Pyramidal Ownership Composition and Firm's Capital Structure Policy

Zeeshan Zaib Khattak
Institute of Business Studies, Kohat University of Science and Technology

Abdus Sallam
Institute of Business Studies, Kohat University of Science and Technology

Sammar Abbas
Institute of Business Studies, Kohat University of Science and Technology

Muhammad Khushnood
Institute of Business Studies, Kohat University of Science and Technology

Abstract

This research paper makes comparison between groups affiliated (pyramid) firms and non pyramid firms' capital composition. This research paper also determines pyramidal firm's leverage as compare to standalone firms to know whether pyramidal firms maintain considerably greater debt level than standalone firms and whether pyramidal firms maintain higher leverage for tax advantages. The empirical evidences show that group affiliated firms are highly financed externally as compare to standalone firms. Group affiliated firms obtain more debt as compare to stand alone firms. Results show that firms with higher tangibility, profitability and cash in hand, obtain less debt. Findings also suggest that pyramidal firms do not obtain high level of debt for tax advantage, while non-debt tax shield standalone firms have low leverage.
Key words: Capital structure, Pyramid firms, Debt financing, Tax advantage.

Introduction

This study attempts to provide empirical evidence for understanding firms capital structure policies affiliated with pyramid structure particularly in Pakistan. Past studies have reported the far reaching presence of pyramidal ownership structures. Pyramid structure means owning a group of businesses or firms by few owners (Ultimate owners). Pyramid firm differentiate itself from stand-alone firm. Many elements and factors such as duality, risk affiliation, internal capital marketing leverage policies, dividend plans ultimate owners, free cash flows, ownership right, cash flow right and voting power right may altogether recognize pyramid firms (Malan, Salamudin, & Ahmad, 2012).

Pyramid has its ownership structure which display a chain of command from upper tires of firms to lower tires (Bunkanwanicha & Wiwattanakantang, 2008). Ultimate owners control every firm of pyramid, ultimate owners place different firms at different position with different controlling attributes. They place risky firms in down tires of pyramid, the reason is that in pyramid structure, every firm has limited liability, therefore, ultimate owners use risky firms to obtain more debt and initiate all risky project through these risky firms. If in case risky firms get default, due to limit, other firms of pyramid would not be effected. Therefore, ultimate owners can easily sell that firm. Similarly, ultimate owners place promising firms at top chain of pyramid structure. Because of positive cash outflow, ultimate owners invest

maximum capital in promising firms. Firms in pyramid structure are placed in different position for different purposes. Some firms are placed in in down layer for riskier investment and some at top layer to absorb positive outcome from successful investment. An immediate consequence of pyramidal structure is detachment of real ownership right and cash flow rights from voting power and controlling rights, particularly lower tire firms of structure (Claessens, Djankov, & Lang, 2000). These emerging businesses have many features. Controlling shareholders place different firms at different position according to their performance and riskiness. Usually controlling shareholders put riskier firms at lower tier and firms with strong cash flow place at top tier. Firms at lower ties obtain much loan and take riskier projects of pyramid. Controlling owners invest maximum capital and retain earning in top tier firms to have positive outcome. Because they know that these firms have strong cash flow and low risk of defaulting. Ultimate ownership can encourage controlling shareholders to confiscate the portion of minority shareholder. Seizure happens when the controlling shareholders amplify their own welfare through the dissemination of capital from minority shareholders (Claessens, Djankov, Fan, & Lang, 1999).

Controlling shareholders manipulate interest of minority shareholders, controlling shareholders prefer to invest in most promising firms in pyramids from where they can absorb positive outcome. Therefore, controlling shareholders ingest private advantages to detriment minority shareholders however do not pay compensation to minority shareholders. This is the primary reason of organizational issues or agency problem.

This study is motivated by the phenomenon of agency problem between minority shareholders and ultimate owners. Agency problem between ultimate owners and minority shareholders happens in the light of fact that the ultimate owners are protected by cash flow and controlling rights (Fan & Wong, 2002). Agency problem occurs when controlling shareholders are engage in expropriating of private benefits and they do not pay attention to the interest of minority shareholders. Therefore, agency problem takes place in pyramid structure.

