

Impact of Leverage on Firms Investment Decision

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Abstract - The present paper is aimed at analyzing the impact of leverage on firm's investment decision of Indian pharmaceutical companies during the period from 1998 to 2009. To measure the impact of leverage on firm's investment decision, pooling regression, random and fixed effect models are used by taking, leverage, sales, cash flow, Return on Asset, Tobin's Q, liquidity and retained earnings as independent variable and investment as dependent variable. In addition, we demarcate between three types of firms (i) Small firms, (ii) Medium firms and (iii) Large firms. The results reveal that a significant positive relationship between leverage and investment, while we found a negative relationship between leverage investment for medium firms and positive relationship between leverage and investment in large firms. Our econometric results reveal an insignificant relationship between the two variables for medium and large firms.

Index Terms-- Investment, Tobin's Q, Cash flow, Liquidity, ROA, Size and Retained Earnings.

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INTRODUCTION

Investment is a crucial economic activity in the corporate financial management. Such an activity leads to the country's economic development provide employment to the people and to eliminate poverty. This paper investigates the effort of debt financing on the firms investment decision on pharmaceutical industry in India. It plays a significant role in the country's economic and industrial development and trade and to prevent diseases' for increasing the life of people. This industry is providing a basic material to other industrial sectors. It requires capital for financing firm's assets. Among the different sources of fund, debt is a cheaper source because of its lowest cost of capital. The investment decision of the firm is of three categories that can be adopted by firm's management besides the financing decision and the net profit allocation decision. The investment

decision has a direct influence on the firms asset structure, more over in their degree of liquidity and consists of spending the financial funds for the purchase of real and financial assets for the firm. In order to gain cash and the growth of the wealth of firms owner. The investment decision and the financing decision are interdependent that is the investment decision is adopted in relation to the level of financing source but the option to invest is also crucial in order to calculate the level of financing capitals and the need for finding their sources.

As far as the hierarchy of financing sources as it exists in the economic literature, is concerned, cash flow is the cheapest financing sources followed by debts and in the end, by its issuing of new shares. Debts can be cheaper than the issue of new shares because the loan contract can be created as to minimize the consequences of

information problem. Giving the fact the degree of information asymmetry and the agent costs depend on the peculiarities of every firm, such firms are more sensitive to financial factors than other. The debt limit of the firms is determined in the view, since interest payment is tax deductible, the firm prefers debt financing to equity and it would rather have an infinite amount of debt, However, this leads to negative equity value in some status so that the firm would rather go bankrupt instead of paying its debt. Therefore debt to remain risk-free, lenders will limit the amount of debt. They can limit the debt by accepting the resale value of capital as collateral and ensuring that this value is not lower than the amount of debt, so that they can recover their money in case of bankruptcy. Alternatively, lenders may limit the amount of debt in order to ensure that the market value of equity is always non-negative and bankruptcy is sub-optimal for the firm.

While there is by now a rapidly expanding literature on the presence of finance constraints on investment decisions of firms for developed countries, a limited empirical research has been forthcoming in the context of developing countries for two main reasons. First until recently, the corporate sector in emerging markets encountered several constraints in accessing equity and debt markets. As a consequence, any research on the interface between capital structure of firms and finance constraints could have been largely constraint-driven and have less illuminating.

Second, several emerging economies, even until the late 1980s, suffered from financial depression, with negative real rates of interest as well as high levels of statutory pre-emption. This could have meant a restricted play of market force for resource allocating.

Issues regarding the interaction between financing constraint and corporate finance have, however, gained prominence in recent years, especially in the context of the fast changing institutional framework in these countries. Several emerging economies have introduced market-oriented reforms in the financial sector. More importantly the institutional set-up within which corporate houses operated in the regulated era has undergone substantial transformation since the 1990s. The moves towards market-driven allocation of resources, coupled with the widening and deepening of financial market, have provided greater scope for corporate house to determine their capital structure.

The rest of the paper unfolds as follows. Section II discusses the historical background of the study. Section III explains methodology, data, variable description and the data employed in the paper. Section IV presents the results and discusses robustness check followed by the concluding remarks in the final section.

