

Effect of Capital Structure on Profitability: A Case Study of Automobile Sector in Pakistan.

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Abstract

The present study empirically examines the econometric impact of capital structure on profitability of automobile sector of Pakistan. For this purpose 21 years (1994-2014) data was taken on semiannual basis. Return on equity (Profitability) was the dependent variable of the study while capital structure was the independent variable, measured by long term debt ratio, total debt to equity ratio, and total equity of the firm. Study supports pecking order theory and confirms that total debts show negative and significant effect on automobile sector's return while the situation is positive and significant in case of equity. Impact of long term debt ratio was negative but significant,

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Introduction

In order to finance their assets, firms either use debt or equity. The mixture of both is a right choice. In this scenario where interest is not tax deductible, owners of firms should have to decide whether use equity or debt, and if interest is tax deductible, more chances present to maximize the value of firm by financing through 100% debt. Hence, firm's debt ratio is higher there will be greater risk and interest rate may also be greater. Thus, rising interest rate engulf the tax advantage which is gained by using debt. If firm's operating income is sufficient in hard time and it is not able to cover interest charges then stockholders are in deficit. If they do not agree to bother then firm may be forced to bankruptcy. Good time is far away. This situation may eliminate the shareholders in process (Azhagiah & gavoury, 2011).

As Myers & Majluf (1984) and Myers (1984) developed the POT (pecking order theory), in their view, when the business firms earn more profit they prioritize their capital structure by raising fund internally it means that those firms which raise higher profit use less debt. On the basis of this concept alternately they said that business firms raise fund through retained earnings because more use of equity maximizes the value of preexisting shareholders. The firms use debt if fund generated through retained earnings is insufficient and if firm need further

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financing then they issue equity. The preferred type of retained earning has no cost so preferably issue by the firms. The issuance of shares may have high cost, so companies try to avoid external resources. Information asymmetry exists between outsiders and insiders of firms as a result the POT has developed. Managers choose that model which minimizes the associated cost of debt and equity; it means managers prefer internal financing over external financing and less risky debt over equity. Another important issue is the large tax advantage enjoyed by debt. It indicates that managers act in favor of already existing shareholders. POT suggests that firms are wishing to sell equities when market overvalues them. Managers try not to issue or undervalued shares unless the value of old shares are transferred to new shares is more than equal by the NPV of the growth opportunities. So it is concluded that new shares are issued at high price than that specifies by the real market value of the firm. On the basis of this, investors take this act as signal of overpricing. If firm wants to avoid external financing through equity then firms should select secured debt and oppose risky debt, firm will issue common stock as a last option.

Another theory of capital structure is trade off theory presented by Miller (1977). According to him profitable firms prefer debt financing instead of equity in order to sustain their position and get more profit. As tax advantage is more in debt financing and tax liability decreases but in some cases it is abolished. So firms with more profit structure their capital in such a manner that it includes more debt than equity. If profit of firms is low then chances of bankruptcy are present, in this situation if firm's finance their capital structure in such a way that debt is higher than equity so chances of bankruptcy are higher and it may lost the trust of investors. Alternatively there is less chance of bankruptcy if firms earn more profit, can gain investor's trust and may earn more profit. If company's image is good and there is less chance of bankruptcy, creditworthiness is high than firms can get debt or loan at lower interest rate and in no time because creditors are not worry, so agency cost is very low. Parrino et al., (2005), said that the discrepancy of the tradeoff between tax advantage and bankruptcy cost is compares by Miller in (1977) as "the recipe of fabled horse and rabbit stew, mean one horse and one rabbit".

Modigliani & Miller (1958), stated the perfect capital market assumption they described that if no bankrupt cost is present or other real world imperfections and capital market is without taxes, frictionless and the firms' value do not dependent on capital structure. This was well known as M & M proposition (I). The definition of equity and debt is given for better understanding of capital structure.

EQUITY

Equity shows the amount which owners have invested in different entities. This terminology varies for different organizations. In corporation ownership interest is evidenced by shares of stock, so the equity is term as shareholder's equity or stockholder's equity consists of common stock, preferred stock etc. (Accounting text and cases 12th edition by Robert N Anthony pg. 38). The shares are a type of financing through which an organization receives capital and put it into its operations from outside investors. Mallor et al., (1989), said that there is different form of shares such as ordinary or common share capital, preference share capital etc. along with shares, surplus profit, reserves, warrants, option are included in equity. He also defined forfeited and treasury shares. Forfeited shares are type of shares in which owner gives up some rights because he/she cannot fulfill the conditions for the purchase of shares. The owners may lost their capital gain or claim on dividends or they agreed that they will not purchase additional shares. It is also defined as due to non-payment of call shareholders are deprived of their membership and define treasury shares as shares that have been repurchased by the firm but are neither canceled nor restore to not issue status. Such share are authorize and issued but not outstanding.

