THE IMPACT OF CORPORATE INVESTMENT BEHAVIOUR ON THE CORPORATE PERFORMANCE: EVIDENCE FROM AN EMERGING MARKET

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ABSTRACT

Decision making in investment often includes conflicts in information and subjective judgment of the investors and managers behaviours. The main purpose of this paper is to investigate the Impact of corporate investment behaviour on the corporate performance. Using model for corporate investment herding behaviour, this study explore the presence of managers' investment herding bias at corporate-level, and its ultimate impact on corporate performance. The study employs the micro level data of 500 listed firms of Pakistan stock exchange from period of 2010 to 2015. Empirical analysis shows that managers' herding behaviour positively and significantly affect the corporate performance. The results are robust under exogenous shocks on corporate performance. Thus, the study offers useful policy implication to the corporate stakeholders to device the policies accordingly.

Keywords: Manager Herding Bias, Corporate Financial Performance.

INTRODUCTION

Theories on herding bias find corporate managers usually follow the financial experts in their trading behavior instead of relying their own source of information (Bikhchandani et al., 1992). The study of Garber (2001) find herding behavior the most prominent bias in the psychology of judgment. In the recent past, the studies on investment herding behaviour present the diverse behavioral pattern across the world. Decision making in investment often includes conflicts in information and subjective judgment of the investors and managers behaviours. Corporate investment behavior has increased importance in the recent corporate literature. Usually corporate managers found biased in their investment decision because of securing their good reputation. During their financial decision, managers exhibits many biases among them, following their peers of the other firm in the same industry is most common bias (Garber, 2001). Investment herding in the tendency of corporate managers to follow the peers or financial analysist in their financial decision. The question is why agents mimic the decisions of others from different aspects? Devenow and Welch (1996) provide a summary of different herding mechanisms among them the career reputation concerns or the information cascade theory is the main source of motivations for CEOs and directors to mimic the investment behavior of their peers. Reputational herding occurs when the decision-maker mimics the decisions of others due to the concern that it is always safe in preserving or gaining reputation by being in the crowd. Most important career concern regarding CEOs and directors is to avoid damage to their reputation in the external market.

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(Bikhchandani et al., 1992). The studies of Garber (2001) find herding behaviour the most prominent bias in the psychology of judgment. In the recent past, the study on investment herding behaviour presents the diverse behavioural pattern across the world.

Fong et al. (2004) outline four general theories (first two theories for intentional herding and last two for unintentional herding) as to why corporate managers may engage in herding behaviour:

1) Corporate managers are subject to reputational risk when they behave differently from the crowd, thus they may ignore private information to trade with the herd.
2) Managers may infer the private information of rival managers (perceived on their prior trades), resulting in the formation of informational cascades.
3) Corporation managers may also receive similar private information because they aslo examine the same priced factors which causing them to arrive at similar conclusions regarding individual stocks.
4) Corporation managers may exhibit similar aversions to stocks exhibiting particular characteristics, such as low liquidity or low analyst coverage.

In U.S. and Europian market, corporate herding behaviors among corporate managers of different institutes are different. Choi and Sias (2009), document strong institutional herding bias in U.S corporations. Also, Walter and Moritz (2006), pinpoint the herding behavioral bias of mutual fund managers in Germany. A South Korea, Taiwan and China market also exhibits herding behavior (Chang et al., 2000; Chiang et al., 2010).The relationship between managerial career concerns and herding is examined by many scholars. Devenow and Welch (1996) analytically illustrate herd behavior in making corporate investment decisions.
Bo et al. (2013), explain investment herding behavior among corporate director, boards, and managers, and this behavior positively influence on the corporate performance of Chinese listed firms.

Prior literature on herding behavior has versatile information about investor behavior in the stock market individually and collectively. There is rare contribution on the behavior of corporate managers at firm level specifically in emerging country. In Pakistan there is not a contribution exists in the literature. Usually, corporate managers seek corporate-level financial information for their investment decision. Henceforth, corporate level investigation of corporate manager's behavior may provide a better understanding the impact of behavior corporate performance. This study attempt to fill the literature gap identified in the above literature based on the following questions:

1. Whether managers of the firm exhibit herding behavior.
2. What is the impact of herding behavior of corporate managers on the corporate performance?

Moreover, this study contributes to the existing corporate finance literature in the following two aspects. The first part hypothesize the presence of manager investment herding bias following by Bo et al. (2013) and second part hypothesize the relation of behavior on the corporate financial performance followed by the (Shah et al., 2018) for the period of 2010 to 2015 in Pakistan stock market.

Overall empirical findings report that:

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3. More than 50% of the corporate managers exhibits herding behavior during the sample periods and at different significance level.
4. Using different measures of financial performance, we find that manager herding bias still positively and significantly affect the corporate performance.

