

## Financial Leverage And Firms' Investment Decisions: Evidence from Banking Sector of Pakistan

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### ABSTRACT

*This paper aims to find out the effects of financial leverage on firms' investment decisions in the Banking Sector of Pakistan. Utilizing panel data techniques along with common effects, fixed effects, and random effects for listed banks from 2006 to 2013, the results indicate that leverage is having no significant effect on the investment decision of banks in Pakistan and hence we support Modigliani and Miller (1958) proposition of Irrelevance theory. To current study is going to provide useful insights to banks and investors that investment decision is irrelevant to the way company is financed, rather banks must focus on other factors such as interest rates, available cash flow, profitability which are found to be relevant to the investment decision. It will also serve as basic literature for future research.*

**JEL Classification:** G1, G2, G21

**Keywords:** Leverage, Investment Decisions, Liquidity, Profitability, Tobin's Q, Banks, Pakistan.

### INTRODUCTION

The primary objective of Financial Management is to maximize shareholders' wealth, which is denoted by the market price of the company's common stock. The objective of Wealth Maximization is achieved by decision making in three inter-related areas i.e. Investment Decision, Financing Decision, and Dividend Decision. Investment decisions define the firm's asset structure, the extent of liquidity of such assets, and the firm's investment in new products and services. It defines how efficiently a company utilizes its resources. According to extent of liquidity, assets can be categorized into current and Fixed Assets, while the former is well known in financial literature as working capital management and later as capital budgeting. Since economic benefits from investment in assets are to be received in the future and are uncertain, therefore all investments certainly carry risk. Hence, all investment proposals are evaluated in relation to their expected risk and required rate of return. Northcott (1995) argues that investigation of a firm's 'Investment Decision Making' can serve the primary purpose of finding that whether or not company's funds are being effectively utilized, firm's future operations, profitability, and growth and secondarily it can also tell us about the efficient functioning of the national economy. Poor Investment decision-making tends to decrease the productivity of human and financial resources.

The process of economic growth and investment is closely related. All economists have emphasized capital formation (Investment) as engine of economic growth. Investments produce capital intensive goods; consumption of such goods promotes income growth. Investments not only create employment opportunities but are key factors to the economic development of the country. The role of corporations in the economic development of the

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country is massive. Increasing business competition has forced companies to invest substantially in new technology, infrastructure, and product development. World Bank witnessed higher GDP growth for countries, which have higher Investment to GDP ratio. For countries like Pakistan investment in infrastructure and education is of utmost importance. Investment in infrastructure enables producers to make use of latest technology, while Investment in education produces skilled labor.

The second function; Financing decision on the other hand refers to the way a company is financed; a company may either be financed by debt or equity. The basic idea is to determine the optimal financing mix that would maximize shareholders' wealth. In this regard, the cheapest source of financing is cash flows generated by the company from its operations, followed by debt, and finally equity. Debt is usually cheaper than equity because it reduces asymmetric information through loan contracting, plus debt provides companies with a tax shield, therefore companies normally prefer to have higher levels of debt. However, in some cases it leads to negative equity value and causes the firm to go bankrupt, therefore lenders will limit the amount of debt financing to keep the debt risk free.

As discussed above, investment requirements can be financed in many ways including financial leverage. During great depression of 1930 and 1940, financial leverage was viewed as evil as it was believed that it leads to financial distress. However, Modigliani and Miller (1958) found out that investment decision depends upon such factors as expected future demand, interest rates, available cash flow, profitability and competitive advantages of the firm such, but it is irrelevant to the way the company is financed i.e. investment decision is not dependent on the way company is financed (Financing decision) under perfect market conditions. Modigliani and Miller were supported by many other researchers; therefore, nowadays financial leverage is commonly employed by companies. However, many authors believe that due to the presence of transaction costs, asymmetric information, and agency problems, markets behave imperfectly, and financing decisions and investment decisions are interdependent and financing decision can significantly impact investment decision. Therefore, no consensus has yet been reached that whether financial leverage is evil or beneficial. A lot of research has been conducted on the impact of financial leverage on variables like financial performance and profitability in the Pakistani context, however, little research has been conducted taking firm's investment decision, therefore this study will contribute to the existing literature by bringing evidence on the impact of financial leverage on firms' investment decisions from Pakistan's perspective.