However, the meaning of equity depends on the situation. Sometimes Owner's equity is also called net assets, since the amount shown for equity is equal to assets net of (i.e., minus) liabilities. The Financial Accounting Standards Board defines equity as "the residual interest in the assets of an equity that remains after deducting its liability." The use of the word residual reflects the fact that in law, owner claims rank below the creditors' claims. Thus sometimes common stock is referred as "residual security" (FASB Statement of Financial Accounting concept No. 6).For instance, a car or house with no outstanding debt is considered the owner's equity because he or she can sell the item readily for cash. Stocks are equity because they represent ownership in the firm. Equity in connection with a home is the value of home, less the balance of outstanding mortgage loan on the home (Guttentag, 2004).

DEBT

Debt financing is another type of financing after equity. The debt is repaid by the borrower along with pre decided terms or service charges such as loan originated fee and interest charges, the debt has its own value and place in financing the assets it cannot dilute the ownership of stockholders. Kara & Ibanez (2009) said that debt is the private and public loan e.g. bank loan and bonds respectively. Thus debt is a major source of fund that enables the firm and people to make huge purchases

that they cannot purchase in normal condition. It requires the borrowing party to get permission and accept all the conditions attached e.g. payback period and interest rate etc.

Forsberg (2004), claimed that many organization use debt in their capital when structured the reason behind this is the tax deductibility of interest that lower the cost of financing and make this type more cheaper type of outside financing. Debt reduces the agency cost which makes it less expensive. Harris & Raviv (1990) also claimed that debt is a discipline device because the creditors can force the organization to liquidity. Fleming & Grumman (2005), added that issuing of new equity is more expensive and comparing the issuing of new equity the issuance of debt cannot weaken the organization further enhance the alliance of interest.

However, the basic disadvantage of using debt financing is that creditors force the organization to go to bankruptcy if it is not able to settle its debt. If proportion of debt increases in capital structure then debt holders become key player in governance of corporation. The more equity is traded off for debt then the debt holders can put their influence on the firms' strategies to be pursued. Another disadvantage of debt financing is that it increases the cost of capital and other cost, highly levered firms can face cash problem, which increases the chance of bankruptcy and other cost associated with bankruptcy.

Barclay & Smith (1995) claimed that firms who deal with high technology rely less on debt because of more interest of creditors and investigation made by creditor which may cause the leakage of private information. Brander & Lewis (1986) said that in an imperfect competitive environment, issuance of debt is a commitment to produce some products and gain profit through responses of other firms. This study concentrates the automobile sector's capital structure.

Objectives

- To econometrically determine the relationship of capital structure and profitability for Pakistan automobile sector.
- To check the effects of long term debts of automobile sector on profitability.
- To check the effects of equity on profitability for automobile sector.

As no specific study is performed on automobile sector and no proper and exact proportion for debt and equity is provided in order to get more profit. Moreover it is not possible for the firm to use 100% debt or equity because of heavy cost of capital incurred. So mix of both has been provided in such a way so that it can maximize the profitability of firm.

Literature Review

Modigliani & Miller Theorem

The central M&M proposition stands on the following major assumptions:

- Taxes should not be imposed.
- Absence of transaction cost.
- Bankruptcy cost does not exist.
- Borrowing cost is similar for investors and company.
- Regularity of market information in the sense that company and investor have same information.
- Company's earnings before interest and taxes are not affected by debts.

Trade off Theory

Myres (2003) analyzed that financial distress has low probability when a firm maximizing value never passes the interest tax shield. He further found that although there exist many credit worthy companies that are operating with low debt ratios. He stated that in United States of America profitability is the main determinant of assets to debt ratios. Low debt means high profits and vice versa. As the tradeoff theory assumes; Managers can take up the advantage of predictably interest tax shield.

According to Ibrahim (2009), the theorem of Modigliani-Miller greatly helped in focusing on Trade-off theory. Original idea of this theory also established from the Modigliani-Miller theorem. He found that corporate income tax combined with irrelevance theorem resulted the protection of earnings from various taxes. The benefits of leverage plans and its costs are evaluated and analyzed by the firm managers. And hence they obtain a solution which helped in acquiring the balance between marginal costs and its benefits.

Pecking Order Theory

The Pecking order Theory is a well-known capital structure theory which explains why external finance is less popular than internal finance, so that's why debt is more attractive external finance option. The theory basically suggested that same firms use less debt because they want to earn high profit than other firms because external fund is less needed by them because debt is the most attractive and cheapest option when compared to other methods of fund raising.