THE BACKGROUND OF THE STUDY

Several authors have studied the impact of financial leverage on investment. They reached

conflicting conclusions using various approaches. When we talk about investment, it is important to differentiate between overinvestment and underinvestment. Modigliani and Miller (1958) argued that the investment policy of a firm should be based only on those factors that would increase the profitability, cash flow or net worth of a firm. Many empirical literatures have challenged the leverage irrelevance theorem of Modigliani and Miller. The irrelevance proposition of Modigliani and Miller will be valid only if the perfect market assumptions underlying their analysis are satisfied. However the corporate world is characterized by various market imperfections costs, institution restrictions and asymmetric information. The interaction between management, shareholders and debt holders will generate frictions due to agency problems and that may result to underinvestment or over-investment incentives. As stated earlier one of the main issues in corporate finance is whether financial leverage has any effects on investments policies.

Myers (1977), high leverage overhang reduces the incentives of the shareholder-management coalition in control of the firm to invest in positive net present value of investment opportunities, since the benefits accrue to the bondholders rather than the shareholders thus, highly levered firm are less likely to exploit valuable growth opportunities as compared to firm with low levels of leverage a related under investment theory centers on a liquidity affect in that firm with large debt

commitments invest less no matter what their growth opportunities. Theoretically, even if leverage creates potential underinvestment incentives, the effect could be reduced by the firm corrective measures. Ultimately, leverage is lowered if future growth opportunities are recognized sufficiently early.

Another problem which has received much attention is the overinvestment theory. It can be explained as investment expenditure beyond that requires to maintain assets in place and to finance expected new investment in positive NPV projects where there is a conflict between manager and share holder. managers perceive an opportunities to expand the business even if the management under taking poor projects and reducing shareholders welfare. The managers' abilities' to carry such a policy are restrained by the availability of cash flow and further tightened by the financing of debt. Hence, leverage is one mechanism for overcoming the overinvestment problem suggesting a negative relationship between debt and investment for firm with low growth opportunities. Does debt financing induce firms to make over-investment or under-investment? The issuance of debt commits a firm to pay cash as interest and principal. Managers are forced to service such commitments. too much debt also is not considered to be good as it may lead to financial distress and agency problems.

Hite (1977) demonstrates a positive relationship because given the level of financial

leverage an investment increase would lower financial risk and hence the cost of bond financing. In contrast Deangels and Masulis (1980) claim a negative relationship since the tax benefit of debt would compete with the tax benefit of capital investment. Dotan and Ravid (1988) also show a negative relationship because investment increase would raise financial risk and hence the cost of bond financing how the investment increase affects financial risk and the sub suitability between tax shields and hence; financial leverage may depend on firm-specific factors.

Jensen (1986) points out that liabilities can help avoid overinvestment by reducing the cash flow left up to corporate manager's own discretion and constraining investment in investment projects that might be desirable for corporate managers but not desirable for companies' future profitability. Jensen argues that whether liabilities restrain overinvestment depends largely on whether companies have growth opportunities. In short, Jensen points out those liabilities have not only the negative effects of restraining overinvestment by low-growth companies. Like Jensen(1986),Stulz(1990) and Hart and Moore(1995) argue that liabilities effectively restrain overinvestment. They reason that increased liabilities, by enlarging repayment obligations, not only curtail free cash flow but also raise the possibility of corporate bankruptcies, thus prompting corporate managers to reduce

investment and sell off unprofitable business divisions.

Daddon and Senbets (1988) hypothesis on the relationship between bond financing and capital investment which is conditional on from specific variables such as tax shield, retention ability, capital intensity and insider equity ownership. Josephic Kang(1995)who found that the level of bond financing has negative relationship with level of investment.

Whited (1992) has shown how investment is more sensitive to cash flow in firms with high leverages as compared to firms with low leverage. Cantor (1990) showed that investment is more sensitive to earnings for highly levered firms

Mc connell and Servaes (1995) have examined a large sample of non financial United State firms for the years 1976, 1986 and 1988. They showed that for high growth firms the relationship between corporate value and leverage is negatively correlated. Also the allocation of equity ownership between corporate insiders and other types of investors is more important in low growth than in high growth firms.

