

The Influence of Industry Characteristics on Stock Price Volatility in Pakistan:

Examining the Moderating role of Industry Concentration

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Abstract

The study investigated the factors affecting stock price volatility in Pakistan. To achieve the study's objective, data of firms listed at PSX in 24 sectors were collected from the State Bank of Pakistan's Balance sheet Analysis, PSX, WDI, and Yahoo Finance. The study covered the time of 21 years, from 2000- 2020. A random effect model was used based on Hausman's Test results. The study found a positive relationship between leverage and oil prices whereas size and inflation have negative relationship with SPV. The results of the study are helpful for investors in making investment decisions and selecting the optimal portfolio. It will also contribute to the existing body of knowledge by providing new insights into factors that affect Stock Price Volatility in Pakistan.

Keywords: Stock Price Volatility, Industrial concentration, HHI, macroeconomic indicators, Pakistan, PSX.

Introduction

The stock market is a complex and dynamic system influenced by various internal and external factors. These factors can be divided into three categories: economic factors, industry factors and firm-level factors. Volatility is the key factor that influences stock prices, it refers to the rate at which the stock price decreases or increases over a specific period. High stock price volatility means high risk and helps investors in forecasting the volatility(Mawardi, 2018). The volatility behavior within the stock market has caught attention since the 1990s. Different researchers in the time-series analysis have researched volatility. Wang et al. (2020) explained that

volatility might significantly influence share prices only if the volatility shocks persist for a long period. Pakistan stock exchange has faced considerable volatility in recent years and this has become a driving factor of investor's interest in the market and to study the factors that can impact volatility (Ghufran et al., 2016).

By nature investors are risk averse, volatility is important for them because it is the measure of risk and shows the level of risk investors are exposed to ((Waweru, 2013). Literature provides extensive studies on macroeconomic and firm-level determinants of stock price volatility but there are very few studies focusing on industry-level characteristics that can affect SPV (Wei et al., 2020). Industrial characteristics such as profitability, leverage, and the level of industrial concentration affect stock price volatility(Xing, 2004). Industries characterized by high growth, high profitability, and low financial leverage tend to be associated with lower stock price volatility. On the other hand, industries characterized by low growth, low profitability, and high financial leverage are associated with high stock price volatility.

Shah and Noreen (2016) explained that stock market volatility is caused by uncertainty, and is affected by interest rates, tax changes, monetary policies, and inflation rates. It is also impacted by industry changes, global and national events. The major determinants of stock price volatility include oil prices, sales growth, trading volume, liquidity, leverage, profitability, earnings volatility, and economic growth. Traditional firm-level analyses of stock price volatility may not accurately reflect the overall market dynamics due to the influence of noise trading. To obtain a more comprehensive understanding of stock price volatility, this study focuses on industrial characteristics as determinants of SPV and also considered industrial concentration as a moderator. By exploring the impact of industrial factors, this study aims to contribute to the existing literature by filling the gap in studies that have neglected the broader market context and solely focused on firm-level and macroeconomic factors.

In Pakistan, approximately 2 million individuals have invested in stock, representing only 0.1% of the population (Parveen et al., 2021). It indicates that people are afraid to buy stocks due to limited knowledge and economic uncertainty. People do not need to understand the determinants of stock price volatility that drive the price of a particular stock. Also, people do not know enough about the role of industrial concentration, which also affects price volatility (Parveen et al., 2021). Most of the investor's investment decisions are based on word of mouth (WOM). They buy any specific stock based on recommendations and are unaware of the company's financials, profitability, new expansion plans, leverage, and sales growth, they follow Herd behavior (Khan et al., 2021).

The study aims to bridge the gap and provide maximum information regarding stock price volatility, a major factor affecting the stock market by studying factors affecting stock price volatility and moderating role of industrial concentration. Most of the studies have focused on market level or firm level data which provides misleading information because of sectoral heterogeneity so this study focuses on industry/ sectoral level data. To provide better understanding and information for policy makers, investors.

Literature Review

Volatility refers to the fluctuations in the price of a given security or stock. Volatility may be measured by utilizing a standard deviation that indicates how the price of a stock is tightly grouped around the moving average or mean (Endri et al., 2021). The standard deviation tends to be small if the prices are bunched together tightly. If the prices are spread widely apart, the standard deviation is large.