The Pecking Order Model (Myers & Majluf 1984; Donaldson 1961), stated that companies prioritize their financing sources (from equity to internal financing) according to the principle of least resistance or least effort or preferring to raise equity as a financing means of last resort. In other words, the Pecking order Theory stated that if internal

finance is insufficient firms prefer to issue debt rather than equity. With Pecking order Theory, stock issue drives down the stock price following announcement because investors that managers are more likely to issue when shares are issued at premium. Hence, firms prefer internal finance since funds can be raised without sending negative signals. Also, if external finance is required, firms issue debt first and equity as a last resort. Most firms borrow less not because they have a lower target debt ratios but because they do not need external finance. Thus, internal funds are used first and when that is depleted, debt is issued, and when it is not sensible to issue any more debt, equity is issued. The pecking order can be summarized as follows:

- Retain profit will be used to finance the business if possible.
- Where retain profit is insufficient, or unavailable, loan capital will be used.
- Where loan capital is insufficient, or unavailable, share capital will be used.

The concept explains that managers of business have access to information that investors do not. For instance, where managers have reliable information indicating that the prospects for the business are better than that predicted by the market they would have advantage over investors in terms of financial information. This mean that shares would be undervalued and, so, to raise finance by the issue of shares under such circumstances would involve selling them at undervalued price. This would in effect, result in a transfer of wealth from existing shareholders to those investors who take up the new issue shares. Hence managers, who have been employed to act in the best interests of existing shareholders, would prefer to rely on retained profit, followed by loan capital, instead. Myers (1984); Chittenden et Al., (1996), concluded that firms are willing to sell equity when the market overvalues. Singh & Hamid (1992), concluded that in developing countries there is an inverse pecking order as corporations rely heavily on external financing, especially stock issues and short-term finance.

Bankruptcy Cost

Cost of bankruptcy occurred when the supposed probability of the firm is evaded on financing is more than zero (Abor, 2008), and this cost may be direct or vice versa. The direct cost is usually permissible and organizational expenditures and their relation is minute to commercial market value. On the other hand indirect cost is extensive and these costs are these make stakeholders reluctant to do business with the firm Warner (1977). The example of this is that when the firm is going to be bankrupt then customer avoid business with such firms for

the reason that the firm is will not give the guarantee of their responsibilities (Abor, 2008).

Bankruptcy costs are further discussed by Haugen & Senbet (1978), and they explained that this cost is in consistent or insignificant if rational investors competitively determined capital market prices. Hence Titman (1984), stated that solvency of the firm is affected by high probability of bankruptcy and also due to the reliance of the customer on the firm's goods and services.

Agency Cost

Agency theory is officially formed by Jensen & Meckling (1976), in corporate literature which was based on initial work of Miller & Fama (1972). Agency cost is defined as "this cost is occurred due to the differences in the firm's agents and interest of their principle and the object of both are to maximize the profit on at the cost of others. (Gatsi & Akoto, 2010). However the interest of principle is generally impress limitations on agents' attitude to support their actions with the principle's objectives (Kim, 2006).

An agency relationship is an agreement in which more than one person keep engage another person basically the agent to do any work due to them which handover authority of decision making to the agent (Jensen & Meckling, 1976).

Agency cost happens when the administration chase their interest at the cost of shareholders. According to Mustafa & Ahmad (2011) this helps in the expansion of numerous methods to minimize this cost. According to many school of thoughts they accept the truth that the exercise of debt financing or leverage can facilitate the managers and lessen agency cost in the capital structure (Agarwal & Knoeber, 1996).

In addition Agrawal & Knoeber (1996); Ang et al., (2000), also stated that debt financing reduces agency cost of an organization by providing other methods of executive equity rights and ownership of family.

The firm can regularize managers to do business more effectively by expanding their debt to equity ratio. Formation of debt guaranteed that manager will give back more cash flow to the investors as a substitute of investing it in the project with disapproving Net present value (NPVs). De & Van (2002) stated that the need to resolve principal-agent problem that exist in corporate form of organization results in the creation of institution that would not exist in perfectly competitive world.

Rehman et al., (2007), stated that capital structure's impact on profitability, they had taken Islamabad stock exchange as their sample and claimed that capital structure provided the different financing options of the assets. As different level of combination of debt and equity

and/or different other facilities attached with equity have power to maximize the firms' value. Capital structure affected the liquidity along with profitability. They have taken 94 non-financial listed companies of ISE, six years data (1994-2004) was collected from annual reports. Different analysis tools e.g. Pearson's correlation and regression analysis were applied to check the relationship of variables.