McConnell and Servaes (1995) use cross-sectional data to analyze U.S listed companies in 1976, 1986 and 1988, and find "two faces of debt," meaning that enterprise value was negatively correlated with the debt ratio of companies with high growth opportunities. Lang et al. (1996), based on an analysis of the relationship between the debt ratio

and the rate of growth of companies, point out that for companies with fewer investment opportunities (i.e. companies with a low Tobin's Q), there is a negative correlation between the debt ratio and the investment. The estimation results from their studies do not find a negative correlation between the debt ratio and the growth rate for companies with abundant growth opportunities. In other words, for companies with investment opportunities, increased liabilities do not necessarily hamper growth.

Lang et al (1996) found that there is negative relation between leverage and future growth at the firm level and for diversified firms, at the business segment level. Also debt financing does not reduce growth for firms' known to have good investment opportunities, but it is negatively related to the growth for firms whose growth is not recognized by the capital market.

Myers (1997) has examined possible difficulties that firms may face in raising finance to materializing positive net present value (NPV) projects, if they are highly geared. Therefore, high leverage may result is liquidity problem and can affect a firm's ability to finance growth. Under this situation, debt overhang can contribute to the under-investment problem of debt financing. That is for firms with growth opportunities debt have a negative impact on the value of the firm.

Ahn et al.(2000), found that diversified companies tend to have higher debt ratio than

focused counterparts and diversified companies make larger investments (net cost of capital/sales) than focused counterparts. They also point out that debt ratio influence management decisions on investment and that diversified companies can overcome debt ratios through the distribution of liabilities by corporate managers.

Arikawa et al,(2003) adopt the method of estimation used by Lang et al.(1996) and point out that the main bank system in Japan helped amplify the disciplinary function of liabilities, particularly for low-growth companies.

Aivazian et al (2005) analyses the impact of leverage on investment on Canadian industrial companies cover the period from 1982 to 1999. They found a negative relationship between investment and leverage and that the relationship is higher for low growth firms rather than high growth firms.

Ahn et al (2006) found that diversified companies tend to have higher debt ratios then focused counter parts and diversified companies make larger investments than focused counter parts. They also point out that debt ratio influence management decisions on investments and that diversified companies can overcome the constraints of debt ratio through the distribution of liabilities by corporate managers.

Mohanprasadsing Odit and Chitto (2008) analyze the impact of leverage on firms' investment on 27 maturation firms that are quoted on the stock

exchange Mauritian for the year 1990 – 04. They found that leverage has a significant negative effect on investments, Suggesting that capital structure plays an important role in the firms investment policies while the negative relationship persist for low growth firm, this is not the case for high growth firm.

Thus the previous studies have verified the impact of leverage on firm's investment decision as well as the effect of leverage in restraining over investment and facilitating under investment. These studies suggest that leverage restraining over investment but likely cost under investment. Thus in this paper an attempt is made to more clearly the leverage impact on firms investment decision on pharmaceutical companies in India.

METHODOLOGY DATA AND VARIABLES DESCRIPTION

We estimate a reduced form of investment equation to examine the effect of leverage on investment the specification is similar to Aivazian Ge and Qiu (2005). This is as follows:

$$I_{i,t}/K_{i,t-1} = \alpha + \beta [CF_{i,t}/K_{i,t-1}] + \beta_1 Q_{i,t-1} + \beta_2 LEV_{i,t-1} + \beta_3 SALE_{i,t-1} + \beta_4 ROA_{i,t-1} + \beta_5 LIQ_{i,t-1} + \beta_6 RETES_{i,t-1} + \mu_{i,t}$$

Where $I_{i,t}$ represents the net investment of firm i during the period t ; $K_{i,t-1}$ is the net fixed asset; $CF_{i,t}$ is the cash flow of firm i time t ; $Q_{i,t-1}$ is the Tobin's Q ; $LEV_{i,t-1}$ represents the leverage; $SALE_{i,t-1}$ stands for net sales of firm i ; $ROA_{i,t-1}$ is

the profitability of the firm i ; $LIQ_{i,t-1}$ represents liquidity of firm i ; $RETES_{i,t-1}$ is the retained earnings of the firm i .

