



BOWMAN'S PARADOX: AN EMPIRICAL APPLICATION OF PROSPECT-THEORY-BASED RISK-RETURN RELATIONSHIP RISK RETURN PARADOX: A CASE STUDY OF PAKISTAN

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Abstract

The objective of this research was to find out the Relationship between risk and return using bowman,s paradox with dividend payout ratio, size, market capitalization, tax and leverage. For analysis purpose, a sample of 75 listed financial and non-financial companies were taken out of 519 from Pakistan stock exchange (PSX) market. In this study, variables data was taken from the period of 2012-2022. Panel regression technique was used to analyze the relationship between risk dividend payout ratio, size, market capitalization, tax and leverage and return. Fixed effect model utilized because Hausman test show that fixed effect model is appropriate for this study. A negative relation was found between return, dividend payout ratio, market capitalization while positive relationship found between size, tax and leverage on risk of listed firms. This study supports the fact that risk and return of Pakistani listed financial and non-financial firms was relevant in determining for a sample of firms listed in the Pakistan Stock Exchange. This study was also showing that corporate return and risk was a key driver for the firms in the Pakistan.

Keywords: Central Bank Independence, Inflation-Output Variability Tradeoff, Monetary Policy Preference Parameter, Discretionary Monetary Policy, Price Stability.
JEL: G11, G32, G35

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1. INTRODUCTION

Theory of finance postulates that return and risk trade-off in which investor want more risk in their investment when they expect high rate of return or capital gain, wanting significant increase in their return with risk associated as Ghysels, Santa-Clara, & Valkanov (2005). The primary two single constraints used for return and risk regarding investor viewpoint are possibly in finance, economic as well as economics mostly. The finding and concluding both of them by researcher in many perspectives with multiple purposes. This also form the theory of value of firm based on risk and return pattern. These two factors are more important for investors. This study also has more focus on these two-factor risk-return indifference relationship for investors. As most of the investor's conscious about their investment return which may suffer as risk high in the market. As recent changes in decision behavior for competitive context know as theory of prospect studied by Kahneman and Tversky (1979). The outcome of Bowman's research (1980) has ranks among the unique examples which demonstrated that there is an inverse correlation among return-risk, also represented as paradox of risk and return. Study applying a sample size of 85 USA firms for the period of 9 years, Bowman found such type of association negative with Return on Equity (ROE) as well as its deviation. Several more researchers looked at this contradiction after that. Fiegenbaum and Thomas's (1988) and Fiegenbaum's (1990) prospect-theory-based risk-return conundrum is one of the most astounding findings. The theory of paradox is also demonstrated to be exclusively based on the theory of prospect proposed by Kahneman and Tversky (1979), whatever maintained stated speculators' risk attitudes toward gain and loss scenarios vary depending on which reference point they are compared to. Chou, Chou, and Ko (2009) also examined Bowman's dilemma by using Fiegenbaum's model (1990) but using business plus average market prices which their reference endpoints rather than just the median industry return, as Fiegenbaum (1990) did.

Till now, many research studies put fruitful aspect on Bowman (1980) and finds empirically on strategic management which shows in risk and return association with inverse (negative) rather than positive which one known as Bowman's paradox. Previous studies show that return from the investment with risk associated has significant for lowering the firms prices on stocks due to weak decisions made by managers through less capability or preferences about differential risk as Andersen et al., (2007). As Fama (1980) study suggest that why manager took that weak type of decision without checking the behavioral best allocation of efficient theory of hypothesis. Managers with preference of averse risk taking took steps which growth high return with lower risk in their investment only if it provides a "risk premium" in the form of more return expected. If manager decision to investment in opportunity with negative NPV has negative relationship between return and risk. For instance, even though acquisition of high-risk investment which may increase the risk, on the other hand return may be lower as expected by shareholders Jensen & Ruback, (1983),

