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**Article**

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## **Do Peer Firms Impact Corporate Investment Policies?**

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### **Abstract**

Peer effect is attractive as firms try to mimic financial decisions taken by one another. The current study explores the impact of peers' investment decisions on corporate firm's investment decisions. To capture this essence, the study utilized firm-specific characteristics as well as peer firm-specific characteristics mainly growth, leverage, market to book ratio, free cash flow and stock return. In this study, the corporate accounting data relating to firms' investment policies is taken from the published annual audited reports of the firms for the period between 2005 and 2015. GMM fixed effect model is used for data analysis. The results of the study reveal significant impact of peers' investment policies on corporate firm's investment decisions.

**Key Words:** peer effect, mimicking behavior, investment policy, leverage, cash flow

### **1. Introduction**

Peer effect can be referred to as a certain change in an individual's behavior that is mainly because of its peers. However, during the past several years, economists put forth maximum effort to understand the effects of peers in the financial decision making. In this context, Banerjee (1992) analyzed the impact of individual behavior which contributes to yield similar behavior of several others consequently which may lead to collapse the overall financial system (Lux, 1995). From social viewpoint, this type of behavior is irrational, hence is inefficient (Scharfstein & Stein, 2000). Understanding this phenomenon from the perspective of corporate world is much more important as firms are main constituent of the financial market.

In the context of organizations, Porter (1979) highlighted the fact that corporate actions are highly influenced by what their peer firms (competitors) do. In the corporate world, maximum decisions taken by firms reflect those of their peers. Likewise, investors focus on what peers do while analyzing and comparing investments (De Franco et al., 2011). Furthermore, numerous studies highlighted the importance of peer effect in making corporate policies. As Fracassi (2016) evidenced that firms which are socially connected, make same type of investment decisions. Foucault & Fresard (2014) also identified that peers' valuation determines competitors' investment decisions.

In this context, one of the most prominent economic theories of herd behavior-*Theory of Social learning* Bikhchandani et al. (1992) provides theoretical justification regarding why

and when corporate managers' observe and imitate decisions and actions of others'. As environment is more uncertain as well ambiguous and in such environments corporate managers' cannot assess full range of possibilities as well cannot determine cause and effect relationship to analyze the association between their actions and outcomes with full confidence (Milliken, 1987). So, they prefer to rely on information and actions of others' (which may be imperfect). They observe and follow the actions of those who are ahead of them instead of relying on their own information (Bikhchandani et al., 1992). As those who are likely to be perceived as having superior information can able to become "fashion leaders" (Bikhchandani et al., 1998). For instance, small firms believe that their larger rivals have better information so they may tend to follow them. Likewise, firms who have higher success rates in the past their actions are more likely to be imitated.

In addition to this, firms may imitate others' to lessen *competitive rivalry*. By doing so firms try to maintain their own position relative to competitors' or it may be an attempt to neutralize antagonistic actions of their rivals. When firms have comparable resources as well market position then competition can be very tough which may erode prices and profits (Peteraf, 1993). To eliminate such situation, firms can go for choosing homogenous or differentiation strategies (Baum & Haveman, 1997; Gimeno & Chen, 1998). As differentiation carries huge cost so it is difficult as well risky to pursue this strategy. Therefore, firms choose to follow homogenous strategies of those of their rivals to lessen the level of competition.

Hence, the most compelling reasons behind this mimicking behavior can be imperfect information, uncertainty (Lieberman & Asaba, 2006) as well as mitigating competitive rivalry. Hence, under such environmental conditions, managers prefer to imitate the activities of their peers. These studies suggest that peers' decisions considerably effect on different corporate financial decisions. In this context, numerous studies have been conducted on peer effect and financial decision making in the developed countries (Bradshaw et al., 2010; De Franco et al., 2011). Yet, in Pakistan, the researchers ignored the need to inspect this imperative relationship or very little has been done in this regard. Hence, the study is going to comprehensively and empirically examine the connection between peer effect and investment policy in emerging country Pakistan.