The data used in this paper are from the annual report of Indian pharmaceutical companies which are listed in Bombay stock exchange and this data have been collected from CIME browse data base of top 25 companies based on sales from the period 1998 – 2009

LEV: Lev denotes leverage. We have used the same definition of leverage as lang. et al (1996), namely the ratio of total liabilities to the book value of total assets. He pointed that the market value leverage gives too much weight to the deviations in equity value. The book value of leverage does not reflect recent deviation in the market valuation of the firm. If leverage has a significant negative effect on investment, two interpretations can be adopted. First, it would mean that capital structure plays an important role in the firm's investment policies; second, it can also be explained by an agency problem between the agents and the shareholders. If managers are overburdened by debt they may give up projects which may yield positive net present values. Also there will be support for both the underinvestment and overinvestment theory.

TOBIN'S Q : we use prefect and wiles (1994) simple Q (market value + liabilities / book value of assets) as a proxy for growth opportunities defined as the market value of total assets of the firm divided by the book value of assets. Market value of the firm

is the sum of total liabilities, the value of equity shares and the estimated value of preference shares. The market value of preference share is calculated as preference divided multiply by ten which measures growth opportunities and it, compare the value of a company given by financial market with the value of a company, Tobin's q would be 1.0 if Tobin q is greater than 1.0 then the market value is greater than the value of the companies record assets. This suggests that the market value reflects some unmeasured or unrecorded assets of the company. High Tobin's q values encourage companies to invest more in capital because they are "worth" more than the price they paid for them. On the other hand, if Tobin's q is less than 1, the market value is less than the recorded value of the assets of the company.

SALE: sale is measured as net sales deflated by net fixed assets. Which measures the efficiency with net fixed assets is measured. A high ratio indicates a high degree of efficiency in asset utilization and a low ratio reflects inefficient use of assets.

CASH FLOW: Cash flow is measured as the total of earning before extraordinary items and depreciation and is an important determinant for growth opportunities. If firms have enough cash inflows it can be utilized in investing activities. It also provides evidence that investment is related to the availability of internal funds. Cash flow may be termed as the amount of money in excess of that needed to finance all positive net present value of

projects. The purpose of allocating money to project is to generate a cash inflow in the future, significantly greater than the amount invested. That is the objective of investment is to create shareholders wealth. In order to eliminate any size effect. We normalize this measure by taking the book value of assets; this method was utilized by Lehn and Poulson (1989) and Lan et al (1991).

PROFITABILITY (ROA): Profitability is measured in terms of the relationship between net profits and assets. It is calculated as earning after tax adds interest minus tax advantage on interest divided total fixed assets. It shows the operating efficiency of the total funds over investment of a firm and is another important variable that are utilized to growth opportunities as it tries to explain how much the assets that the firm is employing in contributing to the total profitability. Therefore investment in assets contributes to the profitability and we can proxy high profitability with high growth firms.

LIQUIDITY (LIQ): the liquidity ratio is measured by the current assets divided by the current liability and is the ability of firms to meet its current obligations. Firms should ensure that they do not suffer from lack of liquidity as this may result in to a sate of financial distress ultimately leading to bankruptcy. Lack of liquidity can lead to a struggle in term of current obligations, which can affect firm's credit worthiness, Bernake and Gerler (1990) argued that "both the quantity of investment spending and its expected return will

be sensitive to the credit worthiness of borrowers". That leads us to say that investment decisions of firms are sensitive to current liquidity. However, Firms with high liquidity give the signal that funds are tied up in the current assets.

RETAINED EARNINGS (RETES): represents the amount of business savings meant for bloughing back. These are the most favored sources of finance for corporate firms. There is a significant difference in the use of internally generated funds by the highly profitable corporate relative to the low profitable firms

RESULT AND DISCUSSION:

This section portrays the result from the regression estimation, we present result for the small size, medium size and larger sized firm is classified based on the size. The smaller size is obtained by subtracting mean from standard deviation of total asset and larger size is obtained by adding mean value of asset to standard deviation. The median sized firms are those firms which are not belong to both categories of the firm. The econometric result for the sample firms is showed the pooled estimates; random effect estimates and fixed effect estimates on the T values are shown in the parenthesis. Two statistics are used in order to identify, which methodology is appropriate to establish the relationship between leverage and investment. First we compare the pooled estimates and random effect estimates. The second Lagrangian Multiplier (LM) test is

performed with a large chi-square values indicate of low P-value. We reject that the pooled estimate is appropriate. The second to compare random effect estimate with fixed effect estimate, the Hausman test is performed. If the model is correctly specified and it the effect are uncorrelated with independent variables the fixed effect and random effect should not be different a high chi-square value is indicate of appropriateness of the fixed effect.