Every business in this world has maximizing the value of the owners. So, return from the investment to the investor as well as business is more important to increase the value of their investment. To earn return from the investment always

risk involved. While study of March (1988) has pointed out that the management discipline used risk as a lowering the temperament of investors and a crucial factor for the firm management to review the firm's analysis to make any decisions e.g., Rumelt (1974), Singh (1986), Jemison (1987) and Baird and Thomas (1986) also concentrate the risk as major factor of performance of firms and for future progress. There are some theories determining asset price, for example, (CAPM) model given by Sharpe (1964) in addition to the (APT) theory called Arbitrage Pricing Theory Ross (1976) those depends upon the conventional theory. The ideas continue to serve as the foundation for analysis in financial management, despite the fact that a large body of empirical data demonstrates the reverse.

Many firms face problem in to maximize the return since last decade due to different policies in Pakistan. In Pakistan, many firms face profitability volatility in their business on daily basis due to uncertainty. There are many factors that affects their profit such as financial factors, change in government policies regarding taxes and other regulations.

The general objective of the research was to find the factors that affect the profitability with negative relationship of risk & return of the firms listed in Pakistan stock exchange (PSX).

There isn't an investigation like the one above that looks examines this connection having a lot of research data within a developing nation like the Pakistan Stock Exchange (PSX).

The research is significant in a sense that the results when communicated to the concerned authorities such as management, owners, investors, academician as well as government authorities will help to generate and inculcate a conducive environment to set their policies.

Study explore is there any association between risk and return of Pakistan listed firm utilizing Bowmann paradox?

1.2 Hypothesis of the study as follows:

- H1.** There is a negative relationship b/w return and risk.
- H2.** There is a negative relationship b/w dividend payout ratio and risk.
- H3.** There is a negative relationship b/w market capitalization and risk.
- H4.** There is a negative relationship b/w firm size and risk.
- H5.** There is a positive relationship b/w leverage and risk.
- H6.** There is a positive relationship b/w tax and risk.

Three significant findings emerge from earlier investigations, including (1) the existence of an adverse connection between risk and profit for organizations who has lower the expected return as they target high level (or locus points); (2) direct relationship happens for companies with higher return than target level, in addition (3) lower level of return target trade-off is usually more acute compared to the towards the objective beneath. The results also corroborate the Bowman's contradiction because the below-target businesses, that exhibit a less favorable risk-

return relationship, are the ones that influence the estimated value that determines the term's gradients.

In Pakistan, investors also face risk return in their investment on daily basis. So, this study attempts to find out the factors that most effect on the return of their investments. Investors more concerns about their investment return through capital gain and dividend. Dividend also plays important role in the return. So also explore others factors that may affect their investment return. Pakistan stock exchange fluctuates daily due to different internal and external factors and index not performs investors' expectations.

So, this study finds the factors that affect more to stock return of Pakistan. Risk returns also concern with managerial decision on different level of investment may have issue to create value indifference. Study purpose is to understand the factors that affecting return of the companies in Pakistan.

2. LITERATURE REVIEW

In any business investment opportunity, there is a significant expectation of return through earnings. These return from the investment also have significant risk involved due to different market condition and uncertain situation in the business called risk return indifference of Bowman,s as document by Bromiley et al., (2001). Bowman (1980) looked at US corporations' risk-return relationships in 85 various sectors. The findings show that the majority of company trades have a negative risk-return relationship. It happened to be the first study to demonstrate the contradiction of returning danger, asymmetry within the relationship between risk of return and the organizational level. This type of association pronounced by many economics as paradox of return risk with the hope of significant positive correlation. In contrast to the traditional positive risk-return relationship, there are additionally a number of reasons that lead to contradicting findings, according to Bowman (1980). First, an effective manager should be able to combine increased profit margins with reduced risk by making sound policy to selecting a best proposal well-being for firm, attractive planning, as well as accurate execution process, all serve as catalysts for the creation of this conundrum. Second, a manager cannot be adverse to risk; hence, even in situations where profits are lower, he would take on greater risks. This results from managers acting less risk-aversely, which creates a contradiction like this one. Bowman (1982) shows the same finding. To demonstrate that troubled companies would show a more pronounced negative link within industries, he carried out a more thorough investigation. Food processing, computers, and containers are the three industries that make up the samples, and the results showed that there were strong negative correlations for struggling businesses in these sectors. Fixed returns are the only thing that can be obtained from investments in relatively low risk assets like Treasury notes. Greater risk-taking is necessary for bigger profits. On the other hand, greater risk should only be accepted if it promises higher returns.