## **2. Literature Review**

### *2.1 Peer Effect*

Soon after the influential report of Coleman et al. (1966) regarding the effects of peers on students' school performance became public domain. It has been researched extensively by researchers of different disciplines such as sociology, education as well as economics (Van Ewijk & Slegers, 2010). Across different disciplines different terminologies are used to describe the effects of peers. For example, in economics, "peer effect and/or peer group effect" is normally used Zimmer & Toma (2000), in social sciences, "compositional effect" Van Damme et al. (2002) or "aggregated group-level effect" Hutchison (2003) are used.

Peer effect has been referred to as "wide range of externalities which occur when firms' behavior is influenced by the behavior and characteristics of its chosen reference group firm" (Patnam, 2011). A voluminous literature emphasized on utilizing peers' information as well as decisions to make own financial decisions by firms. In this context, Moon &

Bates (1993) confirmed that firms' rely heavily on peers' financial information to take their strategic decisions. These findings are supported and confirmed by (Guilding, 1999). Furthermore, Pae (2002) declared the financial reports information as a major source to obtain specific useful information relating to peers as well as industry.

However, theoretically it is not easy to identify peer effect due to reflection problem (Manski, 1993). Reflection problem is a particular type of endogeneity as it is difficult to infer whether a firm's actions are attributed to actions or characteristics of its peer group or not. In order to analyze peer effect appropriately three effects categorized by Manski (1993) need to be understood. For instance, if firm decides to declare dividend in the response, their peer firms declare dividend that is "endogenous effect". Secondly, if a firm has enough profit to declare dividend on its own but declares in response of positive signals from peers' dividend declaration is "exogenous (contextual) effect". The last type is "correlated effect" wherein firms on the basis of same individual characteristics or same institutional setting inclined to behave similarly, for instance firms of a specific industry behave similarly due to common shock i.e. innovation of technology.

## 2.2 Investment Policy

Seminal work of Modigliani & Miller (1958) and Miller & Modigliani (1961) entails investment separation principle which states that firm's optimal level of investment only be determined by its actual consideration irrespective of firms' financial decisions. However, prior literature evidenced that some of the real world's financial problems like lack of internal funds availability restricted accessibility to external funds which may impede firms' proficiency to invest competently (Fazzari et al., 1988; Guariglia, 2008). So, sources as well as uses of funds must be properly balanced for optimal investment decisions. This is the reason that firms under such conditions take care of options concerning fund raising along with investment, as adjustment in one policy calls adjustment in other policy consequently (Gatchev et al., 2010).

Since one of the most fundamental corporate decisions taken by the firms is investment decision to risk their finances in the hope of generating revenue in the future. One of the best known methods to decide whether an investment should be made is the net present value (NPV) technique. Net present value can be calculated by summing up all the expected discounted cash inflows minus initial cash outflow of a project. The projects with positive NPV would be accepted and negative NPV would be rejected as it would not add value to shareholders' wealth. On one side, the NPV technique has been widely used by businesses and on the other side it is also not without critiques.

The supporters of NPV technique like Graham & Harvey (2001) surveyed Chief Financial Officers (CFOs) and reported that 74.9% of them evaluated their investment projects using this technique. The opponents of this technique such as Dixit and Pindyck (1994) stressed that the firms' discount rates for evaluating investment proposals/projects are normally 3-4 times the cost of capital. Lately et al. (2009) argued that practically there is non-usage of NPV technique, in other words, there exists theory-practice gap. As argued by Arnold & Hatzopoulos (2000), this gap is to some extent because of unfeasible underlying assumptions of NPV technique. Consequently, practically NPV technique offers little

power to explain investment behavior of firms. Keeping in view the significance of investment decision in adding value to shareholders' wealth, a lot of investment theories/models (Tobin's Q Model, Accelerator model, Financial Constraint Model) have been developed to fill up the theory-practice gap.

