

POLITICAL REGIMES, INTERNAL FUNDS AND INVESTMENT BEHAVIOUR: AN EMPIRICAL ANALYSIS OF MANUFACTURING SECTOR FIRMS IN PAKISTAN

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Abstract. The prime objective of this study is to estimate the relationship between financial status and investment behaviour of the firms in manufacturing sector of Pakistan across different political regimes using data of 498 firms from 1973-2010. The study finds that cash flow is the most important factor affecting the firm's investment behaviour. Investigation of the possible effect of political regimes on the nexus between investment and cash flow of the firms confirms that changes in political regimes have affected the investment behaviour of firms in manufacturing sector of Pakistan. The estimates for the post 1990s era suggest that investment is positively related to both the internal cash flow and Tobin's Q. This indicates that governments should pursue liberal corporate policies in a deregulated environment to channelize internal funds of the firms into effective investment expenditures.

Keywords: Investment behaviour, Cash flow, Payout ratio, Political regimes, Pakistan

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I. INTRODUCTION

Investment and internal funds are vital factors in assessing the financial status of a firm. When a firm starts an investment project, it primarily relies on internal funds for financing these projects (Chay and Suh, 2008). Firms have various sources of internal funds like retained earnings, reserves and equity etc. When investors choose internally generated funds in the form of cash flows to finance their investment projects, they can quickly and independently implement their investment plans in the absence of any external constraints. Due to the use of internal funds, firms avoid different costs including flotation cost (*i.e.* government fees, printing cost and underwriting cost). Contrarily, when firms use external funds, they bear such type of costs by themselves.

Internal funds are considered most important for investment as compared to the external funds (Chay and Suh, 2008). Park and Pincus (2000) describe that when firms have incomplete information about their investment plans, they choose internal funds for carrying out investment expenditures. If firms have complete information about investment plans, they use external funds. Pecking order theory states that due to asymmetric information, cost of financing increases and firms prefer internal funds instead of external funds for financing investment plans. When firms face high cost of external financing, internal funds show greater response to investment (Fazzari *et al.*, 1988; Kaplan and Zingales, 2000; Cleary, 1999).

Cleary (1999) establishes that investment decisions of a firm with high ability to repayment of debt are sensitive to accessibility of internal funds. The relationship between investment and internal funds of firms is very important because internal funds decide the status of the firm's behaviour regarding investment and investment further determines the overall financial status of the firm.

There are very few studies available that explore the relationship between internal funds of the firms in the form of cash flow and their investment behaviour. Specifically, this topic lacks discussion for the case of manufacturing sector of Pakistan. To bridge the gap in literature for Pakistan, this study carries out firm level analysis of manufacturing sector of Pakistan¹ by estimating relationship of firm's financial status and its investment behaviour.

¹The manufacturing sector of Pakistan contributes 13.2 percent in the GDP (*Pakistan Economic Survey 2012-2013*).

It is important to analyze the impact of non-financial events on the firm's investment behaviour as well. There are several aspects from which this issue can be explored. Pakistan has passed through different political cycles over the last 40 years (there are regular episodes of democratic and non-democratic eras). By considering these particular eras, this paper also tests whether changing political scenarios make any significant impact in firm's investment behaviour in manufacturing sector of Pakistan or not. The rest of the paper is organized as follows: Section II presents literature reviews, section III provides discussion on model and data description. Section IV reports discussion on results and study is concluded in section V.

II. LITERATURE REVIEW

Literature provides dual pictures regarding sensitivity of firm's investment decisions to its cash flows. Cleary (1999) examines relationship between investment decisions of firms and their financial status in US and finds that investment of firms having high creditworthiness is more sensitive to availability of internal funds. Kaplan and Zingales (2000) provide both theoretical and empirical arguments that investment cash flow sensitivity is not proper indicator of financial constraints of firms. Fazzari *et al.* (2000) argue that literature on investment cash flow sensitivities does not have solid theoretical base and concludes that these sensitivities are useful measures of financial constraints.