Diaz et al. (2016) explained the historical association between volatility and stock market performance. They used daily data to evaluate the volatility of "The S&P 500". The research revealed that high volatility corresponds to a high probability of a declining market. Investors may utilize this data or information on long-term volatility to align their portfolios with the expected returns.

Various factors impact volatility such as national and regional economic factors, including interest rates and tax policies, may contribute significantly to the market's directional change and impact volatility. In some countries, if a central bank focuses on setting short-term interest rates for borrowing (overnight) banks, their stock markets react violently (Zhou and Zhou, 2021). Changes in the sector and industry factors, plus inflation trends, may also impact on the long-term stock market volatility and trends. The determinants include oil prices, trading volume, economic growth, exchange rate, earning volatility, sales growth, size, liquidity, leverage, and profitability (Thanatawee, 2021). These elements are the most important when evaluating stock price volatility. Hence, these determinants drive the price of a stock and should be considered when making predictions about the share price.

If the stock price volatility increases, there is panic in markets. In that case, the investor may use options to take benefit of these extreme moves or hedge the current positions against big losses. If the volatility is high, both in terms of the market and terms of a particular stock, the traders who tend to be bearish on the stock can put on it based on the concept of "buy high and sell higher" (Diaz et al., 2016). The higher volatility levels which arise with bear markets may impact the portfolios directly while adding stress to the investors as they evaluate the value of their portfolio's falls. This often prompts the investors to rebalance their portfolio weighting between bonds and stocks by purchasing more stocks as the prices fall. Therefore, the market volatility focuses on offering the silver lining to the investors that focus on capitalizing on the situation.

Determinants of Stock Price Volatility

This section critically analyses the determinants of stock price volatility. Different determinants can impact the stock price and should be evaluated from the investors' viewpoint.

Liquidity

Naik and Reddy (2021) defined liquidity as the ability to convert assets into cash quickly and easily. Liquidity is an important factor for companies because it affects their ability to pay their debts and make investments. Jihadi et al. (2021) stated that liquidity is a major part of the economy because it helps to facilitate trade and investment. Liquidity also helps to ensure that the prices of assets are fair and reflect their true value. O'Hara and Zhou (2021) argued that liquidity is a key determinant of the efficiency of the stock market. A liquid market allows investors to buy and sell stocks quickly and easily, which helps to ensure that prices reflect all available information.

H01: There is a significant positive relationship between liquidity and Stock Price Volatility.

Size

Bag et al. (2021) found that the size of a company is an important factor in its profitability. Larger companies tend to be more profitable than smaller companies because they have economies of scale. Soomro et al. (2021) found that the size of an industry is also an important factor in its profitability. Industries with a large number of companies tend to be more competitive and less profitable than industries with a small number of companies. According to the study by Lakens (2022), size means that the size of the industry can help in controlling the overall stability of the industry. The size also has a relationship with the price and return of the industry. (Sutrisno, 2020) in his study found a negative relationship of size with volatility. As larger size firms are well-diversified and have low volatility (Zainudin et al., 2018); Nasir et al.,2018; Handayani,2019).

H02: There is a significant negative relationship between size and Stock Price Volatility.

Profitability

Olaoye et al. (2016) conducted a study on Nigerian Manufacturing firms and used Return on assets as measure of profitability and found that profitability has an positive relationship with Stock Price Volatility (SPV).This indicates stock prices are

not affected by profitability. The results are consistent with Placido (2012), who found a negative correlation between stock price volatility and profitability (ROA). Several studies have shown that return on asset and stock prices have a strong negative relationship (Cooper, 2009). Based on Onchiri & Onsomu (2014)'s basic model, which analysed the relationship between stock price volatility and dividend policy, it was found that there was no significant negative relationship between stock price volatility and dividend policy. Majed, Ahmed & Dahmash (2012) found that return on asset has a positive but low correlation with stock prices. The study used a multiple regression technique with a 90% significance level, which resulted in a contradictory relationship.

H03: There is a significant negative relationship between profitability and Stock Price Volatility.

