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Earning Quality and Firm-Specific Return Volatility –The Case of Pakistan

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Abstract

Purpose: The study aims to empirically investigate the connection between earnings quality and firm-specific return volatility.

Design and Methodology: Data is collected from 40 manufacturing companies listed on the Pakistan Stock Exchange (PSX 100 index) from 2013 to 2022. Multivariate regression is employed to evaluate the impact of earnings quality on firm-specific return volatility. Idiosyncratic volatility is used as a proxy for firm-specific return volatility which is estimated by using Capital Asset Pricing Model (CAPM) and the Fama-French three-factor model.

Findings: Our findings reveal a direct negative association between earnings quality and firm-specific return volatility. We observed that lower earnings quality correlates with higher idiosyncratic volatility. This relationship persisted across different models, including the Kasznik model, which also showed significant positive associations. The results confirm the negative impact of earnings quality on volatility, emphasizing the volatility in the Pakistani stock market. These findings highlight that earnings quality is a crucial determinant of firm-specific return volatility, underlining the market's sensitivity to variations in earnings management practices.

Implications: This study has important implications for investors, policymakers, and financial reporting regulators in enhancing market dynamics and financial reporting standards.

Keywords:
Firm-specific return volatility, earning quality, idiosyncratic volatility

1. Introduction

1.1. Background of Study

The equity markets have significantly grown in the past few decades. The markets are playing a major role in the international financial market. When the price of security faces irregular variations, it shows excessive volatility and gives abnormal returns to the shareholder. The returns are abnormal when they are higher than the expected returns of investors at a specific risk level. Firms have to provide investors with higher returns to ensure that they are ready to hold onto the volatile stocks. When the volatility of the stock market rises, the investors demand an extra premium as the reward for bearing extra risk (Habib et al., 2020; Zhang & Li, 2020).

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Campbell et al. (2001) studied the US security market from 1962 to 1997 and reported increased stock market return volatility during that period. They further found that the increase was majorly due to firm-specific volatility while industry and market volatility remained constant. This finding produced a volatility puzzle.

Financial markets and economic development are linked because financial markets are the source for investors to invest efficiently and also save their money. However, the volatility of the security market is a big hurdle in investment activity. Therefore, there is a continuous debate among researchers and experts on the stock market to find out the reasons behind the larger amount of volatility in the market (Li et al., 2020; Qadan, 2019; Qadan et al., 2019). The Pakistani security market is highly volatile. It has higher sensitivity and reactivity to unexpected news, shocks, and rumours. The stock market of Pakistan has the elasticity and flexibility to quickly recover after these types of shocks (Said et al., 2022; Dong et al., 2020).

After the elimination of hurdles to overseas investors and initiatives for economic deregulation in the 1990s, the stock trading volume in the Pakistan Stock Exchange (PSX-100 Index) significantly increased in succeeding years. Currently, the Pakistan Stock Exchange is added as a benchmark for an index of emerging markets by MSCI (Morgan Stanley Capital International) which is a well-known provider of equity indices in the USA. A very important characteristic of the Pakistan stock market is the presence of high levels of fluctuation in share prices (El Diri, 2020; Khan & Hijazi, 2009). The PSX-100 Index is the face of the Pakistan Stock Exchange because all important companies with large capitalization are listed on it. Earnings Quality (EQ) is a crucial factor for the evaluation of the financial health of a firm, and it is a comprehensive and detailed element of the accounting system. Though investors and other stakeholders frequently consider it, Earning Quality has lately become interesting to the partakers of the procedure of financial reporting.

1.2. Problem Statement

When the market crashed in 1980, the firm-level volatility dramatically fell immediately. Comparatively, the market-wide volatility became extended. Campbell et al. (2001) expressed that the aggregate volatility of the market remains constant. No significant change is found in market volatility. After the publication of this paper, the firm-level return volatility has captured considerable interest of the researchers. In Japan, Mitra (2016) examined the relationship between return volatility among firms and earnings quality. Pakistan Stock Exchange is also an emerging market with a volume of Rs3.37 billion. Return volatility is a factor specially considered by investors while making investment decisions because the main objective of investors is to earn good returns. Thus, a brief study is required to analyse the behaviour of firm-specific return volatility in the Pakistani context.

