Capital Structure Decisions in Emerging Markets:

An Inquiry into the Capital Structure of Group & Non-Group Affiliated Firms in India

by

Hoshrav M. Patel

An honors thesis submitted in partial fulfillment

of the requirements for the degree of

Bachelor of Science

Undergraduate College

Leonard N. Stern School of Business

New York University

May 2009

Professor Marti G. Subrahmanyam	Professor Aswath Damodaran
Faculty Adviser	Thesis Advisor

Capital Structure Decisions in Emerging Markets:

An Inquiry into the Capital Structure of Group & Non-Group Affiliated Firms in India

Hoshrav M. Patel*

ABSTRACT

This study presents an empirical analysis on the capital structure decisions of group-affiliated and non-affiliated firms in India. We consider the impact of group-affiliation on debt levels in the context of various capital structure theories, and hypothesize that group-affiliated firms carry higher levels of debt on their balance sheets. We use a sample of firms drawn from the Bombay Stock Exchange 500 Index. Through univariate and multivariate analyses we conclude that this hypothesis is incorrect, and that group-affiliated firms have levels of leverage that are not significantly different from the levels exhibited by standalone firms. This leads us to conclude that no particular capital structure theory has a dominant impact on the leverage of group-affiliated firms vis-à-vis non-group affiliated firms. We hypothesize that this is due to firms' endeavors to improve corporate governance standards and thus improve transparency and avoid intra-group and cross-subsidization transactions. This implies that they behave more like standalone companies and exhibit similar characteristics. We also hypothesize that the proliferation of credit in Indian markets has increased access to external financing for all firms. Group-affiliated firms that used to have better access to financing don't hold a significant advantage over its standalone counterparts due to the easy availability of credit.

*I am extremely grateful to, Professor Aswath Damodaran for his insight and guidance, to Professor Marti G. Subrahmanyam for his advice and investment into the Honors Program, to anonymous executives who manage diversified groups in India for their assistance, and to my parents Bapsy & Minoo F. Patel for their unyielding support and visionary guidance over the last twenty-two years. All errors herein are my own.

Contents

1. Inspiration

There are two key reasons that motivated us to investigate the capital structure decisions of group-affiliated and non-group affiliated companies in India.

First, the financing decision is arguably one of the most important corporate finance decisions that managers of a firm must make. The capital structure of a business has a wide-ranging impact on the performance of a firm and the flexibility that managers have to pursue corporate strategies. It also has extensive implications on the total value of the firm, which managers are entrusted with maximizing. Further, the recent events in the world's credit markets and its subsequent impact on global economies, make it incredibly important to understand the motivations behind the choice for debt financing.

Second, India has witnessed rapid growth and industrialization over the past few years. This has led to a considerable change in the institutional context. This makes the study of firms in India extremely interesting as, for reasons outlined below, the institutional context within which a firm operates has widespread implications on the structure of firms. Additionally, the dominance of Indian companies has begun to transcend national boundaries. These titans are now forces to be reckoned with in the global markets. Indeed, the Boston Consulting Group's list of the 100 New Global Challengers (Aguiar, et al., 2009) includes twenty Indian companies, six of which belong to the Tata Group alone.

We met with several senior executives at some of India's largest business houses in December 2007 and January 2008. Our conversations with senior management have provided us with some direction for the study and helped shape our perspectives on the capital structure decisions at group firms. We are extremely grateful for their time and assistance in this paper.

2. Introduction

From the Chaebols of Korea to the Keirtsus of Japan to the LBO associations of the US to Business Houses of India, the corporate finance literature has extensively documented the characteristics of business groups. Specifically, the literature has focused on their performance, corporate structure, diversification strategies, capital allocation strategies, corporate governance and the motivations to conglomerate in the first place. This paper intends to investigate whether a difference exists in capital structure choices between group-affiliated and independent businesses from an emerging markets perspective.

A business group is a conglomeration of several companies with diversified interests sharing common ownership (Khanna & Palepu, 2000). Business groups are typically characterized by majority ownership by a single family (Almeida & Wolfenzon, 2006), cross-shareholdings and common directorship (Khanna & Rivkin, 2006).

Literature suggests that business groups have formed for three key reasons (Khanna & Rivkin, 2006). Firstly, as Leff (1976; 1978) theorized, groups formed as responses to market imperfections. Emerging markets are characterized by information and agency problems, and lack the robust regulatory frameworks required for contract enforcements. These markets also lack financial intermediaries and have underdeveloped labor and product markets. Exposure to such imperfections raises a firm's cost of transacting (Williamson, 1985; Coase, 1937). This encourages firms to affiliate and consummate transactions together to prevent the high costs of doing so independently. Drawing on this analysis, Coase (1937) suggests that the optimal structure of a firm will depend on its institutional context. This would encourage firms to affiliate in order to create "internal institutions that mitigate external market failures" (Khanna & Palepu, 2000). Secondly, individuals and organizations overcome market uncertainties by repeatedly

engaging with the same partner, rather than initiating a search for a new partner (Podolny, 1994). This proposition has two corollaries. First, the greater the level of uncertainty, the more an organization or individual will partner with those whom they have transacted with, in the past (Podolny, 1994). Second, higher levels of market uncertainty will lead to a greater number of organizations choosing to tap preexisting relationships (Podolny, 1994). Extremely uncertain markets would therefore lead to a very close network of entrenched affiliates giving rise to some form of business groups. Finally, groups may arise as a result of an owner's desire to diversify risk or through a succession in family-owned companies. The absence of a market for portfolio diversification purposes in emerging markets, encouraged families to diversify risk through expansion of their own businesses.

The corporate structure of business groups gives birth to special characteristics that should influence the financing decision and distinguish its preferences from those of stand-alone firms. Their size, reputational qualms and diversity of cash flows reduce overall bankruptcy risk, increasing incentives for lenders to lend, while opacity and informational asymmetries call for caution amongst lenders. These firms also have significant tax tools to take advantage of in reducing their tax liabilities and hence, reducing the value of debt in reducing total tax obligations. Lastly, groups give rise to internal capital markets, allowing group firms access to liquidity reserves and reducing their dependence on external financing.

Although the interest lies in analyzing capital structure preferences of groups in an emerging markets context, we focus this study on Indian business groups for the four reasons set out by Khanna & Paelpu (2000). Firstly, the Indian economy has a large number of business groups allowing us to analyze a large sample size. Secondly, it is easy to establish group affiliation, since firms are usually owned and controlled by only a single group. Thirdly, Indian

business groups are well organized into separate legal entities based on lines of business. Lastly, each of these entities have well-established accounting protocols and produce reliable financial statements on par with standards in developed economies.

The objective of this paper is to analyze capital structure preferences between group and non-group affiliated firms, in light of the various financing theories. The paper is organized as follows. Section 3 considers the various theories on capital structures and hypothesizes their implications for group affiliation. Section 4 sets up the hypothesis we intend to test in this paper while section 5 discusses the methodology and data set under investigation. Section 6 summarizes the empirical procedures and results while section 7 discusses the implications of the empirical results. Section 8 concludes this paper.

3. Capital Structure Theories and their Implications for Group Affiliation

Miller-Modigliani's capital structure irrelevance proposition in the perspective of perfect markets set-off a frenzy of corporate finance literature on the subject of the financing decision. Given the existence of imperfect market conditions, this theory gave birth to several key hypotheses that attempt to define the rationales behind capital structure choices. Among them are the pecking order theory, the static tradeoff theory and the agency theory. We apply these theories in the context of group affiliation and hypothesize the debt levels of group affiliated firms vis-à-vis their standalone counterparts.

3.1. Static Tradeoff Theory and Implications for Group Affiliation

The static tradeoff theory posits that each firm has an optimal target financial debt ratio that results from weighing the marginal benefits of debt financing with its marginal costs. This involves selecting a capital structure that balances the tax advantages of debt

financing with the costs of potential financial distress and thus maximizes the value of the firm. The firm is viewed as moving towards a target debt-to-value ratio that it sets for itself by balancing these two countervailing forces (Myers, 1984). Tax advantages are a result of interest payments being tax deductible while the costs of potential bankruptcy arise from legal and administrative costs of default as well as moral hazard, monitoring and contracting costs that surface even when a firm avoids formal bankruptcy. The corollary of this proposition implies that riskier[1] firms ought to borrow less, while mature, more stable firms should have a greater capacity for borrowing.

