all the shares were standardized at Tk.100 each to calculate the book value, net asset value, earning per share and dividend per share for consolidated statements. As the closing date of the balance sheet is not the same for all companies, averaging the fiscal year and then adding it with the calendar year provided the consolidated statements for each group. The total of assets and liabilities may exhibit minor differences due to rounding of separate items. Ratios and percentages were worked out after rounding of the figures. Beside the figures for 1999, 2000, and 2001 were revised in some cases and hence may not match with those in the early study papers of different researchers of this kind. In the following statements of the section this study presented sector-wise capital structures and followed by sector-wise ratio analysis of selected companies.

Capital structure consists of balance sheet items like shareholders' equity, non-current liabilities, and total capital employed. Capital structures of selected companies are shown below: shareholders' equity is the sum of ordinary share capital, revaluation, and capital reserves other reserves and surplus.

Non-current liabilities are preference share, debenture, and other non-current liabilities.

The capital employed is sum of debt equity ratio, gearing, book value per share, and net asset value per share[1].

Analysis and findings

Descriptive statistics

This study conducted descriptive statistics to describe the basic features of the data in sample[2]. Through this statistical tool this study was able to find out the number of variable in sample, their mean, standard deviation, minimum value and maximum value. Here, it was found that price has a mean of 315 and its maximum value is as high as 6925. Its minimum price is 4. Net sales figures also have high variability with minimum "0" and

---

[1] Information regarding the capital structure of each sector is available from the author on request.
[2] Results are available from the author on request.

maximum 27 548 100 000. Total asset variability is also high with its minimum figure of "0" and maximum 15445 500 000 and its mean is 657 702 948. EPS has mean value of 8.01 with minimum value of -339 and maximum value 466.67. EPS has standard deviation of 59.82. Dividend payout ratio has mean value of .55 and standard deviation of 2.04. Minimum dividend payout ratio is -4.44 and maximum value is 50. Public shareholding has mean of .39 and standard deviation is 1.66. Minimum value is "0" and maximum value is "43.69". Fixed asset turnover has mean of 5.27 with standard deviation of 18 and minimum value of "0" and maximum value of "179.88". Long term debt to total assets has mean of .24 and standard deviation of .34, with minimum value "0" and maximum value "3.41". Current ratio has mean of 3.71 and standard deviation of 47.13. Its maximum value is 1074 and minimum value 0. Operating leverage, its mean value is 4.77, maximum value is 1625 and standard deviation is 78.35. Sales growth, its maximum value is 1325 and minimum value is -119. Standard deviation is 124 with mean of 22. Share capital, its mean is 85 574 566 and standard deviation is 94 071 186. Its minimum value is 1 000 000 and maximum value is 600 000 000.

Correlation analysis

Output of correlation analysis (Tables 1-3, Appendix) is represented in matrix of pair-wise correlation. This study calculated correlation of variables with each other. It was found that price is positively correlated with EPS, dividend per share, and book value per share, fixed assets turnover, current ratio, inventory turnover ratio, P/E ratio, dividend growth, and net profit margin.

Price is highly correlated with dividend per share, which is 0.506. DPS and price are most positively correlated. From this we can understand that price of stock in these four sectors mostly depends on dividend per share. When the DPS increase, price for particular share tends to increase. Price and EPS have positively correlation of 0.33. Price and dividend payout ratio are slightly negatively correlated by -0.001. The correlation value is insignificant. Price and public shareholding has negative correlation of -0.027. Price and fixed assets turnover have positive correlation of 0.21. Price and long term debt to total asset ratio have negative correlation of 0.348. Price to current ratio has correlation of 0.013. Price and sales growth have correlation of -.032. This means price and sales growth are inversely related. But in real world price tend to increase with the increase of sales growth. The study found that price and share capital are negatively correlated, correlation value -0.0711. It can be inferred from the analysis that that none of the variables are perfectly correlated or inversely correlated. Each and every variable has some relationship with each other.

Cross sectional time series regression analysis

This study conducted fixed between cross sectional time series regression models (Tables 4-5, Appendix).

