



## Does Financial Leverage Influence Investment Decisions? Empirical Evidence from KSE-30 Index of Pakistan

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### Abstract

**Purpose:** The present study investigates the impact of the financial leverage on the investment decisions of the listed companies in KSE-30 Index of Pakistan. It identifies the most important factor that influence investment decision of the company and which cause the bankruptcy of Pakistani listed firms. **Methodology:** The study use descriptive statistics, correlation analysis and pooled ordinary least square regression model for analysis of 30 (financial & non-financial) companies of Pakistan. **Results:** The empirical findings of the study reported that the financial leverage has a negative and significant influence on the investment decisions. **Policy Implications:** The outcomes of the study help the strategic management to make financing decisions about leverage whether to take long term debt or not.

**Keywords:** Financial leverage, Investment decision, Panel estimation, KSE-30 index, Pakistan.

### Contribution of the Study

According to our limited knowledge none of the researcher investigated the relationship between financial leverage and firm's investment in context of Pakistan. Our study attempts to contribute in the existing literature by bringing new evidence on the relationship between financial leverage and firm's investment decisions over a period of 5 years (2009-13) for the case of 30 firms (KSE-30 Index), which are listed on the Karachi Stock Exchange (KSE) of Pakistan.

## 1. Introduction

### 1.1. Background of the Study

Financial leverage and investment decisions remain the topic of interest among financial analysts and scholars for many years. The most dangerous effect of using leverage is that it multiplies the losses. A firm which is using leverage or borrowed money has more chances to face bankruptcy during the business downturn. In contrast, when a firm is less leveraged it might survive in this situation. In the early days the existence of leverage in the capital structure of a firm was considered as a great weakness. In order to grow and compete in the market, firms need to expand continuously. In the huge global war of growth, substantial investment in capital for technology modernization, infrastructure, promotion and development of product is compulsory for a firm. Such expansions require heavy investment in both tangible and intangible assets. A firm needs to continuously invest capital in such projects that can reduce cost and increase profitability and ultimately enhance the growth of the firm. In this scenario, leverage is an important tool which helps the managers to take prudent and sound financial decision to finance such investment opportunities.

Basically we can divide the firms into two categories with respect to their growth, firms having high growth and low growth. As for high growth firms are concerned, these firms can avail any investment opportunity by using leverage because they have enough cash flows to mitigate the risk arises from the use of leverage for availing investment opportunity. On the contrary, low growth firms' face major difficulties to use leverage for availing any investment opportunity. The reason for this is that these firms have not enough resources to generate revenue that enables the firm to repay the debt along with interest. So it is very important for a firm to make a decision regarding investment to finance it through leverage or other sources of funds. A firm should finance an investment with leverage if it has enough power to generate revenues for payment of debt.

The relationship between financial leverage and investment decisions have been studied by several authors. These authors arrived at different and conflicting conclusions by using different approaches. As discussed by [Modigliani and Miller \(1958\)](#) if there is a perfect competition and efficient market which is not completely possible, the capital structuring and investment decision for a firm are unrelated. Moreover, the policies adopted for investment should only be based on those factors that affect the

profitability, net cash flow or net worth of the company. However the theorem was challenged by researchers because of imperfection in market and validity of this theorem.

Jensen (1986) found that the positive net present value of the firm is due to the internally generated enough funds, and then leverage is used as a tool to curtail investment problem. Hence the leverage positively affect the firm's worth. But Whited (1992) showed that investment in high leveraged firms as compared to low leveraged is more sensitive to cash flow. Barclay *et al.* (2003) demonstrated the direct effect of investment opportunity on debt maturity policy in a firm by showing proportional increase in growth options and usage of short term debt. Aivazian *et al.* (2005) found the negative but significantly strong relationship between leverage and investment for firms having low growth opportunities as compare to high growth opportunity firms.

Campello (2006) argued that market gains could be increased by moderate debt taking but sales could be decreased by high debt taking. Guney *et al.* (2007) concluded that due to increase in leverage, firms tend to accumulate the huge cash reserves to avoid from bankruptcy risk during financial distress. Odit and Chittoo (2008) found that the leverage has a negative and significant relationship with investment for firms having low growth but for high growth firms it was negative but not statistically significant. Firth *et al.* (2008) described the negative and weaker relation between financial leverage and investment for low growth opportunity firms as compare to high growth opportunity firms. Singhania and Seth (2010) concluded that utilization of debt in large firm's capital structure is more than small firms.