Kish-Gephart & Campbell, (2015) study focus on firms mangers facing overconfidence as well miscalculation regarding probabilities of return, thus compelling higher risks rather than may be defensible with their objective position,

which creates negative impact on return. Most of these types of decisions related to reducing firms value as taking risk, where more deviations in return prefer as of it lowering their firms returns. Markowitz (1952) documented a 4 types of utility function of the firms regarding their wealth such as convex and concave with present value nearby. An empirical study by Grayson (1959) also showed similar results. With nine executives, who are making the policy about gas as well as oil extracting, used as the sample, Grayson (1959) found a mix of study results of aversion as well as risk seeker cutting-edge the sphere of performing not well consider loss and shows that there is a gain intention for seeking risk.

Based on Fiegenbaum's (1990) methodology, Chou, Chou, and Ko (2009) examined the risk-return relationship in 27,416 US enterprises chosen from 45 different industries. Nonetheless, Chou, Chou, and Ko (2009) made an effort to look into values from every level of the marketplace in addition to business levels. They demonstrate a substantial inverse return and risk link in businesses during their observational period of 1984 to 2003 by lowering their earnings or gains relative to the market and industry levels. In the companies with a return level above the reference point, both at the market and industry levels, the research also discovered a favorable risk-return relationship. All extreme observations have been removed, but the findings hold true. Bowman's dilemma was evaluated for universality across 12,235 enterprises in 28 countries by Patel, Li, and Park (2017). With the exception of India, Japan, and South Korea, where the relationship was positive, both cross-sectional and longitudinal relationships between risk and return, using median ROA as a reference point, offered strong evidence for the existence of Bowman's paradox in a variety of national settings (Asia, Europe, and South Africa). Bowman's paradox was found to hold true in most cases in a variety of institutional and cultural contexts, according to Patel, Li, and Park (2017). Previous research on Bowman's risk paradox using a US sample also yielded results that were comparable to the risk-return connection based on prospect theory.

According to research by Chari et al. (2019), the risk-return "paradox" is made worse by agency issues, which also affect CEO career concerns. These issues can be lessened (but not eliminated) by a variety of governance mechanisms, including large block owners, market monitoring for corporate control, watchful boards, institutional owners, and CEO incentive alignment. This suggests that, in contrast to Chari et al.'s (2019) direct measure of risk and return computed using ROA, both the firm's own heterogeneity and industry heterogeneity have been taken into consideration. DasGupta and Singh (2021) identify the causes of this unfavorable risk-return relationship. In the first scenario, a poorly performing company would take more risks in an attempt to boost its own performance; however, because of the poorer operating performance, this could result in a negative risk-return association for the company. In a consequence, an excellent business may also experience an adverse risk-return relationship.

In 2015, Hasan, Ahmad, Rafiq, and Rehman looked into the relationship among the dividend system and earnings per shares in the country's power industry textile industries. The results of logarithmic regression demonstrated that the dividend payout ratio had a negative effect on company earnings regardless of industry.

Rizwan, Khan, Nadeem, and Abbas (2016) carried out a study on companies that are listed on the Pakistan Stock Exchange. Their findings implied that the return on equity is unaffected by dividend policy. Tahir, Sohail, Qayyam, and Mumtaz (2016) did additional research to examine the impact of dividend policy on firm performance and determined that there is a positively significant correlation between the achievements of the firm and its individual dividend payout policy.