In pyramid firms controlling shareholders maintain higher leverage use more debt than equity. There might be many reason that pursue controlling shareholders maintain higher leverage in group affiliation firms as compare to equity. Dominating owners use debt for tax incentives in pyramid structure, as well as they use high leverage to increase their dividend. Dominating owners use debt for lower capital experience to controlling rights and voting purpose (De Jong, DeJong, Hege, & Mertens, 2013). In normal practices, financial experts think that debt financing is a source of tax deduction. In pyramid firms, controlling shareholders obtain more debt for many reasons. According (ibid), controlling shareholders obtain more debt for the purpose of tax advantage. Voting right is also one of the reason of high leverage. Ultimate owners do not want to dilute ownership right and vote power due to new equity.

This research mitigates that firms affiliated with group maintain higher leverage than standalone ones. There are many reasons due to which ultimate owners obtain more debt as compare to standalone firms. Ultimate owners obtain more debt for purpose of expropriation, for voting and controlling rights in Pyramid firms (Paligorova & Xu, 2012). Studies show that pyramid firms are highly leveraged as compared to stand-alone (single firm) companies. Controlling shareholders do external debt financing in group affiliated firms for the purpose of expropriation and private benefits. Private benefit means, ultimate owners do not acquire new equity and

prevent themselves from ownership dilution. That is how ultimate owners collect all internal benefits. Ultimate owners use internal capital only in promising sectors, therefore they can collect more profit. Similarly, research shows that pyramid firms obtain debts for controlling right in pyramidal structure. If they bring more equity in pyramid structure, this means they are increasing owners and on other hand they are diluting ownership and voting right.

Research question[s].

This research will try to answer following research questions.

What is the patteren of capital structure in pyramid vs non-pyramid firms?

What is the leverage ration in pyramid vs non-pyramid firms?

Research Objectives

This study emphases on the following two objectives.

1: To examine the pattern of capital composition in pyramidal ownership structure.

2: To examine whether firms associated with pyramidal group has higher or lower leverage ratios as compared to non-pyramidal groups.

Literature Review

Extensive literature from the past studies had documented the worldwide existences of pyramidal ownership structures. However, a little consideration has been paid toward the capital structure of these pyramidal firms. This literature explains different aspects of capital structure of pyramidal firms in terms of debt policies, agency problem due to debt policies and risk sharing in pyramid firms.

Emerging businesses controlled by ultimate owners or families are commonly used mechanism (Porta, Lopez- de- Silanes, & Shleifer, 1999). Diversified business group is controlled by few controlling shareholders is now a common practice around the world. Few controlling shareholders keep control of group of firms. Voting right is determent by control ratio, which is determined by dividing number of shares possessed by shareholder over the total number of shares issued by a company. That controlling right of the owner in a firm is represented by the cash flow right (Chapelle & Szafarz, 2005). This type of emerging business has many feature due to which now a days firms are emerging in groups. Features like strong flows, voting rights, low risk of defaulting, internal capitalization, strong affiliation and risk sharing. But there are some drawbacks as well such as high ratio of agency problem, high level of leverage, expropriation of minority shareholders, private benefits.

Pyramid structure shows top down chain of ownership structure, where promising firms are placed at top of structure, while risky firms are placed at lower layer of structure (Bunkanwanicha & Wiwattanakantang, 2008). Controlling shareholders choose where to place firms in pyramid and what stake to hold in each firm as according to firm's performance and riskiness. Controlling shareholders usually place poor and risky firm at bottom ties of pyramid. These firms tend to extend more loans and perform poor. Firms at top, survive in economic crises. Placing firms in different location is relevant because controlling shareholders choose different investment strategies for each firm. If any poor and risky firm did not pay off its project outcome, controlling shareholders sell the poorly performing firm.

Research uncovers that acquiring debt from holding companies and transfer it to company at the top, would not affect negatively. The reason is, controlling shareholders have many option, if lowers companies go bankrupt, controlling shareholders are able to either rescue it by internal financing or let it to go bankrupt.