Group affiliation, should therefore have an impact on capital structure under this framework for a number of reasons. First, consistent with the findings of Titman and Wessles (1988), larger firms, especially groups, are more diversified. Diversity of cash flows reduces the potential risk of default, thus raising the firm's debt capacity. Second, group affiliated businesses are highly visible and thus elicit greater following from the investment community, making them concerned of reputational issues. As Diamond (1989) claims, reputation effects give borrowers a reason to forgo risky projects. Groups are also likely to cross-subsidize subsidiaries (Chang & Hong, 2000) and cover debt obligations in the event of a default, in order to protect the group's reputation and future availability of credit. All these factors should make credit accessible to group-affiliated firms at more competitive terms than those available to stand-alone organizations, thus implying a higher debt level. On the contrary, the extra tools that group-affiliated firms have at their advantage, such as the ability to cross-subsidize and enter into intra-group transactions (Chang & Hong, 2000), give group-affiliated firms the ability to reduce total tax obligations, thus reducing the need for debt. Further, as DeAngelo and Masulis (1980) illustrate, firms have access to non-debt tax shields

[1] "Risk" is defined by Myers (1984) as the "variance rate of the market value of the firm's assets"

such as depreciation, depletion allowances and investment credits, reducing the need for debt to lower total taxes.

Given the countervailing arguments proposed by this theory, it is difficult to draw a hypothesis about a group-affiliated firm's debt level based on the static trade-off theory. We would first need to measure the magnitude of non-debt tax shields to be able to draw a sensible hypothesis.

3.2. Pecking Order Theory and Implications for Group Affiliation

The pecking order theory of Myers & Majluf (1984) states that companies adhere to a hierarchy of funding sources from internal funds to external equity, due to the information costs associated with the different sources of finance. In this framework, firms have no target debt-to-value ratio.

In firms where the suppliers of capital are not charged with the responsibility of its day to day operations, asymmetric information problems arise. This causes adverse selection problems where controlling managers possess information unknown to the investors of risk capital. In such instances, the financing method acts as a signal to outside investors. Managers also wish to avoid reliance on external finance to avoid the discipline imposed by capital markets.

Of the three sources, debt, equity and retained earnings, the latter has no adverse selection problem while equity has the highest adverse selection problem. Myers & Majluf (1984) predict that managers work in the interest of existing shareholders and thus expropriate wealth from debt holders and new stockholders in favor of old shareholders. For this reason, the issuance of new equity leads to downward pressure on the stock price since investors infer bad news from a new equity issuance. The study by Asquith and Mullins

(1986) predicts that the “average announcement day return for all industrial issues is -2.7% and is statistically significant”. In order to protect the interests of original shareholders then, managers would avoid the issuance of new equity.

In choosing between debt and equity, the pecking order theory hypothesizes that firms will always chose debt over equity. This is because debt has a prior claim on assets and debt investors face lower risk from errors in firm valuation (Myers S. , 2001). The downward effect on stock price is therefore lower. Alternatively, since equity is riskier than debt due to its status as claimants on residual cash flows, equity investors have a higher risk premium and will therefore demand a higher return on their investment. Managers should therefore fund projects using debt before equity.

Pecking order theory also makes predictions about the maturity and priority structure of debt. Since securities with the lowest information cost should be issued first, firms should exhaust short-term debt before using long-term debt and issue capitalized leases and secured debt before the issuance of any unsecured debt.

The pecking order theory has several implications for group affiliation. First, the existence of internal capital markets allows group-affiliated businesses greater access to internal funds. This should reduce their desire to use external debt all else being equal. Second, the complexity and lack of transparency of larger groups amplifies the impact of informational asymmetries and should reduce access to external funds. However, Dewnter and Warther (1998) find that group affiliation actually reduces information asymmetries in member firms in the case of Japanese keiretsus. To reconcile the two countervailing arguments, Dewenter, Novaes and Pettway (2001) study IPO initial returns to evaluate the trade-off between visibility of large group firms and complexity. They conclude that

complexity issues dominate visibility, allowing groups and group-affiliated businesses to behave opportunistically against external investors. This should reduce the level of external debt on the balance sheets of group-affiliated businesses.

Thus, pecking order theory predicts that group-affiliated firms will have lower levels of external debt on their balance sheet, as they have greater access to internal sources of funds.

3.3. Agency Theory and Implications for Group Affiliation

Berle & Means' (1932) research on corporate governance illustrated the consequences of the separation of ownership and control in public corporations. Differing interests of managers and owners creates a principal-agent conflict and gives rise to agency costs (Jensen & Meckling, 1976). The agency costs manifest themselves in two ways: between owners and managers and between equity holders and debt holders.

The conflict between owners and managers gives rise to the agency cost of equity. This occurs because managers act in their own self-interest, seeking above-market salaries and perquisites. They will continue to make investments in activities aligned with their skills and knowledge and increase their bargaining power against outside investors (Myers S. , 2001). These actions conflict with shareholders' benefits. The latter can absolve the severity of the agency problem by increasing management ownership (Jensen & Meckling, 1976) and improving monitoring by large shareholders (Shleifer & Vishny, 1986). Debt financing is also seen as a tool to discipline managers (Jensen, 1986) as debt covenants restrict managers' freedom and events of default trigger investigations, generating new information on the firm. Thus, debt can be seen as a beneficial tool for equity investors.

However, the conflict between debt and equity investors gives rise to the agency cost of debt. Since equity is a residual claim on assets and cash flows, shareholders gain when the value of debt falls. Managers, who act in the interest of shareholders, have the ability to expropriate wealth from debt holders in favor of equity investors through a number of asset-substitution strategies. First, managers can invest in risky projects creating a situation where the upside accumulates to shareholders, while the downside is shared by both debt and equity investors. Second, recapitalizations, where managers lever the firm and pay out cash to equity holders, reduces the value of debt while increasing the gain to shareholders. Third, as Myers' (1977) debt overhang problem describes, managers may expropriate wealth by reducing equity-financed investments. Lastly, managers may delay conveying bad news and prevent creditors from forcing bankruptcy, thus prolonging the maturity of debt and hence making it riskier (Myers S. , 2001).

The agency costs of debt and equity therefore have an impact on the overall borrowing levels of firms. In the specific case of group-affiliated businesses, we would find that agency conflicts can be mitigated due to monitoring from a large shareholder. In fact, Anderson, Mansi and Reeb (2003) find that family ownership within the S&P 500 is related to lower cost of debt financing. Anderson and Reeb (2003) find that family ownership can reduce the conflict between debt and equity owners. Therefore, we expect that group-affiliation is likely to increase access to debt and therefore lead to higher debt levels, from an agency theory perspective.

3.4. Other Theories and Implications for Group Affiliation

According to existing literature, the above three theories explain much of the rationales behind capital structure choices at group-affiliated and standalone companies.

However, there are a few more hypotheses behind capital structure choices, many of which stem from the original theses above, that we wish to highlight.

Firstly, as Gleason, Mathur and Mathur (2000) illustrate, capital structure is largely influenced by culture. They draw on Hofstede's (1984) conclusion that business organizations are influenced by cultural characteristics along four dimensions: power, distance, masculinity, individualism and uncertainty avoidance. In their analysis of 141 European retailers, Gleason, Mathur and Mathur (2000) find that these characteristics influence capital structures across cultural clusters.

Secondly, as Gul (1999) illustrates, there is an inverse relationship between growth and debt levels, driven by two agency costs: underinvestment and asset substitution. This is contra to the pecking order theory since in the pecking order theory, high growth firms should issue more debt to signal their funding needs to finance growth opportunities.

Thirdly, Vilasuso and Minkler (2001) combine the literature on agency theory and asset specificity and conclude that both, asset specificity and agency costs determine a firm's capital structure, and that focusing on just one will not reveal an optimal capital structure for the firm.