1.3. Research Gap

The purpose of this research is to fill the existing gap in the extant literature in two ways.

- According to the knowledge of the authors there is no study that measured the volatility with the Fama French 3 factor model and CAPM collectively in case of manufacturing sector of Pakistan.
- A very small number of studies have been conducted in the past research on the relation between firm return volatility and earning quality. The evidence from stock market of Pakistan will further verify the relationship of these two variables. In this way, the present study is an effort to fill the existing gap in the extant literature by taking in account two significant factors of the manufacturing industry of Pakistan.

1.4. Research Objective

The objective of the study is to find out the impact of earning quality on firm-specific volatility of return in the manufacturing firms listed on PSX.

1.5. Significance of Study

This study may be helpful for stakeholders of financial reports to understand the provision of quality information in an improved way which will help the organizations to reduce the firm-specific return volatility. Specifically, these findings may appeal to the standard-setting authorities because these findings can help in developing an informationally efficient security market by introducing high-quality reporting standards. These high-quality standards will lead to better earnings quality and elimination of mispricing in stocks.

This study is organized as follows. Section II describes a review of the literature, Section III consists of methodology and data description, Section IV represents the discussion of results and Section V consists of the conclusion and recommendation.

2. Literature Review

Aziz and Ansari (2017) investigated the determinants of idiosyncratic volatility by using data from 47 emerging countries from 1995 to 2016 and the Fama-French model of three factors. The findings of this paper show that security market turnover is significantly allied with idiosyncratic volatility at the country level. However, the disclosure of information about investor uncertainty avoidance behaviour and idiosyncratic volatility has a negative association. However, stable foreign exchange, healthy foreign debt, and less political and financial risk may cause to decrease in idiosyncratic risk significantly at the country level.

Li et al. (2020) examined the association between earnings management techniques and financial distress with the quality of internal control as a moderator in the given relationship. The data was collected from 2007 to 2015 of the Chinese listed companies. This research concluded that those companies that are financially distressed, mostly use accrual earnings management by comparing the actual earnings management. Internal control restrains the real earnings and accrual earnings management by its moderation effect in this association. Additionally, these findings clarify the earnings management and internal control in financially distressed companies in emerging countries (Easley & O'hara, 2004; Rajgopal & Venkatachalam, 2011).

Inspired by this research, this study has tried to find out the association between a firm's earning quality and volatility. There are many ways to estimate the worth of the estimated earnings. It is a fact that the explanation of earning quality is a difficult task all the time. The earnings quality interpretations are different and it may be because the reason sense of the word "quality" depends on the situation of decision-making (Hermanns, 2006). It may be due to the reason that every user is using the accounting information for his/her point of view and decision-making.

2.1. Firm-Specific Volatility and Idiosyncratic Volatility

The reason for the study of idiosyncratic volatility is that it cannot be treated as zero and there are many implications related to this. To the findings of Campbell et al. (2001), investors should not focus only on market volatility but he/she should focus on the volatility as a whole. That's why the idiosyncratic volatility has an impact on the reward and risk connection. So, it is necessary to analyse the determinants and behavior of idiosyncratic volatility to construct a valid asset pricing model. Additionally, the finding that idiosyncratic volatility is a significant element of total volatility also has an impact on the estimation of the value of options and derivatives. It should be noted that the option trader's yield depends on the total volatility of the security, and the total volatility includes industry-level volatility of the market and idiosyncratic volatility. The arbitrageur, are associated with mispriced stocks to get the advantage, they are not only sensitive to just market. They also check the idiosyncratic volatility (Campbell et al., 2001, Li et al., 2020). So, they give preference to those securities

which have the lowest idiosyncratic volatility, since they cannot be hedged and there is no diversification. If the securities are not rationally priced, arbitrage will be discouraged by the idiosyncratic risk (Shleifer & Vishny 1997, Li et al., 2017, Ma et al., 2020).