### **Background: Theories and Concepts**

Capital structure irrelevance theory proposed by (Modigliani and Miller 1958) stated that under perfect market conditions, investors are least bothered about the use of leverage by firms since marginal investors will diversify financial risk. In other words, the investment decision of firms depends upon such factors as profitability, future demand, interest rates, competitive advantage, cash flows, and net worth of firms. The theory was reshaped by (Miller, 1977) who introduced corporate as well as personal taxes into the model. Furthermore, Miller's work was enlarged, when DeAnglo and Masulis (1980) explored the impact of tax shields other than interest payments on debt. They found out that the presence of corporate tax shield substitutes for debt such as accounting depreciation, depletion allowances, and investment tax credits

imply a market equilibrium in which each firm has a distinctive optimum leverage decision of its own.

If a manager possesses inside information, then valid signals can be drawn by the market from the choice of managerial incentive (Ross, 1977). Jensen and Meckling, (1976) proposed the agency theory of optimal capital structure; they amalgamated agency theory, theory of finance, and theory of property rights and developed theory of ownership structure. theory of ownership structure explained the nature of agency cost and who bears agency cost and why. Finally, Myers (1984) proposed the pecking order theory, which stated that the cost of financing increases with asymmetric information. Therefore, companies normally prefer internal financing (cash flows) over debt and debt over equity.

Chirinko (1993) and Serrasquiro (2008) states that most Neo-Classical authors, who are followers of MM establish that Cash Flows/Sales play an important role in the determination of the level of investment. Similarly, Daddon and Senbets (1988) report that the relationship between investment and leverage depends on variables like retention ability, tax shields, insider equity, and capital intensity. Whited (1992) showed that investment is more sensitive to cash flows for high levered firms when compared to low levered firms. Cantor and Richard, (1990) found out investment's high sensitivity to earnings for highly levered firms, and the study Diversified companies not only have higher debt ratios but they make larger investments than their focused counterparts. They claimed that investment decision is influenced by debt ratios.

#### **Leverage, Growth, and Financial Risk:**

For emerging economies, the mixing of debt (financial leverage) with capital structure of the firm is very important, as it has been proved that mixing of financial leverage in capital structure increases firm's growth and profitability and shareholders return. Financial literature provides hiring financial leverage in capital structure of firms tends to increase Earning per share (EPS) of company, and hence higher dividend declaring capacity and increase in wealth/value of the company.

Nevertheless, debt also introduces a firm to financial risk as well, if debt fails to increase a firm's wealth firm i.e. firms cash flows will be used to pay debt holders first, resultantly shareholders will be left with either no cash flows or inadequate cash flows and it may lead firms to financial distress and ultimate bankruptcy.

It is evident from the great depression of 1930 and 1940 that a higher level of financial leverage apparently exposed companies to financial distress and it has been witnessed in recent global crises as well (Odit & Hement., 2008). Even then most of the companies today find financial leverage as an important source for the production of goods and services and financing of assets. Therefore, firms must find out such level of financial leverage that maximizes return and minimizes risk from using it, i.e. from must make wise financing decision or an optimal mix of debt and equity (Graham & Harvey, 2001; Ross, Wasterfield, & Jordan, 1998).

Contrary to the belief that financial leverage increases a firm's growth, few researchers claim that financial leverage hinders the growth of the company. Myers (1977) found that highly levered firms are less likely to take full benefit of potential growth opportunities than low

levered firms. They argue that financial leverage requires firms to pay a certain sum of money for its debt servicing; therefore, the company is left with a small amount to invest in positive NPV projects. They also found out that highly leveraged firms are also faced with liquidity problems and are unable to materialize positive NPV projects, as firms are unable to finance them, thus growth is affected. Similarly, (Fama & French, 1988) found out that companies with lower debt levels tend to be more profitable than companies with a high level of debt. However still most of the companies today find financial leverage as an important source for the production of goods and services and financing of assets. (Ross, et al., 1998; (Graham & Harvey, 2001); Myers, 1984).