Lastly, the existence of internal capital markets within groups can impact debt levels of group-affiliates. Since they provide a cheaper source of financing in terms of lower asymmetric information costs and lower costs of financial distress, internal capital markets should substitute external borrowings. This is in line with the conclusions of Verschueren and Deloof (1999) who find that firms with access to internal capital markets have higher leverage but lower external debt as compared to firms without access to intra-group debt. Stein's (1997) model illustrates how corporate headquarters can allocate scarce resources to

competing projects in an internal capital market. Due to lower asymmetry costs and better ability of monitoring, it can, unlike a bank lender, engage in “winner picking” by shifting funds from one project to another. This can be value accretive to a firm and reduce the need for external funding. Efficient internal capital markets, therefore, should imply lower external debt for group-affiliated firms as compared to their stand alone counterparts. On the other hand, inefficient internal capital markets should result in higher debt levels for group-affiliated firms vis-à-vis their standalone counterparts (Farooqi-Lind, 2006). Scharfstein & Stein’s (2000) model explains that conglomerates can exacerbate inefficiencies by cross-subsidization of inefficient subsidiaries since managers of different subsidiaries typically engage in rent seeking activity to have funds allocated to their divisions. Funds are thus allocated by headquarters in a “socialistic” fashion rather on the basis of performance or group strategy.

Analyzing the last four hypotheses, it is difficult to generalize about groups and judge the implications for group-affiliation. For instance, we cannot hypothesize about the impact of capital markets on debt levels without knowing the efficiency or even size and existence of such internal markets. We cannot generalize a particular asset structure of group firms and thus conclude the impact of asset specificity theory on group affiliation. Thus, we cannot hypothesize about the debt levels of group affiliated firms based on the above four theories.

4. Hypothesis

H_0: Group-affiliated firms have higher levels of total debt as compared to their standalone counterparts.

5. Methodology

We compare the average debt levels of group affiliated and standalone firms. We then use regression models to analyze the determinants of capital structure for group affiliated and standalone firms. We begin by comparing univariate statistics of debt levels for the two types of firms. We then use ordinary least squares methods to control for different variables that may impact capital structures as defined by the theories above.

5.1. Measures of Leverage

The study uses both book and market leverage. Book leverage is defined as the book value of total debt divided by the sum of total debt plus book value of total shareholder's equity. Market leverage is defined as book value of total debt divided by the sum of total debt plus the total market capitalization as at December 31, 2008. Total debt is the sum of long-term and short-term interest bearing financial obligations including, bank overdrafts, short-term debts and borrowings, repurchase agreements (repos) and reverse repos, short-term portion of long-term borrowings, current obligations under capital (finance) leases trust receipts, bills payable, bankers acceptances, current portion of hire purchase creditors, convertible, redeemable, retractable debentures, bonds, loans, mortgage debts, sinking funds, long-term bank overdrafts and capital (finance) lease obligations. Total shareholder's equity includes preferred equity, minority interest and total common equity. Market capitalization is calculated by multiplying the stock price on December 31, 2008 by the total number of

outstanding shares on this date. Table I gives a brief description of the explanatory variables tested.

5.2. Explanatory Variables

5.2.1. Non-debt Tax Shields

NDTS tests the relevance of the tax-based static tradeoff theory defined above. We use depreciation as a percentage of total assets as a proxy for NDTS.

5.2.2. Size

Since firm size impacts bankruptcy risk, we use it to test the relevance of the static tradeoff theory. As mentioned above, larger firms are more diversified (Titman & Wessels, 1988) and less prone to bankruptcy. We use $ln(revenues)$ as a proxy for firm size.

5.2.3. Tangibility

As mentioned above, the asset substitution problem necessitates collateral for debt financing. As the agency theory and the static tradeoff theory suggest, asset specificity plays a large role in determining capital structure. Firms with a larger proportion of tangible assets are able to post more collateral, and hence, should be able to borrow more. We use the ratio of net fixed assets to total assets as a proxy for tangibility. Total assets is defined as the total of all short and long-term assets as reported on a firm's balance sheet while net fixed assets is defined as total fixed assets less accumulated depreciation.

5.2.4. Profitability

As the pecking order theory suggests, firms with greater internal funds will borrow less as they have a preference for using internal funds. Greater profitability, therefore, should translate to a lower debt ratio. Profitability is measured as a lagged ratio of operating income to total assets, in accordance with Titman and Wessels (1988) who show that leverage at the present time is affected by profitability in the previous period.

5.2.5. Business Risk

According to the static tradeoff theory, riskier firms should borrow less. We use volatility, defined as the log of the standard deviation of a firm's cash flow from operations over fiscal years 2006, 2007 and 2008

5.2.6. Growth

Static tradeoff theory and agency theory both suggest that higher growth firms should issue less debt. As noted by Myers (1977), growth opportunities are measured in light of the proportion of a firm's value accounted by assets-in-place. The lower the assets-in-place, the higher the growth. Both tax and agency theories suggest that such firms should carry less debt.

Firms with higher growth are likely to have greater volatilities in cash flows, higher volatility in taxable income and hence, higher expected tax liabilities. Thus, high growth firms should issue less debt. From an agency perspective, high growth firms will issue less debt for two reasons. First, the asset substitution problem occurs where managers, acting in the interest of shareholders, substitute higher variance assets for lower variance assets and thus transfer wealth to shareholders (Rao & P.J.). Second, the underinvestment problem implies that if risky debt is not supported by assets-in-place,

managers are likely to decide against positive NPV investments in order to avoid the possibility of payoffs for debt holders (Rao & P.J.).

We use log of price-to-earnings ratio as at December 31, 2008 as a proxy for growth.

5.3. Data Source

The data has been constructed from Bloomberg's databases. For a sizable sample we started with members of the Bombay Stock Exchange 500 Index (BSE500 Index). The BSE500 is a cap-weighted index that represents nearly 85% of the total market capitalization on the Bombay Stock Exchange and represents all 20 major industries of the economy. It is appropriate to confine our analysis to BSE data since we utilize stock price data in the tests.

The data is analyzed for the 2008 fiscal year, the latest fiscal year for which reporting is available. To simplify the analysis and improve the accuracy, we eradicated banks, diversified financial services companies, insurance companies, investment companies, foreign-owned subsidiaries, government-owned companies and companies who had not reported for the 2008 fiscal year. Such companies have special characteristics that would influence their capital structure decisions and including them would confound the intent of this paper. In total, we were left with a sample of 335 companies.

Since group affiliation is more than a mere legal construct, we utilize a number of methods to identify group affiliation. While some groups are interrelated through formally codified systems, many are linked through informal systems such as common family ownership and/or board members. We begin with the classifications adopted by the Centre for Monitoring the Indian Economy (CMIE). This is substituted by a manual analysis of shareholding patterns, holdings of promoters, both directly and through special purpose

vehicles, filings by firms and tracking of corporate events, for each security. The sample contains 178 group firms and 157 independent firms. Table II gives a breakdown of the sample.

The data set unfortunately contains several biases. Firstly, it only consists of publicly listed firms in India. It ignores private companies, many of which are affiliated to groups and owned by large families that are owned through complex pyramidal structures. Secondly, the BSE 500 index is composed of companies with the highest market capitalization and liquidity amongst its peers. This excludes several smaller companies where access to debt is usually more restricted. It also excludes a number of large companies that do not trade on the Bombay Stock Exchange. Lastly, the sample does not contain time series data and the analysis is only conducted at a particular point in time. Global macroeconomic events may have a pronounced effect on a particular type of firm, thereby skewing the analysis. This is especially likely given the advent of the subprime crisis and collapse of the credit markets.

6. Empirical Results

6.1. Basic Observations of Group Affiliated and Independent Firms

Basic comparative observations between group affiliated and independent firms are illustrated in Table III. The average market capitalization of firms in the sample as at December 31, 2008 was INR 43.2bn ($860.1mn). The average market capitalization of group affiliated firms, at INR 63.4bn ($1,260mn) is over three times that of standalone firms. The average total debt carried by group firms at INR 16.63bn ($331.1mn) is over 2.3 times that of its standalone counterparts. The average price-to-book value of all firms was 2.28 on

December 31, 2008. Group affiliated firms exhibiting higher expected growth with a price-to-book value of 2.49 versus 2.05 for standalone firms.

6.2. Comparative Analysis

6.2.1. Univariate Analysis

We report summary statistics of the variables employed in our analysis, in Table IV. The revelations in Table IV are extremely interesting and contrary to the initial hypothesis that group firms carry higher levels of debt. As can be seen from Table IV, group firms have an average book value debt level of 35.92% as opposed to standalone firms which have an average book value debt level of 39.44%. However, as illustrated by the t-test, the differences in book leverage between group-affiliated and standalone firms are not statistically significant. The market value statistics show that group firms have an average market value debt ratio of 30.67% and standalone firms having an average market value debt ratio of 33.25%. Once again, the differences in market value leverage between group-affiliated and standalone firms are statistically insignificant.

