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The Impact of Financial Reporting Quality on Investment Efficiency in Non-Financial Firms

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The purpose of this study is to investigate the impact of financial reporting quality on corporate investment efficiency. We have examined that firms with better and more financial reporting quality which is related in opposite direction with inefficiency of the investment and termed as over-investment and under-investment. Investment decisions play vital role specifically not only for firms but also for economy in general. No doubt, investment volume matters but the firms must emphasize quality of the investment and financial reporting. Without having sufficient and reliable market reporting, no investment decision can be made that can benefit the firm. In this study, the quality of financial reporting has been examined in making wise investment decisions. An explanatory quantitative research design is used to postulate the model in automobile firms listed in PSX for a period from 2005 to 2018. Our results show that firms having higher values of financial reporting quality have higher investment efficiency. Better financial reporting quality creates trust and confidence among the shareholders and the potential investors due to which further improvements in the efficiency of investment is possible. Further studies are needed to examine the investment efficiency through corporate governance in other non-financial firms in Pakistan. Firms' Financial Reporting Quality has been investigated to find out its role and Investment Efficiency. It is postulated that firms with better financial reporting quality, show better investment efficiency. This study is conducted to help the firms to improve their quality of reporting to enhance the efficiency of investment in the firms.

Keywords: Investment efficiency; overinvestment; underinvestment Management Characteristic, Investment inefficiency, Financial Reporting Quality.

INTRODUCTION

The business growth mainly depends on the investment for any firm. When firms make investments, it contributes to capital market as well as leading to employment. Thus, in this way, investment decisions play vital role specifically not only for firms but also for economy in general. It means efficient investment comes first than investment volume. In recent past, Pakistani firms facing decline in the volume of investment.

The reasons may be poor investment decisions, lack of expertise in making right choices for investments, financial crises 2008, and inefficient human capital. Overall uncertain market and economic conditions are also the reason for the decline. The investment decisions made at corporate level have been admired as unavoidable factor having the influence on the performance of the organization significantly. The asymmetry in information among the managers of the organizations and the investors may cause inefficient investment which is taken as over-investment and under-investment which it is evident from the past literature. This results in agency problems as well. (Bushman and Smith 2018; Biddle, Hilary, and Verdi 2009; Lai, Liu, and Wang 2014).

In connection with the Pakistani industrial scenario, there are two main reasons of the suitability of the research question. First, companies' executives' personal information plays vital role in certain areas of the business decisions. In general, the firms of large as well as small sizes create the space to minutely measure the FRQ effect on the efficiency of the investment of these firms. Second, here in Pakistan it is seen that companies in Pakistan use to inject a enough volume of capital in order to meet the expenditures in machinery and equipment in terms of investment.

It is evident from the large volume of the literature that problems relating to agency and asymmetry in information cause many firms to suffer from and it is due to the fact that there is saturated ownership of the families in the organizations (e.g. Wong, Chang, and Chen 2018). Due to which the investment inefficiency may be vital in Pakistan.

There are reportedly many of the research literature in which it is evident that FRQ has positive effect on the efficiency of the investment (e.g. Biddle, Hilary, and Verdi 2009). In connection with this large volume of studies showing this relationship positive, we are expecting that our study is going to prove that FRQ reflects positive signals to the investment efficiency, reducing the constraints in terms of finance and under-investment.

The reason for the possible sensitivity of the investment efficiency and the sample is because sample is concentrated in the automobile firms, thus showing a major concern. Overall, this study aims to hold generalizability to other countries and industries as well. The studies conducted earlier have thrown light on the decisions relating to research and development (Chen and Hsu 2009). But, unlike those studies, this study has prime focus on the investment efficiency at corporate level i.e. automobile firms listed under PSX.

At the end, our intentions are to aid the literature that is considering the FRQ effect on the investment efficiency disclosures (e.g. Biddle and Hilary 2006; Biddle, Hilary, and Verdi 2009; Lai, Liu, and Wang 2014).

Background of the Study

Without having sufficient and reliable market reporting, no investment decision can be made that can benefit the firm. Solid and reliable financial reporting are required in making wise investment decision, especially in Pakistan industrial sector. The quality of such reporting must be high. The value relevance accounting numbers can be seen in most of the previous studies (e.g. Barth, Beaver, & Landsman, 2001; Gu, 2007; Aboody, Hughes, & Liu, 2002). From these studies, it can be concluded that there is value relevancy among different results obtained from accounting records which include net profit and dividends (Aboody et al., 2002). On the other side of the financial picture, accruals generated in a long period of time cannot be made relevant (Barth et al., 2001). Studies conducted in less developed countries clearly show that value relevance of accounting reporting is very low as compared to countries fall in the category of developed and strong countries (e.g. Ball, Robin, & Wu, 2003; Chen, Hope, Li, & Wang, 2011).