Moreover, the theory tells us that if the idiosyncratic volatility is greater, it needs a large level of diversification. It means that large numbers of securities are required to keep the desired variance of the portfolio. Thus, depending on the idiosyncratic volatility level, an appropriate level of diversification is required to remove the idiosyncratic risk. However, it must be noted that investors who have portfolios created by a lot of different securities can still face difficulties as they are unable to portfolio diversification in the recommended way or other external factors, like transaction costs or budget limitations. Hence, the fluctuation in the firm-level and industry-level volatility influences them as like as change at the market level (Campbell et al., 2001, Yang, 2020). Finally, some event studies as issues to new debt, mergers and acquisitions, and earnings announcements also affect individual security.

2.2. Earnings Quality

Earnings quality means how much the reported earnings (income) can truly show the company's real earnings (Sultana et al., 2022). Earning quality may have different meanings or standards for different companies because different companies have different business operations. Earning quality is very close to earnings management. Infect the earning management is a measure to estimate the earning quality. Earning quality and earning management are opposite in relation. If the earning management is higher, it means that the firm's earning quality is less. Previous studies tell that the firms who have weak internal check on financial reporting, their earning quality is poor. Researchers and regulatory authorities need to know that earning management has increased over time. For instance, if earnings management has decreased over time, it is useless to do a time-series analysis of financial statements until the variation in earning quality is adjusted (Dichev et al., 2013, Zhang et al., 2020, Kjærland et al., 2021).

The idea of earning quality was first introduced by the analysts of financial consultancies and brokers of the stock market. They identified that the earnings that are reported are not able to show the power of profitability of companies. They identified that there are a lot of weaknesses in the measurement of financial information. They concluded that it is not enough to analyse just the income of a company for the measurement of the value of the company. However, the quality of reported earnings is also necessary to consider (Sultana et al., 2022).

2.3. Firm-Specific Return Volatility and Earnings Quality

The information content in changes of reported earnings changes is depends upon the countries. That changes are because of the different capital markets, those consist of different practices of accounting disclosure, different structure of corporate governance, changed requirements of financial reporting, and regulation of government (Alford et al., 1993). The measures of earning quality are used to analyse the transparency of financial reports. If the earning quality is poor, there is less transparency (Rajgopal & Venkatachalam, 2011). On the basis of theoretical background and research questions, the present study tends to hypothesize that:

H1: Earnings quality has negative influence on the firm-specific return volatility.

3. Methodology

The present study is an analytical and descriptive endeavour in nature, having manufacturing companies on PSX-100 as a unit of analysis. It is based on the purely quantitative approach in which research questions are answered through different statistical models. Manufacturing companies in Pakistan that are trading on PSX-100 are the target population of the current study. The PSX-100 index is a security market index which is a

benchmark to compare the share prices of companies listed in the Pakistan Stock Exchange. In this study, 10 years of data on manufacturing companies is used. The data is collected from the period 2013 to 2022. Data from a total of 40 manufacturing companies was available. All companies are not engaged in the production of the same goods. Different companies are related to different products. But all these companies are related to manufacturing activity.

3.1. Method of Estimation

The present study is quantitative and proposes to find out the cause-and-effect relationship between dependent and independent variables. Other relevant control variables are also used to explain the dependent variable. Two separate asset pricing models are used to calculate volatility and two models are used to estimate the earnings quality. Multiple regression analysis is used to check the dependence of firm-specific volatility on earning quality in the case of the manufacturing sector listed on PSX 100. The models used in this research are the Capital Asset Pricing Model (CAPM), the Fama French Three Factor Model (FF3), Quality of Accruals, Absolute Value of Abnormal Accruals, and Earnings Quality and Firm-specific Return Volatility.