All other variables are statistically significant, with group affiliated firms exhibiting higher non-debt tax shields, greater tangibility, larger size and higher growth.

6.2.2. Multivariate Analysis

We use the Ordinary Least Squares (OLS) approach to investigate the relationship between debt ratios and group affiliation after controlling for key characteristics that influence capital structure decisions.

We begin by testing the data for linearity in relationship between the independent variables and book value debt to capital ratios and between the independent variables and market value debt to capital ratios. We find that the independent variables size and

growth do not share a linear relationship with the predicted variables and hence transform this using the ln and log functions respectively. Table V graphically plots the relationship between the independent and explanatory variables.

We report a correlation matrix in Table VI to show the correlation coefficients between the independent variables. The coefficients are correlated amongst each other and the dataset suffers from multicollinearity. However, this is relatively limited given the relative sizes of the correlation coefficients.

The general forms of the two equations are estimated as:

$$Book\ Value\ Debt\ to\ Capital = \alpha + \beta_1 Affiliation + \beta_2 NDTS + \beta_3 Tangibility + \beta_4 Profitability + \beta_5 Size + \beta_6 Growth + \beta_7 Business\ Risk + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$Market\ Value\ Debt\ to\ Capital = \alpha + \beta_1 Affiliation + \beta_2 NDTS + \beta_3 Tangibility + \beta_4 Profitability + \beta_5 Size + \beta_6 Growth + \beta_7 Business\ Risk + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Affiliation is a dummy variable taking the value 1 if the firm is group-affiliated and 0 if it is a standalone company.

To strengthen the analysis we also employ interaction terms between the explanatory variables and the dummy variable. This term measures the change in the results due to being a group and hence the sensitivity of group affiliation to the variable in question. These two equations are estimated as follows:

$$Book\ Value\ Debt\ to\ Capital = \alpha + \beta_1 Affiliation + \beta_2 NDTS + \beta_3 Tangibility + \beta_4 Profitability + \beta_5 Size + \beta_6 Growth + \beta_7 Business\ Risk + \beta_8 NDTS * Affiliation + \beta_9 Tangibility * Affiliation + \beta_{10} Profitability * Affiliation + \beta_{11} Size * Affiliation + \beta_{12} Growth * Affiliation + \beta_{13} Business\ Risk * Affiliation + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

$$Market\ Value\ Debt\ to\ Capital = \alpha + \beta_1 Affiliation + \beta_2 NDTS + \beta_3 Tangibility + \beta_4 Profitability + \beta_5 Size + \beta_6 Growth + \beta_7 Business\ Risk + \beta_8 NDTS * Affiliation + \beta_9 Tangibility * Affiliation + \beta_{10} Profitability * Affiliation + \beta_{11} Size * Affiliation + \beta_{12} Growth * Affiliation + \beta_{13} Business\ Risk * Affiliation + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

6.2.2.1. Test of Heteroskedasticity

Using the Breusch-Pagan test (Breusch & Pagan, 1979), we test the data for heteroskedasticity. Conducting the test, we accept the null hypothesis of homoskedasticity and conclude that the variance of the unobservable error, conditional on the explanatory variables is constant.

6.2.2.2. Multivariate Analysis Results

6.2.2.2.1. Book Value Debt to Capital

In Table VII Panel A we report the results of the regression between the independent variables and the predicted variable, book value debt to capital (Equation 1). We receive an R-Squared of 27.9%. The coefficient on *Affiliation* is most interesting. It predicts that, on average book value debt ratio of group-affiliated firms is 3.13% lower than that of standalone counterparts with the same size, tangibility, profitability, growth prospects, business risk and amount of non-debt tax shields. However, this coefficient is statistically insignificant, implying that group-affiliated firms have the same levels of debt as standalone companies even when we control for the above-mentioned variables. The regression equation is jointly significant as it has a p-value of 0.000 and an F-Statistic of 16.72. All variables are statistically significant at the 1% level except for Affiliation, Non-Debt Tax Shields and Business Risk. Business Risk is significant at the 5% level. Table VIII Panel A graphs the normal plot of residuals. The residuals are normally distributed.

Tangibility, profitability, size and growth, all of which are significant at the 1% level, have the effect on leverage of all firms, as hypothesized above. Profitability has a large negative effect on the total debt of firms. This confirms the pecking order theory that firms resort to internal financing over external debt. The coefficient on tangibility, illustrates that firms that can pledge assets for collateral will have a higher

debt capacity. Size also has a positive impact on leverage levels, as larger firms have higher debt. The negative coefficient on growth illustrates that high growth firms will borrow less.

In Table VII Panel B we report the results of the regression between the independent variables including interaction terms, and the predicted variable, book value debt to capital (Equation 3). Table VIII Panel B graphs the normal plot of residuals. The residuals are normally distributed. None of the interaction terms are statistically significant at, at least the 5% level. This suggests that none of the variables give rise to a difference in the market leverage levels of group-affiliated firms as opposed to their standalone counterparts.

Market Value Debt to Capital

In Table VII Panel A we report the results of the regression between the independent variables and the predicted variable, market value debt to capital (Equation 2). This gives us a relatively high R-Squared of 50.4%. The coefficient on *Affiliation* which predicts that, on average book value debt ratio of group-affiliated firms is 2.06% lower than that of standalone counterparts with the same size, tangibility, profitability, growth prospects, business risk and amount of non-debt tax shields is statistically insignificant. Hence, the affiliation with a group does not cause a difference in the debt level of group-affiliated firms. The regression equation is jointly significant as it has a p-value of 0.000 and F-Statistic of 43.9. All variables are statistically significant at the 10% level.

In fact, barring Tangibility and Business Risk, all variables are statistically significant at the 1% level. Tangibility and Business Risk are statistically significant at the 5% level. Table VIII Panel A graphs the normal plot of residuals. The residuals are normally distributed. Tangibility, profitability, size and growth have the same directional impact on the market leverage ratios of firms, as they did on book leverage ratios. In fact, profitability has a much more pronounced effect on the market leverage ratio than on the book leverage ratio.

In Table VII Panel B we report the results of the regression between the independent variables including interaction terms, and the predicted variable, market value debt to capital (Equation 4). Table VIII Panel B graphs the normal plot of residuals. The residuals are normally distributed. None of the interaction terms are statistically significant at, at least the 5% level. This suggests that none of the variables give rise to a difference in the market leverage levels of group-affiliated firms as opposed to their standalone counterparts.

7. Capital Structure in Group-Affiliated versus Standalone Firms

From the results of the multivariate and univariate analyses above, we conclude that there is no significant difference in the leverage ratios of group-affiliated and non-group affiliated firms in India. These results are extremely interesting and contrary to the hypothesis that was originally established. We therefore, conclude that there is no single, dominant theory that would dictate a difference in leverage between group-affiliated and independent firms. We revisit the capital structure theories analyzed above, to further investigate this point.

From the perspective of the static trade-off theory, group-affiliated firms have access to various tools other than debt, to help reduce their tax liabilities. These non-debt tax shields stem from intra-group transactions, internal capital markets and the ability to shift loss-making operations into profitable units in order to offset the latter's tax liability by the former's operating losses. These non-debt tax shields, then, reduce the need for external debt as proposed by the static trade-off theory. Indeed, the large negative coefficient on non-debt tax shields suggests that it has a large impact on both market and book values of leverage. On the other hand, the size and diversity of cash flows of group-affiliated firms reduces their risk, thus increasing their debt capacity. From the empirical results we conclude that these two countervailing forces balance, thus implying that the static trade-off theory has no specific implication on a group-affiliated firm's capital structure vis-à-vis standalone firms.