This study is conducted on top 30 companies registered on Karachi Stock Exchange (KSE) of Pakistan. Data of both manufacturing and non-manufacturing firms listed in KSE-30 Index is used for analysis purpose for a period of five years (2009-2013). The main objective of this study is to examine the relationship between financial leverage and investment in context of Pakistan. Study also consider other factors which can affect the investment decision of firms.

The variables used in the study are: investment which is the dependent variable, Financial Leverage, Liquidity, Profitability, Cash Flow, Tobin's Q and Sales Growth are the independent variables. The pool regression model is used for analysis of data.

## 1.2. Problem Identification

Investment decision and financial leverage are correlated with each other. This relationship can be either positive or negative. In this study the same problem has been investigated by keeping focus on top 30 companies listed on Karachi Stock Exchange (KSE) of Pakistan and the importance of this relationship for the progress of firms listed on stock exchange.

## 1.3. Objectives of the Study

The study objectives covers all the aspects explained in the hypothesis. The primary objective of the study is to investigate the relationship between firm's financial leverage and corporate investment decisions over the period of five years (2009-2013). Moreover, the specific objectives of the study are as follows:

- To examine the impact of financial leverage on net investment of the firms listed in KSE-30 Index of Pakistan.
- To examine the impact of cash flow, liquidity, profitability, Tobin's Q & sales growth on net investment of the firms listed in KSE-30 Index of Pakistan.

## 1.4. Hypotheses Development

Following hypothesis have been developed to achieve the objectives of the study:

H1: There is a negative and significant relationship between company's leverage and investment.

H2: There is a positive and significant relationship between company's profitability and investment.

H3: There is a positive and significant relationship between company's cash flow and investment.

H4: There is a positive and significant relationship between company's liquidity and investment.

H5: There is a positive and significant relationship between company's Tobin's Q and investment.

H6: There is a positive and significant relationship between company's sales growth and investment.

## 2. Literature Review

Cleary (1999) conducted a research to examine the relationship between investment and financial status of a firm by using regression model on data available (1987-1994) for 1317 U.S firms. He concluded that the level of sensitivity related to availability of internal funds is higher for high creditworthy firms as compare to low creditworthy firms and financially constrained firm's investment decision is more sensitive to liquidity than less constrained firms are.

Barclay *et al.* (2003) proved with leverage and debt maturity policy formulation to determine the level of investment opportunities on the company's debt maturity movement, connecting the company's investment opportunities, increase the company's growth opportunities, resulting in a positive impact on short-term debt and changes in investment opportunities are indirectly related to the maturity of the debt.

Aivazian *et al.* (2005) basically focused on the negative relationship between leverage and investment level. Furthermore this relation is significant and strong for firms having low growth opportunities instead of firm having high growth opportunities, agency theories of corporate leverage also supports the conclusion in perspective of Canadian public companies.

Ahn *et al.* (2006) discussed the diversified firms, which have multiple lines of business. In such firms, decision making about capital structure (Investment & Leverage) is an easy process. Higher level of leverage causes a constraint on decisions regarding investment.

Campello (2006) investigated the effect of leverage on market gains and sales expanding & concluded that the market gains increase due to moderate debt taking and high debt taking cause a decrease in sales but the firms having low leverage shows a significant increase in the sales in same industry due to flexible decision making about investment.

Manos *et al.* (2007) differentiated the independent firms and group affiliated firms working in India by elaborating the high debt ratio used in group affiliates but the difference between capital structure of both types are not because of firm's own size and find out that virtual capital markets are created by business groups of emerging markets.

Guney *et al.* (2007) focused on the markets of four different countries by using the data of 4096 companies (1996-2000) to determine the relation among financial leverage, capital structure, and investment. Results shows that leverage used as a substitute of cash holding but it cause an increase in chances of financial distress.

Odit and Chittoo (2008) examine the impact of financial leverage on investment decisions of firms. They made an attempt to explore the impact of financial leverage on investment levels using firm-level panel data in Mauritius over a period of 1990 to 2004. The results reveal a significant negative relationship between leverage and investment.

Hens and Steude (2009) observed the data of four financial markets, which were leverage effected and found that the market returns were significantly affected by leverage but there are many other factors that affect price instability. Checking the impact of Leverage on Leverage was uniqueness of the study.