### 2.3 Theoretical Background

Most research studies on corporate investment decisions explain Tobin's  $Q$  model, accelerator model as well as financial constraint model. In 1969 Tobin developed *Tobin's Q* which is a market to book ratio that can be calculated by market value of the assets divided by book value of the assets. The underlying theory is that firms' who have Tobin  $Q$  ratios greater than one should have a reason to invest, as in this case the reproducing capacity of the assets is more than current replacement cost. On the other hand, firms' with less than one Tobin  $Q$  ratio restrain their investment. Tobin  $Q$  theory entails that all sorts of information concerning predictable future profitability have an effect on investment decisions of the firms' via effecting marginal  $Q$ . As, marginal  $Q$  greater than one (high) stimulates firms to invest more or to expand current levels of operations, whereas, marginal  $Q$  lesser than one (low) recommend firms to curtail investments. Since, the optimal level of investment is attained when the value of marginal  $Q$  is equivalent to one.

Relating to *accelerator model*, the accelerator principle entails that stock of capital goods should be in desired proportion to production level, and firms make capital investment as an effort to minimize the gap between actual/existing as well as desired stock of capital goods (Lucas, 1967). Consistent with this view, if firms' have constant capital to output ratio, a change in output or sales usually requires firm to invest a corresponding amount to attain desired level of capital stock. From economic perspective the underlying logic of accelerator effect holds that increase in sales signify increase in profits indicating in future greater usage of on hand existing capacity, supporting firms to invest more on capital stock. This increase in capital expenditure cause multiplier effect as this may result in huge sales growth as well as profit margins.

As per Modigliani-Miller hypotheses, firms' investment decisions are independent of firms' financial choice decisions. Yet their irrelevance hypotheses failed to consider imperfections of capital market like asymmetric information problems plus associated financial constraints. Myers & Majluf (1984) filled this gap by offering useful insights relating to underinvestment problems that may be confronted because of information asymmetry. According to them, when managers' are equipped with better information about firm's value, they attempts to raise funds from external sources to finance their investment decisions by issuing new equity that would may be interpreted by outside investors as firms' being overvalued. Therefore, *financial constraints* like lack of internal funding and costly access to external funding constrain investment decisions (Fazzari et al., 1988). Contrarily et al. (1999) argued that debt with respect to financial cost is better as well as most favored source of external financing as compared to equity. Firm consider both costs of external financing (debt and equity) and prefers debt over equity where they utilize external source of financing (Donaldson, 1961).

### 2.3 Peer Effect and Investment Policy

Imitation usually takes place in the environments of uncertainty and/or ambiguity. Managers who take decisions in uncertain environment are unaware of the consequences of their chosen actions. This may compel them to imitate peers' behavior or actions to deal with imperfections as well to maintain their good reputation (Bikhchandani et al., 1992). Managers may also mimic others to mitigate intense rivalry and associated risk (Baum & Haveman, 1997; Gimeno & Chen, 1998; Greve, 1996).

Corporate investment policy is imperative as it decides about corporate development. Appropriate investment not only ensures corporate development, it also confirms efficient utilization of available resources promised to enhance performance as well as market value of firms. Contrarily, poor investment may threaten firms' financial well-being and can lead them towards bankruptcy. Thus, firms within same industry and strategic group may be inclined to adopt same behavior to mitigate competition and to gain competitive advantage (Klemperer, 1992; Peteraf, 1993).

Numerous recent studies confirmed the impact of peers on investment decisions of firms. In 1990s, Scharfstein & Stein proposed a model which entails that decisions relating to the investment which are based on the correlation among signals are taken by high quality manager and investment decisions on the basis of independent information are taken by poor quality manager. Thus, managers prove themselves as quality investment manager often by mimicking the others' investment choices.

Furthermore, Fracassi, (2016) holds that firms which are socially connected make similar investment decisions. In the similar vein et al. (2007) hold the same version relating to investment decisions. According to them, prices in the financial markets pass on information on which to base managerial investment decisions. Likewise, Bakke & Whited (2010) too confirmed that peers' information concerning stock prices guides firms' investment decisions. Additionally, Patnam (2011) discovered that firm policy decisions pertaining to executive compensation, R & D and investment are affected by those of their peer firms.