Chesini (2017) pointed out the analysis of the different paid dividend offered by European firms, according to their findings understand the major factors that pointed out the dividend policies of listed companies in Europe. With conclusion to examine this policy of dividend and he has used statistical regressions and descriptive statistics to extract data from a large sample of companies chosen from the western countries' stock exchanges for their equity markets. Nonetheless, the outcomes of these research hold significant importance for academics and investors looking into dividend matters.

Ahmed and Mehta (2014) Pointed out that the factors those affects the actual dividend payment to its shareholders. Managers run day by day operational activities of the firm and consider many factors before distributing yearly earned revenue to main owners. Mostly investors think that income is only determinant for sufficient dividend payments but there are many other factors those affects the specific dividend payment to shareholder. Panel collection of four banks is collected from 2008 to 2011 from audited financial statements. And Ahmed figure out that an income is not positively related with dividend payout. It is difficult to consider the only determinant of dividend payments in banking sectors of Pakistan. Additional factors like Reserves, EPS, and Interest Income also have vital impact on payment of the dividend model of commercial banks in Pakistan. Investors should think these factors before acquire any stock in listed banks of Pakistan.

When capital structuring is discussed, numerous researchers have offered various perspectives and analogies regarding the costs associated with organizational alliances and capital structure; therefore, it will function as long as the researcher assumes responsibility for the additional revenue. According to Jensen and Michael (1986), this is dependent upon the challenges related to funding and directors. Budget experts would rather spend money taking the CEO's management style into account. Chance requires that companies become plans. Uncertainty and potential damage to the company's reputation may result from a failure to pay required fees on schedule. An inexperienced accounting manager may think about applying pressure to researchers, and the manufacturing manager (1977) lacks Modigliani closed the cash-related genius decrease if they invested more money than they had promised, but he also made sure that certain costs with lower fees wouldn't have a negative impact on the money that had been pledged (Sharma and Handoo, 2014). budget accuracy, debt payments, liquidity, enhancement, fundamental resource quality, and quick execution. Term debts, or debts that have been ongoing for a year or longer, apply to all debts together. He went on to discuss the unfavorable impact that a steady wage has on the funding that was provided. If you strongly rely on this experience to substantiate your claims, you will only receive bad feedback. Salary is not the same as this. Having established contacts has a greater impact on

mandatory funding (Ju, Nengjiu, Parrino, Poteshman and Weisbach, June 2005).

As with any theoretical business (Kraus and Litzenberger, 1973), the interchange of assumptions necessitates commitment. Debt decreases faster than liquidation expenses. Lenders have greater faith in these agencies because they are additional bankruptcy agencies. It is essential to comprehend the significance or coherence of the theory of monetary structure for average relationships in overhauls, as stated in Odit, P., and Gobardhun, D. (2011). Research has demonstrated the significance of pecking for a number of presumptions. Owing to the business's large growth and strong resource structure, they accrued sufficient debt to extend the period; nevertheless, because SMEs have limited resources, they are not overly bound by the basic package. SMEs depend heavily on domestic funding sources. Peck's theory is supported by this (Glen and Singh, 2004) to learn more about the report's findings that, as a result of deception, artists in developed nations are under less obligation than those in other countries.

Hussainey (2010) investigates the nature of relationships between price behavior and dividend distribution policy with regard to UK-listed companies. The results of the study indicate that there is a large inverse relationship between SPV and DPR, while there is a high correlation between volatility and dividend yield from listed corporations. The study's conclusions are subject to certain limitations because it was carried out in the UK, which is regarded as a developed nation, and it does not accurately reflect the volatility of share prices in other nations. Further research will employ firm-specific data, but if other external variables are incorporated, the study will shed more light on how share value behaves in the market.

Another study by Waheed and Ali (2017) uses data from 2007–2016 to examine the relationship between a company's dividend policy and share price fluctuations in the PSX market, focusing on the top ten listed companies in Pakistan. The study employed a range of novel variables, including payout, dividend yield, firm size, sales growth, profitability, and debt ratio, as independent factors to examine the behavior of share valuation. Nazir (2012) used data from Pakistani non-manufacturing companies listed in the KSE 100 index to study the effects of return fluctuations in the share market and cash dividends. They conducted a relationship analysis with the aim of controlling many financial issues, including debt, company size, wealth growth, and profit instability.