RESULT OF SMALL FIRMS'

Table 1 brings out the regression result of small firms. It shows that the leverage has a positive impact on investment at the 5% significant level. The impacts of other variables on have the expected signs. The retained earnings have a significant positive impact on investment. To identify which empirical methodology pooling random effect or fixed effect regression is most suitable, we perform two statistical test the first the Lagrangian Multiplier (LM) test of the random effect model. The null hypothesis is that individual effect u_i is 0. The chi-square value is 25.74 thus the null hypothesis is rejected at 1% level of significance. The results suggest that the rho effect is not zero and the pooling regression is not suitable in this case the regression co-efficient leverage on small firms from the pooling regression is equal to 1.3451 and is not significant. The regression co-efficient of leverage of firms from

Random effect and fixed effect model are 3.4868 and 1.8200 respectively. The regression co-efficient from the pooling regression are much smaller than those estimated from the random

effect and fixed effect models suggesting that ignoring individual firm effects leads to an underestimation of the impact of leverage on investment.

Table 1:-Regression result of small firms

Variables	Pooling	Fixed effect	Random effect	Fe with AR
Constant	1.3085 (3.40)	2.5918 (6.75)	1.6940 (4.63)	1.2473 (3.14)
leverage	1.3451 (-0.84)	3.4868 (2.65)	1.8200 (1.28)	0.5834 (0.38)
Sales	-0.0002 (-0.42)	-0.0001 (-0.18)	-0.0001 (-0.18)	-0.0003 (-0.51)
ROA	0.0003 (0.18)	0.0002 (0.15)	0.0003 (0.21)	0.0007 (0.32)
Cash Flow	0.2081 (0.46)	0.2264 (0.69)	0.0727 (0.20)	0.2647 (0.52)
Liquidity	-0.1025 (-0.74)	-0.01667 (-0.16)	-0.0724 (-0.60)	-0.0338 (-0.25)
Retained earnings	0.0027 (2.26)	0.0020 (-1.55)	0.0010 (0.84)	0.0027 (2.06)
Tobin's Q	1.1484 (1.52)	-1.0169 (-1.25)	0.6310 (0.85)	1.3154 (1.72)
LM Test	Chi ² (1)=25.74			
Hasuman Test	Chi ² (7)=29.85			
Observations	60	60	60	60
Groups	-	10	10	6
Adjusted R ²	0.2343			

We conduct the Hausman specification test to compare the fixed effect and the random effect models .If the model is correctly specified and of individual effects are uncorrelated with independent variables the statistics are showed that the null

hypothesis is rejected at the 1% significance level. The results suggest that the fixed effect model is most appropriate in estimating the investment equation.

Leverage is statistically significant at 1% and 5% level of significant and is positively related to

investment. A 1 unit increase in the leverage leads to an increase by 3.4568 units in investments this implies that a leverage increases in small firms is also increase a investment of firms because firms do not have a adequate asset cushion for financing the projects. Thus, in a small sized firm tend to be more dependent on debt as a source of finance to finance the projects.

The table also reveals that small firms are under utilizing their fixed assets and it would affect the ability in generating the volume of sales and the co-efficient value is -0.001 and it is not statistically significant.

The co-efficient value of ROA is 0.0003 and is not statistically significant but positively related with investment. It indicates the operating efficiency of the employed funds over investment is positive. Higher the ROA is also attracting funds from investors for expansion and growth.

Cash flow and retained earnings are positively related with investments not statistically significant and coefficient value is 0.2264 and 0.0020 respectively. This implies that the issuance of debt engages the firm to pay cash as interest and principal with availability of free cash flow and internally generated funds.