### **Agency Problems**

There exists an agency relationship between a company's management and shareholders of a company. An agency relation is one in which agents (directors of the company) are supposed to work in the best interest of principals (shareholders of a company). A conflict of interest between the management of the company and its shareholders will give rise to agency problems and it may result in over or under investment

### **Under Investments**

Underinvestment is a situation when a company rather than making low-risk investments chooses to invest in high-risk investments. Low risk projects provide more security to debt holders through generation of regular and balance cash flows, and increase the value of company as a whole, but it provides a lower return to shareholders. (Myers, 1977) Due to the high cost of leverage and the possibility of default, levered firms' have under investments (Stulz, Managerial discretion and optimal financing policies, 1990). Therefore regardless of the number of growth opportunities available, companies' investing capacity is reduced (Lang, Ofek, & Stulz, 1996). However, companies may reduce underinvestment incentives by reducing its debt level, and identifying growth opportunities as early as possible (Aivazian & Callen, 1980). Childs, Mauer, and Ott, (2005) Suggested that short-term debt is preferable due to financial flexibility, which results in a substantial reduction in agency cost.

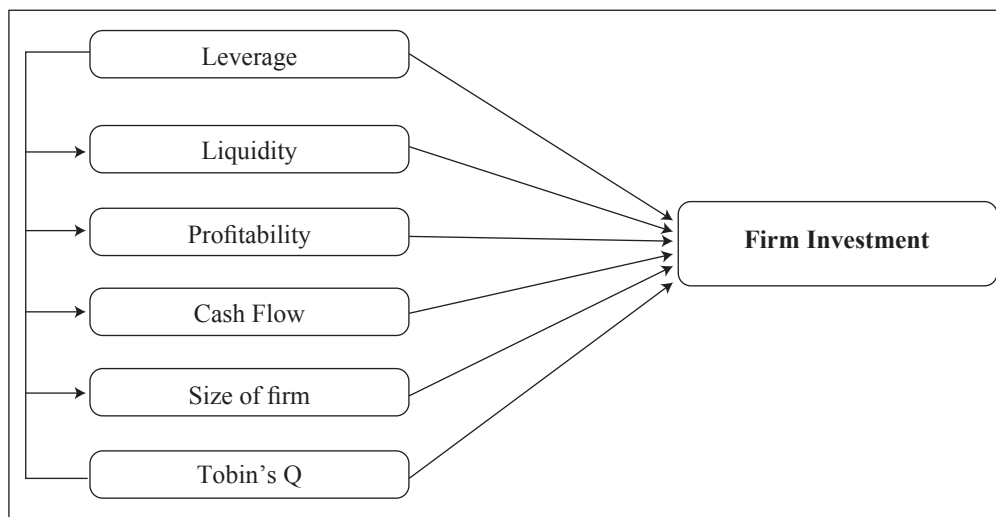
### **Over Investment**

While over investment is a situation where managers do not act in the best interest of shareholders, by investing too much in negative NPV projects, and benefiting themselves personally rather than shareholders. (Jensen & Michael 1986) Managers tend to invest in low growth and even in negative NPV projects, just to increase the business volume or expanding business opportunities thus reducing shareholder's welfare. This creates scarcity of free cash flows and increased use of leverage; such highly levered firms are unable to generate additional debt in the future and are pressurized to maintain positive cash flows (Cantor 90, whited 92).

Empirical Literature supports both over investment and Underinvestment theory, (Lang, Ofek, & Stulz, 1996) supported that overinvestment theory in firms with poor investment opportunities (Low Tobin's Q), leverage is negatively related with investment, However for companies with rich growth opportunities; the author did not find a negative relationship. (Joseph, & King 1995) found out a negative relationship between the level of bond financing and the level of investment (Jensen & Michael 1986 Stulz, 1990). Aivazian, Ge, and Qiu, (2005) found out inverse relationship, and the relationship was higher for low growth firms.