While deciding whether to make investments in physical assets or investments made in capital market, companies use financial reporting. Firms are to invest in investments having NPV and leave the investment decisions having negative NPV in order to enjoy better growth and development of the business. Thus, enhanced financial reporting quality is needed to support informed decisions. This study also focuses on finding the relation between financial reporting quality and investment efficiency. The basic reason in choosing Pakistan is that Pakistan is going to be the economic and trade hub in the context of CPEC.

This proposed study would contribute in many dimensions: Previous studies focused only on investors, but this study has focused the firm itself. Therefore, this study will provide an evidence association between FRQ and investment efficiency empirically and it will add to the existing knowledge of generalizability of past findings.

Rationale of the Study/ Research Gap

A past literature shows that a few research studies have been conducted in which the impact of FRQ has been checked on investment efficiency. Adequate research studies were also found in which firms' market value and firm's performance was tested with Financial Reporting Quality.

- One of its own kind of research with respect to this topic in context of Pakistan
- The Impact of Financial Reporting Quality (i.e. FRQ) on Investment Efficiency is an interesting area to be investigated.

Significance of the Study

The stakeholders of this study are Pakistani non-financial firms (i.e. automobile industry). It is critical for organizations to begin to develop an onshore workforce capable of demonstrating a skillset. Organizations typically rely on physical resources. For automobile firms to grow and flourish, the appropriate combination of factors and intellectual-development climate must be in place (Tech Target, 2016). When organizations spend time and money to develop intellectual skills and improve quality of the financial reporting, the benefits to Pakistan are multifaceted.

Moreover, the academicians will be in a position to get valuable understanding about different aspects of accounting and finance discussed and explored in this study. It will help them in generating their own ideas, eliminating misunderstanding about the issues discussed and deriving different concepts for their future academic activities. The automobile firms in Pakistan will have the clear vision about the issues explored in this study.

Scope of Study

The scope of the study is an inquiry on how firms encourage and support their employees to increase their skills to meet the needed level of the reporting quality. The study focuses on professional development opportunities as needed in the economy. Research Findings have been made generalize as all sectors of the industry can get benefit from this study.

Statement of Problem

The problem is, Pakistani firms lack many resources needed for development. Organizational leadership is responsible for and must ensure the long-term sustainability and progress of their organizations. The lack of skilled resources overlooked and ignored management characteristics and quality of financial reporting issues in Pakistan create a challenge for organizational sustainability.

Professional-development opportunities may influence these problems, maintaining quantity and quality (Castellano, 2011). Although organizational leadership focuses on the immediate benefits to financial profit when ignoring the improvements in management characteristics, strengthening the MC and failure in maintaining quality of financial reporting.

Furthermore, while discussing financial reporting quality, particularly in Pakistan is the vital issue that has to be addressed in priority as it is receiving more and more attention by certain regulators i.e. International Accounting Standards Board, 2010. When we look into the matter, we find that there is a little know-how about the active participation of accounting aspects in the private sector especially which is the important issue. At present, there is a very healthy discussions by the regulators also. The regulators are thinking about the cost of implementing the GAAP supported financial reports and comparing its benefits in terms of profits for the companies.

A very little behavior of investment among the private companies has been witnessed (Asker, Farre-Mensa and Ljungqvist, 2013). The research in the field of investment plays an important role as this area is quite economical given that it is the determinant of economic growth (Biddle, Hilary and Verdi, 2009).

Along with the other business factors, the ongoing project of China Pakistan Economic Corridor (CPEC) in particular, is going to reshape the face of world's economy. Potential investors are now focused on finding more and more investing opportunities. Pakistan is going to establish its connections with the world's big economies. To compete in the world's market, Pakistani companies have to improve the investment efficiency by eliminating all those factors which may play negative impact for the enhancement of the efficiency of investment. The enhanced Financial Reporting Quality may give clear picture of

the business activities on which success of future financial decisions would be based.