Moreover, Foucault & Fresard (2014) evidenced that firms' investment decisions are significantly influenced by peers' assessment. They recommended that firms' investment policy relies heavily on peer firms' stock prices. This permits them to spot growth opportunities by defeating information imperfections which thus enable them to make optimal investment decision. More recently Chen & Ma (2017) asserted that failure of risky yet profitable investment and mitigation of competitive pressure can be compelling reasons to mimic the investment behavior of peer firms. In the similar vein Park et al. (2017) also supported and confirmed the impact of peers' on firms' investment decisions. According to them, financially constrained firms set their investment decisions mostly in the response of investment decisions of their peers. Furthermore Liu & Chen (2012) also confirmed that this imitating (learning) behavior of firms regarding investment decisions not only enhances firm's productivity (who imitates) but also productivity of its peers. Thus, it can be deduced that it can mitigate risk of failure as well as competitive pressure. Therefore, in the light of these arguments, we thus hypothesize that:

- **H<sub>1</sub>:** There is impact of peers on firms' investment policy.

### 3. Data Description

#### 3.1 Population and Sample of the Study

The current study's *population* was non-financial sector of Pakistan. The data relating to corporate investment policies were obtained from the annual audited reports (published) from 2005-2015. Karachi Stock Exchange website was a source of market data relating to stock price and market index of the period from 2005-2015.

As this study analyzed the impact of peers on corporate financial policies specifically investment policies, so the sampling frame was narrowed to only non-financial industries. The *sample* of this study consisted of 13 non-financial sectors listed on Karachi Stock Exchange from the period of 2005-2015. Non-probability sampling method was adopted to select appropriate number of sample.

#### 3.2 Econometric Model

##### 3.2.1 Model Selection

The current study examined the impact of peer firms on corporate investment policies conducting regression analysis using GMM. In various areas of economics and finance the explanatory variables are not exogenous. For instance, empirical studies carried out on policy variables are not strictly exogenous as it most likely to be determined by outcome variable of interest. Hence to address various endogeneity problems, the use of Instrumental Variable methods or GMM has become standard practice nowadays (Blundell & Bond, 1998). As in the current study reflection problem is a particular type of endogeneity. GMM model has the ability to address the endogeneity issue. So, to address this problem GMM was used.

Further, to determine which model is appropriate either fixed effect model or random effect model, *Hausman Test* was conducted. For this purpose we tested either random effects are consistent and efficient versus random effects are inconsistent. The results revealed significant p-value, indicating that random effects are inconsistent thus utilized GMM fixed effect model for further analysis.

##### 3.2.2 Macro-Economic Factors to Address Correlated Effects

Numerous macro-economic factors can impact corporate financial decisions. Past research studies also confirmed significant role of macro-economic factors while devising corporate financial policies (Chen et al., 2005; Eldomiaty & Tarek, 2007; Giannetti, 2003) mainly investment policies of the firms. From several macro-economic factors, the current study utilized two key indicators "interest rate and stock market return" which were found to have significant impact.

##### 3.2.3 Baseline Empirical Model Peer Effect on Investment

$$Investment_{ijt} = \beta_0 + \beta_1 Inv_{-ijt} + \beta_2 Firm\ Specific\ Factors_{-ijt-1} + \beta_3 Peer\ Firm\ Factors_{-ijt-1} + \beta_4 SM_{-1} + \beta_5 IR_{-1} + Year\ Fixed\ Effect\ t + Industry\ Fixed\ Effect\ j + Error\ Term$$

Where *Investment<sub>ijt</sub>* is firm's investment for a current year, measured as the ratio of capital expenditure over total assets, where, subscripts *ijt* correspond to firm, industry and year, respectively. *Inv<sub>-ijt</sub>* is average of peer firms' investment excluding firm I, outcomes from industry j, at year t. *Firm Specific Factors<sub>-ijt-1</sub>* are firm-specific characteristics of previous

year. *Peer Firm Factors-ijt-1* are previous year average peer firms' factors, excluding firm *i*, from industry *j*, at year *t*. *SM-1* is stock market index of the previous year. *IR-1* is interest rate of the previous year. *Year Fixed Effect t* is year fixed effects. And *Industry Fixed Effect j* is firm-year specific error term that is assumed to be correlated within firms and heteroskedastic.