## TOOLS AND METHODS

State Bank of Pakistan (SBP) publishes a report titled “Financial Statement Analysis of Financial Sector”, data on accounting ratios are all banks that have been mined from that report. while the data for market prices has been acquired from yahoo finance. SBP started publishing this report in 2006, therefore our sample is limited to nine years i.e. from 2006 to 2014. Our sample consists of all banks listed on the Karachi Stock Exchange without being judgmental of size, age, or any other factor. The proposed conceptual framework is presented in figure 1 below:



**Figure 1:** *Conceptual Framework*

## Variables and Hypotheses

H1: There is a positive relationship between financial leverage and firms' investment decision.

H2: There is a positive relationship between liquidity and firms' investment decision.

H3: There is a positive relationship between profitability and firms' investment decision.

H4: There is a positive relationship between cash flows and firms' investment decision.

H5: There is a positive relationship between the size of the firm and the firms' investment decision.

H6: There is a positive relation between Tobin's Q and firm investment decision.

## Dependent Variable

- 1) Firms' Investment Decision has been represented by the amount invested by the firm in fixed assets during the year divided by total fixed assets.

### Independent Variables

- 1) Leverage is the utmost important independent variable of our study. Following Aivazian et al., (2005) we expect a negative relationship between financial leverage and the firm's investment decision and is estimated as.

$$\text{Leverage} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

- 2) Liquidity: Short-term liquidity crisis may cause firms to suffer from financial distress leading to bankruptcy ultimately. Unsound liquidity may affect the company's creditworthiness as well. We expect a positive relation between the firm's liquidity and investment decision, and it has been calculated as:

$$\text{Liquidity} = \text{Cash and Cash Equivalent to Total Assets}$$

- 3) Profitability signals the operating efficiency of total investment, as it shows the responsiveness of the company's investment in assets to profitability and expected growth. Again a positive relationship is expected here.

$$\text{Profitability} = \text{Earning per share (EPS)}$$

- 4) Cash Flow: Availability of cash inflows promotes firms to make investments and as mentioned earlier that internal funds are the cheapest option out of all financing options. The prime objective of making investments is to generate significant excess cash inflows in the future and thus maximizing shareholder's wealth. Therefore a positive sign is expected between cash flows and the firm's investment.

$$\text{Cash Flows} = \text{Cash generated from operating activities to profit after tax}$$

- 5) The size of the Firm is proxied by total assets. We expect a positive relation.

$$\text{Size} = \text{Total Assets}$$

- 6) Tobin's Q has been used as a proxy for growth opportunities. A value of greater than 1 for Tobin's Q suggests that market value is greater than recorded/book value, thus it will encourage companies to invest more in the capital because they are more valuable than the price actually paid for them. It has been calculated by the following formula.

$$\text{Tobin's Q} = \frac{\text{Market Value of Equity and Total Liabilities}}{\text{Book Value of Total Assets}}$$

### Research Model Developed

Aivazian et al. (2005) used OLS estimations to study the determinants of investment decision, but found that simple OLS was not useful, as it failed to find out the relevance of companies' non-observable individual effects. Further, they were of the view that the OLS method underestimates the role of explanatory variables on investment decision, and they suggested using a random or fixed effect panel model. Therefore, this study used panel data to test the proposed hypotheses. We conducted Panel estimates along with random effect and fixed effect estimates. The final variables in this study are supplemented into the following model. All the variables are in the natural log form.

$$ID_{it} = \alpha + \beta_1 Lev_{it} + \beta_2 Liq_{it} + \beta_3 Prof_{it} + \beta_4 CF_{it} + \beta_5 SIZ_{it} + \beta_6 Q_{it} + \varepsilon_{it} \quad \dots (1)$$

Where:

ID=	Firms' Investment Decision
Lev =	Leverage
Liq=	Liquidity
Prof=	Profitability
CF=	Cash Flow
SIZ=	Firm size
Q=	Tobin's Q
$\varepsilon_{it}$ =	the stochastic disturbance or error term.

