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RESEARCH ARTICLE

LEVERAGE, CAPITAL INTENSITY AND ITS IMPACT ON FIRM'S PROFITABILITY (MOTOR VEHICLES, TRAILERS AND AUTOPARTS SECTOR OF PAKISTAN)

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ABSTRACT

This study focuses on investigating the effect of leverage, capital intensity and its impact on firm's profitability of the motor vehicle industries of Pakistan. For this purpose, two independent variables, i.e. leverage and capital intensity were in use into concern to recognize their effect on dependant variable, i.e. firm's profitability. This study concluded that the leverage and capital intensity is significantly associated with firm's profitability as total debt, long term debt and total long term debt to total assets are positively associated with return on sales while total assets to gross sales are positively associated with return on assets. Therefore the cautious decisions should to be taken in provisions of firm's profitability which in return would help in signifying financial restructuring for this sector in future.

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INTRODUCTION

The automobile sector in Pakistan was launched in mid-50's and now develops into a multi-billion rupee industry, with over 2,000 original equipment manufacturer and seller unit both formal and informal, manufacturing a large range of products. The industry has 300,000 to 500,000 employees. In the past, studies have found that the automobile sector in Pakistan is still restrained in size and has not yet obtained the status by promoting broad based manufacturing sector growth. The basic causes of this state of affairs include the scope of the enabling framework such as institutional, managerial, human resources, financial and government policy desired to achieve greater effectiveness, competition, competitiveness and productivity. Pakistan's share in world export trade of automobile products is too small and minor that the growth factors of exports are insufficient to satisfy the global level of exports and to enter the export market. Less consciousness and lack of export potential make the un-competitiveness to achieve the objectives and goals of the domestic market. In order to establish the firm profitable and more acceptable by the consumers, it is important that the adoption or the patronage factors of automobile sector of Pakistan be analyzed and understood so that the necessary alterations in the firm's profitability can be done according to that. The term "leverage" is a usage of financial resources and on loan capital to amplify the probable return of an investment. Put differently, the debt used to finance a firm's assets is also known as leverage. Most often firms with significantly more debt than equity are considered to be highly leveraged. Leverage is most commonly used by a firm's investor through the use of mortgages to purchase a land. It affects the overall value of the firm. By doing debt to finance operations, a company can increase its leverage because it can invest in business operations without increasing its equity. Leverage helps both the investor and the firm to invest or operate to get more potential return. However, it comes with greater risk, but if in the business world, a company can use leverage to try to produce shareholder wealth and in case if it fails to do so, the interest expense and credit risk of default destroys shareholder value.

Capital intensity is an output value to a one dollar worth amount of money invested. The more capital applied to produce the same unit of investment firm called acute. To better understand the increasing capital intensity results, production quality and production time matters a lot. Firms to increase their capital intensity and consequently improve the quality, look for the model. If the mode is not chosen because it would be counter to the purpose of financing, it is important production and can adversely affect the firm's standings. The studies also examine the effect of the firm's profitability of the automobile industry in Pakistan. Firm's profitability being an *imperative resource* of finance for all long term and short term *requirements* of all the *firms now a days*. The *influence* of leverage and capital intensity is *exaggerated* by the profitability and *expansion* of *business*. This study *effort* to *discover out the determinants of external* financing in motor vehicle, trailers and auto-parts sector of Pakistan. In order to

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make the firm's profitability more accepted by the consumers, it is important that the adoption or the patronage factors of automobile sector of Pakistan be analyzed and understood so that the necessary changes in the firm's profitability can be done according to that. This research is focused on the discussion of profitability of firms in motor vehicles, trailers and auto-parts sectors of Pakistan and how leverage, capital intensity have an impact on firm's profitability in Pakistan. This research is focused on the discussion of profitability of firms in motor vehicles, trailers and auto-parts sectors of Pakistan and how leverage, capital intensity have an impact on firm's profitability in Pakistan. Leverage is created to encourage a firm or a portion of its assets to finance through loans rather than equity financing from its assets. Firms that they cater to their business equity market by issuing shares are unable to raise sufficient capital. For this purpose, analysis has been conducted from all the major motor vehicle industries of Pakistan in order to gain more effective and affectionate returning factors.