The cross sectional time series regression was conducted considering price as dependent variable; and independent variables were EPS, dividend payout ratio, percentage of public shareholding, fixed asset turnover, long term debt to total assets, current ratio, operating leverage, sales growth and total share capital. This study gathered last 10 years financial data of 77 companies belonging to these four sectors. However, due to presence of 1996 share price data and in all other ratios, which are, calculated based on price are providing misleading information. In order to overcome this situation, the study acquired the data

from 1st January 1997 to 31st December 2003 to conduct cross sectional time series regression analysis.

In the first regression model, EPS, dividend payout ratio, long term debt to total assets, and current ratio have positive coefficient and public shareholding, fixed asset turnover, operating leverage, sales growth, and total share capital have negative coefficient and R^2 of 0.1249 (Table 4) indicates that 12.49% of variables in the dependent variables can be explained by independent variables.

EPS has coefficient of 3.83, which says that one unit increase in EPS will increase price by 3.83. Standard error is 0.461, this indicates that the data given into the table are acceptable; t value of EPS on price is 8.319 and this is the highest t value in the regression table. As the t value is highest it indicates that sign confirmed by coefficient is supported by t value. These statistically satisfy that EPS change will affect price by 3.83 times. So, this study suggests that by increasing EPS of any firm, financial manager can increase the value of the share price.

Dividend payout ratio has coefficient of 1.87 which is less than the coefficient of EPS on price. Its standard error is 11.4, which is higher than the standard error of EPS. The t value is 0.164. This implies that firm may increase the value through paying more dividend out of their current income or from their previous income.

Public shareholding has negative coefficient of -2.52 with price. This implies that if any firm has greater shareholding by the public then the price of that particular company will decrease. Standard error is 11.40 and the t value is -0.18. This also shows that a firm can increase its price by reducing public shareholding.

Fixed asset turnover has very low negative impact on price. It shows that if fixed asset turnover increase by 1 unit then price will reduce by .66. In real world we have seen that the more a company will be able to generate sales through its fixed assets, the more efficient will be the firm and profit will be relatively higher. But in our statistical result implying that fixed asset turnover reduces the price of stocks or value of firm.

Long term debt to total asset has the highest coefficient of 88.56. This indicates the most influential variable. Long term debt to total asset indicates the portion of long term liability or credit on total firm's fixed assets. Standard error is 82.64. Here it is accepting due to much variability of long term debt to total assets in observed data. t value is 1.07 which shows that by taking debt to its capital structure one firm can increase the market value of share. The portion of or the mix of long term debt to total assets may widely vary from company to company.

Current ratio has coefficient of 0.0278 with price. This shows that current ratio has positive relationship with price. Current ratio increases with the increase of current asset or with the decrease in current liability. When the current asset is higher than the current liability that means some portion of the current asset is being financed by its long term debt. t value of 0.049 is acceptable to us as its standard error is low.

Price and operating leverage has negative coefficient of -0.091. Its standard error is 0.33. t value is -0.27. Operating leverage shows the extent to which a firm has fixed burden. If any firm has high fixed cost or operating leverage then a little change in sales price will adversely affect the profitability of any firm. Low operating leverage gives any firm flexibility. So by reducing operating leverage any firm can increase its value.

Business and Economic Horizons

Sales growth has negative coefficient with price. This result is not supported by real life phenomenon, because sales growths supposed to have positive impact on a firm. Sales growth will make higher the net profit margin. The economics of scale could be attained by increase any companies sales growth. The obtained statistical result data shows that there exists a negative relationship with the firm value. As the real life experience and our statistical data are not matching, one could ignore any result out of it.

Share capital and price have negative coefficient of -6.32, standard error is 2.98, and *t* value is -.12. This explains that the larger the equity capital of a firm, the lower the share price in the market. This may happen for the expectation of the shareholder. Usually large firms have lower share capital, in most of the cases they perform at maturity level and their growth rate are also relatively stable. This gives a message to the equity holder that the firm may not be growing or making profit out of its existing capacity compared to other firm's whose share capital is low and growing at a higher rate.