Singhania and Seth (2010) published one of the most important researches in Indian context to determine the impact of financial leverage on investment opportunities by elaborating the direct relation of debt ratio with firm's revenue and inverse relation of liquidity and leverage. They found financial decisions shown important for firm's welfare.

Baum *et al.* (2010) worked on the behavior of capital investment regarding manufacturing firms considering firm specific and market level uncertainty changes in the United States. Conclusion shows that the level of uncertainty is directly or indirectly linked with leverage and capital investment.

### 3. Data and Research Methodology

#### 3.1. Data

In order to achieve the objectives of the study, the secondary data have been used. As the study is conducted on Pakistani firms which are listed on Karachi Stock Exchange (KSE). The data of the selected firms have been gathered from the official websites of the Karachi Stock Exchange (KSE) and concerned companies. All the data is collected for a period of five years from 2009 to 2013. In Karachi Stock Exchange (KSE) there are 34 sectors and 650 are the registered companies. The sample size consisting of 30 companies.

#### 3.2. Identification of Variables

Research has been conducted by using six variables.

##### 3.2.1. Dependent Variable: Investment

Investment is a comprehensive term and has different meanings in finance and economics. Generally in finance it refers to put your money into something with some expectation of gains. More precisely, investment is a commitment to one or more assets which will be held for some future time period with some expectation of gains. The future is always uncertain, and anything related to future involves some risk. For investment point of view, risk means that the actual gains from the investment will be different from expected outcomes.

##### 3.2.2. Independent Variables

###### 3.2.2a. Financial Leverage

Financial leverage measure used in this study is the ratio of the book value of long-term debt to total assets. This procedure will not reflect the recent changes in the market's valuation of the company. The same measure is used by Odit and Chittoo (2008) in their study.

Debt ratio = Long Term Debt / Total Assets

###### 3.2.2b. Liquidity

This ratio shows the ability of its short-term assets (cash, inventory, receivables) to pay its short-term debt. As the current ratio will be higher, the firm will be more capable to pay its short-term obligations. If the ratio will be below 1 then it indicates that the firm is unable to pay off its short-term liabilities, and company's financial condition is bad but it will not bankrupt. Companies that have difficulty getting paid on their receivables or have long inventory turnover can run into liquidity problems because they are unable to reduce their obligations. Since the company's different in every industry, it is always useful to compare companies in the same industry. The same measure of liquidity is used by Odit and Chittoo (2008) in their study.

Current Ratio = Current Assets / Current Liabilities

###### 3.2.2c. Net Fixed Assets

Net Fixed Assets are as land, buildings, equipment which have more than one year life and acquired to carry on the business of a company. In financial records the Net Fixed Assets is the purchase price of

all fixed assets less accumulated Depreciation, i.e. effectively property, plant and equipment after depreciation.

$$\text{Net Fixed Asset} = \text{Total Assets} - \text{Total Current Assets} - \text{Total Intangibles \& Goodwill}$$

### 3.2.2d. Profitability

The profit margin is commonly used for internal comparison. It is an indicator of the pricing strategies of the company and how well you control the cost. The differences in competitive strategy and product mix caused profit margin for the differences between the different companies.

The profitability is measured in terms of the relationship between net profits and assets. It is calculated as earnings after tax add interest minus tax advantage on interest divide total fixed assets. It shows the operating efficiency of the total funds over investments of a firm.

$$\text{Net profit margin} = \text{Net profit after taxes} / \text{Total Fixed Assets}$$

### 3.2.2e. Sales Growth

Sales growth shows the performance of a firm with respect to previous year performance. The increase in sales over a specific period of time is measured by:

$$\text{Sales Growth} = \text{Net sales} / \text{Net fixed Assets}$$

The same formula is used by Odit and Chittoo (2008) for measuring sales growth over the years.

### 3.2.2f. Cash Flow

The cash flow is measured as the total of earnings before extraordinary items and depreciation. The same measure of cash flow is used by Odit and Chittoo (2008) in their study.

### 3.2.2g. Tobin’s Q

We use Tobin’s Q 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 shares is calculated as preference dividend multiply by ten. The same measure of Tobin’s Q is used by Odit and Chittoo (2008) in their study.