The cross-section effects in the above equation (1) are represented by the subscript i and the time effect is been identified with subscript t for bank i at time t. Having the same number of cross-sectional units and time-series observations gives us a balanced panel and is estimated accordingly for the estimation of common effects. However, in simple panel cases, where time and space dimensions are not considered, results in a model with constant coefficients in terms of both slopes and intercept which means that space and temporal effects are not significant (Dashti, Aleemi & Tariq, 2016). To this and in such similar cases, all the data for the resultant model can be pooled to simply estimate OLS regression to obtain common effects. The resultant estimation procedure is usually done in concurrence with the OLS by taking the whole sample that is (nxt) (Gujarati, 2004). However, relying only on OLS is usually risky as there is a possibility that the resultant coefficients might be correlated with the error term—indicating potential Endogeneity issues and rendering the estimated coefficients slightly unbiased. Resultantly, we might not be able to potentially weed out unobserved fixed and random effects (Dashti et al., 2016). Thus to deal with potential issues of unmodeled Heterogeneity bias and Endogeneity issues within our parameters, we specify the following fixed and random effects;

A simple Fixed Effect model can be represented as;

$$y_{it} = \mu + \alpha_i + X_{it}\beta + \varepsilon_{it} \quad \dots (3)$$

Similarly, a simple Random Effect model can be represented as;

$$y_{it} = \alpha_i + X_{it}\beta + \varepsilon_{it} \quad \dots (2)$$

To test the efficiency of both FE and RE as modeled above, we adopt the Hausmann Test and the LM (Lagrange Multiplier) as model selection tools to test the appropriateness of our models that whether FE or RE will yield efficient and robust estimators in our case.

## EMPIRICAL RESULTS

The descriptive statistics are presented in table 1, whereas the correlation matrix is reported in table 2.

**Table 1.***Descriptive Statistics*

	ID	CF	LEV	LIQ	PROF	Q	SIZ
ID	1.000000						
CF	0.037851	1.000000					
LEV	0.067459	-0.085634	1.000000				
LIQ	0.046482	0.038066	-0.138712	1.000000			
PROF	-0.064594	-0.355726	0.151386	0.159219	1.000000		
Q	0.009859	-0.069625	0.047713	0.134449	-0.017976	1.000000	
SIZ	-0.030468	-0.221009	0.543104	0.060038	0.591302	0.219031	1.000000

Finally, Table 3 shows a summary of all three regression models. And also to ascertain which model yields better estimates, two statistics of Lagrange Multiplier (LM) and Hausman Test are also reported. While former is used to check appropriateness between random effect estimates and common effects estimates and the latter is used to check appropriateness between random effect estimates and fixed effects. Both of these test statistics are insignificant in favor of the common effect model.

**Table 2.***Correlations Matrix*

	ID	CF	LEV	LIQ	PROF	Q	SIZ
Mean	92.57386	1.848254	-0.120873	-2.386576	5.300455	0.050352	18.90883
Median	14.45533	1.902103	-0.087575	-2.475760	2.110000	0.004130	19.01686
Maximum	4850.071	6.494601	-0.020305	-1.271182	24.47000	4.510123	21.26284
Minimum	0.000000	-2.120264	-0.775225	-3.499913	0.000000	-2.413360	15.20795
Std. Dev.	474.5881	1.361437	0.100639	0.391019	6.660629	0.511591	1.202001
Skewness	8.787016	-0.136932	-3.252034	0.427140	1.499378	6.337232	-0.454818
Kurtosis	82.06145	4.795235	17.92028	3.178836	4.092319	62.47348	2.798568
Jarque-Bera	48103.44	24.18437	1942.730	5.586351	74.69511	27116.74	6.365436
Probability	0.000000	0.000006	0.000000	0.061226	0.000000	0.000000	0.041473
Observations	176	176	176	176	176	176	176

**Table 3.**

*Summary of regression results. Where \*, and \*\* mean significant at 1 and 5% level of significance respectively. t-Statistic in parentheses.*

Variables	Common Effect	Random Effect	Fixed Effect
C	154.6795 (2.364698)**	-376.7754 (-0.393463)	-748.8782 (-1.003295)
CF	1.734264 (1.223468)	3.056441 (0.105538)	2.341322 (0.845805)
LEV	55.15472 (1.795617)	-410.3448 (-0.900192)	-31.38125 (-0.070220)
LIQ	4.505590 (0.745018)	57.22998 (0.586895)	6.018373 (0.243543)
PROF	1.069102 (2.679179)*	-7.320018 (-0.960388)	-2.881590 (-0.884475)
Q	5.452698 (2.192125)**	-10.08801 (-0.132362)	-26.61859 (-0.360991)
SIZ	-7.111347 (-2.384751)**	31.20191 (0.647785)	40.36781 (1.054632)