3.1.1. Capital Asset Pricing Model (CAPM)

The CAPM was firstly introduced by Sharpe (1964). In literature, CAPM is used by many researchers for calculation of idiosyncratic volatility. Laghi and Di Marcantonio (2016) estimated idiosyncratic volatility using CAPM. Shahzad et al. (2019) found the association between idiosyncratic volatility and firm cycle with the help of CAPM.

$$r = r_{f+} ß(r_m - r_f) + \mu$$

3.1.2. Fama French Three Factor Model (FF3)3.1

The FF3 is the extended version of CAPM. In literature, FF3 factor model is also extensively used for the calculation of idiosyncratic volatility. Fenner et al. (2020) investigated that idiosyncratic risk is a determinant of country specific risk by using the above said model.

$$r = r_{f\ +}\ ß_1(r_m - r_f) + ß_2(SMB) + ß_3(HML) + \varepsilon$$

SMB (Difference b/w Small and Big)
HML (Difference b/w High and Low)

Generally, SMB called the “size effect” or “small firm effect”. Here the companies’ market capitalization is the determinant by its size. HML (high minus low). This factor is known as value effect. HML shows difference in the returns of value companies.

3.1.3. Quality of Accruals

This measure is based on the technique followed by the Dechow and Dichev (2002).

$$TCA_{i,t}=\beta_0+\beta 1CFOi_{,t—1}+\beta 2CFO_{i,t}+\beta 3CFO_{i,t+1}+\mu i,t$$

Herrmann et al. (2005) has used the above said model and suggested that addition of two accounting fundamentals, the revenue from sales and the value of property, plant & equipment.

$$TCA_{i,t}=\beta_0+\beta 1CFO_{i,t—1}+\beta 2CFO_{i,t}+\beta 3CFO_{i,t+1}+\beta 4\Delta REV_{i,t}+\beta 5PPE_{i,t}+\mu i,t$$

Where:
TCA = Total current accruals
$\beta 1CFOi_{,t—1}$ = Operating cash flow of previous year
$\beta 1CFOi_{,t}$= Operating cash flow of current year
$\beta 1CFOi_{,t+1}$= Operating cash flow of next year
ΔREV = Delta Revenue
PPE = Property, Plant and Equipment
Finally, the SD of residuals of the company will be considered as measure of earnings management.

3.1.4. Absolute Value of Abnormal Accruals

These accruals are mostly founded with the help of Jones (1991) model. There are various versions of this model. Mitra (2016) has applied Kasznik version of Jones' (1991) model to check the relationship between qualities of earnings and firm's volatility.

$$TAi,t = \beta 0 + \beta 1(\Delta REVi,t — \Delta ARi,t) + \beta 2PPEi,t + \beta 3\Delta CFOi,t + \mu i,t$$

Where:
TA = Total Accruals
ΔRev = Delta Revenue
ΔAR = Delta Account Receivable
PPE = Property, Plant & Equipment
ΔCFO = Delta Operating Cash flows
Above equation is the modification of Jones' model. In this model Kasznik (1999) had adjusted the revenue from sales and changes in receivables.

3.1.5. Earnings Quality and Firm-specific Return Volatility

The following multiple regression have been run four times to check the relationship between dependent and independent variables.

$$VOLi,t=\beta_0+\beta_1EMi,t+\beta_2CFOi,t+\beta_3VCFOi,t+\beta_4ROEi,t+\beta_5SIZEi,t+\beta_6LEVi,t+\beta_7BMi,t+\beta_8SKEW_{i,t}+\beta_9KURT_{i,t}+\mu i,t$$

VOL = volatility estimated by residuals from asset pricing model
EM = Earning Management
CFO = Operating Cash flow
SIZE = Firm Size
VCFO = variability of cash flow
ROE = Return on Equity
BM = Book-to-Market Ratio
SKEW = Return Skewness
LEV = Leverage
KURT = Return Kurtosis
The above regression equation is estimated four times to test the reliability of results.