Allayannis and Mozumdar (2004) contribute in this debate by re-examining the arguments of Kaplan and Zingales (2000) and Cleary (1999) that cash flow sensitivity of investment is greater for the least constrained firms. They conclude that the results of Kaplan and Zingales (2000) are also influenced by a few outliers in their dataset. They also reveal that when these observations are excluded from the sample, the results are closer to the previous studies.

Bhagat *et al.* (2005) have investigated the nexus between investment and internal funds of distressed firms for manufacturing sector firms in US. The study concludes that firms with positive operating profits show a positive relationship between investment and the internal cash flows. Contrarily, this relationship is weaker for the firms registering net operating losses. The relationship between investment and financing of financially constrained firms is also examined by Chay and Suh (2008). The findings suggest that in most of the countries, investments of financially constrained firms are not sensitive to internal funds. The financially constrained firms are found to be more sensitive to the external funds.

By using standard investment model with financing constraints based on the common Euler equation approach, Lee and Islam (2011) have examined the sensitivity of investment to available cash stock. The results show that smaller firms have greater financing constraints to investment than the larger firms mainly because of financial market limitations and imbalanced access to external finance. Similarly, Chay and Suh (2008) conclude that the amount of liquid assets is more responsive to external funds than to the internal funds.

Investment cash flow sensitivity and firm's financing constraints using legal institutions is examined by Marhfor *et al.* (2012). By dividing the dataset of 44 countries into two groups of constrained and unconstrained firms, the authors conclude that investment decisions of financially constrained firms are extremely sensitive to the availability of internally generated cash flows.

III. THE MODEL

Firms use different sources of funds to finance their investment. When a firm starts investment projects, most of the time it faces market imperfections. In the presence of market imperfections when firm cannot differentiate between high quality and low quality investment opportunities, it will choose internally generated cash flow to finance its investment as investment is directly related to the cash flow fluctuations (Marhfor *et al.*, 2012).

Literature highlights that the two approaches to analyze the investment decisions of firms include Tobin's Q and structural equations mode.² This study follows Tobin's Q theory to investigate the relationship between investment and internal funds. Bhagat *et al.* (2005) have used investment, capital, Tobin's Q and cash flow to investigate the relationship between investment and internal funds. In the present study, we follow the relationship developed by Bhagat *et al.* (2005) in the equation below:

$$\left(\frac{I}{K}\right)_{it} = \alpha_i + \alpha_t + \alpha_1 Q_{it} + \alpha_2 \left(\frac{CF}{K}\right)_{it} + \varepsilon_{it} \quad (1)$$

Where CF = Cash Flow, I = Investment, Q = Tobin's Q tax adjusted value of investment opportunities, K = Capital Stock, α_i = Firm Fixed Effect, α_t = Time Fixed Effect, ε_{it} = Error Term.

²See Bhagat *et al.* (2005), Fazzari *et al.* (1988) and Cleary (1999) for details.

In equation (1), $\left(\frac{I}{K}\right)$ has been measured by capital expenditures; where capital represents net property, plant and equipment given in the balance sheet of firms being analyzed. This ratio has been extensively used in literature on this issue (Cleary, 1999; Fazzari *et al.*, 1988).

Investment opportunities have been proxied by beginning period of Tobin's Q and are measured by market value of assets over book value of assets. Market value of assets has been computed by sum of market value of equity and book value of assets minus sum of book value of equity and balance sheet deferred taxes. The market value of equity can be defined as stock prices multiplied by number of outstanding shares. Bhagat *et al.* (2005) advocate that Tobin's Q is the best proxy measure to estimate investment opportunities.

Bhagat *et al.* (2005), Fazzari *et al.* (2000) and Cleary (1999) measure Cash flow (CF) by sum of net income and depreciation. Investment and cash flow are consistent with beginning period of capital stock. Internal funds are most important for a firm's financial status and cash flow is the best indicator of measuring internal funds as cash flow gives a clear picture of internal funds of a firm (Bhagat *et al.*, (2005).