Research Objectives

The objective of the study is to discover how automobile firms fulfill the requirements for maintaining the quality of financial reporting and how it plays a role in firms' investment efforts. This study explores the parameters associated with defining the decisions to enhance reporting quality and efficiency of investment.

i. To find out the impact of Financial Reporting Quality on Investment Efficiency.

LITERATURE REVIEW

Underpinning Theories

Managers primarily have a duty to maximize stakeholders' interest. Stakeholders demand quality. Used to support the decision-making process of choosing investments for various purposes *(William N. Goetzmann).*

There is a lot of literature that discusses the firms' investments in different aspects. The neo-classical theory through light on the benefit of investment as "firms invest until the benefit margin comes equal to the marginal cost of such investment in order to bring their values to maximum" (Yoshikawa, 1980; Hayashi, 1982; Abel, 1983). The past literature supports the concept that every firm should carry out to finance the projects having net present value in positive (NPV) in perfect financial markets. Although a large volume of literature supports this phenomenon, but a considerable literature contradicts this concept (Hubbard, 1998; Bertrand and Mullainathan, 2003).

While investing in the projects, there are two types of possible investment outcomes, under investment or over investment. Both positive and negative investments are discussed under agency theory that proves the existence of asymmetric firms' reporting among the shareholders. A framework was developed by Jensen and Meckling (1976), Myers (1977), Myers and Majluf (1984), in which asymmetric reporting roles through problem reporting in investment efficiency was addressed. These addressed problems are moral hazard and adverse selection. The mentioned moral hazard is due to the existence of difference in shareholders' interests and lack of exercising proper monitoring mechanism of managers provided that management of the firms may prefer their personal interests by investing in projects that suit their personal benefits but may contradict the benefits of the shareholders Jensen and Meckling (1976). On the other hand, overinvestment can be occurred when managers are more informed about the investment outcome and it happened when managers sell over-priced securities to get extra funds. In order to control this un-suitable practice for shareholders, the capital suppliers may attempt to rationalize the supply of capital or to enhance the cost of capital. This exercise will reduce the attraction in some profit-oriented projects due to fund constraints (Stiglitz and Weiss, 1981; Lambert et al., 2007; Biddle et al., 2009). Thus, under-investment will be occurred leading investment inefficiency in both over and under investment.

Although a very limited literature can be viewed in which impact of management characteristics is evaluated on the efficiency of firms' investment and a few literatures has discussed the impact of FRQ on firms' performance.

Financial Reporting Quality and Investment Efficiency

On the other hand, in a research study conducted by Verdi (2006) with a title "The Relationship between Financial Reporting Quality and Efficiency of Investment", he evaluated the relationship of FR Quality and firm's investment efficiency using time period between1980 to 2003. He was of the concluded view that increased financial reporting quality can put significant impact on the investment efficiency of the firms.

The quality of Financial reporting can also be illustrated as: "the precision in financial reports that portrays the firms' operations to interested users". The FASB (Financial Reporting Standards Board), financial accounting results shown in the statements concept No.1 (1978) describes the protection of investors while making decisions for investment in the firms. Here, the rights of the potential investors are addressed in agency theory in which asymmetric information is held as one of the major causes of over/under investment, i.e. investment inefficiency. The studies made in the past showed that if there is adverse selection and asymmetric reporting among the managers, investors and shareholders, the efficiency of investment could be affected (e.g. Biddle & Hilary, 2006; Verdi, 2006). Thus, FRQ is directly proportional to investment efficiency, i.e. high-quality financial reporting leads towards enhanced efficiency of investment.

Myers and Majluf (1984) has evaluated in their study that when managers are align with the shareholders of the firm, and if the firm requires funds to invest in a project, the concerned managers possibly resist to arrange the funds might be available at discounted price even if proposed investment seems beneficial in terms of investment opportunity. Thus, it can be taken as obvious that if FRQ cause to decrease adverse selection, it can cause enhanced efficiency in firm's investments by exercising the down trends in the external cost of financing.

Several previous studies stated that high quality financial reporting helps small investors and common stockholders to monitor the managers (e.g. Bushman & Smith, 2001; Lambert, 2018).

Driving the results from the above discussed studies, it is expected that there will be a positive relationship between FRQ and investment efficiency.