#### *Corporate Investment Model*

$$Investment_{ijt} = \beta_0 + \beta_1 Growth_{t-1} + \beta_2 Leverage_{t-1} + \beta_3 Free\ CashFlow_{t-1} + \beta_4 Stock\ Return_{t-1} + Error\ Term$$

Where *Investment t* is firm's current year investment, measured as the ratio of capital expenditure over the total assets. *Growth t-1* is firm's growth of previous year, sales growth. *Leverage t-1* is firm's leverage of previous year, measured as the ratio of total debt to total book assets. *Free Cash Flow t-1* is firm's free cash flow of previous year, calculated as operating income minus capital expenditure. *Stock Return t-1* is firm's stock return of previous year, measured as current price minus previous price divided by previous price.

#### *Peer Investment Model*

$$Investment_{ijt} = \beta_0 + \beta_1 Growth_{-ijt-1} + \beta_2 Leverage_{-ijt-1} + \beta_3 Free\ CashFlow_{-ijt-1} + \beta_4 Stock\ Return_{-ijt-1} + Error\ Term$$

Where *Investment t* is firm's current year investment, measured as the ratio of capital expenditure over the total assets. *Growth -ijt-1* is previous year average growth of peer firms excluding firm *i*, from industry *j*, at year *t* measured as sales growth. *Leverage -ijt-1* is previous year average leverage of peer firms excluding firm *i*, from industry *j*, at year *t* measured as the ratio of total debt to total book assets. *Free Cash Flow -ijt-1* is previous year average free cash flow of peer firms excluding firm *i*, from industry *j*, at year *t* calculated as operating income minus capital expenditure. *Stock Return -ijt-1* is previous year average stock return of peer firms excluding firm *i*, from industry *j*, at year *t*, measured as current price minus previous price divided by previous price.

## **4. Empirical Results**

### *4.1. Descriptive Statistics*

Descriptive statistics is shown in table 1. Here two distinct categories are: firm-specific characteristics and peer-firm specific characteristics. The mean of corporate investment policy is 0.490 and mean of peer firm investment policy is 0.210 respectively. Relating to firm-specific characteristics, the mean of growth (GRO) is 0.098, leverage (LEV) is 0.640, free cash flow (FCF) is 335612 and return (RET) is 0.142. Regarding peer firm-specific characteristics, the mean of peer growth (PGRO) is 0.050, peer leverage (PLEV) is 0.048, peer free cash flow (PFCF) is 108653 and peer return (PRET) is 0.039. Relating to macro-economic variables, the mean of stock market return (SM) is 0.049 and interest rate (IR) is 0.078 respectively.



**Table 1: Descriptive Statistics**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
<b>INV</b>	1510	0.490386	0.211507	0.018434	0.894364
<b>PINV</b>	1510	0.210389	0.150707	0.050707	0.326245
<i>Firm-Specific Characteristics</i>					
<b>GRO</b>	1510	0.098160	0.412697	-1.000000	2.822158
<b>LEV</b>	1510	0.640666	0.321610	0.095686	2.970117
<b>FCF</b>	1510	335612	5859899	-74269971	59719870
<b>RET</b>	1510	0.142598	0.566843	-0.716093	2.584615
<i>Peer Firm-Specific Characteristics</i>					
<b>PGRO</b>	1510	0.050515	0.319478	-0.838012	1.045656
<b>PLEV</b>	1510	0.048407	0.279588	-1.125036	0.681345
<b>PFCF</b>	1510	108653	2112606	-8997053	10532152
<b>PRET</b>	1510	0.039560	0.454341	-1.693988	1.244629
<i>Macroeconomic Variables</i>					
<b>SM</b>	1510	0.049149	0.167027	-0.059616	0.167027
<b>IR</b>	1510	0.078926	0.019556	0.048000	0.108000

Where INV= investment, PINV= peer investment, GRO= growth, LEV= leverage, FCF= free cash flow, RET= return, PGRO peer growth, PLEV= peer leverage, PFCF= peer free cash flow, PRET= peer return, SM= stock market return and IR= interest rate