3.2. Measure of Variables

3.2.1. Firm-Specific Return Volatility

The firm-specific return volatility has captured the attention of researchers after the publication of Campbell et al. (2001). The findings about the US market show that firm-specific return volatility has increased from some previous years. The variation in a firm's specific return is the most important factor that is considered by the investors while making decisions for investment. The firm-specific volatility is a part of total volatility which is completely firm-associated. It is not possible to directly measure the firm-specific volatility of a company. In the literature the most authentic and widely used proxy to measure firm-specific volatility is idiosyncratic volatility (Li et al., 2017) discussion regarding price informativeness and firm-specific return volatility, discussion regarding inside trading and firm-specific return volatility (Gangopadhyay et al., 2013). Idiosyncratic risk is a completely firm-specific risk. So, it is the most reliable proxy to explain a firm's specific risk. Thus, in the present study, idiosyncratic volatility is used to measure the firm return volatility.

3.2.2. Earnings Quality

Earning quality is basically the financial reporting quality of a firm. It is also not directly observable. Detecting earnings management is a big question. There are a lot of techniques used in the literature to detect earnings management. Jones's (1991) model, Dichow and

Dichev's (2002) model, and modified Jones' model (Kothari, 2005) are different models used to detect earnings management.

In the previous studies earnings management is a variable that is used to measure the earning quality. Earnings management means the managers manage the reported earnings to get incentives from shareholders. Kasznik's version of earnings management is the updated version of Johns's (1991) model. This version is more preferable among all other earnings management models because this considers a significant correlation between total accruals and operating cash flows. So, earnings management is the actual measure to estimate the earnings quality. If there are higher earnings management, it means that the earnings quality is poor and if the value of earnings management is lower, it shows that earnings quality is higher.

3.2.3. Control Variables

There are a lot of factors which can influence the returns volatility of an organization. This study considered the cash flows from operating activities (CFO) as control variable. The variations in operating cash flows (VCFO) are also considered. VCFO is captured through the SD of operational cash flows of five years. The ROE (return on equity) measures the performance of firm. Firm size (SIZE) is equal to the Natural log of capitalization of market. The leverage is calculated with the ratio of long-term debt and average of total assets (LEV). The ratio between book value and market value of equity is treated as growth opportunities (BM). The skewness of return and kurtosis of return are used to estimate the spread and height of daily return.

4. Data Analysis

The first part of the results section is descriptive statistics. It consists of a detailed overview of variables that are included in the study. This chapter presents a descriptive analysis of the data which is obtained from annual reports of manufacturing companies listed on the PSX 100 indexes. The data was described statistically in terms of measures of average such as dispersion (Sd), variance, mean and median, etc. Correlation analysis is presented to show overall associations among variables of the study indicated at a 5% level of significance. Idiosyncratic volatility is measured with the FF3 factor model and CAPM. Earning quality is measured with Dechow and Dichev's (2002) model and Kasznik's (1999) version of modified Jones' (1991) model. The results of their regression analysis are also part of this analysis.

4.1. Descriptive Statistics

Descriptive analysis of data is an essential element of the estimation because it helps to determine the normality of data (Mishra et al., 2019). All the values in descriptive statistics are normal. The values of standard deviation are also not so high.

Table. 1 ***Descriptive Statistics***

Variable Name	**Obs.**	**Mean**	**SD**	**Median**
Volatility Measures				
Idiosyncratic volatility; CAPM	400	1.747	0.691	1.279
FF3 Factor	400	2.031	1.723	1.803
Earning management Measures				
Dechow-Dichev accruals quality	400	0.024	0.019	0.021
Kasznik absolute abnormal accruals	400	0.029	0.023	0.017
Control Variables				
Cash flows	400	0.041	0.052	0.047
Cash flow volatility	400	0.059	0.041	0.039
Operating performance	400	0.039	0.274	0.037
Firm Size	400	8.156	1.154	8.743
Leverage	400	0.342	0.297	0.201

Book-to-market ratio	400	1.784	0.639	1.203
Return Skewness	400	0.327	0.834	0.217
Return Kurtosis	400	5.743	8.132	3.216

Note: Variables described above in methodology section.

4.2. Correlation Analysis

Table 2 shows the correlation between Fama French model and CAPM is 0.26 which is at moderate level. The value of correlation among the two earning management models is 0.43. This correlation coefficient is also not much higher to make one of redundant. Therefore, both models are applied for empirical analyses here.