The pecking order theory hypothesizes that the existence of internal capital markets and asymmetric information costs lead to lower debt levels on the balance sheets of group-affiliated firms. Their opacity and complexity allow group-affiliates to behave opportunistically against external investors. Also, since the group is large and diverse, there is a greater stability of cash flows and thus, availability of internal funding to capitalize the balance sheets of other firms within the group. Since managers wish to avoid the discipline of external capital markets and avoid sending a signal to investors, group-firm managers will first resort to the vast pool of internal funds. This, therefore, reduces the need for external funding. While these arguments are compelling, empirical results suggest that the pecking order theory does not dominate in predicting a difference in capital structures between group-affiliated and non-affiliated firms. It is plausible that although group firms have greater cash flows and internal funds, these funds are not allowed to be substituted for external funds. Indeed, internal capital markets may be

dismantled entirely. In fact, our conversations with senior executives at large, reputed business houses in India, revealed that they refrain from indulging in intra-group and intercompany transactions. While intra-group transactions such as intercompany loans were commonplace in the past, executives now assert that their aspiration for better corporate governance standards has eliminated all such dealings. Thus, the lack of access to internal funds suggests that group-affiliates have no advantage over standalone firms in terms of the hierarchy of financing choices. Their leverage ratios then should not be significantly different from that of standalone firms.

Agency theory states that the existence of a large shareholder reduces the agency cost of debt, lowering the cost of debt and therefore, increasing the debt capacity for group-affiliated firms. Since the debt levels of group-affiliates are not significantly different from the levels of standalone firms we cannot conclude that the two possess differing agency costs of debt. It is highly plausible that despite the monitoring by large shareholders, group firms are still opaque and complex which push up the agency cost of debt. On the other hand, it is also possible that group firms are as transparent as their standalone counterparts making the existence of a large monitoring shareholder irrelevant to the agency cost of debt. From a strictly agency cost perspective, the two types of firms should have the same cost of debt and thus, the same debt capacity.

Lastly, there may be several factors that lead to equal debt levels for group-affiliated and standalone firms that cannot be explained by the theories above. Headquarters, for instance, may impose stringent internal controls for their affiliates, with regards to threshold debt levels. A default by a group-affiliate can generate serious repercussions on the cost of borrowing for other firms within the group. This would therefore, make headquarters concerned about reputational issues and thus, restrict the borrowings of affiliates. Hence, even if group-affiliated firms have a

greater borrowing capacity, headquarter restrictions may not fully permit affiliates to exploit this advantage. Conversations with executives who managed large business houses in India, seemed to suggest that they had lose controls on the leverage ratios of affiliate firms. Another possibility stems from the fact that many group firms within India are controlled and run by large families. Their risk-aversion and might lead them issue greater equity over debt. Lastly, bankers typically restrict their level of exposure to groups or to companies who have a common controlling shareholder.

The results of this empirical study and the conclusions that we have drawn above have two corollaries for firms operating in the Indian market, that we believe merit further investigation in another study. These are: (a) improvement in corporate governance standards and (b) improvement in the access to credit for all firms. We briefly discuss these below.

7.1. Improved Corporate Governance

India's rapid growth and attraction of foreign capital has led to a large improvement in the regulatory framework and in general corporate governance standards. Indeed, this hypothesis is empirically proved by Chakrabarti, Megginson and Yadav (2007), who show that India's desire to maintain the current impressive rates of growth and inflow of foreign capital, is leading to the development of quality institutions that exude the highest levels of corporate governance. This is especially true of large firms, which tend to be group affiliated, as they are likely to have greater visibility and following by the investment community. An improved corporate governance standard implies that firms are more transparent about their dealings. In the case of group-affiliated firms, better corporate governance leads them to behave and operate more like standalone firms. This should mean less cross-subsidization of group companies, a lack of an internal capital market that promotes "winner picking", fewer

intra-group transactions and less cross-borrowings and cross-holdings across affiliates, as all these strategies typically reduce shareholder value for a particular group-affiliated firm. To the extent that group-affiliated firms are beginning to shed many of the characteristics that come with group affiliation, we can expect them to emulate their standalone counterparts on key corporate finance decisions. This has particular implications on the theories described above.

From the static trade-off theory perspective, the lack of an internal capital market and intra-group transactions suggests that group-affiliated firms have the same levels of access to non-debt tax shields as their standalone counterparts. To the extent that non-debt tax shields reduce the need for debt, we find that both group-affiliated and non-affiliated firms will have similar levels of external debt.

Greater corporate governance standards are likely to lead to greater transparency and the elimination of any internal capital markets as a subsidization fund for group affiliates. This is consistent with our conclusions on the pecking order theory above, that both firms are just as likely to access external capital markets when internal funds are unavailable.

Improved transparency and standards of corporate governance should outweigh the complexity of large group firms. This should therefore reduce the agency costs associated with large group firms lowering the cost of debt to levels they would have been, if the firm was independent and did not suffer from the same complexity issues of large groups.

As a follow-up, it would be worthwhile studying the trends in corporate governance standards between group-affiliated and standalone firms over the last fifty years in India. This would give us a better understanding of the motivations behind capital structure decisions.

7.2. Improved Access to Financing

As explained in section 1 of this paper, literature suggests that business groups conglomerate to mitigate the high costs of transacting in emerging markets. One of these costs arises due to the lack of financial intermediaries, which restricts access to capital. In markets where financing is difficult to avail, group firms, which tend to be larger, should carry higher debt. The evidence that group-affiliated firms and standalone firms have similar levels of debt, then, suggests that access to finance is now much easier. Indeed, this appears to be consistent with the fact that credit is much more easily available in India today, than it was when the group-affiliated firms originally formed. This would be an interesting hypothesis to test, and if proved to be true, then it raises the larger question of whether there are still any benefits to conglomerating in India.

8. Summary & Concluding Remarks

This paper focuses on comparing the capital structures of group-affiliated and non-group affiliated firms in India. We investigate the different capital structure theories and find that there is significant theoretical evidence to believe that the leverage levels between group-affiliated and standalone companies differ. Group-affiliated firms have access to internal capital markets, can engage in intercompany transactions, coinsure the debt of other affiliates and typically have special tax planning tools at their disposal, that help substitute the tax benefits that arise from debt financing. Group-affiliated firms are typically larger, more diversified, more complex and usually more concerned about reputational issues. These factors impact the risk associated with lending and the various agency costs associated with

debt financing. They should therefore, impact the debt levels of group-affiliated firms in ways that are different from standalone firms.

After analyzing the characteristics of group-affiliated firms through the lens of the various capital structure theories, we hypothesize that group affiliated firms have higher levels of leverage than their standalone counterparts. We then proceed to test this hypothesis through a series of univariate and multivariate analyses.

In analyzing debt levels we compare book value leverage and market value leverage between group-affiliated and standalone firms.

Our univariate analysis reveals that there is no statistically significant difference between the leverage levels of standalone and group-affiliated firms. It also reveals that group affiliated firms exhibit higher non-debt tax shields, greater tangibility, larger size and higher growth.

We employ Ordinary Least Squares (OLS) methods to control for different variables. These control variables include size, tangibility, profitability, non-debt tax shields, growth and business risk. Other than business risk , the coefficients on variables are as directionally expected. At, at least a 5% level of significance, non-debt tax shields, profitability and growth, decrease market leverage ratios of all firms, while tangibility and business risk increase market leverage ratios for all firms. Profitability and non-debt tax shields have a particularly pronounced negative effect on the capital structure of all firms.

Testing both book and market leverage, we find that the coefficient on the group dummy is not statistically significant. This implies that there is no significant difference between book and market leverage levels of group-affiliated and standalone firms. We therefore, reject the null hypothesis at the 5% significance level and accept the alternative

hypothesis, that leverage ratios between group-affiliated and independent firms are not significantly different. We also employ interaction terms to test the impact of each of the control variables on the leverage of group firms. None of the interaction terms are statistically significant at, at least the 5% level and hence, we are unable to draw any interesting conclusions from this regression.

This leads us to conclude that there is no single, dominant theory that would dictate a difference in leverage between group-affiliated and independent firms. The influence posited by various capital structure theories, on the leverage of group-affiliated vis-à-vis standalone firms, possibly mitigate each other, leaving no significant differences between their capital structures.

It also raises key questions about our characterizations of group-affiliated firms and the motivations behind, and benefits to, conglomeration. We hypothesize that improving corporate governance has led to increased transparency amongst large group firms concerned about their reputation, thereby mitigating the agency costs of debt. Conversations with a number of senior executives managing large, diversified business groups in India also confirm that intercompany transactions such as intercompany loans are now prohibited at their firms, in an attempt to improve standards of corporate governance.