Liquidity is negatively related with investments and is not statistically significant and the regression co-efficient value is 0.01667. It implies that the failure of a firm to meet its obligation due to lack of sufficient liquidity will result in poor credit

worthiness loss of creditors confidence and this is not the case as shown by the results from the above table.

From the table it is observed that Tobin'Q is negatively related with investments and not statistically significant.

RESULT OF MEDIUM FIRMS'

Table No 2 Reveals that the regression results of medium firms. The calculated f value is greater than table value. Hence the selected variables are significantly associated with investment during the period. Further it shows that the leverage has no impact on investment in medium firm but it has negative relationship with investment during the period of study. In order to identify which methodology-pooling random effect or fixed effect regression model is most suitable, we perform two statistical tests, the first the LM test of the random effect model. The null hypothesis is that individual effect u_i is 0. The chi-square value is 4.15. Thus the null hypothesis is rejected at 1% level of significance. The results suggest that the rho effect is zero and the pooling regression is suitable in this case. The regression the co-efficient of leverage on medium firms from the pooling regression equal to 1.6543 and is not significant. The regression co-efficient on leverage from random and fixed effect model-0.7797 and-1.6543 respectively. The regression co-efficient from the pooling regression are greater than the those estimated from the random and fixed effect model suggesting that the individual effect of a firm leads to an estimation of the impact of leverage on investment.

Table 2:-Regression result of medium firms

Variables	Pooling	Fixed effect	Random effect	Fe with AR
Constant	2.7374 (7.94)	2.5853 (6.53)	2.7374 (7.94)	3.1669 (7.36)
leverage	-1.6543 (-0.56)	-0.7797 (-0.23)	-1.6543 (-0.56)	3.1893 (1.13)
Sales	-0.0016 (-1.85)	-0.0015 (-1.62)	-0.0016 (-1.85)	-0.0019 (-1.75)
ROA	-0.0021 (-0.59)	-0.0012 (-0.30)	-0.0021 (-0.59)	-0.0020 (-0.46)
Cash Flow	2.8863 (2.51)	2.3959 (1.82)	2.8863 (2.51)	1.0150 (0.95)
Liquidity	0.0907 (0.24)	-0.1078 (-0.23)	0.0907 (0.24)	-0.1226 (-0.38)
Retained earnings	0.0067 (5.94)	0.0078 (4.59)	0.0067 (5.94)	0.0048 (3.70)
Tobin's Q	-0.4580 (-1.59)	-0.4896 (-1.63)	-0.4580 (-1.59)	-0.3389 (-1.21)
LM Test	Chi ² (1)=4.15			
Hasuman Test	Chi ² (7)=55.74			
Observations (Groups)	150 -	150 10	150 10	150 10
Adjusted R ²	0.2465			

We conduct the Hausman specification test to compare the fixed effect and random effect models. If the model is correctly specified and if individual effects are uncorrelated with independent variable, the fixed effect and random effect estimates should not be statistically different. Further these

statistics are reported that the fixed effect model is most appropriate in estimating the investment equation because the R² value of fixed effect model is greater than random effect model.

Leverage is not statistically significant at 1% and five per cent level of significance and is negatively related with investment. This implies that leverage has no impact in medium firm's investment decision. It is because of inadequate cash flow and ploughing back of funds. Hence medium sized firms are making investment decision based on the internal financial resources. The table further reveals that the medium firms are under utilizing their fixed assets and it would affect the ability in generating the volume of sales and coefficient value is -0.0016 and is not statistically significant. The coefficient value of ROA is -0.0012 and is not statistically significant but negatively related with investment. The cash flow and Retained associated with in order earnings are positively associated with investment and they are statistically significant at 1% and 5% level of significance with investment. It indicates that higher the cash flow and retained funds higher will be the investment. Liquidity and Tobin's q are not statistically significant with investment the Tobin's Q also requested firm value and hence may be affected by leverage. But proxies in this do not influence the investment because the leverage has no impact on investment in medium firms.