The proposed model was:

$$NOP = \alpha_0 + \alpha_1 DR + \alpha_2 LTD + \alpha_3 SE + \alpha_4 (LOS)$$

NOP is net operating profitability, LTD is long term debt to total liability, DR is debt ratio, LOS is log of total sale.

They concluded that in order to minimize the losses and stayed profitable suitable mix of both equity and debt should be used by the firm.

Idode et al., (2014), stated the influence of capital structure, they taken the evidence of listed Nigerian banks. Data of listed banks was collected from NSE from (2008- 2012), as five years data was taken into account. The research design was ex post facto, descriptive statistic and multiple regression technique was employed. Return on asset was taken as regressand while total debt to total asset ratio and equity to total assets ratio were taken as regressors. They concluded that capital structure had positive effect on profit of firm so they recommended that management should use a suitable combination of both, they further illustrated that firm should use equity and pecking order theory supports the use of equity over debt.

Drobetz & Fix (2005), worked on the determinants of capital structure and two important and hot issues POT and TOT. In TOT three main factors are included tax shields, agency cost, and bankruptcy cost. Due to these shields and advantages firms prefer to use more debt financing. In POT firms having more profit use less debt. Firms ranked its financing by using the retained earnings at top then secondary use debt and as a final option firms use equity financing. They were the supporter of equity financing. In their view no need to use or take debt if investment opportunities are present in abundance than after the use of retained earning entity should avail the option of debt. While they were investigating the facts in Chinese firms their findings were against to the TOT and in support of POT.

Gill et al., (2011), studied the effect of capital structure on profitability of the manufacturing firms and American service. American 272 companies which are listed in New York Stock Exchange were taken as sample for the period of 3 year (2005-2007). For analysis correlation and regression were used to evaluate the function related with profitability (measured by return on equity) with measurement of capital structure. Practical results indicated a positive relationship among short term debt to total assets and among total debt to total asset and

profitability in the service industry. They conclude from this paper a positive relationship among profitability and long term debt to asset, among total debt to total asset, short term debt to total asset and profitability in manufacturing industry.

Ong & the (2011), conducted study on the firm performance took construction companies as a sample and capital structure for a time period of (2005-2008) in Malaysia. Long term debt to common equity, debt to asset, debt to equity market value, debt to capital, Long term debt to capital, debt to equity market value, Debt to capital were used to represent the corporate performance and observed from results that there is relationship among corporate performance and capital structure. In Jordon Zeitun & Tian (2007), conducted research investigation on capital structure and performance on 167 Jordanian firms among 1989-2003. They discover or find out negative relationship among corporate performance and capital structure. Different variables namely PROF, ROE, MBVE, ROA, Tobin's Q, PIE and MBVE, is used to evaluate performance where as leverage tangibility, growth size, STD was used as representative of capital structure .

Dare & Sola (2010), conducted an investigation on capital structure impact on company's performance in Nigerian petroleum industry sectors, Dividend per share and Earning per share have some effect on performance while leverage ratio represents capital structure. So results concluded that a positive relationship exists among variables while studied the Sri Lanka. Puwanenthiren (2011) conducted a study on financial performance and capital structure upon same selected companies in Colombo Stock Exchange from 2005 to 2009. Capital structure was represented by debt whereas performance was represented by gross profit (ROA), so the results came from these shown negative relationships among financial performance and capital structure. The US Banking industry used ratio of equity to gross total assets surrogate capital structure and profit efficiency for firms' performance. Berger & Wharton (2002) accomplished that higher leverage is associated with higher profit efficiency that ensure agency costs hypothesis.

Research Methodology

The model for data analysis is followed as:

$$ROE_{it} = \beta_0 + \beta_1 LTD_{it} + \beta_2 TD_{it} + \beta_3 EQ_{it} + ut$$

Where,

ROE = Return on Equity (profitability).

β_0 = The constant.

LTD = Long term debt ratio = $\frac{\text{Long term debt}}{\text{Total Equity}}$

TD = Total debt to Equity of the firm.

EQ = Total equity of the firm.

ut = The error term.

Hypotheses

H0: Long term debt has no effect on profitability.

$$\alpha_{ROE} / \alpha_{LTD} = 0$$

H1: Long term debt has effect on Profitability.

$$\alpha_{ROE} / \alpha_{LTD} \neq 0$$

H0: Total debt has effect on Profitability.

$$\alpha_{ROE} / \alpha_{TD} = 0$$

H1: Total debt has effect on profitability.

$$\alpha_{ROE} / \alpha_{TD} \neq 0$$

H0: Equity has effect on Profitability.

$$\alpha_{ROE} / \alpha_{EQ} = 0$$

H1: Equity has effect on profitability.

$$\alpha_{ROE} / \alpha_{EQ} \neq 0$$

Data Analysis

For data analysis E-view 8 software will be used. Data statistics and Johnson co-integration test will apply to show long run dynamics.