Literature suggests that groups conglomerate as a response to market imperfections, such as a lack of financial intermediaries. It is therefore, possible that the proliferation of credit in Indian markets in recent years has led to an increased access to financing for all firms. Group-affiliated firms, therefore, do not have any greater advantage over independent firms, in terms of access to financing. This implies that the latter should have the same levels of leverage, other factor remaining equal.

It would be interesting to test the above to two hypotheses: the impact of changing corporate governance on capital structures at group and non-group affiliated firms in India and the impact of improved access to financing on the capital structures of group and non-group affiliated firms in India . If one is able to prove that group-affiliation is irrelevant to capital structures due to the access that Indian firms have to capital markets, then it raises the larger question of whether there are still any benefits to conglomerating in India.

Bibliography

Aguiar, M., Bailey, C., Bhattacharya, A., Bradtke, T., Juan, J. d., Hemerling, J., et al. (2009). *The 2009 BCG 100 New Global Challengers: How Companies from Rapidly Developing Economies Are Contending for Global Leadership.* The Boston Consulting Group.

Almeida, H., & Wolfenzon, D. (2006). A Theory of Pyramidal Ownership and Family Business Groups. *Journal of Finance , 61* (6), 2637-2680.

Anderson, R. C., Mansi, S. A., & Reeb, D. M. (2003). Founding Family Ownership and the Agency Cost of Debt. *Journal of Financial Economics* , 263-285 .

Asquith, P., & Mullins, D. W. (1986). Equity Issues and Offering Dilution. *Journal of Financial Economics* , 61-89.

Berle, A., & Means, G. (1932). *The Modern Corporation and Private Property.* New York: MacMillan.

Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. *Econometrica* , 1287-94.

Chakrabarti, R., Megginson, W., & Yadav, P. (2007). Corporate Governance in India. *Journal of Applied Corporate Finance* .

Chang, S., & Hong, J. (2000). Economic Performance of Group Affiliated Companies in Korea: Intragroup resoruces sharing and internal business transactions. *Academy of Management Journal* , 429-228.

Coase, R. (1937). The Nature of the Firm. *Economica* , 386-405.

DeAngelo, H., & Masulis, R. W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics* , 3-29.

Dewenter, K., & Warther, V. (1998). Dividends, Asymmetric Information, and Agency Conflicts: Evidence from a Comparison of the Dividend Policies of Japanese and U.S. Firms. *Journal of Finance* .

Dewenter, K., Novaes, W., & Pettway, R. (2001). Visibility Versus Complexity In Business Groups: Evidence From Japanese Keiretsu. *The Journal of Business* , 79-100.

Diamond, D. W. (1989). Reputation Acquisition in Debt Markets. *The Journal of Political Economy , 97* (4), 828-862.

Farooqi-Lind, R. (2006). The Capital Structure of Groups and Group Affiliated Firms .

Gleasona, K. C., Mathur, L., & Mathur, I. (2000). Agency Costs, Asset Specificity, and the Capital Structure of the Firm . *Journal of Business Research.* , 185-191.

Gul, F. (1999). Growth opportunities, capital structure and dividend policies in Japan. *Journal of Corporate Finance* , 141-168.

Hofstede, G. (1984). *Cultures Consequences : International Differences in Work-Related Values.* London: Sage Publications, Inc; Abridged edition (January 1, 1984).

Jensen, M. (1986). Agency Cost Of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review* .

Jensen, M., & Meckling, W. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics* , 305-360.

Khanna, T., & Palepu, K. (2000). Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups. *Journal of Finance , 55* (2), 867-891.

Khanna, T., & Rivkin, J. (2006). Interorganizational Ties and Business Group Boundaries: Evidence from an Emerging Economy. *Organization Science , 17* (3), 333-352.

KPMG. (2008). *Corporate and indirect tax rate survey 2008* .

Leff, N. (1976). Capital markets in the less developed countries: The group principle. (R. McKinnon, Ed.) *Marcel Dekker* .

Leff, N. (1978). Industrial organization and entrepreneurship in the developing countries: the economic groups. *Economic Developement and Cultural Change* , 661-75.

Myers, S. (2001). Capital Structure. *The Journal of Economic Perspectives* , 81-102.

Myers, S. (1977). Determinants of corporate borrowing. *Journal of Financial Economics* , 147-75.

Myers, S. (1984). The Capital Structure Puzzle. *Journal of Finance* , 575-592.

Myers, S., & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that. *Journal of Financial Economics* , 187-221.

Podolny, J. M. (1994). Market Uncertainty and the Social Character of Economic Exchange. *Administrative Science Quarterly* , 458-483.

Rao, S. N., & P.J., J. L. (n.d.). An Empirical Study on the Determinants of the Capital Structure of Listed Indian Firms.

Reeb, D. M., & Anderson, R. C. (2003). Founding-Family Ownership and Firm Performance: Evidence from the S&P 500. *The Journal of Finance* , 1301-1327.

Scharfstein, D. S., & Stein, J. C. (2000). The Dark Side of Internal Capital Markets: Divisional Rent-Seeking and Inefficient Investment. *Journal of Finance* , 2537-2564.

Shleifer, A., & Vishny, R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy* , 461-88.

Stein, J. (1997). Internal Capital Markets and the Competition for Corporate Resources. *Journal of Finance* , 111-133.

Titman, S., & Wessels, R. (1988). Determinants of Capital Structure Choice. *The Journal of Finance* , 1-19.

Verschueren, I., & Deloof, M. (1999). Intragroup Debt, Intragroup Guarantees, and the Capital Structure of Belgian Firms.

Vilasuso, J., & Minkler, A. (2001). Agency Costs, Asset Specificity, and the Capital Structure of the Firm . *Journal of Economic Behavior & Organization* , 55-69.

Williamson, O. (1985). *The Economic Institutions of Capitalism: Firms, markets, relational contracting.* New York: Free Press.

Table I – Variables & Definitions

Variable	Definition & Measurement
Book Leverage	$\frac{\text{Book Value Total Debt}}{\text{Book Value of Total Debt + Book Value of Total Shareholder's Equity}}$
Market Leverage	$\frac{\text{Book Value Total Debt}}{\text{Book Value of Total Debt + Market Value of Total Shareholder's Equity on 12.31.03}}$
Group Affiliation Dummy	Dummy variable – 1 if firm is group-affiliated, 0 if standalone
NDTS	$\frac{\text{Depreciatio FY 2008}}{\text{Total Assets 2008}}$
Size	ln(revenues FY 2008)
Tangibility	$\frac{\text{Net Fixed Assets FY 2008}}{\text{Total Assets 2008}}$
Profitability	$\frac{\text{Operating Income FY 2007}}{\text{Total Assets 2007}}$
Business Risk	$\log(\sigma_{\text{cash flow from operations, FY 2006, 2007, 2008}})$
Growth	$\log(P/E \text{ Ratio as at } 12.31.2008)$

Table II – Data Sample Characteristics

Affiliation	Number of Firms
Group-Affiliated	178
Standalone	157
Government-Owned	0
Foreign-Owned Subsidiaries	0
Total	**335**

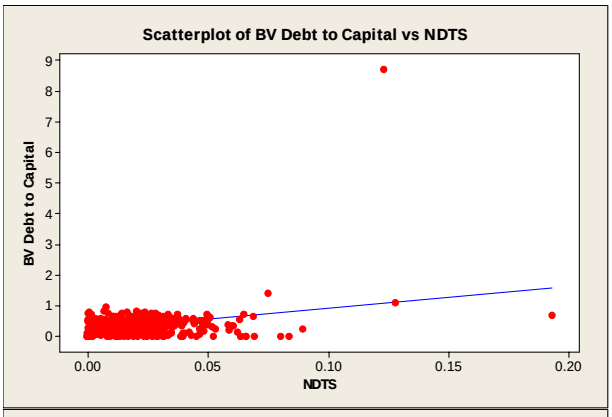
Table III—Observations Between Group-affiliated & Standalone Firms