Due to limited liabilities of other holding firms, bankruptcy of one risky firm would not affect the pyramid of companies (Bianco & Nicodano, 2002).

Research reveals that if debt is used for control mechanism, ultimate owners use more debt in standalone firm as compare to pyramid firms to get more control over standalone firm, further more ultimate firm ensure higher effective control through cash flow and voting right. Family owned pyramid firms will probably utilize obligation for control mechanism and they use less debt as compared to nonfamily pyramid firms and high level of risk of expropriation. The reason is that they undiversified and have high level of risk. Research reveals that in case of two large ultimate owners, as voting right increases, so does debt level. In case of control mechanism, contestable, large shareholders will obtain more debt. In case of expropriation, large shareholders will cooperate with each other to increase debt level (Paligorova & Xu, 2012). High rated debt firms are more likely to issue debt through public offering in case when pyramid firms are engage in value destruction investment. Pyramid firms which are engaged in cross subsidization, do not issue capital neither through private nor public offering (Cline, Garner, & Yore, 2014).

Controlling shareholders tend to keep the capital resources inside firm as opposed to impart to minority shareholders. The payout will be smaller if the investor protection if weak and if there is big distance between ultimate owners' voting right and cash flow right (Porta, Lopez- de- Silanes, & Shleifer, 1999). This demonstrates the cash flow right in pyramid structure. Controlling shareholders try to keep maximum capital and funding within their control. Controlling shareholders shift capital to promising firms which give controlling shareholders positive outcomes. The reason of transferring capital and funding from risky firms to promising firms, is that ultimate owners want to confiscate all the benefits and detriment the minority shareholder's interest. Ultimate owners do not pay attention to interest of minority shareholders, due to which agency problem between minority shareholders and controlling shareholders arises.

Group affiliated firms tend to confront extreme agency problems and organization issues since extreme controlling shareholders frequently have huge caution and the motivations to concentrate private advantages of controls. This motivating force emerges in light of the fact that a definitive shareholders bears just a small amount of the expenses from their private advantage exercises however gets the full advantages from such sick practices (Bany-Ariffin, Agus-Harjito, & Zunaidah 2009). Research give empirical evidence about agency problems, most of ultimate owners tend to expropriate private benefits of minor shareholder to which agency problems arise. Ultimate owners migrate maximum capital to promising firms, because promising firms give them positive outcome and secondly, ultimate owners collect all the retain earning, due to high controlling rights in these few promising firms. In complex pyramid firm's structure, ultimate owners extract private benefits without outside ring detection (Paligorova & Xu, 2012). Hence, ultimate owner acquire all the private advantages at the expense of minority shareholders. Multiple controlling shareholders decrease the uneven distribution of capital and private benefits (Attig, Guedhami, & Mishra, 2008).

The advantages over the debt are more noteworthy if administration has a bigger base of fix assets that it can misuse. Resources set up cash flow that can prompt either overinvestment or preoccupation of corporate assets (Jensen, 1986). Emerging markets firms have conceivably great administrative organization issues.

Debts is helpful to mitigate the agency problem and overinvestment problem of pyramidal structure. Ultimate owners either have high level of resources set up or constrained development opportunities (Porta, Lopez- de- Silanes, & Shleifer, 2000). Ultimate owners do not want to invest their capital in risky project. They invest maximum capital in promising firms, which creates agency problems. Accordingly, obtaining more debt and invest it in other compromising firms, can mitigate the agency problem. The hazard of confiscation of minority shareholders by vast, controlling shareholder is an important principal-agent problem in most countries (Claessens, Djankov, & Lang, 2000).