The above said relation is also supported by Biddle & Hilary, 2006; Hope & Thomas, 2008; Biddle et al., 2009 in the past. But most of these findings are extracted from the research studies made in comparatively advanced countries having higher financial reporting quality as compared to developing countries. But these findings might go different in different markets in the world. (Gao & Kling, 2008; Chen et al., 2018). Thus, a validated evidence is required while evaluating the relationship between FRQ and investment efficiency in different scenarios and firms' settings for generalizing the findings of previous researches. Driving consistent expectations from the previous studies (e.g. Biddle et al., 2009), this study also hypothesizes that higher FRQ leads to improved investment efficiency. Thus, our hypothesis are:

H1: Firms with higher FRQ will show higher investment efficiency.

Since we analyze the role of FRQ in reducing overinvestment and underinvestment, we also test the following two hypotheses:

H2: Firms with higher FRQ will mitigate overinvestment problem.

H3: Firms with higher FRQ will mitigate underinvestment problem.

METHODOLOGY

In this study, the explanatory research design is used and the study period from 2005 to 2018. The study population is all non-financial firms listed on Pakistan stock exchange. A sample of 18 firm belonging to automobile sector of Pakistan, it was selected based on the research purposive sampling procedure for the study. The variables were subjected to econometric tests which suggested panel data have been used for regression analysis through EViews. In order to ensure that there will be no violation of the assumptions of the regression model, preliminary data analysis has been conducted.

Model Specification

A growth opportunities model for investment in terms of predictions have been used by Biddle et al. (2009) as other researchers have also used the same. It is described that there is the existence of investment efficiency in case if there is no deviation from the potential volume of investment. Positive deviation means Overinvestment and Negative deviation means underinvestment. Both Positive and Negative investment mean Investment Inefficiency.

$$InvEff_{i,t} = \beta_o + \beta_1 FRQ\_AR_{i,t} + \beta_2 FRQ\_TA_{i,t} + \beta_3 FRQ\_WCA_{i,t} + \beta_4 Size_{i,t} + \beta_5 LnAge_{i,t} + \beta_6 LnSale_{i,t} + \varepsilon_{i,t}$$

$$InvEff_{i,t} = \beta_o + \beta_1 FRQ\_Aggreg_{i,t} + \beta_2 Size_{i,t} + \beta_3 LnAge_{i,t} + \beta_4 LnSale_{i,t} + \varepsilon_{i,t}$$

Where:

$InvEff_{it}$ = is the total investment of firm i in year t

$FRQ\_AR_{i,t}$ = Absolute value of residuals from Eq. 1 of FRQ multiplied by -1

FRQ_TA_{it} = Absolute value of residuals from Eq. 2 of FRQ multiplied by -1

FRQ_WCA_{it} = Absolute value of residuals from Eq. 3 of FRQ multiplied by -1

FRQ_Aggreg_{it} = average of standardized values of the three proxies discussed above.

Investment Efficiency (Dependent Variables)

All the projects that have net present value in positive are conceptually come under the definition of investment efficiency. Positive deviation means Overinvestment and Negative deviation means underinvestment. Both Positive and Negative investment mean Investment Inefficiency.

$$Investment_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t-1} + \varepsilon_{i,t}$$

Where:

The total investment of the firm i in the year t is shown as "*Investment $_{i,t}$", and it is defined as "the net increase in the value of tangible as well as intangible assets kept by a firm that are scaled by lagged total assets".* On the other hand, *"the rate of change of sales of firm i from year t-2 to t-1"* is *Sales Growth $_{i,t}$.*

The deviation potential/expected volume of investment is reflected by the residuals obtained from the regression model. These residuals have been used as a proxy which is specific to the firm for investment efficiency. The residuals so obtained are of positive and negative showing the overinvestment and underinvestment respectively. The higher rate of firm's investment than expected by the firm is resulted from the positive residual and vice versa. Thus, the positive value of the residuals then multiplied by minus one, is our dependent variable. Higher value will be taken as higher efficiency.

Financial Reporting Quality-FRQ

"The accuracy with which a company's reported financials reflect its operating performance and their usefulness for forecasting future cash flows". Verdi (2006), defines financial reporting quality as "the precision with which financial reports convey information about the firm's operations, in particular its cash flows, in order to inform equity investors".

The first measure is obtained using the model proposed/used by McNichols and Stubben (2008), has given the following model to have the discretionary revenues being the proxy for earnings management.

$$\triangle AR_{i,t} = \beta_o + \beta_1 \triangle Sales_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where:

$\triangle AR_{i,t} = \triangle AR_{i,t}$ annually of a firm.

$\triangle Sales_{i,t} = \triangle Sales_{i,t}$ annually.