Motor vehicle or automotive sector is the strongest and the backbone of the economy of Pakistan. As it is one of the most important industry of the world and affects both economy and culture, provide jobs to million of people so it is a common mode of travelling to different places and in the shortest possible time and revolutionized the mode of transportation, There is no study found as such in Pakistan. So it analyzes the best impact of leverage and capital intensity on the firm's profitability and hence the automobile sector has revolutionized the life of common people. The automobiles are now the part and parcel of our lives without which it is nearly impossible to survive. The automobile sector contributes to increase the economic activities as well in the form of providing jobs to the people and also give rise to other allied industries.

Literature Review

Leverage is the amount of debt used to finance a firm's assets and the firm with significantly more debt than equity is considered to be highly leveraged (Wikipedia). In other words leverage is the use of debt, credit or borrowed capital to increase the earning potential of the shares. Fox (1998) investigated that how extent leverage levels fluctuate with the firm size. An internal source plays the best role of getting more benefit of financing by small firm, managers as compared to debt financing equity. The debt limit of the firms is resolute in the view, hence the interest payment is tax deductible, the firm prefers debt financing instead of equity financing and it would rather have an unlimited amount of debt. Meh and Terajima (2013), specifies that leverage of Canadian financial institutions is procyclical which means there is positive relationship of leverage towards balance sheet size and highly exaggeration between them. Further on these procyclical sectors depends on the usage of wholesale money funding. The study also identifies the other sector that the banking-sector leverage procyclicality can exaggerate volatility in the market swings of equity. John (2011) discussed that leverage always refers to a debtor to the borrowing of funds to finance the buying of a company's assets. Also, it helps both the firm and investors as in the business world, a firm can use leverage to gain more shareholder profit but fails sometimes. How often credit risk and interest expenses destroys shareholder value. Equity and debt are both used as a source for buying company's assets. By Using debt or leverage, company's risk of bankruptcy can be measured and increase can occur. Hence the study found that higher flexibility results in better handling of the situation. Jermias (2008) predict and discussed that the negative effect of leverage to those firms attempting to be more different and as a cost leader. This low level of leverage gives the ultimate negative effect on firm's profitability. Lord (2003) examine that the response of leverage to the interrelationships exists between import competition and three other factors such as, firm's profitability, capital investment and power of the dollar. Moreover, the study suggested that the competitive intensity has negative impact on the leverage and performance relationship. Therefore the investor should look at several stages of growth while making decisions that how a firm stacks up to its peers, including return on assets and return on equity, debt/equity ratio and profit margin.

Capital intensity is the term for the amount of fixed or real capital present in relation to other factors of production, especially labor (Wikipedia). An elevated level of capital intensity plays a vital part in the economy in large mineral-based heavy industries (Kapllnsky, 1995). As a study suggested that capital intensity has a highly direct effect on firm's profitability, the more raise in the capital gives you the more outcomes. The high capital intensity results in usual outcomes of South Africa's well sustained mineral sector (Rustomjee, 1993). However, it can be possible, that the level of capital intensity has a highly justifying effect on the negative effect of potential increases in regulatory costs (Reitenga, 2000). Kaldor (1966) proves that the production is increased by the growth which gives more profit as an output. Baum (2001) discusses the growth rate of the firm is unrelated to firm size and prefers the growth rate then firm growth which makes variation to increase firm size. This is also known as the Law of Proportionate Effect (LPE). However, there are bundle of claims that growth rate has a positive effect on firm profitability.