Descriptive Statistics

Sample period: 1994\$1-2014\$2, No. of observations: 40

Variable(S)	ROE	LTD	TD	EQ
Mean	0.37	0.21	0.53	0.85
Median	0.341	0.17	0.48	0.97
Std. Dev.	0.159	0.07	0.18	0.36
Skewness	0.36	0.95	0.86	-0.73
Kurtosis	2.28	2.47	3.15	2.75

Table the measurements by descriptive statistics of dependent and independent variables for the automobile sector of Pakistan. It shows the mean value variables.

The dependent variable, profitability is measured by the (ROE) which is most suitable indicator of profitability in most of the firms and has mean value of 37%. This shows a high return during the twenty years. This may be because sector is flourishing continuously within the period of study. Median value is 0.34.

The LTD which is ratio of LD to EQ also comes out with a mean of 0.21 or 21%. This clarifies that only 21% of the EQ is represented by long-term debt. This is an attribute to the underdeveloped nature of the LD market (Abor, 2005).

TD to EQ means the ratio of TD to EQ represents mean value of 0.53 or 53%. This indicates that, portion about 53% of the total equity are financed by debt.

As value of standard deviation of all variables is very low this indicates less variation from their respective mean value. More than zero value of Skewness shows that observations fall above mean and vice versa. Data normality is indicated by kurtosis, and 3 is a standard value of it. Results indicate not exact 3 for any one of variable. All values are nearly closer to 3; its mean variation exists among data.

Here formulas to calculate the Skewness and kurtosis are given below

$$S = \frac{1}{n} \sum_{t=1}^n (x_t - \bar{x})^3 / \left[\frac{1}{n} \sum_{t=1}^n (x_t - \bar{x})^2 \right]^{3/2}$$

$$C = \frac{1}{n} \sum_{t=1}^n (x_t - \bar{x})^4 / \left[\frac{1}{n} \sum_{t=1}^n (x_t - \bar{x})^2 \right]^2$$

- X = Individual Observations
- \bar{x} = Mean of Observations

Johnson Co. Integration Test

Dependent variable, ROE.39 observations: 1995S1- 2014S2

Regressor	Coefficient	Standard Error	T-Ratio	[Prob]
Constant	2.37	8.30	0.42	0.51
LTD	-2.01	7.25	-0.25	0.23
TD	-0.90	0.24	-3.42	0.000
EQ	1.33	0.16	5.76	0.000

Model Summary of JCot

R-Squared	0.88	R-Bar-Squared	0.82
S.E. of Regression	0.065	S.D. of Dependent Variable	0.23
Mean of Dependent Variable	0.16	Long run residual	0.29
S.D dependent variance	0.15	DW-statistic	0.97

Table show the result of long run dynamics by using Johnson co. integration test.

In order to check the long run effects of regressor on regressand Johnson co. integration test is applied which clarifies that TD, and LTD have negative effects on profitability and TD have significant negative effects but LTD has insignificant and also negative effects on profitability that implies, if firm increases its debt or liability then profit margin is low. As the value of R² is 0.88 and the value of R-bar square is 0.82 get improvement which clarifies that all the variables have significant effects except LTD while profit is positively affected by EQ.

Conclusion

LTD also has insignificant negative effects on profitability which clarifies that higher the debt lower will be profitability and lower the debt to finance the assets higher will be profitability. The study's findings are concur with the findings of Graham (2000), Gatsi&Akoto (2010), Fama& French (1998), Booth (2001), Miller (1977), Korda et al., (2012), Irfan (2013), but however contradict with the findings of Abor (2005), Albert et al., (2013), Rafiu et al., (2008), they forced on positive relation of LTD and profitability.

The results of study indicate a negative and significant relationship of TD with profit of firm, which implies that if there is increase in total debt then decrease in profitability occurs. This result is similar to korda et al., (2012), while opposes the results of Abor (2005), Peterson & Rajan (1994), Hadlock & James (2002), Rafiu et al., (2008) and Roden & Lewellen (1995), they stressed that profitable firms use more debt than equity. Because debt has positive relation with profitability while this study results support the pecking order theory which interpreted that firms have higher profit rely less on debt, and firms having high debt ratio earn less profit.

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