This model suggests that if the value of additional unit of capital enhances the Q value by 1, the firm will increase investment because in this situation, market value of assets will be greater than the book value of assets and firm has more opportunities to increase investment. If the value of the Q is less than 1, then firm will reduce investment because the market value of assets is less than its book value and firm has no incentives to enhance investment level. In equilibrium the Q value will be equal to 1.

To identify the financial situation of the firm, the study uses payout ratio and tangibility ratio as the main indicators. Both of these variables are representatives of financial health of the firm. Fazzari *et al.* (1988) and Bhagat *et al.* (2005) define payout ratio as sum of common stock dividend and preferred stock dividend divided by the net income. Bhagat *et al.* (2005) and Fazzari *et al.* (1988) have used tangibility ratio to measure the degree of financial constraints of a firm. The tangibility ratio is defined as book value of tangible assets divided by the total assets.

SAMPLE, DATA AND ESTIMATION PROCEDURE

Most of the listed companies at Lahore and Islamabad stock exchanges are mainly those listed at Karachi Stock Exchange (KSE). Because KSE is the

main financial institution and also trendsetter in the equity market of the country, therefore, we have selected the sample from listed firms at KSE. There are total 498 firms that are included in the sample. The data period ranges from 1973-2010. The main data source includes the annual balance sheets of listed firms published by the State Bank of Pakistan. Panel estimation techniques have been employed to estimate the relationship between financial status and investment behaviour of manufacturing sector firms in Pakistan.

IV. RESULTS AND DISCUSSION

FIRM INVESTMENT BEHAVIOR USING PAYOUT RATIOS AS FINANCIAL HEALTH INDICATOR

The first objective of this study is to investigate the relationship between investment and internal funds of firms in manufacturing sector of Pakistan. Payout ratio and tangibility ratio have been employed to identify the degree of financial health of a firm. Payout ratio one (Por1) includes observations with a payout ratio less than or equal to 1. Payout ratio between 0.1 and 0.2 are grouped as Por2. Firms with payout ratio greater than 0.2, are named as Por3. We have calculated these ranges for Pakistan only. This range varies significantly across different studies in different countries.

TABLE 1

Results of Firm Investment Behaviour Using Payout Ratios with Cash Flow

Variables	Constant	CFK	Q	Adj R ²	No. of firms obs
Overall	0.4134 (0.1332)***	-2.8302 (0.0460)***	0.0649 (0.0014)***	0.2467	11754
Por1	0.2595 (0.0219)***	-1.2016 (0.0458)***	-0.0185 (0.0345)	0.1690	3371
Por2	0.1917 (0.0272)***	0.2717 (0.1041)***	0.0369 0.0405	0.0165	363
Por3	0.5313 (0.0227)***	-2.8028 (0.0724)***	-0.00538 (0.0258)	0.3023	3454

NOTE: Dependent variable = Investment. Por indicates payout ratio, CFK represents cash flow to capital ratio, and Q indicates investment opportunities. *** indicates 1% level of significance. Standards errors are in parenthesis.

We have also performed twofold procedure to check the consistency and robustness of our results. Firstly, different measures of internal funds have

been used. Secondly, different proxy variables for financial constraints other than payout ratio have been employed. The estimation results of firm behaviour using payout ratio with cash flow are presented in **Table 1**.

In **Table 1**, results for the whole sample indicate that there is a statistically significant and positive relationship between investment behaviour of the firms and Tobin's Q (investment opportunity) whereas CFK has negative impact on the investment. Results for Por1 show that both cash flow and Tobin's Q have negative relationship with investment. On the other hand relationship of Tobin's Q and investment is statistically insignificant. Results in **Table 1** indicate that there is an almost consistent relationship between investment and cash flow regardless the financial conditions of the firms. On the other hand, the relationship between investment and Tobin's Q is statistically insignificant across all the ranges of financial health of the firms.