Table. 2 ***Correlation Analysis***

	CAPM	FF3	DDST	KZABS	CFO	VCFO	ROE	SIZE	LEV	BM	SKEW	KURT
CAPM	1.00											
FF3	0.26*	1.00										
DDSTD	0.10*	0.09*	1.00									
KZABS	0.09*	0.08*	0.43*	1.00								
CFO	-0.03	0.007	0.001	-0.051*	1.00							
VCFO	0.04*	0.018*	0.12*	0.04*	0.08	1.00						
ROE	-0.05	-0.03	-0.03	0.029*	-0.16	0.015	1.00					
SIZE	-0.58*	0.45*	0.33*	0.31*	0.36	0.37	-0.11	1.00				
LEV	-0.01	-0.07	0.03*	0.01*	-0.09*	0.24	0.48*	0.03	1.00			
BM	-0.23*	-0.15*	-0.05	-0.03	-0.07	-0.004	0.13*	0.05	0.02	1.00		
SKEW	0.24*	0.10*	0.05*	0.06*	0.13*	-0.40	0.05	0.016*	0.027*	0.02	1.00	
KURT	0.15*	0.08*	0.10*	0.36*	0.17*	0.06	0.37*	0.31	0.05	0.28*	0.03*	1.00

Note: The values which are *, shows the significance at 95% confidence interval.

4.3. Capital Asset Pricing Model and Dechow and Dichev Model

The SD of residuals from the asset pricing model is the technique most commonly used to calculate idiosyncratic volatility. Earnings management is estimated by Dechow and Dichev (2002) model. After that the regression equation is applied along with control variables to explain the firm-specific return volatility and table 3 present the results as.

Table. 3 ***CAPM and Dechow Dichev***

Variable	**Coefficients**	**Std. Err.**	**P Value**
EM	5.601	(8.39)	0.003
CFO	-0.019	(-0.11)	0.084
VCFO	1.237	(4.18)	0.004
ROE	0.038	(0.41)	0.137
SIZE	-0.139	(16.93)	0.004
LEV	0.807	(13.97)	0.032
BM	0.031	(1.49)	0.390
SKEW	0.251	(15.93)	0.009
KURT	-0.004	(-1.46)	0.421
Intercept	2.603	(18.05)	0.019
Adjusted R^2 (%)	41.07	No. Of Obs.	400

Note: Volatility is the dependent variable. P value shows the results significant at a 95% confidence level.

The above table is showing the results of CAPM volatility and Dechow and Dichev earnings management. The probability value of earning management and idiosyncratic volatility is less than 0.05, and the coefficient of earning management is positive. It shows a significant positive relationship between idiosyncratic volatility and earning management (Alam et al., 2015). Results show the negative association between idiosyncratic volatility and earnings quality using CAPM. In control variables, the coefficients of operating cash flows,

return on equity, and book-to-market ratio are insignificant, but the rest show significance. Adjusted R square shows the model's overall fitness. It is 41.02, which is also normal.

4.4. Capital Asset Pricing Model and Kasznik Version of Jones' (1991) Model

CAPM is also utilized for idiosyncratic volatility and the estimation of earning management, and the Kasznik version of Jones's (1991) model is applied. After that, the regression equation is applied, and the results are presented in table 4.

Table. 4 ***CAPM and KZABS***

Variable	Coefficients	Std. Err.	P value
EM	1.873	(5.35)	0.000
CFO	-0.073	(-0.47)	0.365
VCFO	1.984	(5.93)	0.003
ROE	0.063	(0.48)	0.089
SIZE	-0.167	(17.23)	0.024
LEV	0.882	(15.31)	0.000
BM	0.023	(0.930)	0.147
SKEW	0.173	(12.30)	0.002
KURT	-0.002	(-1.07)	0.290
Intercept	2.287	(18.56)	0.019
Adjusted R^2 (%)	43.52	No. Of Obs	400

Note: Volatility is the dependent variable. P Value shows the results significant at 95% confidence level.