All proxy results are scaled/mounted by lagged-total-assets. Discretionary revenues are described as the residuals from Eq. (1). These represent the un-explained fluctuation/change in AR by sales growth.

Our first proxy for FRQ is the absolute value of the residuals multiplied by -1. Thus, higher values indicate higher FRQ.

The second measure for FRQ is obtained from the model of discretionary accruals developed by Kasznik (1999), based on Jones (1991):

$$TA_{i,t} = \beta_o + \beta_1 \triangle Sales_{i,t} + \beta_2 PPE_{i,t} + \beta_3 \triangle CFO_{i,t} + \varepsilon_{i,t} \quad (2)$$

where ;

$TA_{i,t}$ = Total Accruals = (△Non-liquid CA-△CL)+△Short-term Bank Debts-Depreciation.

$\triangle Sales_{i,t}$ = Change in Revenues;

$PPE_{i,t}$ = Property, Plant and Equipment;

$\triangle CFO_{i,t}$ = Change in Operating Cash Flow.

All terms are deflated by lagged total assets.

The second proxy for financial reporting quality (FRQ)=The absolute value of residuals from Equation-(2) multiplied to -1, the higher value so obtained represents higher FRQ.

Third proxy is concerned on the accruals-quality-model developed by Dechow and Dichev (2002). In this said model, working capital of a current period accruals are regressed on cash flow from operations of the previous year, the current year and the subsequent year.

$$WCA_{i,t} = \beta_o + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \varepsilon_{i,t} \quad (3)$$

Where:

$WCA_{i,t}$ =Working capital accruals = (△Non-liquid CA-△CL) + △Borrowing.

CFO stands for "Cash from Operations".

The above said all the variables are taken by deflating average total assets. The residual obtained from the equation-3 consists of the cash flows which are not explained in current and joining years. Thus, the third measure of FRQ is the positive values then multiplied by -1 resulting higher value representing higher FRQ.

After taking three measures from three models we have taken average of these three standardized values and name it as aggregate. Again, higher amount is considered as higher FRQ.

Control Variables

1. LnSize = log of total assets in year t - 1;
2. LnAge = age of firm;
3. Sales = Rate of sale
4. Div = Dividend (dummy variable)

Table 1: Variables

Sr. NO.	Variable Name	Abbreviation	Measurement
1	INVESTMENT EFFICIENCY	InvEff	$Investment_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t-1} + \varepsilon_{i,t}$
2	FINANCIAL REPORTING QUALITY	FRQ	1. $\triangle AR_{i,t} = \beta_0 + \beta_1 \triangle Sales_{i,t} + \varepsilon_{i,t}$ 2. $TA_{i,t} = \beta_0 + \beta_1 \triangle Sales_{i,t} + \beta_2 PPE_{i,t} + \beta_3 \triangle CFO_{i,t} + \varepsilon_{i,t}$ 3. $WCA_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \varepsilon_{i,t}$ 4. $Aggreg_{i,t}$= average of the standardized values of the three proxies
3	Size	LnSize	log of total assets in year t - 1;
4	Age	LnAge	Age of the firm
5	Sales	SALE	Change in Sales
6	Dividend	DIV	one if the firm pays a dividend in year t - 1, and zero otherwise;

RESULTS AND DISCUSSIONS

Descriptive Statistics

Descriptive statistics for mean, median, maximum, minimum, standard deviation, skewness and kurtosis is presented in column A of table 2. Column B gives the frequency of the investment efficiency. Investment Efficiency (INVEF) has a mean and median of -1.53 and -0.35 respectively. The overinvestment (investment inefficiency) describes a mean of -0.0034 separately and mean of -36.392 shows underinvestment (investment inefficiency). The results are consistent with previous studies Chen et al. (2011). Following the same pattern, all results and findings of FRQ are significant which are according to the researchers conducted in the past McNichols and Stubben (2008), Biddle et al. (2009), Chen et al. (2011). Column C gives the frequency of the Financial reporting quality. Financial reporting quality (FRQ_AR) has a mean and median of -0.47 and -0.025 respectively. FRQ_AR maximum and minimum values shows -0.682 and 0.00 respectively. Standard deviation is 0.072. Column D gives the frequency of the Financial reporting quality. Financial reporting quality (FRQ_TA) has a mean and median of -0.120 and -0.077 respectively. FRQ_AR maximum and minimum values shows -01.291 and 0.00 respectively. Standard deviation is 0.141. Column E gives the frequency of the Financial reporting quality. Financial reporting quality (FRQ_WCA) has a mean and median of -0.081 and -0.032 respectively. FRQ_AR maximum and minimum values shows -0.853 and 0.00 respectively. Standard deviation is 0.123. Column F gives the frequency of the Financial Reporting Quality aggregate. Financial reporting quality (FRQ_Aggreg) has a mean and median of -0.083 and -0.062 respectively. FRQ_AR maximum and minimum values shows -0.444 and 0.00 respectively. Standard deviation is 0.068.