FIRM BEHAVIOR USING TANGIBILITY RATIOS AS FIRM FINANCIAL HEALTH INDICATOR

To check the internal consistency of our findings, we have classified the firms into three equal groups on the basis of tangibility ratio (TR). TR1 indicates the range of tangibility ratio between 0 and 0.38. TR2 reflects medium tangibility ratio ranging from 0.38 to 0.64 whereas TR3 presents higher tangibility ratio having values from 0.64 and above. **Table 2** presents the estimation results of tangibility ratio with cash flow.

TABLE 2
Regression Results of Firm Behaviour Using Tangibility Ratios
with Cash Flow

Variable	Constant	CFK	Q	Adj R^2	No. of firms obs
TR1	0.1150 (0.0137)***	0.2744 (0.0298)***	-0.0077 (0.0177)	0.0212	3807
TR2	0.1579 (0.0160)***	0.0247 (0.0344)	-0.0714 (0.0261)***	0.0016	3807
TR3	0.1015 (0.0286)***	-0.8796 (0.0500)***	-0.170 (0.0541)***	0.0750	3807

NOTE: TR indicates tangibility ratio, CFK represents cash flow to capital, and Q indicates investment opportunities. ***1% level of significance. Standards errors are in parenthesis.

Estimates in **Table 2** reflect that TR1 has positive relationship with cash flow and it is statistically significant at 1% level. However, Tobin's Q shows negative and statistically insignificant relationship with TR1. The results for the sample of medium tangibility ratio (TR2) show opposite results to the sample of firms with lower tangibility ratio (TR1). In TR2, cash flow is statistically insignificant and Q is statistically significant at 1% level. TR3 shows that both cash flow and Tobin's Q have negative relationship with investment and are statistically significant at 1% level. These findings indicate that as tangibility ratio increases, there is a significant change in the investment behaviour of the firm.

From results in **Table 1** and **Table 2**, we determine that the relationship between investment, cash flow and Tobin's Q is indeterminate in Pakistan. Furthermore, we also establish that the investment behaviour of firms is affected by their financial health. These findings are in line with Hsiao and Tahmiscioglu (1997) that financial constraints of firms affect their investment decisions. Therefore, it is important to analyze these relationships *vis-à-vis* different political regimes in Pakistan.

EFFECT OF POLITICAL REGIME ON THE RELATIONSHIP BETWEEN INVESTMENT AND INTERNAL FUNDS

To analyze the impact of political regimes on the investment behaviour of firms, we have divided our sample period into four sub-periods. The first sub-period corresponds to Zulfikar Ali Bhutto's regime from 1971 to 1977. The second sub-period relates to Zia-ul-haq's government from 1978 to 1988. The third time period is known as democratic period and this era ranges from 1989 to 1999. The fourth time period is known as Musharraf's era and this time period ranges from 2000 to 2008. Furthermore, we have also divided this whole period into two groups: 1974-1988 and 1989-2010. The empirical results relating to these sub-periods are presented in **Table 3**.

Bhutto's Regime (1971-1977)

In this time period, coefficient (-0.257) of Tobin's Q is negative and statistically insignificant. Investment opportunities were decreasing in this time period due to the worldwide recession and a wave of nationalization in the country. Secondly, coefficient (1.0265) of cash flow is positively related to the investment and is statistically significant at 1% level of significance. This coefficient shows that 1 unit increase in cash flow increases investment by 1.0265 units. Reasons behind this relationship were the investment policies.