According to research by Asghar, Shah, Hamid, and Suleman (2011), the value of a company shares rises when the payout of dividends given to shareholders grows in value. They examine how Pakistani businesses' stock fluctuation is affected, using information from manufacturing companies in just five significant sectors that pay higher cash dividends to the market in order to profit from external financing between 2005 and 2009.

Pittit (1972) investigated the connection between dividend policy and earnings. He thought about a few portfolios to alter the dividend and earnings. Aharoni and Swairi (1980) examined earnings and dividends reported on various dates in order to pinpoint the precise impact of dividends on earnings. Simultaneously, other

research revealed the market's response to earnings and dividends. The stock market's reaction to the immediate announcement of a profit and the payment of a dividend amount was examined by a few writers (Brown, Finn and Hancock (1977, Kane, Lee and Marcus, 1984). According to several other writers, the corporations accused of not paying dividends (Lobo et al., 1986; Doron and Ziv, 2001).

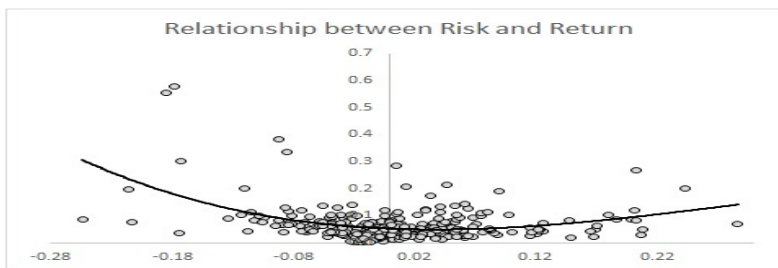
It is the opinion of Miller and Modigliani (1961), Horne and McDonald (1971), Partington (1985), and Holder et al. (1998) that one should rely on a single dividend kind, which is typically cash. According to some authors, sample sizes are typically insufficient for making generalizations, and this is true even when there is no distinction made between the companies' different types of activities Marsh and Power (1999). The study by Chauhan et al. (2019) discussed how dividends affect financial success. Dividend policy was defined as "a compensation payable to shareholders for threat tolerance" in the Chauhan, et al. (2019) reference paper. While ROA and ROE were thought of as structural variables, DPS, EPS, DPR, and Price Earnings Ratio (PER) were considered established variables. The correlation between DPR and ROA is not very strong. Al-shattarat, et al. (2018) discussed how to evaluate the signaling effect in their research. An organization's financial situation is also shown by its overall performance. The greater the corporate governance framework, the more likely an organization is to provide dividends. Sunard, Kadim, and Husain (2020).

Nonetheless, studies conducted in Malaysia with the assistance of Zainudin, Mahdzan, and Yet (2018) state that the volatility of inventory charges is negatively correlated with both dividend yield and payout ratio. It is evident that the empirical search results pertaining to the effect of dividend coverage on inventory charge volatility are contradictory. This discrepancy may also arise from differences in the selection of samples and search techniques. Suwanhirunkul and Masih (2018) analyze the relationship between dividend coverage and inventory fee volatility using the quintile regression and GMM approach using a dataset of Islamic shares listed in the Dow Jones Islamic US Index and various shares listed in the Dow Jones US Index from 2005 to 2017. They come to the conclusion that, when the GMM technique is used, the fee volatility of all shares, including Islamic shares, is no longer affected by employing dividend coverage. The GMM models' results are similar to those of quintile regressive fashions. Nonetheless, the quintile regression approach reveals a strong and positive correlation between Islamic share charge volatility and dividend yield.