Leverage

According to the research and findings of Chen and Vazquez (2021), leverage refers to the use of debt to finance assets. The purpose of leverage is to increase the return on assets, but it also increases the company's risk. The leverage of the Pakistani industry is increasing, which means that the industry is becoming more reliant on debt. Vincent et al. (2021) state that their findings provide a unique perspective on the cost of borrowing, which is important for understanding the financial health of a company. The recent increase in borrowing costs is a sign that the economy is becoming more expensive. Jihadi et al. (2021) add that leverage provides an understanding of the potential amount of debt that a company is using to generate returns. Leverage can help a company to grow quickly, but it can also lead to financial problems if the company is not able to repay its debt.

H04: There is a significant positive relationship between leverage and Stock Price Volatility.

Inflation

Sutrisno (2020) found no significant relationship between inflation and stock price volatility. However, he did find that a higher money supply leads to a higher

discount rate and lower stock prices. An increase in the inflation rate can also lead to tighter economic policies, which can hurt stock prices. Hugida (2011) found that inflation does affect stock price volatility. He found that higher inflation leads to increased volatility in stock prices. This is because inflation can make it more difficult for investors to predict future earnings and cash flows, which can lead to uncertainty and volatility in the stock market.

H05: There is a significant negative relationship between size and Stock Price Volatility.

Exchange rate

Since Forex and stocks dominate the global financial markets, traders and policymakers attempt to find some correlation between the two to obtain optimal outcomes for their decisions (Akram, 2020). There are two approaches 1st Good market approach or Flow oriented Model. Dornbusch & Fischer, (1980) stated that exchange rates affect stock prices. As currency appreciates/depreciates it results in decrease/increase in trade competitiveness and trade competitiveness affects stock prices (Bashir et al., 2016; Rai & Garg, 2021; Wong, 2017).

The 2nd approach Stock oriented Model or Portfolio Balance Approach explains how exchange rates affect stock prices, which proposes that the exchange rate leads to stock prices. According to a traditional view, the national currency's health influences a firm's market value. Companies whose primary business is exports, benefit from the weakening of the country's currency because their exported goods become cheaper on the international market, thereby enhancing their competitiveness. In addition, stock market volatility tends to lag any impact on the market.

Nugroho & Robiyanto (2021) conducted a study on the impact of gold price volatility and exchange rate volatility on stock price volatility in Indonesia and found that stock price volatility was positively affected by gold volatility and negatively affected by exchange rate. Ahmed & Ramzan(2016) conducted a study on

measuring the impact of macroeconomic factors on stock price volatility and they found a negative relationship of exchange rate with stock price volatility.

H06: There is a significant negative relationship between the exchange rate and Stock Price Volatility.

Economic growth

Acemoglu (2012) states in their study that economic growth refers to the stability of the country's people because it shows how capable people are towards their spending and expenses. The author further illustrated that economic growth is a crucial part of the country and its stock market. According to the study by Mujtaba et al. (2022), overall economic growth is about the stability of the incoming and outgoing countries. Economic growth comes when stability comes among the people. Wang and Wang (2022) added that the emerging increase in employment and the earnings of people also help add value to the country, addressing the economic stability of Pakistan, which is in poor condition because the number of employees within the country is declining, which as a result is causing the failure of the economic stance of the country.

H06: There is a significant negative relationship between economic growth and Stock Price Volatility.

Oil Prices

Recently, Researchers has developed interest in the volatility of share prices, and its relationship with various macroeconomic factors such as oil prices, exchange rate etc. According to Hamilton's study (1983) oil prices have a negative relationship with macroeconomic activity and these results are widely accepted. In oil-importing countries it is found that inflation is caused by oil price shocks. Rising oil prices decrease companies' cash flows, and the expectation of increasing interest rates also reduces the value of stocks. Therefore, rising oil prices can pose a significant risk to stock markets (Makoni, 2020).

Poja and Giri (2017) reported in their study that Stock price fluctuations are often influenced by changes in international crude oil prices. According to Jones and

Kaul (1996), oil price shocks affect stock market prices and returns through the impact they have on expected earnings. Stock prices can decline due to higher shipping costs, reducing profit and dividends to shareholders. The study does not directly indicate that oil prices do not influence stock market prices, it suggests that there is low predictability of the other variable based on others. The conventional understanding of the market phenomenon holds that increasing oil prices increase the input costs for businesses which pressurize the customers to spend more money on fuel, leading to reductions in the corporate earnings of their businesses (Hazarika et al., 2016). Oil price shocks can also lead to financial crises. When oil prices rise sharply, it can lead to a decline in economic growth and a decrease in corporate profits. This can lead to bankruptcy and financial instability.