TABLE 3
Estimation Results Under Different Political Regimes

Data Period	Constant	CFK	Q	Adj R^2	No. firms	No. of firm-years
1969-2010	0.4134 (0.1332)***	-2.8302 (0.0460)***	0.0649 (0.0014)***	0.2467	498	11754
1971-1977	-0.9847 (0.1475)***	1.0265 (0.0669)***	-0.257 (0.272)	0.3366	188	1205
1978-1988	0.3218 (0.0985)***	-1.8579 (0.0465)***	0.313 (0.228)	0.3036	297	2575
1989-1999	0.2625 (0.0872)***	-0.9273 (0.0348)***	-0.0868 (0.136)	0.1474	483	4297
2000-2008	0.7885 (0.3695)**	-5.9358 (0.1022)***	0.174 (0.0037)***	0.5730	419	3103
1974-1988	-0.0158 (0.1143)	-0.6515 (0.0471)***	-0.0411 (0.259)	0.1271	298	3297
1989-2010	0.5283 (0.1937)***	3.0373 (0.0580)***	0.0691 (0.0017)***	0.2735	483	7838

NOTE: CFK represents cash flow to capital ratio, Q represents investment opportunities, and Standard errors are in parenthesis. 1%, 5% and 10% level of significance indicates ***, **, * respectively.

Zia-ul-Haq's Regime (1978-1988)

Results show that the coefficient (-1.857) of investment and cash flow is negatively related and is significant at 1% level. This relationship highlights that 1 unit increase in cash flow causes 1.857 units decrease in investment. Because of political and economic instability, cash flow affects investment negatively. On the other hand relationship between investment and Tobin's Q is positive. Coefficient (0.313) highlights that 1 unit increase in Tobin's Q increases investment by 0.313 units.

Democratic Era (1989-1999)

According to the results in Table 3, cash flow and investment are negatively related and significant at 1% level of significance. Its coefficient (-0.9273) suggests that 1 unit increase in cash flow causes 0.9273 units decrease in investment. Relationship between investment and Tobin's Q is also negatively related. Coefficient (-0.0868) tells us that 1 unit increase in investment opportunities causes the investment to decline by 0.0868 units. Main reasons behind these negative relationships were the devaluation of rupee and the political instability causing instability in the financial markets.

Musharraf's Era (2000-2008)

Estimation result shows that relationship between investment and cash flow is negatively related and significant at 1% level of significance. Coefficient (-5.9358) tells us that a unit increase in cash flow causes 5.9358 units decrease in investment. Cash flow affected investment negatively because of 9/11 and the earthquake. On the other hand, Tobin's Q and investment are positively related and also significant at 1% level. Coefficient (0.1740) of this relationship tells that 1 unit increase in investment opportunities increases investment by 0.1740 units.

To further study the role of economic cycles in explaining the investment behaviour of firms, we further divided our dataset into two parts. The first part is the combination of Zulfiqar Ali Bhutto and Zia-ul-Haq's regimes and the second part is the combination of democratic and Musharraf's regimes. The estimation results of first period show that investment is negatively related to both the cash flow and the Tobin's Q. For the remaining sample period, results suggest that investment is positively related to both the cash flow and the Tobin's Q. This implies that the relationship between investment, cash flow and the Tobin's Q changes starkly between the two sample periods. The positive relationships in the later period could be attributable to more liberalized corporate policies pursued by the successive governments in a more deregulated environment.

V. CONCLUSION AND POLICY RECOMMENDATION

The prime objective of this study is to analyze the relationship between investment and cash flow of firms listed at KSE using data on 498 firms from the manufacturing sector of Pakistan. The study concludes that cash flow has significant effect on investment. The most important variable that affects investment is cash flow. Another contribution of this study is the investigation whether different political regimes have any impact on the relationship of investment and cash flow of the firms in manufacturing sector of Pakistan. The main conclusion is that political regimes have significant effect on the investment behaviour of firms. It might be due to the fact that each political and non-political era had its own targets and there were no consistency in the policy stance of the governments. However, our estimates for post-1990s era suggest that investment is positively related to both the internal cash flow and Tobin's Q. This indicates that governments should pursue liberal corporate policies in a deregulated environment to create better investment opportunities for the firms in manufacturing sector of Pakistan.

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