The above table shows the p-value of earning management at 0.000, less than 0.05. So, the coefficient of earnings management is positive and statistically significant. It means that idiosyncratic volatility has a positive association with earning management. The coefficients of the control variable have mixed signs; some are significant, and some are insignificant.

4.5. Fama French Three Factor Model and Dechow and Dichev Model

At the third step, the FF3 factors model by Fama and French (1993) is used to test the reliability of the results. The SD of residuals from the FF3 model is used as idiosyncratic volatility. For the estimation of earnings management, the Dechow and Dichev model of accrual quality is used. Other related control variables are also included to explain the idiosyncratic volatility. Table 5 shows the results of the regression line equation.

Table. 5 ***FF3 and Dechow Dichev***

Variable	Coefficients	Std. Err.	P value
EM	5.327	(7.03)	0.006
CFO	0.056	(0.03)	0.072
VCFO	0.612	(4.68)	0.093
ROE	0.064	(0.63)	0.270
SIZE	-0.255	(16.19)	0.000
LEV	1.162	(13.68)	0.009
BM	0.032	(1.49)	0.108
SKEW	0.264	(13.21)	0.010
KURT	-0.004	(-1.51)	0.309
Intercept	2.158	(17.52)	0.004
Adjusted R^2 (%)	41.36	No. of Obs.	400

Note: Volatility is the dependent variable. P Value shows the results significant at 95% CI.

Table 5 shows the results of regression estimated with volatility Fama and French (1993) and earning management (Dechow & Dichev, 2002). The results show that the probability value of earning management is less than 0.05. So, does a statistically significant relationship exist between the two constructs of the research study? These results confirm the reliability of the results estimated by CAPM. The other control variables also have mixed results. Size, leverage and skewness are statistically significant.

4.6. Fama French Three Factor Model and Kasznik Version of Jones' (1991) Model

At the last step, the Kasznik version of Jones's (1991) model is used for earnings management, along with the Fama French three-factor model, which is applied for volatility. Table 6 represents the findings from this regression equation.

Table. 6 ***FF3 and KZABS***

Variable	**Coefficients**	**Std. Err.**	**P value**
EM	2.618	(8.04)	0.013
CFO	-0.011	(-0.07)	0.219
VCFO	1.109	(3.94)	0.030
ROE	0.042	(0.48)	0.140
SIZE	-0.150	(18.11)	0.004
LEV	0.932	(15.84)	0.000
BM	0.026	(1.25)	0.081
SKEW	0.233	(14.41)	0.002
KURT	-0.003	(-1.23)	0.220
Intercept	2.412	(19.45)	0.010
Adjusted R^2 (%)	**38.05**	**No. of Obs.**	**400**

Note: Volatility is the dependent variable. P Value shows the results significant at 95% confidence level.

In the last test of the study, the P value of earning management is statistically significant. This confirms the significant and direct association between earning management and volatility. All four regression equations show a significant positive association between idiosyncratic volatility and earnings management (Mitra, 2016). The research examines whether earnings quality is linked to firm return volatility in the Japanese securities market. According to the findings, there is a negative correlation between earnings quality and firm-specific return volatility.

5. Discussion

Considering 40 manufacturing companies operating on the PSX-100 index, the estimation is conducted to cater to these investigations in the following way. It is checked whether the earnings quality has any link with firm return volatility. For this purpose, different proxies are used for both dependent and independent variables. Earnings management is treated as a proxy of earnings quality. Earnings management is a variable that has a very large research history. A bulk of literature is available on the measurement of earnings management. Two famous and most used earnings management estimation techniques are main focus of this research study (Dechow & Dichev, 2002). Jones' (1991) ideal model is followed to calculate the abnormal accruals using different versions. This technique depends upon the relationship between accruals and some fundamental accounting principles. This is used to differentiate between the normal and abnormal portions of accruals. An abnormal component is defined as one that cannot be properly explained based on the firm's fundamentals. These types of abnormal accruals can cause a decrease in earnings and accrual quality.