H08: There is a significant positive relationship between the oil prices and Stock Price Volatility.

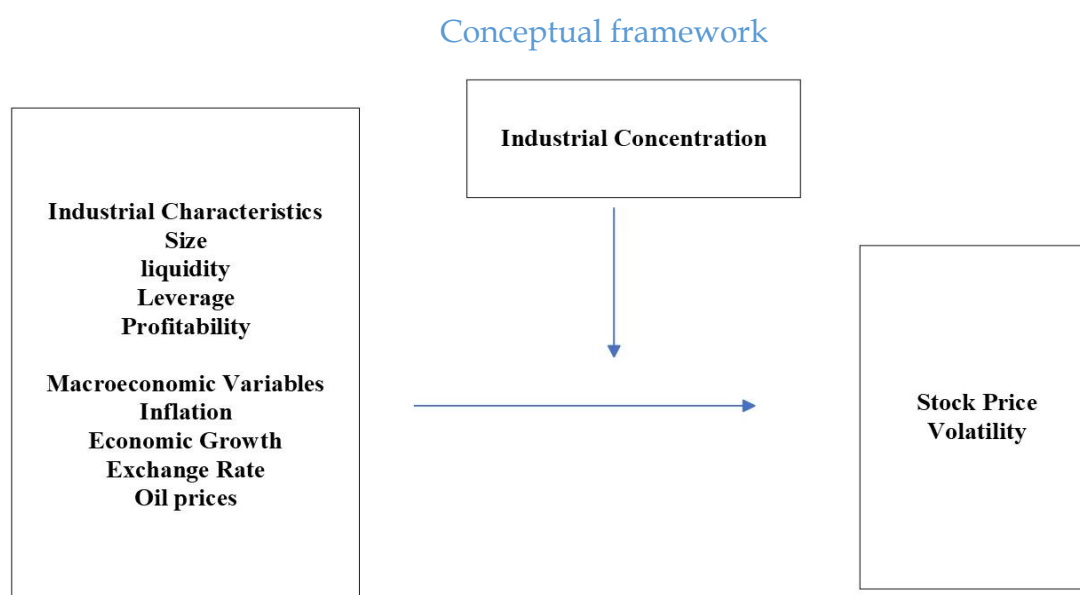


Figure 1 Conceptual Framework (Self constructed)

The modern portfolio theory has been observed throughout the literature; the theory highlights that the high risk and high investment in the industry help in growing the high returns. The theory shows that the potential amount of risk and investment

results in a positive relationship with the understanding of factors and contribution investments. The purpose of the modern portfolio theory is to highlight that the higher deviation is closely combined and related to the high risk and potential which may grow or bind the overall business or industry.

Data, variables, and Methodology

The study is based on secondary data. the industry-related data was collected from the State Bank of Pakistan and the Pakistan stock exchange for the period from 2000-2020. The data for macroeconomic variables were collected from the world development Indicator. The sample of this study is comprised of firms from 24 non-financial sectors listed on Karachi Stock Exchange.

Table 3.1

List of sectors	
Automobile assembler	Oil & gas marketing companies
Automobile parts & accessories	Paper & board
Cable & electrical goods	Pharmaceuticals
Cement	Power generation & distribution
Chemical	Refinery
Engineering	Sugar
Fertilizer	Synthetic & rayon
Food & personal care products	Technology & communication
Glass & ceramics	Textile composite
Leather & tanneries	Textile spinning
Miscellaneous	Textile weaving
Oil & gas exploration companies	Tobacco

Table 1 list of industries used in study.

The combination of dependent and independent variables is chosen in the light of extensive literature reviewed and based on various financial theories. This section of the study presents the measurement of these dependent and independent variables and their empirical evidence which is found in previous studies.

$$SPV_{it} = \beta_0 + \beta_1 SZ_{it} + \beta_2 LEV_{it} + \beta_3 EV_{it} + \beta_4 ROA_{it} + \beta_5 LIQ_{it} + \beta_6 EXR_t + \beta_7 INF_t + \beta_8 OILP_t + \beta_9 GDPGRW_t + \varepsilon_{it} \quad 3-1$$

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Table 2 Measurement of Variables

Variables	Measurement
Profitability	ROA
Leverage	D/E,
Liquidity	Trading Volume
Size	ln (TA)
HHI (Industry Concentration)	sum of squares of the market share of firms within a given industry
Exchange rate	PKR against 1 unit of USD
Inflation	CPI
Oil prices	Crude oil rates per barrel
Economic Growth	GDP growth
Stock Price Volatility	Standard deviation of Industrial Indices

4.1. Results and Discussion

4.1.1. Descriptive Statistics

Descriptive analyses help to describe relevant aspects and provide information about each variable. The results of the descriptive analysis are summarized in the following table.