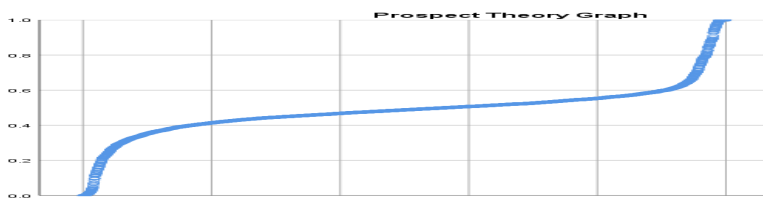
Conversely, Almanaseer (2019) discovered a correlation between the dividend distribution policy and the stock market value (SPV) of insurance industry data from Amman stock market listed companies with the highest market capitalization and trading volume. A study was conducted on 20 out of the 23 mentioned firms to demonstrate the general agreement regarding the relationship. According to the study's findings, insurance companies' policies for the known dividend variables DY and DPR have an inverse relationship with variations in market prices. Few research have examined the relationships between share value and management's dividend decisions in the banking industry.

The audit departments of different corporations in Pakistan are generally in charge of adhering to and taking on temporary tasks. Short-term obligations typically have little bearing on how the organization is perceived, and these short-term reputations are merged with a clear understanding that influences the company’s founding. In addition to being a major source of funding, banks also have a bizarre grasp of information asymmetry, non-traditional payment methods, and ineffective regulatory framework (Asifa Kausar, March-April 2014). Each alliance’s leaders need to establish a partnership, and they can believe that they want an assurance from outside parties in order to do this. The authorities, in any event, anticipate that a small assessment of progress will result in an increase in Section 11 charges based on that advancement. A very significant association exists between performance. Higher relative impacts compound smaller impacts; for instance, higher impacts enhance stands, and lower relative.

Prospect Theory Graph



The majority of the enterprises in the prospects theory graph exhibit general patterns in the relationship between risk and return. The risk-return relationship for companies above and below the industry median returns for listed corporations from 2012 to 2022 is displayed on the prospects theory graph. By excluding extreme values whose risk measurements are greater than absolute three standard deviations from the mean, respectively, the risk-return relationship as determined by the OLS regression presents the findings. The risk-return relation for the above-target (below-target) enterprises has a positive (negative) slope, as the graphic makes evident, and the results hold true irrespective of the empirical methodology used. The negative risk-return relationship also appears to have a greater slope.



3. RESEARCH METHODS

This chapter covers the information about the sources of data, data analysis, model developed and explanation of the dependent and independent variables. Panel analysis had been used to test the hypotheses. A secondary source of data used from two different sources of KSE 100 index listed on Pakistan Stock Exchange and State bank of Pakistan using convenience sampling for 11 years’ during 2012-2022 were taken. Panel least analysis was being used to test the hypothesis. Fixed and random effect test must check which one is appropriate for this study.

This provided a crude test of an association between potential risk and return. Following Panel regression equation was adopted:

$$\text{Risk} = \alpha_1 + \beta_1\text{Return} + \beta_2\text{DPR} + \beta_3\text{Size} + \beta_4\text{Leverage} + \beta_5\text{MarketCap} + \beta_6\text{Tax} + e \quad (1)$$

Where, Risk = Standard deviation of average stock prices

e = Term Error

*Return = Average period prices of listed firms.

DPR =Dividend Payout Ratios

Firm size = log of assets

Market Capitalization, Leverage tax

*Average period Shareholder’s value = $(P_1 - P_0 + \text{Div}) / P_0$

P₁= Daily Closing price of the Stock

P₀= Daily opening price of the stock

α = Constant

β = Co-efficient of independent variables

4. RESULTS

This Study data for each variable taken for 11 years from 2012-2022 for 75 companies. So, we use Eviews software to run the result of the study. First, study test the descriptive statistics of the data variables. Next, this study data was taken in time series and time series data explore either, panel least square, fixed or random effect model is more suitable for this type of data for explaining and analysis. Similarly, data shows that panel and random effect model is not appropriate for this research data. The results show that Hausman Test value probability is less than 0.05. So, we accept the fixed effect model is appropriate. So, we interpret the result of fixed effect model rather than random effect model.