#### 4.2. Correlation Analysis

Correlation analysis has been shown in table 2. As far as firm-specific factors are concerned, the correlation coefficient of investment with growth (GRO), leverage (LEV), return (RET) is positively correlated that is 0.04, 0.17 and 0.03 respectively and negatively correlated with free cash flow (FCF) that is -0.05. As far as peer firm-specific characteristics are concerned the correlation coefficient of peer investment is positively correlated with peer growth (PGRO), peer leverage (PLEV), peer return (PRET) that is 0.04, 0.03 and 0.01 and negatively correlated with peer free cash flow (PFCF) that is -0.04. The correlation coefficient of macro-economic variables specifically stock market return (SM) is positively correlated with investment (INV), growth (GRO), leverage (LEV) and return (RET) that is 0.05, 0.06, 0.02 and 0.21 and negatively correlated with free cash flow (FCF) that is -0.01 (firm-specific characteristics). The correlation coefficient of stock market return (SM) is positively correlated with peer investment (PINV), peer growth (PGRO), peer leverage (PLEV) and peer return (PRET) that is 0.04, 0.02, 0.02 and 0.06 and negatively correlated with peer free cash flow (PFCF) that is -0.02 (peer firm-specific characteristics). The correlation coefficient of interest rate (IR) is negatively correlated with all firm-specific characteristics namely investment (INV), growth (GRO), leverage (LEV), free cash flow (FCF) and return (RET) which is -0.15, -0.10, -0.02, -0.13 and -0.21 respectively. Similarly, the correlation coefficient of interest rate (IR) is negatively correlated with all peer firm-specific characteristics namely peer investment (PINV), peer

growth (PGRO), peer leverage (PLEV), peer free cash flow (PFCF) and peer return (PRET) which is -0.04, -0.02, -0.10, -0.09 and -0.03 respectively.

**Table 2: Correlation Analysis**

	Firm-Specific Characteristics					Peer Firm-Specific Characteristics					Macroeconomic Factors	
	INV (-1)	GRO	LEV	FCF	RET	PINV	PGRO	PLEV	PFCF	PRET	SM	IR
INV (-1)	1.00											
GRO	0.04	1.00										
LEV	0.17	-0.13	1.00									
FCF	-0.05	0.02	-0.18	1.00								
RET	0.03	-0.03	0.00	0.06	1.00							
PINV	0.70	0.05	-0.17	0.06	-0.01	1.00						
PGRO	0.04	-0.70	0.11	0.01	-0.01	0.05	1.00					
PLEV	0.03	0.15	-0.78	0.07	0.01	0.15	-0.09	1.00				
PFCF	-0.04	0.00	0.04	-0.54	-0.05	-0.11	-0.01	-0.06	1.00			
PRET	0.01	-0.10	-0.03	0.01	-0.64	0.01	0.09	0.02	0.06	1.00		
SM	0.05	0.06	0.02	-0.01	0.21	0.04	0.02	0.02	-0.02	0.06	1.00	
IR	-0.15	-0.10	-0.02	-0.13	-0.21	-0.04	-0.02	-0.10	-0.09	-0.03	0.09	1.00

Where INV= investment, PINV= peer investment, GRO= growth, LEV= leverage, FCF= free cash flow, RET= return, PGRO peer growth, PLEV= peer leverage, PFCF= peer free cash flow, PRET= peer return, SM= stock market return and IR= interest rate

*4.3. Results of the Regression Model*

In Table 3, the impact of peer firms on corporate investment policies are shown. The coefficient of peer investment (PINV) is 0.2363 significant at 1% level and t-value is 9.7983 which confirm the impact of peers on investment policies of firms as well as endogenous effects. These results of the current study are consistent with Chen & Ma (2017) and Park, Yang & Yang (2017). According to them peer effect determines the investment decision of firms. As per social learning theory and competitive rivalry theory peer effect influence firms’ investment decisions when peer decisions are perceived as of high quality, moreover, they face fierce competition.