Table 4.1 - Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
SPV	0.0609	0.0650	0.0145	0.4313
Leverage	0.5621	0.281	0.0382	0.9781
Profitability	3.6889	9.6566	-22.0300	39.6200
Liquidity	1.5708	1.9062	0.0674	14.9081

Size	14.5231	1.7503	10.0301	19.0309
Earning Volatility	0.0702	0.0774	-0.0783	0.4468
GDPGRW	4.1287	1.8602	0.5255	7.5469
INF	7.8051	4.3528	2.5293	20.2861
OILP	0.6709	0.2457	0.2245	1.0327
EXR	88.7228	29.1645	57.7520	161.8385

Where, EXR = exchange rate, OILP= oilprices, INF= inflation,

The research is conducted on 24 industries of the non-financial sector listed on the Pakistan Stock Exchange (PSX). The dependent value of the study is Stock price volatility. Whereas size, leverage, profitability, earning volatility, and sales growth are independent variables. In Table 4.1, The average SPV is 0.0609. It shows the average return of the sample across 24 industries. The SPV ranges between 0.0145, i.e., 1.45% and 43.13%. The standard deviation of SPV is 0.0650, which shows data is widely dispersed across the industries. Inflation is used as a proxy of the consumer price index in the study. An inflation rate is calculated by averaging the prices of consumer goods and services, including transportation, food, and medical services.

In order to calculate the Consumer Price Index, a set of predetermined items are averaged and weighed according to their importance. Changes in Consumer Price Index are used to assess changes in prices associated with the cost of living. The mean value of Inflation is 7.8051. In the time covered in this study, the average inflation prevailing in Pakistan is 7.8051%. GDP Growth is used herein % terms with an average value of 4.128. The value shows that on average economic growth in these 21 years was 4.128%.

Correlation

This section explains the correlation of all the variables used in the study to measure the degree to which variables vary together.

Table 4.2 - Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) SPV	1.0000									
(2) ROA	0.11*	1.0000								

(3) lev	-0.0600	-0.18*	1.0000							
(4) Liq	0.12*	0.31*	-0.0300	1.0000						
(5) size	-0.0700	-0.12*	0.10*	0.77*	1.0000					
(6) EV	0.13*	0.89*	-0.15*	0.25*	-0.20*	1.0000				
(7) Inf	-0.14*	-0.0700	-0.0400	0.0100	0.11*	-0.0500	1.0000			
(8) GDPGRW	0.14*	0.16*	-0.0300	0.0100	-0.17*	0.14*	-0.52*	1.0000		
(9) EXR	0.0000	-0.0100	-0.0500	0.52*	0.56*	-0.11*	0.10*	-0.41*	1.0000	
(10) OILP	0.19*	0.0100	-0.11*	0.31*	0.31*	-0.0200	0.44*	-0.0700	0.35*	1.0000
*** p<0.01, ** p<0.05, * p<0.1										
SPV= Stock price volatility, ROA = return on assets, Lev = leverage, Liq =Liquidity , EV = Earning Volatility, Inf = Inflation, GDPGRW = economic growth, EXR = Exchange rate, OILP = oilprices										

The results of the correlation matrix show that leverage has a positive but weak significant relationship with SPV. The coefficient is 0.0624, which indicates that an increase in leverage will increase the SPV of an industry. ROA has a negative but weak significant association with SPV and leverage. Liquidity is negatively correlated with SPV and leverage whereas it has a significant positive relationship with profitability. Size has a significant negative relationship with SPV and Liquidity which indicates an increase in the size will result in a decrease in SPV and liquidity whereas it is positively correlated with profitability showing that an increase in size will increase profitability. The correlation between size and leverage is found negative but insignificant.