<b>R<sup>2</sup></b>	0.238546	0.025215	0.065279
<b>Adj. R<sup>2</sup></b>	0.194499	0.022544	0.057070
<b>F-Statistic</b>	4.370586*	0.356961	0.901612
<b>Hausman Test</b>	7.164926 (0.3059)	<b>LM Test</b>	0.919094 (0.5671)

respectively. t-Statistic in parentheses

The findings reported by the common effect model indicate that our variable of utmost importance i.e. leverage shows a positive relationship with the firm's investment decision, suggesting that mixing of leverage in capital structure increases a firm's growth, profitability, and shareholder's return. However the coefficient for leverage is not statistically significant at the given level of significance of 5%, hence we conclude and support Modigliani and Miller (1958) proposition that investment decision depends upon such factors as expected future demand, interest rates, available cash flow, profitability and competitive advantages of a firm, but it is irrelevant to way company is financed i.e. investment decision is not dependent on the way company is financed (Financing decision). Consequently, we reject that financing decision and investment decision are interdependent and financing decision can significantly impact investment decision which may result in over-investment or under-investment, any presence of such factors as transaction cost and asymmetric information, and agency problems.

Furthermore, according to (Miller et al, 1958) proposition, the investment decision of a firm depends upon factors such as Profitability and Cash Flows. Though statistically not significant, Our study finds out a positive relationship between cash flows and firm's investment decision that is for every 1 unit of increase in investment, Pakistani banks can generate 1.73 units of operating cash flows, thus making it clear that firm's investment decision is based on the availability of cash flows. Similarly, like Cash flows and as per expectations, profitability shows a positive relationship with the investment decision. It states that through an investment of 1 unit, firms can generate profits amounting to 1.07 units. But unlike operating cash flows, our result for profitability is statistically significant. Similarly, we find out the statistically significant and positive relationship for liquidity, and Tobin's Q, while negative for size against investment decision.

Finally, the adjusted R-squared reports that only 19% of the variation in the dependent variable has been explained by the explanatory variables in our model which is although quite low but still sufficient and reasonable determination for a small sample like the one adopted in the present study.

## CONCLUSION

The current research has empirically analyzed financial theory concerning the behavior of Pakistani banks while making investment and financial decisions, and results are consistent with previous studies to large extent. The common effect model, the fixed effects model, and the random effects model have been used. Our results are in line with Modigliani and Miller (1958) Irrelevance Theory and we conclude that leverage positively affects the firm investment decision. The studies which suggest that financial leverage has a negative impact on a firm investment decision are not supported by this study. Consequently, we reject that financing decision and investment decision are interdependent and financing decision can

significantly impact investment decision which may result in over-investment or under-investment, any presence of such factors as transaction cost and asymmetric information, and agency problems. In fact, the investment decision of a firm depends upon factors such as Profitability and Cash flows.

Future researchers may study sectors other than the banking sector of Pakistan; it may include other segments of the financial sector or non-financial sector. Variables like sale growth retained earnings, and many others can be tested for impact on firm investment decision. Firms can be divided into low growth firms and high growth firms.

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## APPENDIX

**Table A1:**

*List of Banks under Study:*

Sr. No	Bank Name	Sr. No	Bank Name
1	Bank Al Habib Limited	12	KASB Bank Limited
2	Bank Alfalah Limited	13	MCB Bank Limited
3	Allied Bank Limited	14	Meezan Bank Limited
4	Askari Bank Limited	15	National Bank of Pakistan
5	Bank Islami	16	NIB Bank Limited
6	Bank of Khyber	17	Samba Bank Limited
7	Bank of Punjab	18	Silk Bank Limited
8	Faysal Bank Limited	19	Soneri Bank Limited
9	Habib Bank Limited	20	Standard Chartered Bank Pakistan
10	Habib Metropolitan Bank Limited	21	Summit Bank Limited
11	JS Bank Limited	22	United Bank Limited