Second regression model (Table 5) made price as dependent variable and independent variables included EPS, dividend payout ratio, public shareholding, fixed asset turnover, long term debt to total assets, current ratio, operating leverage, and sales growth. R^2 indicates that independent variables can explain 11.53% of variability in the model.

This model ignored the impact of share capital on the market price of stocks. Because number of shares have multiple indirect influences on other variables considered in the model, like EPS, DPS, long term debt to total assets, and leverage ratio. Therefore, the second regression was considered the roundabout impact of share capital rather than both direct and indirect sways.

It was observed that long term debt to total asset has coefficient of 128.86 which is the most influencing the price if someone consider only the coefficient figure. This means one unit increase in long term debt to total asset will increase price by 128.86. Its associated *t* value is 1.599. Although the coefficient is not statistically significant, the positive impact of debt ratio on stock price has important implications.

After the long term debt to total assets, earning per share has coefficient of 3.77 with price. This means one unit increase in earnings per share will increase price by 3.77. As the *t* value is high it indicates that sign confirmed by coefficient is supported by this value. This also indicates that any increase in EPS of any firm will increase the price of that firm.

Dividend payout ratio (DP ratio) has coefficient of 2.7475 with price, this indicates that 1 unit increase in DP ratio will increase price by 2.74. The *t* value is small at .24 this indicates less sign of confirmation by coefficient to draw any idea or impact. If we compare std. error of EPS and DP ratio, we will see that DP ratio has higher std. error than EPS.

Percentage of public shareholding, fixed asset turnover, operating leverage and sales growth have negative coefficient with price. Of which sales growth has higher negative coefficient. Sales growth has coefficient of -26.508 with price and *t* value of -1.236. This indicates one unit sales growth will reduce the price by 26.508. Our findings at this point may differ from real life situation. Generally, when there is sales growth in a company the future earning expectation increase and market price of share also increase in association with that expectation. Our analysis suggests the relationship as negative: the logic behind this may be the fact that at the time of growth companies generally retain most of their profit for future and usually don't declare dividend; as the dividend amount is reduced the price may fall. In association with it the other thing may be true: to support the sales

growth the companies need to borrow from outside, this increases the financial expenditure as well as the burden to the firm and affect the market price.

Through the analysis it is seen that capital structure has impact on the market value of a firm. Furthermore, it is also observed that by changing its current ratio, operating leverage, EPS, dividend payout ratio or share capital of a firm may increase its value in the market. Most interesting finding is about the value of R^2 which is expectedly very low like other findings in other similar research papers. Because share price is not only dependent on the fundamental financial information of the company but also on the qualitative decision of management, level of good governance, investor psychology, market reputation, business cycle, etc.

Conclusion

Throughout the study objective was to find out the impact of capital structure on the value of firm in the context of Bangladesh economy or industrial sector. In order to achieve the goal this paper gathered secondary data of publicly listed companies traded in Dhaka Stock Exchange (DSE) and Chittangong Stock Exchange (CSE) and used some statistical tools to analyze all the financial information. To see the relationship between capital structure and firm value in Bangladesh this paper considered share price as proxy for value and different ratios for capital structure decision. The interesting finding of this paper suggests that maximizing the wealth of shareholders requires a perfect combination of debt and equity, whereas cost of capital has a negative correlation in this decision and it has to be as minimum as possible. This is also seen that by changing the capital structure composition a firm can increase its value in the market. Nonetheless, this could be a significant policy implication for finance managers, because they can utilize debt to form optimal capital structure to maximize the wealth of shareholders.

References

Arestis, P., Luintel, A., Luintel, K., 2004. "Does financial structure matter?", Economics Working Paper Archive 399, The Levy Economics Institute.