Earnings volatility is insignificantly correlated to SPV and Profitability, while negatively correlated with leverage and size and positively correlated with liquidity. Economic growth has a negative and significant association between SPV and size

and is positively correlated with EV and sales growth. Inflation has a negative correlation with GDP growth and size. Oil prices have a positive significant association with stock price volatility. The exchange rate has a negative significant correlation with stock price volatility.

Regression Analysis

To test the hypothesis regarding determinants of stock price volatility, a fixed effect model was applied. The results of Model 1 are shown in Table 4.

4.3.1. Hausman Test

Hausman Test (1978) is formulated to assist in choosing between the fixed effects and random effects approaches.

Table 4.3 Hausman (1978) specification test

	Coef.
Chi-square test value	1.887
P-value	.999

Since the test probability for SPV is greater than the critical value of 0.05, the null hypothesis is accepted. Now we will estimate the given model below.

Table 4.4 - Determinants of Stock Price Volatility

SPV	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ROA	-1.3825	0.9079	-1.52	0.1284	-3.1663	0.4012	
lev	-0.0003	0.0019	-0.15	0.8809	-0.0041	0.0035	
Liquidity	0.4213	0.1139	3.70	0.0002	0.1974	0.6452	***
size	-0.2159	0.0566	-3.82	0.0002	-0.3271	-0.1048	***
EV	0.2930	0.5674	0.52	0.6059	-0.8219	1.4079	
Inf	-0.0391	0.0071	-5.47	0.0000	-0.0531	-0.0250	***
GDPGRW	-0.0293	0.0211	-1.38	0.1669	-0.0708	0.0123	
EXR	-0.4482	0.2730	-1.64	0.1013	-0.9846	0.0882	
OILP	1.0478	0.1542	6.80	0.0000	0.7448	1.3507	***
Constant	1.3615	0.6209	2.19	0.0288	0.1416	2.5813	**

Mean dependent var	1.2095	SD dependent var	0.5921
R-squared	0.1711	Number of obs	504
F-test	15.4969	Prob > F	0.0000

Note :*** p<.01, ** p<.05, * p<.1

SPV = stock price volatility, Lev= leverage, EV= earnings Volatility, Inf= Inflation, EXR= exchange rate, OILP= oil prices

Table 4.4 shows the regression analysis results for the determinants of stock price volatility of non-financial sectors of Pakistan. Liquidity has a positive relationship with stock price volatility and size has a negative relationship with stock price volatility. Oil prices has significant positive relationship with stock price volatility it indicates that an increase in oil price will result in an increase in stock price volatility.

Moderating role of industrial concentration on Stock Price Volatility

Industrial Concentration refers to the phenomenon where few firms dominate the industry. (Nguyen et al., 2019) states that Stock returns are lower in highly concentrated markets because highly efficient firms have lower distress risks hence lower stock price volatility.

Table 4.5 Impact of Industrial Concentration on Stock Price Volatility

SPV	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig	
Leverage	0.0002	0.0001	2.48	0.0133	0.0000	0.0003	**
Profitability	-0.0008	0.0002	-4.80	0.0000	-0.0011	-0.0004	***
Liquidity	-0.0019	0.0008	-2.36	0.0182	-0.0035	-0.0003	**
Size	-0.0016	0.0012	-1.37	0.1710	-0.0040	0.0007	
Earning volatility	-0.0268	0.0191	-1.40	0.1602	-0.0642	0.0106	
HHI	-0.2382	0.0441	-5.40	0.0000	-0.3247	-0.1516	***
GDPGRW	-0.0025	0.0006	-4.11	0.0000	-0.0036	-0.0013	***
INF	-0.0009	0.0003	-3.09	0.0020	-0.0015	-0.0003	***
OILP	0.0235	0.0047	5.04	0.0000	0.0143	0.0326	***

EXR	0.0002	0.0000	4.72	0.0000	0.0001	0.0003	***
HHI * size	0.0139	0.0028	5.03	0.0000	0.0085	0.0193	***
HHI * liquidity	0.0041	0.0038	1.08	0.2792	-0.0033	0.0114	
HHI * de	-0.0002	0.0001	-2.57	0.0102	-0.0004	-0.0001	**
HHI * Earning Volatility	0.1395	0.0641	2.18	0.0296	0.0138	0.2653	**
HHI * profitability	0.0018	0.0005	3.59	0.0003	0.0008	0.0029	***
Constant	0.2180	0.0143	15.23	0.0000	0.1899	0.2461	***
R-squared	0.1941						
F-test	52.4005		Prob > F		0.0000		
*** p<.01, ** p<.05, * p<.1							
Note: SPV = stock price volatility, Lev= leverage, EV= earnings Volatility, Inf= Inflation, EXR= exchange rate, OILP= oil prices, HHI = Industry concentration							