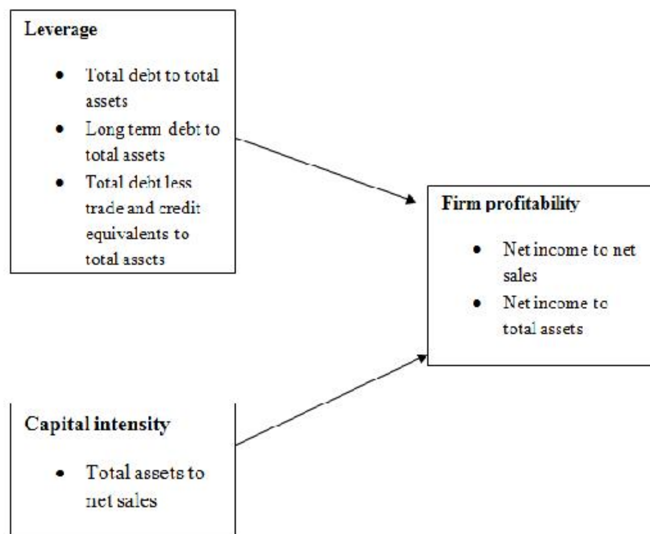
Lee and Koh (2011) discussed that any increase in capital intensity raises an increase in the level of debt to be lessen an increased in assets which serves as additional collateral in debt financing. Moreover the studies show that the collateral effect of capital intensity lowers the short term debt for US efficiently, which means the effect of capital intensity on firm's profitability can be induced by the interaction of profitability. Further studies show that an increase in costs of leverage levels can be mitigating as an increase in capital intensity. This means there is a strong positive relationship between the capital intensity and firm's profitability. Papadogonas (2009) discuss the relationship of firm size, investment, growth sale portfolio, leverage and current assets with firm profitability. The research investigates that there is a direct relation of leverage and capital intensity to the firm's profitability as the more the amount of leverage, the greater the profitability we get. If a business firm has less fixed costs instead of variable costs, then the firm is said to have low operating leverage. As leverage increases the company's rate of returns (ROR) and specially return on equity (ROE). This is true because, if debt financing is used rather than equity financing, then the owner's equity is not diluted by

issuing more shares of stock. Minor and Fraering (1994) concluded the relation between profitability and market share as a mixed trend. Investors in a business mostly use debt financing, but only up to a point. Beyond a certain point, investors get nervous about too much debt financing as it grows up the company's risk.

Research Methodology

The population chosen for this research is motor vehicles, trailers and autoparts sector of Pakistan. The six years (2006-2011) data has been taken that is published by State Bank of Pakistan. Convenience sampling is used for collecting data. Twenty three companies have been taken having sample size of 138. In this research, researcher have used hypothetical deductive method in which hypotheses were tested by using Statistical Package for the Social Sciences (SPSS) software through which regression, correlation and descriptive statistics were analyzed.

Theoretical Model



Hypotheses

H1: Leverage is significantly associated with the firm's profitability

H1a: Total debt to total asset is positively associated with Return on Sales
H1b: Long term debt to total asset is positively associated with Return on Sales
H1c: Total Long term debt to total asset is positively associated with Return on Asset
H1d: Long term debt to total asset is positively associated with Return on Sales

H2: Capital intensity is significantly associated with firm's profitability

H2 a: Total assets to gross sales are positively associated with Return on Sales.
H2 b: Total assets to gross sales are positively associated with Return on Assets.

Empirical Proxy of Leverage, Capital Intensity and Firm's Profitability

VARIABLES	EMPIRICAL FORMULA
Leverage LEV 1 LEV 2 LEV 3	$= \frac{Total\ Debt}{Total\ Assets}$ $= \frac{Long\ Term\ Debt}{Total\ Assets}$ $= \frac{Total\ Debt - Trade\ \&\ Credit\ Equivalent}{Total\ Assets}$
Capital intensity C. I	$= \frac{Total\ Assets}{Net\ Sales}$
Firm's profitability Return on Sales Return on Assets	$= \frac{Net\ Income}{Net\ Sales}$ $= \frac{Net\ Income}{Total\ Assets}$