On the other side, estimation of firm-specific return volatility is not directly possible. Idiosyncratic volatility or unsystematic volatility is a measure which is mostly used in the literature for the estimation firm-specific risk. Basically, the firm-specific volatility is a portion of total volatility and it is completely firm related. However, it cannot be observed directly. Therefore, in the literature, unsystematic or idiosyncratic risk is used to estimate the firm-specific return. There are many approaches used for decomposition of idiosyncratic volatility in previous studies. Two famous approached CAPM Model and Fama French, three Factor Model are used for decomposition of unsystematic risk. Each model of earnings management is tested with each model of idiosyncratic volatility. The results show the negative association between proxies of both variables explained by all models. The negative relationship between both proxies confirms the positive relation between both dependent and independent variables. The previous studies only used one estimation method for earnings management and one model for calculating idiosyncratic volatility (Chen et al., 2012). Therefore, the current research is an effort to add a little to the prevailing literature on the Pakistani stock market by using two comparable approaches for earnings quality and two for firm-specific return volatility. Overall results of both approaches of earnings quality and idiosyncratic volatility are comparable with previous literature and confirm the existence of an association between two considered variables in the case of Pakistan.

6. Conclusion

The analytical cross-sectional association between firm-specific return volatility and earnings quality in manufacturing firms listed on PSX 100 between 2013 and 2022 is being examined in this research. The idiosyncratic volatility is treated as a proxy of firm-specific return volatility. Two well-known asset pricing models (CAPM Model and Fama French three factors) are separately observed to estimate the idiosyncratic volatility. The intention of using two distinct models for idiosyncratic volatility is to test the reliability of the results. Earning management is used as a proxy for earning quality. Two famous techniques are also used to detect earnings management first the Kasznik version of the Jones Model and the second is Dechow and Dichev model. Multiple regression analysis is employed to evaluate the relationship between firm-specific return volatility and earnings quality and the study can have observed the same findings from these two famous models. When the CAPM model is used to decompose the idiosyncratic volatility as the dependent variable, it shows the direct relationship between earnings management and idiosyncratic volatility estimated by the Dechow and Dichev (2002) model. This finding means that firm-specific return volatility and earning quality are negatively associated. When CAPM volatility is explained by the Kasznik model of earning management, it also shows a positive significant association. This finding also shows that there is a significant negative relationship between earning quality and firm-specific return volatility. On the other hand, when Fama French 3 factor asset pricing model is used which is the extended version of CAPM, the results also explain an association. When volatility derived by Fama French model is explained with the earning management of Dechow and Dichev model, it shows that earning management and idiosyncratic volatility are positively and significantly associated. Moreover, when Fama French volatility is explained by the Kasznik model, it also shows a significant positive relationship between the two proxies. The finding of the Fama French model also confirms the finding of CAPM that there is a significant negative impact of earning quality on firm-specific return volatility. It is the achievement of this research objective. It can be derived from the strand that the Pakistani stock market is

volatile. Numerous factors contribute to the variation in the market. The volatility of firm returns in Pakistan can be influenced by the quality of earnings, which is an important factor. The volatility of firm-specific returns is inverse and significantly associated with earnings quality. The results of both models of volatility and earnings quality are similar.

6.1. Implications of the Study

There is a very important implication of firm return volatility for arbitrage traders. Firm-specific volatility is much more important for specific arbitrageurs if they do not have well-diversified portfolios (Shleifer & Vishny, 1997). Arbitrageurs make an important contribution to forming an efficient market by correcting stock mispricing or discouraging anomalies in the security market. This research suggests that a superior class of reported earnings can decrease the mispricing of securities in the market and make it easy for the investor to make investment decisions. These findings are also helpful for policymakers and financial reporting regulators to establish a better financial reporting framework.

6.2. Limitations and Recommendations

It is recommended that future researchers use the same estimation on the country's non-financial sector separately to confirm the reliability of the results further. Secondly, no agreed-upon method is available to measure earnings quality, which is unsuitable for every study. So, researchers can use other estimation methods of earnings quality, like earning volatility, predictability or smoothness, etc., to examine whether the present study's results resembled other earnings quality models.

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