Table 4.5 shows the results of a robust regression analysis with a dependent variable stock price volatility (SPV) and multiple independent variables including fundamental and macroeconomic factors. The R square of the model is 19.41%. The results show that leverage has a significant positive relationship with Stock price volatility with a coefficient of (0.0002). It suggests that stock price volatility increases as leverage increases. It shows that as leverage increases the risk of default for the company increases and the cost of financial distress also increases (Tradeoff Theory). Therefore, volatility also increases.

Profitability is measured by Return on assets and it is found to be significant and has a negative impact on SPV which indicates that an increase in profitability will decrease the stock price volatility leading to stability in the market. The results are aligned with Efficient Market Hypothesis and also with the market microstructure theory. The results are consistent with the (Murniati,2016; Nandyayani,2021).

The results revealed that liquidity has a negative impact on SPV with a value of -0.0019. This value suggests that stock price volatility decreases as liquidity increases. Economic growth is highly significant and has negative relation with SPV. It suggests that when an economy grows it decreases stock price volatility. An increase in the economic growth of a country shows the growth and stability of the economy. When the economy is growing investors gain confidence in the market and invest more in the market hence volatility decreases. The results are consistent with (Mishra and Rout,2018; Shamsuddin,2019).

Oil Price has significant and positive (0.0235) relationship with stock price volatility (SPV) and suggests that as oil prices increase, stock price volatility increases. The results are supported by (Smith and Naryan,2018). Pakistan is an oil-importing country i-e it purchases oil from other countries. The change in oil price directly affects the economic growth, and foreign exchange of the country, hence leading to volatile stock prices. Secondly, oil prices are a major input cost as many industries use oil in their processes, so an increase in oil prices, increases the cost of the company making prices volatile. Thirdly, oil prices are a major cause of inflation in the Pakistani economy, so an increase in oil prices increases inflation as a result of which purchasing power decrease, demand for stock also decreases and results in high stock price volatility.

Industry concentration is used as a moderator and is measured by HHI (Herfindahl-Hirschman Index). The results show that it has a significant impact on stock price volatility. This indicates that high concentration leads to a decrease in the volatility of the prices as the market is controlled by very few firms, with less competition, and stable prices, hence low volatility.

The interaction terms between the HHI and profitability are statistically significant at the 95% level, with a coefficient of 0.0018. This suggests that the effect of industry concentration on SPV depends on the industry's profitability level and that higher profitability may mitigate the negative impact of industry concentration on SPV.

Conclusion

Stock returns and volatility behave significantly at the firm level and industry level. The impact of changes in economic factors is more significant and stronger at the industry level than at the firm level. Therefore, the industry stock returns are subject to larger variations as compared to firm-level stock returns. The study examined the relationship between the industry-level factors, macroeconomic factors and stock volatility. The research's main aim is to explore how different factors of non-financial sectors impact stock price volatility. Secondary data from 24 sectors is collected for 21 years. The data was analyzed using the Fixed effect model.

Stock price volatility was used as a dependent variable. the study found that leverage, inflation, economic growth, exchange rate, and oil prices have a significant negative relationship with stock price volatility whereas, we did not find any significant relationship between liquidity, profitability, and size. As investors are concerned about the volatility of equity prices the study focused on some industry-specific and macroeconomic factors to be considered while making investment decisions.

Implications

The findings of this study have important implications for investors and policymakers. Investors should consider the industrial characteristics that can affect stock prices while making investment decisions. Policymakers shall also consider the impact of economic factors and industrial factors while formulating economic policies.

Recommendations

Based on the results, the study has the following recommendations. Investors can make informed and well-diversified investment decisions by researching the financial and market conditions, and trends in the market to reduce risk and make optimal portfolios. Policymakers should also make policies to stabilize the market and reduce uncertainty. For future researchers, it is suggested to focus on more industry-specific factors that can affect stock price volatility and incorporate the data of financial sectors.

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