Table 1 Descriptive Statistics

Variables	Mean	Std. Dev.	Skewness	Kurtosis
AGE	41.09	15.07	0.91	3.39
DPR	53.35	165.13	7.25	63.38
LEVERAGE	528.25	9407.57	17.80	318.00

MKT_CAP	7.08	2.18	0.27	2.44
PAT	1241.66	5381.43	7.74	103.78
RETURN	164.25	533.68	7.92	72.26
RISK	135606.7	1064947	10.01	104.26
SIZE	3.58	0.84	0.10	5.68
SP	164.25	533.68	7.92	72.26
TAX	579.25	2405.77	9.01	104.95
TURNOVER	10100000	258000	3.56	16.50

Interpretation: Descriptive statistics table represent the mean, median, maximum, minimum, standard deviation, skewness, kurtosis and sample size of the study variables. Firm Age mean 41.09, median 38, maximum 87, minimum 9, standard deviation 15.07, skewness 0.91, kurtosis 3.39 and sample size is 320. Dividend payout ratio mean 53.35, median 13.3, maximum 1768, minimum 0, standard deviation 165.13, skewness 7.25, kurtosis 63.38 and sample size is 320. Firm leverage means 528.25, median 0.67, maximum 168289, minimum 0.06, standard deviation 9407, skewness 17.8, kurtosis 338 and sample size is 320. Firm Market capitalization mean 7.08, median 6.77, maximum 13.34, minimum 2.32, standard deviation 2.18, skewness 0.27, kurtosis 2.44 and sample size is 320. Firm Turnover mean 101000000, median 4026549, maximum 169000000, minimum 9, standard deviation 15.07, skewness 0.91, kurtosis 3.39 and sample size is 75*11.

Now to test the study hypothesis, panel regression used for this study as data is time and cross section characteristics called panel data. First study test that which one test is appropriate either panel least, fixed or random effect model through F-test, LM and Hausman test value.

The results comparing with each test value shows that fixed effect model is appropriate as finally Hausman test value of chi square 22.56 with sig value less than 0.05.

H0: Random effect is appropriate

H1: Fixed Effect is appropriate

The table 2 shows that chi square statistics value 37.775 df is 6 with probability value = 0.00 which is less than 0.05 to reject the null hypothesis. So, this study accepts the fixed effect model based on Hausman test output.

Table 2 Hausman Test

Correlated Random Effects - Hausman Test			
Test period random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	37.775634	6	0.0000

So, interpretation and hypothesis assessment summary has used the fixed effect results. This test enables the researcher and academician to conclude either fixed effect or random effect is more appropriate for the study data. This implemented for panel study data which shows more influence in both side cross sections or entity wise or time period consistency performance.

Table 3 Method: Fixed effect model Result**4.1 Dependent Variable: Risk**

Variables	Coefficient	t-Statistic
C	109432.3	0.982533
AGE	-579.521	-0.50232
RETURN	1866.176	23.94803
DPR	597.6797	2.355138
LEVERAGE	2.313033	1.1169
MKT_CAP	-123001	-7.04319
PAT	-5.60615	-0.61714
SIZE	152738.6	3.114855
T_LIABILITY	0.07296	0.427513
TAX	13.92331	0.647943
TURNOVER	0.000303	3.921663

Adjusted R-squared 0.916952
F-statistic 353.215

Durbin-Watson stat
Prob (F-statistic)

1.980836
0.0000

Estimation Equation:

$$\text{Risk} = \alpha_0 + \beta_1 * \text{AGE} + \beta_2 * \text{Return} + \beta_3 * \text{DPR} + \beta_4 * \text{LEVERAGE} + \beta_5 * \text{MKT_CAP} + \beta_6 * \text{PAT} + \beta_7 * \text{SIZE} + \beta_8 * \text{T_liability} + \beta_9 * \text{TAX} + \beta_{10} * \text{TURNOVER} + e$$