RESULT OF LARGE FIRMS'

Table No 3 Shows that the regression results of large firms. The calculated f value is greater than table value. Hence the selected variables significantly associated with investments during the period of study. Further it shows that the leverage has no impact on investment in large firms but it has positive relationship with investments during the period of study. In order to identify which methodology-polling, random effect fixed effect

regression model is most suitable. we perform two statistical test, the first the LM test of the random effect model. The null hypothesis is that individual effect u_i is 0. The chi-square value is 2.26. Thus null hypothesis is rejected @ 1% level of significance. The results suggest that the rho effect is not zero and the pooling regression is not suitable in this case. The regression co-efficient of leverage on large firms from the pooling regression is equal to 23.7516 and is not significant. The regression co-efficient on leverage from random effect and fixed effect model 9.5758 and 23.7516 respectively. The regression co-efficient from the pooling regression Model is greater than those estimated from the random and fixed effect model suggesting that the individual effect of a firm leads to an estimation of the impact of leverage on investment.

We conduct the Hausman specification test to compare the fixed effect and random effect model if the model is correctly specified and if individual effect are correlated with independent variable the fixed and random effect are uncorrelated with independent variable the, fixed and random effect estimate should not be statistically different further these model is most appropriate that the fixed effect model is most appropriate in estimating the investment equation because the R^2 value of fixed effect model is greater than the random effect model.

The table also reveals that the co-efficient value of variables like sales, ROA and Tobin's Q are negatively related with investment and also they are not significant in the leverage firms.

Cash flow and Retained earnings are positively associated with investment in large firms and are statistically significant it is because of heavy

demand for its product in national and international market. Liquidity is negatively related with investment and is not statistically significant with

investment. We conclude that the leverage is not influenced the investment decisions in large sized pharmaceutical firms in India.

Table 3:-Regression result of large firms

Variables	Pooling	Fixed effect	Random effect	Fe with AR
Constant	3.5155 (5.39)	2.7103 (3.81)	3.4388 (5.29)	3.5082 (5.63)
leverage	23.9805 (1.90)	9.5158 (0.67)	23.7516 (1.93)	21.9527 (1.70)
Sales	0.0023 (1.13)	0.0054 (2.40)	0.0025 (1.27)	0.0025 (1.26)
ROA	-0.0176 (-4.24)	-0.0092 (2.48)	-0.0160 (-4.01)	-0.0180 (-4.25)
Cash Flow	11.1396 (4.51)	16.1128 (7.57)	12.6212 (5.32)	10.3483 (4.05)
Liquidity	-4.9520 (-2.92)	-3.7888 (-1.49)	-5.4565 (-3.07)	-4.5578 (-2.62)
Retained earnings	-0.0005 (-0.27)	-0.0006 (-0.40)	-0.0002 (-0.14)	0.0003 (0.17)
Tobin's Q	0.5127 (0.83)	0.4301 (0.79)	0.5172 (0.86)	0.3846 (0.62)
LM Test	Chi ² (1)=2.26			
Hasuman Test	Chi ² (7)=59.44			
Observations (Groups)	40 -	40 10	40 10	40 10
Adjusted R ²	0.5474			

CONCLUSION:

This paper extends earlier empirical studies on the relationship between leverage and investment

in several dimensions. It verified the relationship for Top 25 Indian pharmaceutical firms that are quoted on the stock exchange of Mumbai for the year 1978 -

2009. Prior theoretical work posits that financial leverage can have either a positive or a negative impact on the value of the firm because of its influence on corporate investment decisions. The investigation is motivated by the theoretical work of Myers(1977) Jen Seen (1986), Stulz (1988,1990) and by an analytical work of McConnell and Servaes (1990). We examined whether financing consideration affects firm investment decisions. We found that leverage is positively related to the level of investment and that this positive effect is significantly stronger for firms with small firms and negative impact on medium firms but positive impact on large firms and this is not statistically significant. Further we inferred that the Indian pharmaceutical industry has heavy market demand for its product, so that Industry had enormous cash flow and bloughing

hack of funds. Hence we conclude that the leverage has no impact of pharmaceutical industry in India. Cash flow and Retained earning play significant role in determining the investment the decisions due to the change in the monetary policy of the country. Cash flow effect investment decisions due to the imperfections of the capital market and due to the fact internal financing is cheaper than external financing. These financing sources are far more important for small and highly leveraged firms. Our results support Hite (1977) Who found that leverage and investment are positively associated with given the level of financing if an investment increase would lower financial risk and hence the cost of bond financing.

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