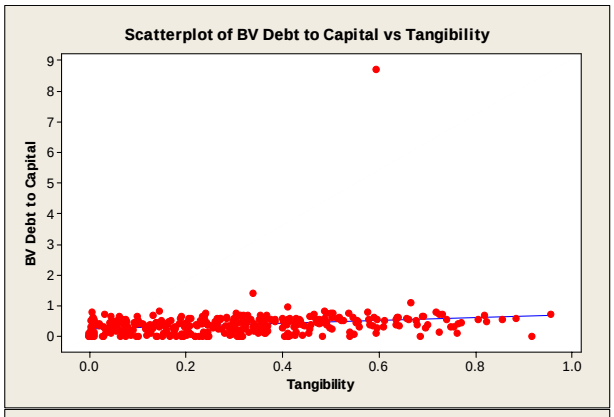
	Total Debt	BV Equity	Market Cap	2008 OI	2008 Total Assets	2008 Sales Revenue	CFO 2008	P/E
All Firms								
Mean	$12,124.7	$19,555.2	$43,215.3	$4,489.7	$41,146.4	$27,237.2	$2,872.6	23.2x
Median	$3,993.0	$7,361.4	$8,630.6	$1,651.3	$17,361.1	$10,414.1	$749.4	7.6x
Max	$364,796.8	$814,486.0	$1,940,099.5	$175,928.3	$1,498,389.0	$1,334,430.0	$161,317.0	1,161.1x
Min	$0.0	($4,526.8)	$698.6	($5,871.8)	$615.1	$0.0	($39,118.7)	0.6x
Std. Deviation	$29,614.3	$54,360.1	$149,364.8	$12,778.3	$102,734.3	$81,782.1	$13,085.4	88.0x
Standalone								
Mean	$7,010.0	$9,535.4	$20,227.2	$2,259.7	$21,142.3	$12,453.5	$22.5	18.3x
Median	$2,831.0	$5,419.3	$6,215.2	$1,150.4	$10,353.6	$7,450.6	$306.0	6.5x
Max	$116,025.4	$134,900.0	$638,752.9	$44,380.0	$234,375.7	$156,480.0	$43,350.0	595.4x
Min	$0.0	($4,526.8)	$698.6	($5,871.8)	$615.1	$0.7	($39,118.7)	0.6x
Std. Deviation	$14,659.7	$15,974.7	$66,326.7	$4,891.4	$33,809.8	$18,789.2	$6,255.2	63.4x
Group Affiliated								
Mean	$16,636.0	$28,392.9	$63,491.4	$6,456.7	$58,790.4	$40,500.2	$5,400.7	27.5x
Median	$5,442.2	$9,828.8	$14,073.6	$2,181.7	$22,921.4	$16,857.9	$1,353.7	8.0x
Max	$364,796.8	$814,486.0	$1,940,099.5	$175,928.3	$1,498,389.0	$1,334,430.0	$161,317.0	1,161.1x
Min	$0.0	($2,005.9)	$945.6	($894.6)	$1,052.0	$0.0	($15,228.3)	0.8x
Std. Deviation	$37,707.2	$71,997.4	$193,233.9	$16,695.2	$135,057.8	$109,692.9	$16,601.7	105.0x

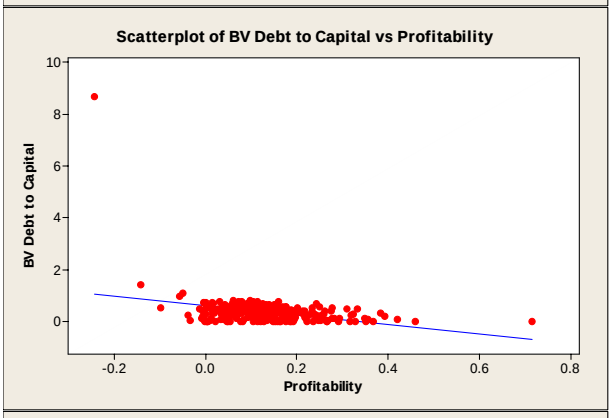
Table IV - Univariate Statistics

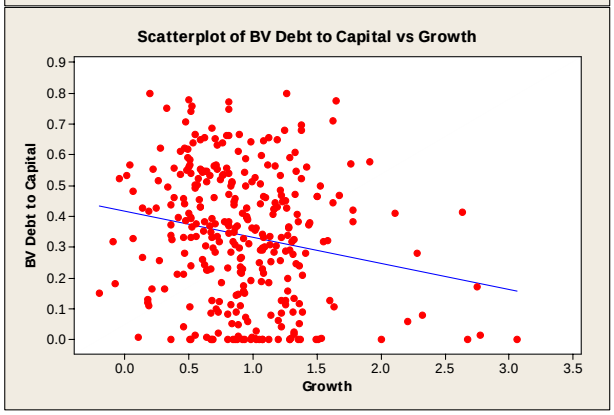
		BV Debt to Capital	MV Debt to Capital	NDTS	Tangibility	Profitability	Size	Growth	Business Risk
All Firms									
	Mean	0.376	0.319	0.024	0.304	0.121	9.136	0.921	1,818.172
	Median	0.362	0.277	0.020	0.291	0.106	9.251	0.881	663.680
	Max	8.692	0.942	0.193	0.956	0.715	14.104	3.065	38,008.377
	Min	0.000	0.000	0.000	0.000	(0.244)	(0.329)	(0.204)	11.126
	Std. Deviation	0.510	0.250	0.021	0.213	0.096	1.638	0.480	4,039.524
Standalone									
	Mean	0.394	0.332	0.021	0.273	0.123	8.638	0.856	1,251.573
	Median	0.366	0.303	0.017	0.264	0.114	8.916	0.813	524.660
	Max	8.692	0.942	0.123	0.885	0.460	11.961	2.775	21,890.538
	Min	0.000	0.000	0.000	0.000	(0.244)	(0.329)	(0.204)	11.126
	Std. Deviation	0.704	0.258	0.019	0.194	0.090	1.627	0.471	2,677.221
Group Affiliated									
	Mean	0.359	0.307	0.026	0.332	0.119	9.585	0.978	2,323.255
	Median	0.358	0.271	0.022	0.309	0.099	9.739	0.906	959.560
	Max	1.407	0.906	0.193	0.956	0.715	14.104	3.065	38,008.377
	Min	0.000	0.000	0.000	0.000	(0.143)	4.605	(0.077)	30.068
	Std. Deviation	0.232	0.243	0.023	0.226	0.101	1.518	0.482	4,900.838
Group - Standalone									
	Mean								
	P(T<=t) one-tail	0.275	0.174	0.013*	0.006*	0.356	0*	0.011*	0.006*
	P(T<=t) two-tail	0.551	0.349	0.026*	0.011*	0.711	0*	0.023*	0.013*

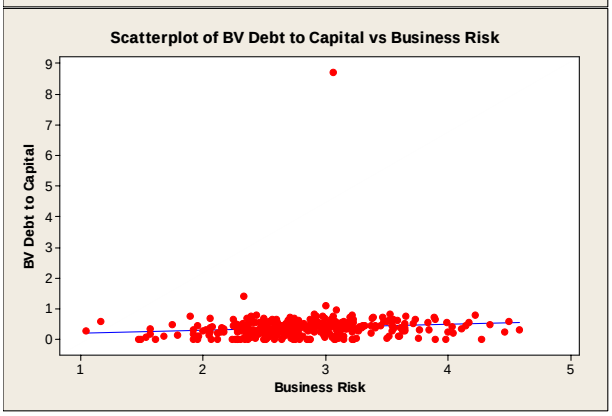
Table V – Testing For Linearity between Independent and Dependent Variables