Estimated Model Coefficients:

$$\text{Risk} = 109432.3 - 579.52 * \text{AGE} + 1866.176 * \text{Return} + 597.67 * \text{DPR} + 2.31 * \text{LEVERAGE} - 123001 * \text{MKT_CAP} - 5.606 * \text{PAT} + 152738.6 * \text{SIZE} + 0.072 * \text{T_liability} + 13.92 * \text{TAX} + 0.000303 * \text{TURNOVER}$$

The above table shows that if we kept all independent variables constant then there is a positive impact on risk of the listed firm's prices. Results also shows that return, DPR, leverage, size, total liability, tax and turnover shows a positive association with risk while PAT, age and market capitalization has negative relationship with firm risk. Study results also shows that there is a significant association of return, DPR, tax and turnover with risk as sig. value less than 0.05.

F-statistics value 353.24 with Prob value 0.0000 shows that model is good fit and enhance that there is a relationship between dependent and independent variables. So, we can test this model further.

R-Square value = 0.9169 = 91.69% shows that independent variables explain variation in the risk 91.69% and remaining 8.31% variation unexplained due to other factors which were not taken in this study. Durbin Watson value = 1.98 which lies the no auto correlation limit from 1.8-2.20 value. This shows that there is a no auto correlation within the variables.

4.2 For endogeneity test

Table 4 Wald Test:

Test Statistic	Value	df	Probability
t-statistic	9.600717	3490	0.0012
F-statistic	12.160574	(1, 3490)	0.0012
Chi-square	12.160574	1	0.0011
Null Hypothesis: C(1) = 0			
Null Hypothesis Summary:			
Normalized Re- striction (= 0)	Value	Std. Err.	
C(1)	7.264	1.295	
Restrictions are linear in coefficients.			

The above result shows that there is no endogeneity issue in the data set

The practical findings suggested that there was a negative association between dividend payout ratio of a firm, return, and market capitalization while size, tax and leverage has positive association with risk. Positive association shows that as these variables increases then risk also increase while negative association means as variables value increase then risk also decreases. Return, dividend payout ratio and market capitalization has significant association while size, tax and leverage has non significant association with risk. Significant association means that either positive or negative coefficient value has also impact on risk. This suggested that return, dividend payout ratio, market capitalization, size, tax and leverage was the main determinants of risk. Both management and investors were worried about the risk in their wealth. So, this study highlighted that it is very important to focus on creating investment judgements and management for developing the strategies or expressing, stock price up and down, dividend procedures for their firms. Furthermore, it can also acknowledge that some theories and contributing factor of risk return paradox also have the effect on the investment. H1, H2, H3, H5 and H6 are accepted based on their value on the fixed effect model results gathered in summary of hypothesis, while H3 is rejected owing to a results in summary of hypothesis.

5. CONCLUSION

The major aim of this research was to find out the relationship between risk with return. Study also includes multiple other variables as to find out the association between risk and dividend payout, size, leverage, tax and market capitalization.

This study demonstrates that return of stock prices in the stock exchange is key elements that effect on firm risk in the stock price. As stock prices risk higher than investors may have less interested more on that particular firm. Subsequently, equally management and investors were concerned about the lower risk with higher return, so this study had emphasized on the way to ascertaining performance in sense of risk of the firm, as well as significant aspects to be considered by stakeholders before making investment choices and by management in framing investment plans for their firms. In this study, Bowman,s theory of risk return applicability is checked in the context of Pakistani listed firm. Study has also integrated in term of meaning and determinants of risk for firm as well as investors. So, study finding concludes that risk has important variable to increase the value and firm worth during any period. So increasing return with decreasing risk also maximize the value of the firm in the market. In this study time period and sample size is the limit because many studied found good and reliable results using large sample size with high frequency of data from multiple sectors. Data methodology and statistical techniques also create limit to implement the results because of less information available to produce better study and also use other econometric techniques such GMM, and other time series statistics.

Future research might be included these variables like sales growth, political connection, corporate governance, shareholding pattern, earning yield, and number of announcements which might had impact on the firm's risk listed on Pakistan stock exchange.

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