Table 2: Descriptive Statistics

	InvEff	FRQ_AR	FRQ_TA	FRQ_WCA	FRQ_Aggreg	LnSize	LnAge	SALE
Mean	-1.527882	-0.047020	-0.120313	-0.080660	-0.082664	6.575424	33.49004	0.256614
Median	-0.350968	-0.024772	-0.076600	-0.031941	-0.062318	6.635007	31.00000	0.170512
Maximum	-0.003407	0.000000	0.000000	0.000000	0.000000	7.913177	65.00000	16.06925
Minimum	-36.39197	-0.682120	-1.290923	-0.852565	-0.444124	4.839245	7.000000	-2.755471
Std. Dev.	3.847407	0.071811	0.140986	0.122936	0.067621	0.560190	12.97455	1.324673
Skewness	-5.162255	-4.403085	-3.341143	-2.879608	-1.987579	-0.283087	0.370069	7.555283
Kurtosis	36.71295	30.99564	22.30093	13.33968	8.199820	2.837555	2.229270	86.77275
Jarque-Bera	13001.37	9007.808	4362.997	1464.978	448.0351	3.628433	11.94162	75783.21
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.162966	0.002552	0.000000
Sum	-383.4985	-11.80194	-30.19859	-20.24572	-20.74875	1650.431	8406.000	64.41022
Sum Sq. Dev.	3700.636	1.289205	4.969252	3.778299	1.143164	78.45334	42084.73	438.6894
Observations	251	251	251	251	251	251	251	251

Regression Results

Table 3 gives the results of estimation model of Eq-(1), Eq-(2), Eq-(3) using different FRQ measures. In table 3, we use as FRQ measures the model which has been proposed by McNichols and Stubben (2008), Kasznik (1999), Dechow and Dichev (2002), and the aggregate measure of FRQ.

Except for the McNichols and Stubben (2008) model, which is insignificant, conclusively the FRQ enhances investment efficiency in particular, since all the coefficients which are of quality measures are positively significant except FRQ_AR as the coefficient value is -0.142210 ($p < 0.95$ for FRQ_AR), But the FRQ_TA is positively significant at 1% level with InvEff as the coefficient value is 3.248493 ($p < 0.003$ for FRQ_TA), FRQ_WCA is positively significant at 10% level with InvEff as the coefficient value is 2.158705 ($p < 0.06$ for FRQ_WCA) , and FRQ_Aggreg is positively significant at 5% level with InvEff as the coefficient value is ($p < 0.03$ for FRQ_Aggreg). The results we have obtained, are similar to those which are reported by Biddle et al. (2009) and Chen et al. (2011). They confirmed that higher FRQ enhances the investment efficiency.

These findings are consistent with previous studies.

It is obvious that all of the co-efficient are showing positive outcomes except one of the results which is not significant. It means that higher FRQ causes to reduce the over-investment problems and hence our H1a is confirm.

Table 3: *Under Investment on FRQ and CVs*

	1	2	3	4
FRQ_AR	-0.142 (0.954)			
FRQ_TA		3.248*** (0.003)		
FRQ_WCA			2.159* (0.067)	
FRQ_Aggreg				5.409** (0.032)
LnSize	-13.131*** (0.013)	-14.711*** (0.005)	-11.487*** (0.009)	-13.395*** (0.010)
LnAge	5.331*** (0.000)	5.008*** (0.001)	3.283*** (0.000)	5.072*** (0.000)
Sales	0.187 (0.124)	0.195* (0.093)	0.132 (0.119)	0.219*(0.063)

C	4.815	9.289	9.139	6.644
	(0.559)	(0.261)	(0.189)	(0.419)
Industry Dummies	Yes	Yes	Yes	Yes
R^2	0.654	0.667	0.736	0.661
F	20.653	21.823	27.940	21.292

Model 1

The McNichols and Stubben (2008) model, FRQ_AR is not significant as the coefficient value is -0.142210 ($p < 0.95$ for FRQ_AR).