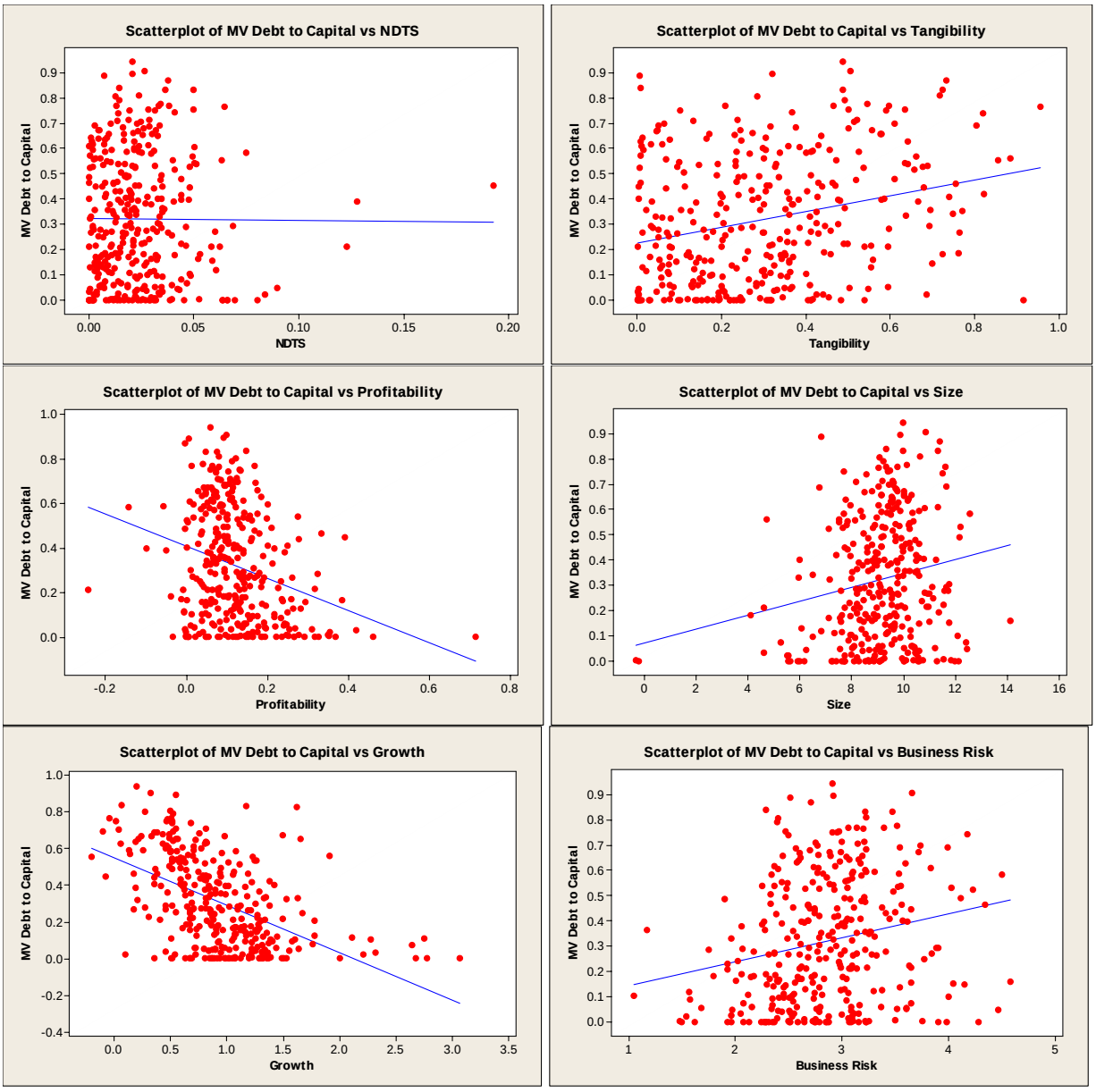

Scatterplot of MV Debt to Capital vs NDTS
MV Debt to Capital
NDTS
Scatterplot of MV Debt to Capital vs Tangibility
MV Debt to Capital
Tangibility
Scatterplot of MV Debt to Capital vs Profitability
MV Debt to Capital
Profitability
Scatterplot of MV Debt to Capital vs Size
MV Debt to Capital
Size
Scatterplot of MV Debt to Capital vs Growth
MV Debt to Capital
Growth
Scatterplot of MV Debt to Capital vs Business Risk
MV Debt to Capital
Business Risk

Table VI – Correlation Matrix

	Affiliation	**NDTS**	**Tangibility**	**Profitability**	**Size**	**Growth**
NDTS	0.121 (0.028)*					
Tangibility	0.137 (0.012)*	0.463 (0.000)*				
Profitability	-0.020 (0.713)	0.010 (0.864)	-0.018 (0.742)			
Size	0.289 (0.000)*	0.163 (0.003)*	0.167 (0.002)*	0.208 (0.000)*		
Growth	0.128 (0.023)*	-0.071 (0.21)	-0.168 (0.003)*	-0.266 (0.000)*	-0.288 (0.000)*	
Business Risk	0.210 (0.000)*	0.031 (0.577)	0.073 (0.187)	0.081 (0.141)	0.565 (0.000)*	-0.171 (0.002)*

Values in brackets represent Pearson P-Values
* P<0.05 and hence statistically significant

Table VII – Regression Analyses

Panel A			Panel B		
Variable	**Book Leverage**	**Market Leverage**	**Variable**	**Book Leverage**	**Market Leverage**
Intercept	0.09947	0.4498	Intercept	-0.131	0.3587
	(1.25)	(5.93)***		(-1.06)	(3.03)***
Affiliation	-0.03126	-0.02062	Affiliation	0.2808	0.0592
	(-1.4)*	(-0.97)		(1.66)**	(0.36)
NDTS	-0.3157	-1.064	NDTS	-1.232	-1.802
	(-0.5)	(-1.78)**		(-1.17)	(-1.78)**
Tangibility	0.24557	0.2717	Tangibility	0.20274	0.19177
	(4.24)***	(4.91)***		(2.13)**	(2.1)**
Profitability	-0.9149	-1.1624	Profitability	-0.8349	-1.1433
	(-7.62)***	(-10.13)***		(-4.42)***	(-6.31)***
Size	0.029096	0.011293	Size	0.04893	0.02237
	(3.18)***	(1.29)*		(4)***	(1.9)**
Growth	-0.06863	-0.2953	Growth	-0.0316	-0.29688
	(-2.71)***	(-12.22)***		(-0.88)	(-8.57)***
Business Risk	0.03571	0.04498	Business Risk	0.05214	0.05555
	(1.57)*	(2.07)**		(2.1)**	(2.33)***
			NDTS*Group	1.582	1.29*
R-Sq	27.90%	50.40%		(1.22)	(1.03)
F-Statistic	16.72	43.92	Tangibility*Group	0.0896	0.1548
				(0.74)	(1.34)*
			Profitability*Group	-0.0885	0.0163
				(-0.36)	(0.07)
			Size*Group	-0.0341	-0.01877
				(-2.08)**	(-1.19)
			Growth*Group	-0.05114	0.02317
				(-1.01)	(0.48)
			Business Risk*Group	-0.00000446	-0.00000385
				(-1.23)	(-1.1)
			R-Squared	30.60%	51.80%
			F-Statistic	10.09	24.57

Values in parentheses are t-statistics

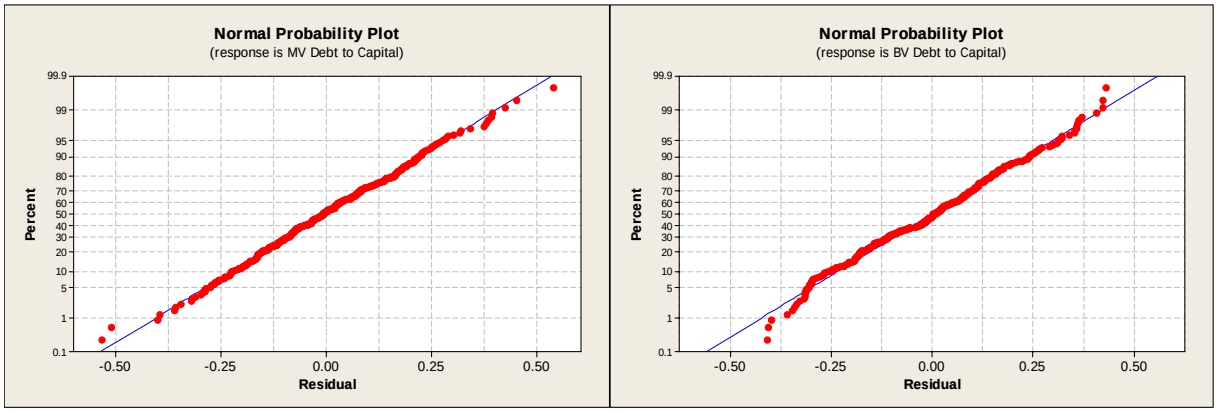
*** Significant at the 1% level

** Significant at the 5% level

* Significant at the 10% level

Table VIII – Normal Probability Plot of Residuals

Panel A: Regressions 1 & 2



Panel B: Regressions 3 & 4