Large shareholders have incentive to manipulate minority shareholders by making investment and absorb benefits at expenses of minority shareholders but provide little benefits to minority shareholders. This is how agency problems arise (Porta, Lopez- de- Silanes, & Shleifer, 2000). Researcher argues about high level of leverage pyramid firms. Ultimate owners involve in expropriation by use of high level of debt. Controlling shareholders utilize more obligation in pyramid firms as contrast with non-pyramidal firms and less likely detected by outsiders (Almeida & Wolfenzon, 2006). In the presence of multiple ultimate owners, the comparative voting power reduce the agency cost and cost of equity, because high contestability of multiple ultimate owners enhance the company's data and therefore, cost of equity and agency problem arises (Attig, Guedhami, & Mishra, 2008). Multiple ultimate owners prevent private benefits or expropriation because to do so they need to get consent of other large shareholders (Paligorova & Xu, 2012)

Profits in pyramid firms are used to invest in project from where they can absorb positive outcome and also cover losses at weaker firms (Almeida & Wolfenzon, 2006). Pyramid structure always diversify its risk. Due to diversification of firm's capital in pyramid structure, ultimate owners have get access to a big pool of profit and retain earing. Ultimate owners utilize this profit and invest in different investment from where they can obtain positive outcome. Therefore, from positive outcome, ultimate owners can earn more profit and also can cover up losses at weaker firms of pyramid. Pyramid play vital protagonist of capital tunneling from one firm to another and create a financial advantage for pyramid affiliated firms (Masulis, Pham, & Zein, 2011).

Research uncovered that there are many factor which can effect badly to cost of debt of firms such as poor credit rating, higher leverage, less concrete assets and losses pay higher cost of debt but risk sharing of firm in pyramid structure can effect positively cost of debt in capital market. Researcher argued that firms with low credit rating, high debt and time of monetary downturns cannot affect badly to cost of obligation of the firm with co-protection clarification. Because investors know that there is very less risk of default of pyramid firms in case of co-insurance risk sharing. But in case of expropriation, investor always keep cost of debt very high. Because investors know that their investment will be used for manipulation of benefits in pyramid firm so there is a big chance to defaulting that pyramid firms. Research shows that in pyramid, still firms with low cash flow and low level of fix asset enjoy low level of debt because firms with high cash flow and high level of assets co-protect those firms. Investor do investment with no fear because they know that promising division of pyramid firms will help these firm which has low profitability and their investment is secure. Similarly firms affiliated with strong pyramidal group especially when affiliated firms operate in different sectors, effects the cost of obligation. Along these line, financial specialists are satisfy because they know that there are more

assets that could be utilized to bolster a money related troubled firm. It has been revealed that in pyramidal structure, firms at lower tires and non-focal, get advantages more from gathering alliance (Byun, Choi, Hwang, & Kim, 2013). In less developed countries, internal capital market or capital diversification is substitute of external capital market (Khanna & Yafeh, 2007). In emerging markets, firms from less developed countries are also affiliated to pyramidal structure. Firms, sometimes, could not obtain capital from external market due to less developed capital markets. Therefore, internal capital market pay essential role in pyramidal structure. Ultimate owners diversify capital from the firms which belong to developed capital market. Due to presence of imperfect capital markets, affiliated firms make access to internal funding, provided by parental firms (Inderst & Müller, 2003). In pyramid structure, diversification of capital is more effective than standalone firms because monitoring incentives are strong (Gertner, Scharfstein, & Stein, 1994).

Research reveals that country situation of parent firm does mattes a lot. There are evidences that highly developed financial institutional and well developed external capital has positive affect over subsidiaries firms with low institutional development and badly developed external capital market. Because parent firms from developed financial institution's countries can make better project and investment in subsidiaries firm a compare to undeveloped financial institution's countries. Similarly, subsidiaries firms from poor financial institution's countries are positively affected by parents firms from highly developed institutions because these subsidies firms have not access to good financial institutions. Therefore, these subsidiaries firms performed well in presence of parent firms from developed financial institution's countries (Gugler, Peev, & Segalla, 2013).

Researchers argues that pyramid firms allocate their resource in promising division to earn more benefits that are private and to avoid the monitoring of outside investors. These pyramid firms that are engage in value destruction investment or cross subsidizing are less likely to issue capital. Because capital market negatively react to these kinds of pyramid firms. Therefore, they avoid capital market (Cline, Garner, & Yore, 2014).