All the control variables are significant at 5% level and 1% level respectively except SALES which is insignificant.

Table 4: ***Under Investment on FRQ and CVs***

	1	2	3	4
FRQ_AR	-0.135*			
	(0.06)			
FRQ_TA		0.133***		
		(0.000)		
FRQ_WCA			0.043*	
			(0.016)	
FRQ_Aggreg				0.125**
				(0.000)
LnAge	-0.199***	-14.711***	-11.487***	-13.395***
	(0.013)	(0.005)	(0.009)	(0.010)
LnSale	0.017	0.0267*	0.018	0.021
	(0.243)	(0.0542)	(0.202)	(0.132)
Size	0.046	0.007 (0.799)	0.034 (0.232)	0.022(0.432)
	(0.114)			
C	-0.785	-0.615 (0.000)	-0.724 (0.000)	-0.690 (0.000)
	(0.000)			
Industry Dummies	Yes	Yes	Yes	Yes
R^2	0.237	0.327	0.248	0.275
F	2.43	3.797	2.577	2.968

Table 5: ***Under Investment on FRQ and CVs***

	1	2	3	4
FRQ_AR	0.298			
	(0.518)			
FRQ_TA		-0.831***		
		(0.001)		
FRQ_WCA			0.209	
			(0.139)	
FRQ_Aggreg				-0.191
				(0.573)
LnAge	-2.968**	-0.342*	-0.634***	-2.713***
	(0.025)	(0.055)	(0.001)	(0.041)
LnSale	-0.375	-0.045	0.041	-0.463
	(0.373)	(0.745)	(0.786)	(0.263)
Size	0.617	0.026	0.062	0.615
	(0.231)	(0.884)	(0.752)	(0.233)
C	3.117	0.691	0.988	3.302
	(0.037)	(0.195)	(0.084)	(0.027)
Industry Dummies	Yes	Yes	Yes	Yes
R^2	0.422	0.294	0.179	0.421
F	1.73	6.251	3.276	1.721

Model 2

The FRQ_TA is positively significant at 1% level with InvEff as the coefficient value is 3.248493 ($p < 0.003$ for FRQ_TA), All the control variables i.e. LOG(SIZE) and LOG(AGE) and SALES are significant.

These results confirm that higher FRQ improves investment efficiency.

Model 3

FRQ_WCA is positively significant at 10% level with InvEff as the coefficient value is 2.158705 ($p < 0.06$ for FRQ_WCA). These results also show that higher FRQ results in higher investment efficiency.

Robustness Check

We have also conducted robustness tests of the results already reported.

For this, FRQ_Aggreg has been calculated which is also is positively significant at 5% level with InvEff as the coefficient value is ($p < 0.03$ for FRQ_Aggreg). These obtained results are confirming the results driven by Biddle et al. (2009) and Chen et al. (2011).

CONCLUSIONS

The effect of FRQ on IE has been analyzed in this research study by using a sample of Pakistani non-financial automobile firms listed in PSX from year 2005 to year2018. After obtaining the results we can easily indicate that higher value of FRQ increases efficiency of the investment. However, when creating the distinction between over and underinvestment, we experience that FRQ stands playing the role in diminishing the overinvestment.

In addition, we find evidence that FRQ has a significant relationship, thus improving the investment efficiency. Certain companies having the inefficiency in investment, FRQ is the best resort for creditors to control the behavior of the management thus avoiding the expropriation. Keeping in view the same scenario, if we look on the other aspect of it, firms having the higher value of FRQ may be monitored in terms of investment inefficiency constraints through proper accounting information.

The results and findings of this study are going to add the literature relating to the investment efficiency of the firms. The decisions on investment will also be supported by this study significantly specially in the context of the institutions in Pakistan. The findings of this research study also have the relevancy with the issues addressed by creditors, managers and researchers as these findings make the understandings easy to the economic consequences at corporate level financial and accounting policies.

There are some limitations of our study as well. First, proxies used in this study for the calculations of FRQ and investment efficiency depend upon measurement error. Moreover, a different framework of research can be implemented in which public and private firms, market development and protection of investors' issues could be analyzed. Moreover, management characteristics must be taken into consideration while measuring the impact of FRQ on Investment Efficiency. It will enhance the scope of the study. These issues could be taken as very interesting one for the future research.

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