Arsiraphongphisit, O., and Ariff, M. 2004. "Optimal capital structure and firm value Australian evidence: 1991-2003," Monash University, http://www.efmaefm.org/efma2005/papers/17-arsiraphongphisit_paper.pdf

Babenko, I., 2003. "Optimal capital structure of the firm in the presence of costs of financial distress," University of California at Berkeley, EFA 2004 Maastricht Meetings Paper No. 5179: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=559410&

Benito, A., 1999. "The capital structure decisions of firms: Is there a pecking order?" BENCO DE ESPANA, Madrid.

Berens, J., Cuny, Winter, C., 1995. "The capital structure puzzle revisited," The Review of Financial Studies, Vol.8, No4, pp.1185-208.

Bradley, M., Jarrell, G. and Kim, E., 1984. "On the existence of an optimal capital structure: Theory and evidence," Journal of Finance, Vol.39, pp.857-78.

Ehrhardt, M. and Brigham, E., 2003. "Corporate finance - A focused approach," 1st Edition, Mason, Thomson.

Gemmill, G., 2001. "Capital structure and firm value a study of split-capital closed-end funds in the UK," City University Business School.

Hatfield, G., Cheng, L., Davidson, W., 1994. "The determination of optimal capital structure: The effect of firm and industry debt ratios on market value," Journal of Financial And Strategic Decisions,Vol.7, No3, pp.1-14.

Harris, M., and A. Raviv, 1991. "The theory of capital structure," Journal of Finance, Vol. 46, pp.297-355.

Givoly, H., Hayn, C., Ofer, A, and Sarig, O., 1992. "Taxes and capital structure: Evidence from firms' response to the tax reform Act of 1986," Review of Financial Studies, Vol.5, pp.331-55.

Business and Economic Horizons

Johannes vH de We; Kivesh Dhanraj, 2007. "Unlocking shareholder value by moving closer to the optimal capital structure," Accountancy SA, Accounting and Tax Predictions, pp.28-32.

Kinsman, M. and Newman, J., 1998. "Debt tied to lower firm performance: Finding calls for review of rise in debt use," Pepperdine University.

Kochhar, R., 1997. "Strategic assets, capital structure, and firm performance," Journal of Financial and Strategic Decisions, Vol.10, No3, pp.23-36.

Leland, H. and Pyle, H., 1977. "Informational asymmetries, financial structure, and financial intermediation," Journal of Finance, Vol.32, No2, pp.371-87.

Mackie-Mason, J., 1990. "Do taxes affect corporate financing decisions?, " Journal of Finance, XLV, 5, pp.1471-493.

Masulis, R., 1983. "The impact of capital structure change on firm value: Some estimates," The Journal of Finance, 38 (1), pp.107-26.

Masulis, R., 1988. The debt-equity choice, Institutional Investor Series in Finance, Ballinger Press.

Mayer, C., 1986. "Corporation tax, finance, and the cost of capital," Review of Economic Studies, Vol.53, pp.93-112.

McConnel, J. and Servaes, H., 1995. "Equity ownership and the two faces of debt, " Journal of Financial Economics, Vol.39, pp.131-57.

Messbacher, U., 2004. "Does capital structure influence firms value?", University of Ulster.

Miller, M., 1977. "Debt and tax," Journal of Finance, Vol. 32, pp.261-75.

Modigliani, F., and Miller, M., 1963. "Corporate income taxes and the cost of capital: A correction," American Economic Review, Vol.53, pp.433-43.

Ross, S., 1977. "The determination of financial structure: The incentive signalling approach," Bell Journal of Economics, 8, pp.23-40.

Spiegel, Y. and Spulber, D., 1997. "Capital structure with countervailing incentives," London School of Economics.

Stulz, R., 1990. "Managerial discretion and optimal financing policies," Journal of Financial Economics, 1990, Vol.26, pp.3-27.

Trezevant, R., 1992. "Debt financing and tax status: Tests of the substitution effect and the tax exhaustion hypothesis using firms responses to the economic and recovery tax of 1981," Journal of Finance, 47, pp.1557-568.