Internal capital market (ICM) is much affective in unlisted pyramid firms because unlisted firms need capital for their investment but they do not have access to capital market. On other hand listed companies of pyramid firm do not utilize internal capital market funds because they have easy access to capital market, therefore internal capital is ineffective for listed companies. Secondly, ultimate owners invest in those unlisted firms where they have great equity interest in subsidiary. The greater the interest of ultimate owners in unlisted subsidiaries, the tighter the internal capital market and better function. Research also uncovered that internal market can be affective as according to its capability of earning (Gugler, Peev, & Segalla, 2013).

Pyramid firms cross subsidize capital to promising division, therefore pyramid firms do not go to capital market to get access to capital. But whenever pyramid firms which are engage in value destruction and cross subsidization, want to get loan from capital market, investor always react negatively. Because entering of pyramid firms in capital market gives negative signaling effect. Investors think that pyramid firm does not have enough fund to finance its projects and has doubt full future cash flow, therefore investors do invest in that pyramid firm with high cost (Cline, Garner, & Yore, 2014). In pyramid firms controlling shareholders maintain higher leverage than equity. There might be many reason that pursue controlling shareholders maintain higher obligations as compare to equity. Dominating owners use debt for tax

incentives in pyramid structure, as well as they use high leverage to increase their dividend. Dominating owners use debt for lower capital experience to controlling rights and voting purpose. It is found that pyramid firms do not use debt for the purpose of tax shield and for discipline (Paligorova & Xu, 2012).

Hypothesis:
Previous literature suggest pyramid that firms use more debt for many purposes. Sometime ultimate owners use debt to expropriate private benefits by doing over-investment of value destruction, sometime ultimate owners obtain huge debts for the purpose for controlling right, therefore they can control pyramidal firms solely. Previous research found that it might be possible that ultimate owners obtain debt for the purpose to tax deductions and it is possible that ultimate owners obtain debts as a disciplining device to control agency problems. One the basis of above discussion, following hypothesis are made.

H_1: Other things remaining same, pyramidal firms maintain more debt as compare to non-pyramidal firms.

H_2: pyramidal firms obtain debt for tax advantage.

Methodology

The population of study comprises of group affiliated firms and stand-alone firms listed on Pakistan stock Exchange for the period 2001 to 2014. Companies belong to group or standalone firms, family owned groups and nonfamily owned group are included in population of research. 250 companies of different nature, capitalizition and economies have been selected as a sample size. These companies have been selected from 34 different sectors. All the firms in sample size have been selected at the base of their profitability, size of board, firm's ownership and level of leverage.This study has used cross sectional analysis. This study is based of secondary data of firms which contain, annual reports and financial statements.Following model of Paligorova & Xu (2012) has been adopted.

$$\text{Leverage}_{ik} = \alpha\ \text{Pyramid}_{ik} + \beta_1\ \text{Profitability}_{ik-1} + \beta_2\text{Tangibility}_{ik-1} + \beta_3\text{cash flow} + \beta_4\log(\text{Sales})_{ik-1}$$

Ratio of the book value of the debt to book value of Equity is call book leverage. (Value of debt/ value of equity) Pyramid_{ik} is dummy signs which will be assign to firms. $\text{Profitability}_{ik-1}$ is income before Interest payment, taxes payment, deduction depreciation, and amortization divided by total assets. Log (Sales) is the logarithm of net sales. $\text{Tangibility}_{ik-1}$ is the ratio of fixed assets to Total assets and cash flow during operational period.

Table 1: Variables Definition

Variable	Signs	Depiction
Pyramid_{ik}	α	Dummy signs. 1 for family owned firm. 0 for nonfamily owned.
$\text{Profitability}_{k-1}$	β_1	EBIT, earnings before Interest, taxes
$\text{Tangibility}_{ik-1}$	β_2	Fixed assets Total assets
Cash flow	β_3	Cash flow in operating period
$\log(\text{Sales})_{ik-1}$	β_4	Log (Sales) is the logarithm of net sales
$ik-1$		Current year-1 = previous year

Descriptive Statistics:

Table 1 shows detail summary statistics of variables adopted in this study. Tangibility here we means the proportion of fixed assets to aggregate assets. This variable shows that 47.71 per cent of firm's assets, on average, are fixed. Fixed assets include property, plant and equipment. The overall variation in terms of fixed asset ratio is 22.22 per cent for all firms. Second variable which is adopted is profitability which is measured as the proportion of firm's operating income before payment of interest, taxes, deduction of depreciation and amortization, scaled by total assets. Profitability measure shows that firm, on average, have earned 12.108 per cent during the time period of the sample. However, there is a lot of variations in profitability among firms as shown by the standard deviation of 64.93 per cent in the sample. Our third variable is firm's size (saleslog) measured as natural logarithm of sales. This variable shows that there is not much variation among firms as shown by the relatively lower standard deviation for this variable. Over fourth variable is cash as a ratio of total assets. This variable shows that firms, on average, hold 13.6 per cent of assets as cash, a significant amount of assets as liquid assets. Our last variable in the table is leverage. This measure represents percentage of obligation if firms total capital composition. This variable shows that firms, on average, source 30.27 percent of capital from debt financing. However, standard deviation of 24.75 percent for leverage shows that there is significant variation in capital structure among firms.

Table 2: Descriptive Statististics

Variable	Observations	Mean	Std. Dev.	Min	Max
Tangibility	2769	0.4770532	0.222552	0	0.995551
Profitability	2769	0.1210891	0.649389	-33.4879	0.64445
Sale log	2886	8.139639	1.601543	-1.83258	13.98748
Cash	1302	0.1360426	0.322148	0.003	0.90599
Leverage	1293	0.3027737	0.24755	0	0.96313

Empirical Resutls

To observe the association between capitals composition of group affiliated firms and stand-alone firms, in this study, we employ model of Paligorova & Xu (2012). The dependent variable for this model is Leverage and the independent variables for this model are pyramid dummy (if firm is affiliated with pyramid then it takes value of 1 and zero if a firm does not belong to a pyramid). Other independent variables are tangibility, profitability, cash flow, log of sales. Results for the model is reported in the Table 2. I use linear regression model with robust standard errors. The fundamental variable of concentration in this study is the pyramid dummy. This variable indicates the distinction in the leverage of group affiliated firm versus stand-alone firms. If this coefficient is positive, this shows the group affiliated firms are levered higher than stand-alone firms. In Table 2, the coefficient for this variable is 0.028588, which positive. This shows that pyramidal firms use more debt in their capital structure as compared to non-pyramidal firms. The magnitude of this coefficient indicates how much more pyramidal firms used leverage more than non-pyramidal firms. In this table value 0.028588 shows that pyramidal firms use 2.8588 per cent levered higher than stand-alone firms. Further, this positive coefficient is also

statistically significant which confirms the mean difference in leverage of the pyramidal and non-pyramidal firms.

Another variable of our interest is the non-debt tax-shield variable (NDT). In Table 3, this variable is statistically significant and the coefficient for this variable is negative. This shows that stand-alone firms with large non-debt tax shield use less debt to take benefit of tax-savings. However, this table also shows statistically insignificant coefficient for interaction variable (group x NDT) which implies that business group firms do not obtain debt to take tax advantages than the stand-alone firms. In other words, the motivation for the higher leverage ratios for the pyramidal firms may not be the debt-tax shield advantage. Another variable in Table 2 is profitability. Coefficient for this variable is negative and statistically significant. This negative and statistically significant result is reliable with past studies that show profitable firms have the flexibility to use debt as and when needed, hence they don't need to maintain high leverage ratios. Coefficient for tangibility is positive which shows that firms with higher extent of fixed resources have greater ability to raise debt financing since such fixed assets can used as collaterals to raise external debt financing. Statistically significant and negative Coefficients for cash flow and cash shows that at higher altitudes of operating cash flows and higher levels of cash holdings, firms do not need to maintain higher leverage as internally generated cash flows can be used as substitutes for external financing. We also use industry dummies record for the distinctions in the capital compositions of firms in different industries. Besides industry dummies, we also use time dummies to account for time-varying variations in the firm's capital structure.