The rest part of the study is structured as follows. Section 2, explains brief literature review and hypotheses development. Section 3 presents methodological approach. Section 4 describes study results and discussion. Section 5 states conclusion and suggestions.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Empirical evidences document presence of herding bias among the mutual fund mangers of U.S. market (Grinblatt et al., 1995). Herding bias in analysts recommendation (Welch, 2005) and among pension fund managers (Lakonishok et al., 1991) in European market. Literature on herding behavior among corporate managers is not limited to the U.S. and European market but also prevalent in Asian markets. The study of Chang et al. (2000) show presence of herding bias in South Korea and Taiwan, and very limited bias in Japan whereas no bias in Hong Kong. In emerging market, herding behavior among managers are found for significant than the other markets. Bo et al. (2013) shows the board attributes on corporate managers herding behavior. Bo et al. (2013) study A and B share of Chinese stock market and documents that board attributes such as age, gender, independent directors, managers, impact on the corporate investment behavior.

Although herding mentioned above studies much to contribute to a better understanding of bias among managers at investment level but most of the studies target a specific industry like pension fund manager. In this study, we extend the sample to 500 listed firm of the stock market and using the absolute investment deviation model suggested by Bo et al. (2013), we construct the first hypothesis as follows:

H1: Whether herding bias exists in the corporate managers of Pakistan stock market.

A perennial problem that puzzles empirical researchers is what the method of most appropriate measuring the performance the examining the relationship between the corporate investment herding bias and a firm's performance The literature mainly recommends the use of accounting and market-based corporate performance metrics. Both of them have their own strengths and weaknesses. Demsetz and Villalonga (2001), use Accounting and Tobin Q as substitute measures of corporate performance. These two measures actually differ in both time and actual power measurement (Abdullah et al., 2012; Wermers, 1999). The problem of accounting efficiency is that its calculation is influenced by accounting standards and that accounting standards do not take into account the market value of growth options. The balance margins are also much lower. In other words, since the book profit margin is based on the facts stated in the financial records, future expected cash flows are at least taken into account. In contrast, Tobins Q is a market-based performance measure. This shows all the decisions/actions that management is currently executing and the expected future performance of the business. The drawback associated with this measure is that it is controlled by investor psychology and should possibly be biased to be excessive optimism or investor pessimism. In addition, Demsetz and

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Villalonga (2001) believe that there is a relationship between these two indicators as Tobin's Q is also related to the calculation of financial records (i.e. the carrying amount of tangible assets). The above stated discussion highlights that each measure has its own pros and cons. Relative to the internal accounting method, Tobin's Q is much better proxy for measuring the financial performance based on the internal and external business value. This study *I* (investment) considers Tobins's Q for the measurement of corporate performance.

Bo et al. (2013), also find more younger, female, independent director and CEO, not a chairman of board, are more likely to herd in their investment decision and their attribution also positively effect on the corporate performance. Bo et al. (2013), used generalized method of moments to examine the impact of investment herding behaviour on the corporate performance the found the corporate investment herding effect the corporate financial performance positively. Similarly, the study of (Shah et al., 2018) document the significant effect of managers behavioral bias on the firm value as the proxy of corporate financial performance. In the light of above literature, I also examine the manager's investment behavior on the corporate performance on the support of following hypothesis:

H2: Managers' investment herd bias is positively related to firm value.

METHODOLOGICAL APPROACH

Managers Herding Bias

We use absolute investment deviation model as proxy of managers' investment herding behavior followed by Bo et al. (2013). Herding exists in a model if corporate manager of firm *i* follows same investment pattern of their peers in the same industry. Usually, it is impossible for managers to observe the peer concomitant investment decisions of others firms all the time before making his own investment decisions. While, it is considered that corporate managers are well aware the average value of investment of other firms ranked in the same sector/industry in the similar years. Corporate managers normally consider the average industry investment value of the last year as a reference point for their investment. Hence, absolute investment deviation model for herding is defined as;

$$AIDM_t = \left| \left(\frac{I}{C_{i,n}} \right) - \left(\frac{I}{C_{-i,n-1}} \right) \right| \quad (1)$$

Which is based on the ratio of investment (*I*) to capital stock (*C*) of firm *i* at year *n*, along with investment (*I*) and Capital stock of other corporation lying in the same industry, excluding corporate i at year (*n-1*). While computing the model, we sort data firstly by industry, and then within industry. Following Bo et al. (2013), a smaller deviation in model suggests existence of herding.