Table-1. Variables and their measurement

Sr. #	Variables	Measurement
1	Investment (dependent)	Balance sheet figure in millions
2	Financial Leverage	Long term Debt / Total Assets
3	Liquidity	Current Assets / Current Liabilities
4	Asset Efficiency	Net Fixed Assets
5	Profitability	(Net profit after taxes / Total fixed Assets)×100
6	Sales Growth	Net Sales / Net Fixed Assets
7	Cash Flow	Total of earnings before extraordinary items & depreciation
8	Tobin’s Q	Market value of total assets of the firm / Book value of assets

## 3.3. Regression Model

We investigate the impact of financial leverage, cash flow, liquidity, profitability, Tobin’s Q and sales growth on firm’s investment with the help of following regression equation:

$$I_{i,t} = \alpha + \beta_1 LEV_{i,t-1} + \beta_2 CF_{i,t-1} + \beta_3 LIQ_{i,t-1} + \beta_4 PFT_{i,t-1} + \beta_5 Q_{i,t-1} + \beta_6 SALES_{i,t-1} + \mu_{i,t} \dots \dots \dots (1)$$

Where:

$I_{i,t}$  represents the net investment of firm i during the period t;

$\alpha$  is a constant

$LEV_{i,t-1}$  represents the lagged leverage;

$CF_{i,t-1}$  is the lagged cash flow;

$LIQ_{i,t-1}$  is the lagged liquidity;

$PFT_{i,t-1}$  is the lagged profitability;

$Q_{i,t-1}$  is the lagged Tobin’s Q;

$SALES_{i,t-1}$  stands for lagged net sales of firm i

$\mu_{i,t}$  is the error term

## 4. Empirical Results & Discussion

### 4.1. Descriptive Statistics

Table 2 below lists the summary statistics of the variables used in the study.

Table-2. Descriptive Statistics

	CF	LEV	LIQ	PFT	Q	Sales	INV
Mean	6.303054	0.371381	1.696216	0.361382	716.9647	7.061644	6.194542
Median	0.410656	0.130000	1.125000	0.243752	290.9986	1.000000	0.574095
Maximum	127.9809	11.69000	11.69000	2.844856	6017.015	125.0000	45.43014
Minimum	-0.075320	0.00001	0.100000	-2.945401	.562626	-1.000000	3.43E-05
Std. Dev.	22.35336	1.285930	1.581484	0.546451	1103.228	18.75917	9.477864
Skewness	4.073144	6.846714	3.311589	-0.330914	2.473363	4.206716	1.816433
Kurtosis	19.12982	52.90607	16.84296	14.34452	9.704377	21.49246	6.207705
Jarque-Bera	1877.565	16291.93	1452.212	796.3399	428.0824	2510.937	114.4996
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000



The mean value of CF, PFT, Sales, LEV and LIQ shows the average circulation of cash, profitability, growth in sales, use of debt (long term & short term) in the capital structure and ability of the firm to pay its short term obligations. Standard Deviation shows the deviation of values from its mean value. Moreover, values of skewness shows either it is positively skewed or negatively skewed, all the values in the table are positive values except the value of PFT so the skewness curve will be on right side.

#### 4.2. Correlation Analysis

Correlation analysis measures the relationship between two variables. The correlation coefficient is a measure of linear association between two variables. Values of the correlation coefficient are always between -1 and +1.

We use 1% significance level to check that either the relationship between two variables is significant or insignificant.

**Table-3.** Correlation coefficient of the variables

	LEV	Sales	LIQ	Q	CF	INV	PFT
LEV	1						
Sales	-0.07	1					
LIQ	.662**	-0.055	1				
Q	0.009	-0.145	.383**	1			
CF	-0.069	.630**	0.014	-0.02	1		
INV	-0.145	-0.144	-0.145	-.296**	-0.1	1	
PFT	-0.114	.396**	0.143	0.028	0.131	0.159	1

\*\* . Correlation is significant at the 0.01 level.

Results in above table indicates that cash flow and leverage have a negative and insignificant correlation at 1%, similarly cash flow and liquidity is positively and insignificantly correlated at 1% but the cash flow and profitability has a positive and insignificant correlation at 1%. Cash flow and Tobin's Q is insignificantly and negatively correlated at 1% but sales and cash flow is positively and significantly correlated. We can observe that correlation between leverage and liquidity is positive & significant and relationship between leverage and profitability is negative & insignificant. On other hand correlation of leverage with Tobin Q is positive and insignificant at 1% but correlation between leverage and sales is negative & significant. There is insignificant and negative correlation between liquidity and sales but liquidity & profitability are positively & insignificantly related with each other. Moreover, liquidity and Tobin's Q are positively & significantly correlated. Furthermore profitability & Tobin's Q is positively & insignificantly correlated but correlation between Tobin's Q and sales is negative and insignificant.