Overall, result of this study confirms our hypotheses that Pyramidal firms use more debt because of better risk profile as compared to non-pyramid firms. Furthermore, since pyramidal firms are more diversified, they can also afford higher leverage ratios. Results also confirm that pyramidal firms do not use debt as a tax shield.

Table 3: Coffecients

Linear	Regression	Number of obs	=	1248
		F(6, 1241)	=	128
		Prob > F	=	0
		R-squared	=	0.4007
		Root MSE	=	0.19196

Leverage	Coefficient	Robust Standard Error.	T	Prob. t
Tangibility	0.360723	0.0286123	12.61	0.000
Profitability	-0.48843	0.0605992	-8.06	0.000
Pyramidal dummy	0.028588	0.0111659	2.56	0.011
Cash flow	-0.41042	0.0554664	-7.4	0.000
Cash	-0.07169	0.0187881	-3.82	0.000
Sale log	-0.01486	0.0040668	-3.65	0.000
_cons	0.361149	0.0442436	8.16	0.000

Leverage is dependent variable. Leverage here we mean, firm's total liabilities divided by firm's total assets while total liabilities consists of long-term and short-term debt. Tangibility is firm's concrete assets as a proportion of total assets while fixed assets include machinery land building and different equipment which life is more than one operating period. Pyramidal dummy is a dummy variable equal to 1 if a firm belongs to pyramid and 0 if doesn't belong to pyramidal group. Sale log is the natural logarithm of firm's sales. Cash is the total cash in hand and any security or resource which is cash equivalents divided by accumulated assets.

Table 4: Regression of leverage

Linear	Regression	Number of obs	=	917
		F(27, 889)	=	26.11
		Prob > F	=	0
		R-squared	=	0.4133
		Root MSE	=	0.19218
leverage		Std. Err.	T	Prob. (t)
Tangibility	0.310094	0.0472147	6.57	0.000
Cash	-0.11298	0.0241472	-4.68	0.000
Ebitda assets	-0.61637	0.0739771	-8.33	0.000
Business group	0.026497	0.01512326	1.76	0.056
Size	0.042462	0.015585	2.72	0.007
Sale log	-0.05341	0.0152159	-3.51	0.000
Ndt	-0.01573	0.0101655	-1.69	0.07
ndtbusgp	0.053203	0.0324863	1.34	0.142
industry1	0	(omitted)		
industry2	0.375588	0.073326	5.12	0.000
industry3	0.357102	0.0764293	4.67	0.000
industry4	0.495373	0.0820912	6.03	0.000
industry5	0.183448	0.1195935	1.53	0.125
industry6	0.214295	0.0790619	2.71	0.007
time1	0			
time2	-0.01334	0.0401531	-0.33	0.740
time3	-0.04414	0.0387076	-1.14	0.254
time4	-0.06232	0.039926	-1.56	0.119
time5	-0.04423	0.0370467	-1.19	0.233
time6	-0.07594	0.0350887	-2.16	0.031
time7	-0.06214	0.0357232	-1.74	0.082
time8	-0.02311	0.0353262	-0.65	0.513
time9	-0.03489	0.0349659	-1	0.319
time10	-0.02507	0.0348991	-0.72	0.473
time11	-0.03333	0.0350386	-0.95	0.342
time12	-0.02698	0.0365737	-0.74	0.461
time13	-0.01556	0.0348436	-0.45	0.655
time14	0.013475	0.0410232	0.33	0.743
Asset maturity	-0.00028	0.0004716	-0.6	0.552
_cons	0.017571	0.0845526	0.21	0.835

Conclusion

Previous research has left some question unanswered with respect to capital composition of pyramidal firms as compare to non-pyramidal or standalone firms. This study raises hypothesis whether pyramidal firms obtain more debt as compare to stand alone firms. The empirical evidences show that firms, alley with pyramidal structure obtain more debt as compare to stand alone firms. Similarly result shows that firms with high level of tangibility (holding fix assets), high level of profitability (incomes before payment of interest, taxes and deduction depreciation and

_____

amortization), and high level of cash in hand mitigates the abduction of high level of debt in firm's capitalization. Because firms with high level of tangibility, profitability, and cash in hand do not need external financing. Empirical evidence shows that pyramidal firms do not obtain debt for tax advantages as compare to stand alone firms. However, standalone firms with large non-debt tax shield use less debt for tax advance, because these kind of firm's already taking tax advantage through other sources like depreciation. Results show that pyramidal firms do not use debt for tax advantage.