Bias and Firm Value

To examine the effect corporate managers herding behavior on corporate financial performance, the mathematically association between variables are as follow:

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$$FP_t = \beta_0 + \beta_1 AIDM_t + \beta_2 CFL_t + \beta_3 FLV_t + \beta_4 FSZ_t + \beta_5 ROE_t + \gamma + \epsilon \quad (2)$$

In the equation (2), FP_t denotes financial performance of corporate as a dependent variable and is computed by proxies of Tobin's Q[1] (Malmendier & Tate, 2005). $AIDM_t$ show managers investment herding behavior as independent variables; computed by Bo et al. (2013). Whereas, CFL_t, FLV_t FSZ_t and ROE_t are control variables for cash flow to assets, firm leverage, firm size, and for return on equity as suggested by (Shah et al., 2018).

Data Source and Study Period

We collect corporate-level data, e.g., Tobin' *Q*, investment, fixed assets, cash flow, firm growth, firm leverage, firm size, return on equity from the State Bank of Pakistan. Initially, we collect data about 560 firms listed in Pakistan stock market during the sample period and drop 60 firms due to unviability of data. The rest of the sample contains 500 listed firms for the period of 2010 to 2015. Our study period contains 2 years data before Pakistan stock exchange Act 2012 and 3 years data after the stock exchange act. So, this research also explains the manager's behavior during exogenous shocks.

EMPIRICAL RESULTS AND DISCUSSION

Descriptive Statistics and Stationarity Testing

Table 1 reports descriptive statistics of dependent, independent and control variables. The results explain mean, maximum, minimum, and Standard Deviation (SD) of all variables. Financial performance has a mean value 1.480 with standard deviation 1.620 and median 1.039 whereas, absolute investment deviation model has a means value 0.310 with standard deviation and 0.274 and median 0.245.

TABLE 1
DESCRIPTIVE STATISTICS

	FP	**AIDM**	**CFL**	**FLV**	**FSZ**	**ROE**
Mean	1.480	0.310	0.046	2.188	7.597	3.980
Median	1.039	0.245	0.030	1.210	8.036	3.149
Maximum	14.607	1.000	0.250	10.130	12.123	20.993
Minimum	0.037	0.000	-0.103	0.010	2.294	-11.878
Std. Dev.	1.620	0.274	0.092	2.738	2.723	8.253
Observations	3000	3000	3000	3000	3000	3000

Table 2 reports the data stationarity results on the criteria of Levin, Lin and Chu, and

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ADF-Fisher Chi-square. In the criteria of stationarity, null hypothesis (*H0*) assumes the presence of unit-root, means not stationary data. If the corresponding p-value of above mentioned criteria is greater than 0.05. Results of Table 2 reports no evidence to accept *H0* (null hypothesis) which means data is stationary at level and appropriate for further analysis.

TABLE 2
PANEL UNIT ROOT TEST

	Levin, Lin & Chu		**ADF - Fisher Chi-square**	
	Level	**1st difference**	**Level**	**1st difference**
FP	-133.65 (0.0000)	-27.89 (0.0000)	1224.28 (0.0000)	1149.49 (0.0000)
AIDM	-213.99 (0.0000)	-25.66 (0.0000)	1377.22 (0.0000)	1279.43 (0.0000)
CFL	-56.94 (0.0000)	-19.37 (0.0000)	1357.83 (0.0000)	1187.38 (0.0000)
FLV	-59.24 (0.0000)	-22.64 (0.0000)	1061.41 (0.0000)	914.34 (0.0000)
FSZ	-78.95 (0.0000)	-8.84 (0.0000)	938.24 (0.0000)	763.26 (0.0000)
ROE	-31.15 (0.0000)	-25.83 (0.0000)	1236.57 (0.0000)	1083.38 (0.0000)

Herding Behavior and Firm Value

Impact of corporate manager's herding behavior on firm performance is analysed through multiple regressions. In Table 3, we use Tobin's Q as a proxy of corporate financial performance. Pre-test, Hausman test for fixed and random model selection based on the significant p-value[2], guide us to use fixed affect regression analysis. Using the equation (2) above based on managers herding behavioral bias on the financial performance value, we use Ordinary Least Square regression (OLS) to know the basic relation and then use Fixed Effect regression (Fe) regression to examine the impact of behavior on financial performance by guided by Huasman test.

Table 3 OLS shows the positive and significant relation of manager's investment herding behavior on the financial performance of the corporation. Later on fe shows validate the results of ols and also shows that managers behavior has a strong impact on the firm's financial performance positive and significant at 5% level with t-value (2.90). All control variable also exhibit positive and significant impact on the firm value except Firm Size (FSZ), managers are sensitive towards the investment and prefer to short-term investment instead of long term. Empirical results support our hypothesis that manager's investment herding behavior impact the firm value positively. Result of Table 3 is consistent with the findings of (Bo et al., 2013).