Appendix

TABLE 1. CORRELATIONS AMONG *price*, *eps*, *dps*, *bops*, *fato*, *ltdebtas*, *ltdebteq* (OBS=684)

	eps	dps	bvps	ato	ltdebtas	ltdebteq
price	1.0000					
eps	0.3357	1.0000				
dps	0.5060	0.5368	1.0000			
bvps	0.2074	0.6092	0.4679	1.0000		
fato	0.0214	0.0731	0.0065	0.0346	1.0000	
ltdebtas	-0.0348	-0.2411	-0.1427	-0.4736	-0.0942	1.0000
ltdebteq	-0.0326	-0.0357	0.0489	0.1062	-0.0023	-0.0807

TABLE 2. CORRELATIONS AMONG *price, curatio, invturn, patio, salesgr, epsgr, epsgr* (OBS=691)

	price	curatio	invturn	peratio	salesgr	epsgr
price	1.0000					
curatio	0.0126	1.0000				
invturn	0.0004	-0.0182	1.0000			
peratio	0.0519	-0.0037	0.0050	1.0000		
salesgr	-0.0318	-0.0066	0.1893	-0.0342	1.0000	
epsgr	-0.0148	0.0001	0.0390	-0.0085	0.0938	1.0000

TABLE 3. CORRELATIONS AMONG *price, divgr, operlev, finlev, netsales, npmargin, sharecap, public* (OBS=688)

	price	divgr	operlev	finlev	netsales	npmargin	sharecap	public
price	1.0000							
divgr	0.0338	1.0000						
operlev	-0.0055	-0.0033	1.0000					
finlev	-0.0013	-0.0073	0.0070	1.0000				
netsales	-0.0035	-0.0237	-0.0140	-0.0059	1.0000			
npmargin	0.0335	0.0152	0.0023	0.0206	0.0214	1.0000		
sharecap,	-0.0711	0.0126	-0.0179	-0.0484	0.1852	0.0456	1.0000	
public	-0.0267	-0.0098	-0.0019	-0.0064	-0.0339	0.0045	0.0396	1.0000

Business and Economic Horizons

TABLE 4. CROSS SECTIONAL TIME SERIES FIXED EFFECT REGRESSION ANALYSIS

Number of obs	512			
Number of groups	7			
R-sq:	Within 0.1311			
	between 0.1251			
	overall 0.1249			
		F(9,496)= 8.32		
		Prob>F= 0.00		
price	Coef.	t	P>t	
eps	3.835133	8.319	0.000	
dpratio	1.873811	0.164	0.870	
public	-2.52147	-0.181	0.856	
fato	-0.6622866	-0.449	0.654	
ltdebtas	88.56484	1.072	0.284	
curatio	278682	0.049	0.961	
operlev	914526	-0.271	0.786	
salesgr	-26.54536	-1.241	0.215	
sharecap	-6.32e-07	-2.119	0.035	
cons	325.0554	6.824	0.000	

Where,
price - share price
eps - earning per share
dpratio - dividend payout ratio
public - percentage of public shareholding
fato - fixed asset turnover
ltdbtas - long term debt to total assets
curatio - current ratio
operlev - operating leverage
salegr - sales growth
sharecap - share capital of the firm
cons - constant value

TABLE 5. CROSS SECTIONAL TIME SERIES FIXED EFFECT REGRESSION ANALYSIS

Number of obs	512			
Number of groups	7			
R-sq:	within	0.2236		
	between	0.0609		
	overall	0.1153		
		F(8,497) = 8.76		
		Prob > F = 0.00		
price	Coef.	t	P>t	
eps	3.772985	8.177	0.000	
dpratio	2.747591	0.240	0.810	
pub	-4.61E-08	-0.515	0.607	
fato	-0.3330763	-0.226	0.821	
ltdebtas	128.8642	1.599	0.110	
curatio	0.0475077	0 084	0.933	
operlev	-0.0775599	-0.229	0.819	
salesgr	-26.50842	-1.236	0.217	

Where,
price - share price
eps - earning per share
dpratio - dividend payout ratio
public - percentage of public shareholding
fato - fixed asset turnover
ltdbtas - long term debt to total assets
curatio - current ratio
operlev - operating leverage
salegr - sales growth