References

Almeida, H., & Wolfenzon, D. (2006). Should business groups be dismantled? The equilibrium costs of efficient internal capital markets. *Journal of Financial Economics*, *79*(1), 99-144.

Attig, N., Guedhami, O., & Mishra, D. (2008). Multiple large shareholders, control contests, and implied cost of equity. *Journal of Corporate Finance*, *14*(5), 721-737.

Bany-Ariffin, A. N., Agus-Harjito, D., & Zunaidah, S. (2009). Pyramidal firms and dividend payout announcement in Indonesia: A note. *International Applied Economics and Management Letters (Forthcoming)*.

Bianco, M., & Nicodano, G. (2002). Business groups and debt.

Bunkanwanicha, P., & Wiwattanakantang, Y. (2008). Allocating Risk across Pyramidal Tiers: Evidence from Thai Business Groups.

Byun, H. Y., Choi, S., Hwang, L. S., & Kim, R. G. (2013). Business group affiliation, ownership structure, and the cost of debt. *Journal of Corporate Finance*, *23*, 311-331.

Chapelle, A., & Szafarz, A. (2005). Controlling firms through the majority voting rule. *Physica A: Statistical Mechanics and its Applications*, *355*(2), 509-529.

Claessens, S., Djankov, S., & Lang, L. H. (2000). The separation of ownership and control in East Asian corporations. *Journal of financial Economics*, *58*(1), 81-112.

Claessens, S., Djankov, S., Fan, J. P., & Lang, L. H. (1999). *Expropriation of minority shareholders: Evidence from East Asia* (pp. 461-498). Washington, DC: World Bank.

Cline, B. N., Garner, J. L., & Yore, A. S. (2014). Exploitation of the internal capital market and the avoidance of outside monitoring. *Journal of Corporate Finance*, *25*, 234-250.

De Jong, A., DeJong, D. V., Hege, U., & Mertens, G. (2013). Blockholders and leverage: When debt leads to higher dividends.

Fan, J. P., & Wong, T. J. (2002). Corporate ownership structure and the informativeness of accounting earnings in East Asia. *Journal of accounting and economics*, *33*(3), 401-425.

Gertner, R. H., Scharfstein, D. S., & Stein, J. C. (1994). Internal versus external capital markets. *The Quarterly Journal of Economics*, *109*(4), 1211-1230.

Gugler, K., Peev, E., & Segalla, E. (2013). The internal workings of internal capital markets: Cross-country evidence. *Journal of Corporate Finance*, *20*, 59-73.

Inderst, R., & Müller, H. M. (2003). Internal versus external financing: An optimal contracting approach. *The Journal of Finance*, *58*(3), 1033-1062.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American economic review*, *76*(2), 323-329.

Khanna, T., & Yafeh, Y. (2007). Business groups in emerging markets: Paragons or parasites. *Journal of Economic literature*, *45*(2), 331-372.

Malan, I. N. B., Salamudin, N., & Ahmad, N. (2012). The nature and determinants of pyramid structure: A theoretical and empirical exposition. *Nature*, *2*(6), 29-45.

Masulis, R. W., Pham, P. K., & Zein, J. (2011). Family business groups around the world: Financing advantages, control motivations, and organizational choices. *The Review of Financial Studies*, *24*(11), 3556-3600.

La Porta, R., Lopez- de- Silanes, F., Shleifer, A., & Vishny, R. W. (2000). Agency problems and dividend policies around the world. *The journal of finance*, *55*(1), 1-33.

Paligorova, T., & Xu, Z. (2012). Complex ownership and capital structure. *Journal of Corporate Finance*, *18*(4), 701-716.

Porta, R., Lopez- de- Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *The journal of finance*, *54*(2), 471-517.