**Table 3: The Impact of Peer Firms on Corporate Investment Policies**

	<b>Coefficient</b>	<b>t-value</b>
<b>PINV</b>	0.236326***	9.798333
<i>Firm-Specific Characteristics</i>		
<b>GRO</b>	0.020244**	2.206383
<b>LEV</b>	0.076368***	0.024225
<b>FCF</b>	-5.33E-09***	-4.029546
<b>RET</b>	0.007031	-1.208860
<i>Peer Firm-Specific Characteristics</i>		
<b>PGRO</b>	0.023805***	2.447328
<b>PLEV</b>	0.085248***	2.378021
<b>PFCF</b>	-7.54809***	-6.733873
<b>PRET</b>	0.010512**	-2.048770
<i>Macroeconomic Variables</i>		
<b>SM</b>	0.122115***	-7.197880
<b>IR</b>	-0.193207***	-7.979415
<b>R-squared</b>	0.958979	
<b>J-statistic</b>	189.5325	
<b>Prob(J-statistic)</b>	0.000000	

Where INV= investment, PINV= peer investment, GRO= growth, LEV= leverage, FCF= free cash flow, RET= return, PGRO peer growth, PLEV= peer leverage, PFCF= peer free cash flow, PRET= peer return, SM= stock market return and IR= interest rate. *Moreover*, \* significance at a 10% level (two-tailed test), \*\* significance at a 5% level (two-tailed test), and \*\*\* significance at a 1% level (two-tailed test).

Concerning firm-specific characteristics of peers significant values reveal change in the peer group characteristics that compel individual firms to adjust their investment policy decisions accordingly. Peer firm-specific characteristics which are peer growth (PGRO), peer leverage (PLEV), peer free cash flow (PFCF) and peer return (PRET) depicts significant impact. The peer growth (PGRO) and peer leverage and peer return (PRET) significantly positively impacts corporate investment policy at 1% level (0.0238 & 0.0852) respectively whereas; peer return (PRET) is significant at 5% level (.0105). The positive significant impact of peer growth depicts that increase in sales encourage firms to make more investments in non-current tangible assets. Like, Lensink & Sterken (2000) found that both in small and large sized firms' the investment decisions are more likely to be sensitive to increase in sales volume, this confirmed consistency of accelerator model's central prediction. The positive significant impact of peer leverage indicates that firms prefer debt financing over equity financing as it is easily available as well the cost of debt is less than the cost of equity. In this regard a study conducted by Baskin & Miranti (1999) provided evidence that cost of borrowing can be 1% or low whereas cost of issuing equity lie between 4-15% of total raised amount. This study revealed that cost of equity is 3-14% more than cost of debt. So comparatively debt is better and favored source of external financing. The positive as well significant impact of peer return specifies that the useful

information relating to corporate investment can be gained through the stock returns of peers. This is consistent with studies of Albuquerque (2009) and Bond et al. (2012).

Peer free cash flow (PFCF) significantly negatively impacts corporate investment policy at 1% level (-7.548). The negative yet significant impact of peer cash flow depicts that increase in the amount of free cash flow constrains firms to invest more in their non-current tangible assets. As firms, which choose to hoard cash give up potential investment opportunities (Ferreira & Vilela, 2004). To inspect correlated effect, two macro-economic indicators specifically stock market return (SM) and interest rate (IR) too depicted a significant impact 0.2211 and -0.9320 at 1% level. These findings of the study affirm the significant impact of peers on corporate investment policy decisions. Thus, H1 is accepted.

## **5. Discussion & Conclusion**

### *5.1 Discussion*

The findings of current study are consistent with previous studies. This study too confirmed significant role of peers in taking one's own financial decisions specifically about investment policies of the firms. The greater coefficient of peer firm investment that is 0.2363 significant at 1% level than any other firm specific or industry specific coefficient further affirm peer behavior's significant impact. It is also true for this study that firms determine their own financial decisions keeping in view decisions taken by those of their peers. These decisions are not taken in isolation as they rely on the information and decisions taken by their peers (Clark & Loheac, 2007; Moon & Bates, 1993). Hence, these findings are consistent with studies conducted by Chen and Ma (2017), Joo et al. (2016), Leary & Roberts (2014) and Park et al. (2017). As stated earlier, imperfect information, uncertainty, ambiguity as well as competitive rivalry may induce managers' to imitate others (Lieberman & Asaba, 2006). Uncertain, ambiguous environment hinders' managers' ability to uncover hidden facts to determine cause and effect relation with greater confidence (Milliken, 1987) thus they like to follow the paths of others' (peers) who are ahead of them (Bikhchandani et al., 1992). Moreover, competition among firms may cut profit margins and to mitigate such effects firms can prefer to choose same strategies of their successful rivals (Baum & Haveman, 1997; Gimeno & Chen, 1998). Likely et al. (2012) confirmed that this imitating (learning) behavior of firms significantly augments productivity of both (firm and its peers). Thus one can infer that mimicking this investment behavior can help in reducing risk as well as competitive pressure.