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TABLE 3
CORPORATE MANAGER HERDING BEHAVIOR AND FINANCIAL PERFORMANCE (FP)

	Ols	fe
AIDM	0.560* (1.96)	0.683** (2.89)
CFL	2.702* (1.97)	3.924** (2.85)
FLV	1.324*** (17.72)	1.884*** (20.26)
FSZ	-0.186*** (-3.60)	-0.156** (-3.02)
ROE	0.03 (1.40)	0.109*** (4.94)
Const.	0.16 (0.31)	1.169* (2.18)
No.	3000	3000
F-Stat	41.050***	62.584***
R-Square	0.32	0.22
Adj.R-Square	0.29	0.21
Hausman		182.79***

Note: *,**,*** denote test statistics significant at 10%, 5% and 1% respectively, while p-value in parenthesis. Where FP=Financial Performance measured by Tobin's Q, OLS=Ordinary Least Square, FE=Fixed Effect, AIDM=Absolute Investment Deviation Model, CFL=Cash Flow, FLV=Firm Leverage, FSZ=Firm Size, ROE=Return on Equity, No.=Number of Observations

Robustness

To examine the impact of endogenous, behavioral, and exogenous, economy shocks, on financial performance we divide our sample into 3 sub-samples i.e. 2010 to 2011, 2012 and 2013-2015. Table 4 presents the results of sub-sample for all three periods by (Fe) regression model. Column 1 show the results of that period which are immediately preceding years after worse market crash in 2008 to 2009. Results explain the negative impact of investors herding bias on the financial performance. Control variables like FLV and FSZ also explaining the effect impact on financial performance. The reason behind the negative relation might be unstable market operation and freezing or withdrawing the investment from the market. In 2012 Pakistan Stock Exchange Act (2012) has been passed to get back the attention of investors in the market by assuring them the market operation will be regulated strictly. Column 2 shows the results of that in 2012 the herding behavior was in the favor of financial performance with the improved results of control variables. After 2012 economy faces different shocks of up and down movements but these shocks were short in time. Column 3 shows that herding behavior was strongly and positively the financial performance in 2013-2015. Overall results support our

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hypothesis that manager's investment herding behavior positively and significantly impact the firm value.

Table 4
HERDING BIAS AT DIFFERENT TIME SCALE

	2010-2011	2012	2013-2015
	(1)	(2)	(3)
	FP	FP	FP
AIDM	-0.012*	0.107**	0.577***
	(-1.97)	(2.78)	(3.24)
CFL	0.004	0.023*	0.065***
	(0.93)	(2.41)	(5.22)
FLV	-0.017	-0.026	0.178***
	(-0.85)	(-1.45)	(6.47)
FSZ	-0.019	-0.054*	0.005*
	(-0.83)	(-1.96)	(1.98)
ROE	0.167	0.197	3.126**
	(0.60)	(0.35)	(2.80)
Const.	0.998***	1.540***	2.159***
	(5.94)	(8.04)	(9.68)
No.	592	592	296
F-Stat	17.002***	18.080***	18.773***
R-Square	0.21	0.225	0.21
Adj.R-Square	0.199	0.199	0.198
Hausman	90	78	96

Note: *,**,*** denote test statistics significant at 10%, 5% and 1% respectively, while p-value in parenthesis. Where FP=Financial Performance measured by Tobin's Q, AIDM=Absolute Investment Deviation Model, CFL=Cash Flow, FLV=Firm Leverage, FSZ=Firm Size, ROE=Return on Equity, No.=Number of Observations

CONCLUSION

Decision making in investment often includes conflicts in information and subjective judgment of the investors and corporate behaviours. Using Bo et al. (2013) model for corporate investment herding behaviour on dynamic panel consist of 500-listed firm of Pakistan stock exchange for the period of 2010 to 2015. The unit root criteria based Levin and ADF-Fisher Chi-square explains the data is stationary at level and first difference, based on the base of significant p value, and valid for further statistical processing. I used multiple regression based on the significant p- values of all variables, at level and first difference unit root criteria.

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By using OLS and Fe suggested by Hausman test, I find that the managers herding behaviour significantly affect the corporate financial performance positively, which means that corporate managers herding investment strategy increase the corporate financial performance and mitigate the agency problems. The results of herding investment strategy under different time intervals are also exhibits robust results dealing with endogenous and exogenous factors. The overall result of this study is consistent with the finding of Bo et al. (2013). The unique contribution of this study to the existing behavioural finance literate is, the investigation of the presence of managers' investment herding bias and its subsequent impact on financial performance. This study offers useful policy implications to the governing body and corporate policy, opens the door for new research while adding the personal attributes of corporate manager to test the impact on behavior, and firms financial performance.

ENDNOTE

1. Total assets plus total equity minus the book value of total equity divided by total assets.
2. Significant p-value means rejection of null hypothesis means random effect is appropriate, and use fixed effect model for regression analysis.

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