#### 4.3. Regression Results

Table 4 shows the results of pooled Ordinary Least Square (OLS) regression for the sample firms.

**Table-4.** Pooled OLS Regression Results (Dependent Variable: Net Investment)

Variable	Coefficient	Std. Error	T-Statistic	Prob.
CF	0.028349	0.051034	0.555496	0.5797
LEV	-2.593808	1.188418	-2.182572	0.0312
LIQ	2.89749	0.799088	3.625994	0.0004
PFT	5.777734	1.776375	3.252542	0.0015
Q	-0.003858	0.001085	-3.55257	0.0006
SALES	-0.13942	0.065095	-2.141798	0.0344

The results of OLS regression model shows that the liquidity & profitability have positive and significant impact on investment whereas cash flow also has positive but statistically insignificant impact on net investment. Moreover results shows, financial leverage, Tobin's Q and sales growth have negative and significant impact on investment.

### 5. Conclusion

The study was conducted on the Pakistani listed firms to examine the impact of financial leverage on investment decisions. For this purpose we collected the data of 5 years (2009-2013), we take a sample of top 30 companies registered on the Karachi Stock Exchange (KSE). We applied descriptive statistics, correlation analysis and pooled ordinary least square regression model. The regression results of OLS model indicates that financial leverage has negative and significant impact on the net investment; it means that when the financial leverage ratio will increase it will cause a decrease in net investment. Moreover, results shows liquidity and profitability have positive & significant impact on firm's investment while cash flows has positive but insignificant impact on net investment. Furthermore, Tobin's Q and sales growth have a negative and significant impact on firm's investment. The results support the hypothesis H1, H2 and H4. We find out from the results that the leverage is not good for the company's health because as the leverage ratio will be higher, the company will bear more financial cost and sometimes it cause bankruptcy.

### References

Ahn, S., D.J. Denis and D.K. Denis, 2006. Leverage and investment in diversified firms. Journal of Financial Economics, 79(2): 317-337.

- Aivazian, V.A., Y. Ge and J. Qiu, 2005. The impact of leverage on firm investment: 3-3-3-Canadian evidence. *Journal of Corporate Finance*, 11(1): 277-291.
- Barclay, M.J., L.M. Marx and C.W. Smith Jr, 2003. The joint determination of leverage and maturity. *Journal of Corporate Finance*, 9(2): 149-167.
- Baum, C.F., M. Caglayan and O. Talavera, 2010. On the investment sensitivity of debt under uncertainty. *Economics Letters*, 106(1): 25-27.
- Campello, M., 2006. Debt financing: Does it boost or hurt firm performance in product markets? *Journal of Financial Economics*, 82(1): 135-172.
- Cleary, S., 1999. The relationship between firm investment and financial status. *The Journal of Finance*, 54(2): 673-692.
- Firth, M., C. Lin and S.M. Wong, 2008. Leverage and investment under a state-owned bank lending environment: Evidence from China. *Journal of Corporate Finance*, 14(5): 642-653.
- Guney, Y., A. Ozkan and N. Ozkan, 2007. International evidence on the non-linear impact of leverage on corporate cash holdings. *Journal of Multinational Financial Management*, 17(1): 45-60.
- Hens, T. and S.C. Steude, 2009. The leverage effect without leverage. *Finance Research Letters*, 6(2): 83-94.
- Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2): 323-329.
- Manos, R., V. Murinde and C.J. Green, 2007. Leverage and business groups: Evidence from Indian firms. *Journal of Economics and Business*, 59(5): 443-465.
- Modigliani, F. and M.H. Miller, 1958. The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48(3): 261-297.
- Odit, M.P. and H.B. Chittoo, 2008. Does financial leverage influence investment decisions? The case of Mauritian firms. *Journal of Business Case Studies*, 4(9): 49-60.
- Singhania, M. and A. Seth, 2010. Financial leverage and investment opportunities in India: An empirical study. *International Research Journal of Finance and Economics*, 40(2): 215-226.
- Whited, T.M., 1992. Debt, liquidity constraints and corporate investment: Evidence from panel data. *Journal of Finance*, 47(4): 1425-1460.