Descriptive Statistics

Variables	Empirical Proxy	Minimum statistics	Maximum statistics	Mean	Standard Deviation
Leverage	Total Debt/ Total Assets	.11	2.81	.5964	.39470
	Long Term Debt/ Total Assets	.00	.90	.0869	.14370
	Total Debt- Trade Credit Equivalents/ Total Assets	-.03	.90	.2140	.20959
Capital Intensity	Total Assets / Net Sales	.28	69.51	1.7526	6.28208
Return On Sales	Net Income/ Net Sales	-46.73	53.51	-.1992	1.61211
Return On Assets	Net Income/ Total Assets	-16.93	.33	8.0883	16.93538

The Mean And Standard Deviation of leverage, that includes total debt to total assets is.5964 and.39470; long term debt to total assets is.0869 and.14370; total debt-trade credit equivalents to total assets is.2140 and.20959. Capital intensity (C. I) that includes total assets to net sales is 1.7526 and 6.28208. Return on sales (ROS) that includes net income to net sales is -. 1992 and 1.61211. Return on assets (ROA) that includes net income to total assets is 8.0883 and 16.93538. The Minimum And Maximum Statistics of leverage, that includes total debt to total assets is.11 and 2.81; long term debt to total assets is.00 and.90; total debt-trade credit equivalents to total assets is -. 03 and.90. Capital intensity (C. I) That includes total assets to net sales is. 28 and 69.51. Return on sales (ROS) that includes net income to net sales is -46.73 and 53.51. Return on assets (ROA) that includes net income to total assets is -16.93 and 0.33

Correlations

Variables	L1	L2	L3	CI	ROS	ROA
L1	1					
L2	.735**	1				
L3	.763**	.677**	1			
CI	.562**	.521**	.337**	1		
ROS	- .650**	-.575**	-.397**	-.973**	1	
ROA	-.601**	-.525**	-.497**	-.306**	.368**	1

N=38, L1+L2=L3= Leverage, CI= Capital Intensity, ROS= Return on Sales, ROA= Return on Assets

The correlation between total debt to total assets and return on sales (ROS) is -. 650**. This means there is a strong negative relationship between the leverage and firm's profitability. As total debts have a direct effect on firms' profitability so any increase in total debts without their effective utilization, reduces the return on sales. So when the total debts increase without a proper utilization plan, the total assets will also increase reducing the return on sales. Long term debt to total assets and return on sales (ROS) is -. 575**. It establishes a strong negative relationship between the variables leverage and firm's profitability. An increase in long term debt is a negative sign, since it indicates greater realization risk of return on sales and possible future write-offs. Total debt less trade credit equivalents to total assets and return on sales (ROS) is -. 397**. It shows a strong negative relationship between the variables leverage and firm's profitability. Total debt less trade & credit equivalents to total assets measure expected return on sales. Any increase in total debt, trade & credit equivalents will decrease the return on sales. Total asset to net sales and return on sales (ROS) is -.973** It shows a strong negative relationship between the capital intensity and return on sales (ROS). Net income to total assets and return on sales (ROS) is.368**. It implies there is a strong positive relation between the variables return on assets (ROA) and return on sales (ROS). Increase in net income will also give rise the total assets while increasing the return on sales.

The correlation between total debt to total assets and return on assets (ROA) is -. 601**. This means there is a strong negative relationship between the variable leverage and return on assets (ROA). As total debts have a direct effect on firms' profitability so any increase in total debts without their effective utilization, reduces the return on assets (ROA). So when the total debts increase without a proper utilization plan, the total assets will also increase, reducing the return on assets (ROA). Long term debt to total assets and return on assets (ROA) is -. 525**. It shows a strong negative relationship between the leverage and return on assets (ROA). An increase in long term debt is a negative sign, since it indicates greater realization risk of return on assets (ROA) and possible future write-offs. Total debt less trade credit equivalents to total assets and return on assets (ROA) is -. 497**. It shows a strong negative relationship between the leverage and return on assets (ROA). Total debt, trade & credit equivalents to total assets measure expected return on assets (ROA). Any increase in total debt, trade & credit equivalents will decrease the return on assets (ROA). Total asset to net sales and return on assets (ROA) is -.306** It shows a strong negative relationship between the capital intensity and return on assets (ROA). Net income to total assets and return on assets (ROA) is. 368**. It means there is a strong positive relation between the return on sales (ROS) and return on assets (ROA). Increase in net income will also give rise the total assets while increasing the return on assets (ROA).