In addition to this, the coefficients of peer firm-specific factors for example, peer growth (PGRO), peer leverage (PLEV), peer free cash flow (PFCF) and peer return (PRET) are greater than the coefficients of firm-specific factors (shown in table 3). This further supports argument that individual firms' determine their investment policy keeping in view the averages of peer firms' characteristics. It means that characteristics of the peer firms matter a lot for setting one's own financial policies (Mackay & Phillips, 2005). The positive significant impact of peers' growth, peers' leverage and peers' returns also indicate that investment decisions of the peer firms are considered by individual firms while making their own investment decisions. Whereas, the negative significant impact of peers' free

cash flow indicates that when corporate managers engage in piling up cash, in doing so may give up prospective opportunities for investment.

Lastly, the results of our study depict that macro-economic factors (stock market return and interest rate) impact all the firms in the group. These correlated effects significantly influenced investment policy of the firms. Better stock market performance encourages the firms to invest more in their business. On the other hand, increase in interest rate causes high cost of debt which discourages companies to invest more. The findings of our study are consistent with studies conducted in the past that numerous macro-economic factors significantly impact financial decisions of firms (Chen et al., 2005; Eldomiaty & Tarek, 2007; Giannetti, 2003).

### *5.2 Conclusion*

Peer information and decisions are considered important while setting corporate financial policies decisions. To investigate this role of peers, the study explored to what extent corporate investment policy decisions are influenced by those of their peers. To inspect this, almost same methodology adopted by Leary & Roberts (2014), Chen & Ma (2017) as well as Park, Yang & Yang (2017) was adopted. Nevertheless, the study instead of using equity shocks used two key indicators of macro-economic variables which were stock market return as well as interest rate to address correlated effects. To check relation among variables, correlation analysis was conducted, and to encounter endogeneity problem in the independent variable, GMM model for panel regression analysis was used. Further, Hausman test confirmed to conduct fixed effect model for further analysis. The findings of the study revealed significant impact peers have on corporate investment decisions of firms which are consistent with prior studies conducted in this perspective (Chen & Ma, 2017; Devenow & Welch, 1996; Joo, Yang & Yang, 2016; Leary & Roberts, 2014). The results of this study further confirmed significant role of peers' information and decisions to take their own financial decisions.

### *5.3 Contribution of the Study*

During the past several years, economists' in the developed nations put forth maximum effort to understand the effects of peers' in the decision making. Understanding this phenomenon from the perspective of emerging nation was much more important. Hence, the study has first theoretical contribution to empirically examine the connection between peer effect and investment policy in Pakistan. This study contributed to expand the existing body of knowledge relating to peer effect and corporate finance literature by providing empirical evidence from Pakistan.

Furthermore, this study can also impact society as this study moved around the effect of peers in corporate decision making. Individual is micro element in every society wherein he/she has to take decisions either by following peer decisions or by taking their own. By understanding how peers at the corporate level impacts financial investment decision making of one another one can get useful insights regarding ones' own decision making. Hence this study can be helpful from this perspective. Lastly, this study laid the foundation for future research concerning peer effect and corporate investment decision making in the context of Pakistan. Moreover, this study served as a ground work for understanding

underlying mechanism of mimicking behavior to advance further research. This study can be extended theoretically as well as practically.

#### 5.4. Limitations & Future Directions

Regardless of productive findings, the current study has few limitations as well. The sample of the study is limited as this study used only limited number of sectors that is only 13. In order to explore full essence of peer effect in the context of Pakistan all excluded sectors (non-financial sectors) needs to be incorporated. Moreover, the current study obtained data relating to non-financial sector of Pakistan, which further hinders results generalizability. In addition to this, future studies can be carried out by obtaining primary data as well to further explore financial behavior of corporate world.

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