Regression table

Model Summary	R	R Square	Adjusted R Square	F	Significance	t
	.981	.963	.962	870.956	.000	10.407

N=138, Independent variable= leverage & capital intensity, dependent variable = return on sales

The value of R square of independent variables (leverage and capital intensity) and dependent variable (firm profitability) is 0.963. This value states that leverage and capital intensity has 96.3% impact on firm profitability. Remaining impact is due to factors other than return on sales

Return on Assets (ROA)

Model Summary	R	R Square	Adjusted R Square	F	Significance	t
1	. 617[a]	.381	.362	20.455	. 000[a]	9.542

N=138, Independent variable= leverage & capital intensity, dependent variable = return on assets

The value of R square of independent variables (leverage and capital intensity) and dependent variable (firm profitability) is 0.381. This value depicts that leverage and capital intensity has 38.1% impact on firm's profitability. The value of "t" return on sales (ROS) is 10.407 and return on assets (ROA) is 9.542. Significance is. 000 for both variables return on sales (ROS) and return on assets (ROA) which shows an association between leverage, capital intensity and firm profitability. Return on sales and return on assets have a strong impact on firm profitability. So better these factors are managed, better the firm performance in terms of profitability.

Conclusion

In this study, researchers have examined a sample of 23 companies in the automobile sector by using regression and correlation analysis to assess the determinants of profitability of the firms. The study utilized the data over the period 2006 to 2011. Researchers have thus gathered strong evidence to show that leverage has a significant positive impact on profitability of the firms. Capital intensity does have statically significant influence on profitability. The regression and correlation analysis performed in order to assess the relationship between leverage, capital intensity and the firm's profitability. The study concluded that the total debt financing in capital is directly associated with return on assets and return on sales. Also investigation shows that there is a strong negative relationship between leverage, capital intensity and the firm's profitability which means that debt to total assets has a negative relationship with firm's profitability. This is due to low level of return on sales and return on assets. Thus, an increase in portion of assets will contribute to a higher profitability level. More often long term debt to total assets, total debt to total assets, total debt less trades credit equivalents to total assets, total asset to net sales and net income to total assets have a significant negative relationship with firm's profitability. As total debts have a higher cost as compared to returns on sales and assets so this will go towards a decline in the profitability level of companies and a decrease will lead towards an increase in profitability.

Limitations and Future Directions

Now days the motor vehicle, trailers and auto parts sector of Pakistan is facing difficult time due to the current circumstances and other domestic and international catastrophe. So, the companies are result it tough to stay alive and beat the competition with other competitors and other

substitute companies in the world. These radical and hard times stipulate for radical procedures to get the organizations to survive. In such hilarious condition the firms require to administer the resources effectively and efficiently in order to capitalize on output results as profits. In order to get the best results, the analysis of the descriptive statistics of the financial indicators has been executed. The descriptive statistics associated with the financial indicators of the division of motor vehicle, trailers and auto parts companies showed a negative correlation between the dependent and independent variables. The value of R square strengthened the influence of the leverage and capital intensity on the profitability level, but the regressions built between the variables were not positive in reflecting a positive relation. For this purpose companies should adopt belligerent and forceful focus policies, both for leverage and capital intensity as long as there are enough standpoints for the company to generate cash-flow in order to cover up the dangers of financial obligations.

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