Advance Journal of Econometrics and Finance
Vol-4, Issue-1, 2026

Advance Journal of Econometrics and Finance

Online ISSN
2959-8990
Print ISSN
2959-8982
https://ajeaf.com/index.php/Journal/About

Name of Publisher: SCHOLAR CRAFT EDUCATION & RESEARCH HUB

Review Type: Double Blind Peer Review

Journal Frequency: Quarterly Research Journal (4- Issue)

Impact of Macroeconomic Determinants on Stock Prices of Shariah Compliance Firms and the Moderating Role of Political Instability: Evidence from Pakistan

[1]Fahad Ali, [2]Dr. Muhammad Ilyas, [3]Dr. Muhammad Tahir Khan

Fahad Ali
MS Scholar, Department of Accounting and Finance, Abdul Wali Khan University Mardan, Pakistan
00fahdii@gmail.com
Dr. Muhammad Ilyas
Assistant Professor, Department of Accounting and Finance, Abdul Wali Khan University Mardan, Pakistan
milyas_85@awkum.edu.pk
Dr. Muhammad Tahir Khan
Lecturer, Department of Accounting and Finance, Abdul Wali Khan University Mardan, Pakistan
mtahir@awkum.edu.pk

Abstract

This is evidenced to the fact that macroeconomic determinants are very crucial in share prices and the overall performance of the stock market. Thus, this paper examined the macroeconomic variables and their impact on the stock market performance in Pakistan and in particular, Shariah-compliant companies during the years 2014-2023. The study analyzes how interest rate, inflation, money supply, and gross domestic product (GDP) have a direct impact on stock prices using panel data regression methods, descriptive statistics, fixed effects model, and interaction term analysis to also determine the moderating nature of political instability. The variables that are included are firm-level variables profitability, firm size, and dividend payout ratio as well as a COVID-19 dummy variable to adjust to the disruption during the pandemic. The results indicate that money supply has a positive and significant effect on the stock prices which represents liquidity-based investor optimism. Conversely, the conventional economic theory holds true since inflation and interest rates have a negative impact on stock performance. Whereas the GDP does not show a substantial direct impact, the interplay between the two creates negative results with political instability. The impact of political instability heavily mediates stock price relationships in the macroeconomic as it helps to reduce the positive influences of money supply and GDP as well as exacerbates the negative influences of inflation and interest rates. On the firm level, profitability and dividend payout ratio have a positive relation with stock prices, but firm size does not have a significant effect. The COVID-19 factor demonstrates the mixed significance, which implies the adaptive market dynamics. The paper has highlighted the importance of political stability in influencing the success of the macroeconomic policy and investor confidence. The results have significant implications to investors, policymakers, and financial analysts who can work in politically unstable emerging markets.

Keywords Stock Prices, GDP, Inflation, Interest Rate, Money Supply.

Introduction

Stock market is considered to be one of the most significant financial institutions in a country. Stock markets have been an important aspect of economies since time immemorial. The economy can be affected in partial and comprehensive ways by any instabilities or crises that are present in these markets. The world economy has been facing various crises that started in the 17th century in the financial and more precisely in the stock exchange market. Therefore, economical management of countries and policy makers pay close attention to the trends in the stock markets in order to be ready to any unforeseen instabilities. Day to day changes in the stock markets may be brought about by the economic and political events. Still the stock markets are subject to microeconomics and macroeconomics in the domestic and global markets. The role of the change of the macroeconomic factors directly or indirectly affects investors and is usually used to make stock choices on the macroeconomic situation in the market. Consequently, research on the variables which motivate stock market changes is a significant issue to economies and investors (Demir, 2019). The organizations also depend on these markets to fund their operations (Kalaycioglu, 2024). They also provide this convenience to different investors such as individuals, as well as financial institutions in order to invest in more liquid assets which has value to them. The focus of research has been shifting more towards long term financial decisions. These choices helps in bringing high standards about. There is an indication of growth and development of the financial market in Pakistan. This implies that the manner in which the money is being invested in Pakistan is promising towards the future. The growth of any financial or capital market is affected both by good and bad news pertaining to events. A bad news has a negative impact on the stock market and good news improves the stock returns (Barth and Yago, 2006). These events are manifested in the stock market in terms of price and returns (Mubeen Ijaz and Sarwar, 2009).

Various macroeconomic indicators are interrelated elements of the economy, such as IR, exchange rates, current account deficits, government spending, MS, GDP, and prices of oil and gold. In fact, the interaction between the stock price (SP) movements and economic factors that may cause fluctuation in the general economy and the interaction between these factors and SP movements, have been discussed many times in academic studies. The general view in these studies is that changes in the main macroeconomic indicators may directly and indirectly affect the SP (Kalaycıoğlu, 2024).

This research focuses on identifying how changes in macroeconomic factors influence the SP in the Pakistan stock exchange. It aims to determine which financial aspect is vital for decision-making. If these factors have an effect, it will assist analysts or investors in making informed investment decisions. The stock market is a part of a free market economy. It enables companies to raise capital through their firms and corporate bonds and allow investors to participate in the financial success of these companies, earning profits through capital gains and income through dividends. Financial experts are also evaluating the elements that determine the performance of stocks especially as more people are interested in buying stocks and engaging in investments. The primary objective of this study is to test the ability of different macroeconomic variables and the moderating effect of PI to affect SP in the stock market of Pakistan. The study can also give an insight to the investors, as they will be able to know the possible impact on the stock market in case of any changes in any of these indicators and particularly in the IR, INF, MS, and GDP.

Literature Review

The relationship between stock returns and the macroeconomic indicators has been explained exhaustively. The available literature suggests a number of theory models that can be used to explore the relationship between the stock returns and the macroeconomic variables, and as such, the Arbitrage Pricing Theory (APT) suggested by Rose 1976. According to this theory, instead of attributing expected return to a single form of risk (market risk), it provides a better approach to establishing the cause of the risk, which would be macroeconomic factors. Therefore, the effect of macroeconomic indicators on stock returns has been the subject of many studies (Shehab, 2023; Alam et al., 2025).

By evaluating the APT model, Fama (1981) examined an important connection between the stock returns and the macroeconomic variables that cause market or systematic risk, including industrial production, IR and INF. He found that the expected and unexpected industrial production, the spread between long and short-term IR, and industrial production are highly rated in the stock market. As such, Fama (1970) developed the Efficient Market Hypothesis that all information on the changes of macroeconomic factors will affect the SP where investors will ensure that their perception of such variables is fully captured in the current SP.

The price of the share in the stock exchange is the value of the share that is affected by the participants and that is being based on the amount of demand and supply in the capital market. The SP is influenced by a number of factors, such as the macroeconomic environment, PI, industry developments, operations within the company, and investments done by the investors and thus, it is usually affected. The SP normally evolves over time, and the principle of technical analysis on the stock market depends on the premise that the past trends are likely to recur (Zhao et al., 2023)

According to the theory of MS proposed by Keynes, the growth of output and economic growth is positively affected by the rise in the MS. The reason is that it is expected that an increase in the MS will stimulate consumption by people. Therefore, encouraging higher economic development.

Fluctuations in the MS affect the variations in the SP. It is also correct to argue that a rise in the MS, growth rate raises the SP and a fall in the growth rate of the MS will reduce the SP.

By using the different factors, some associations were drawn between the variables (i.e. the MS) and the movement of SP, which may be applicable in predicting future trends and acts as a great asset to the investors. Most scientists arguing on the macroeconomic factors that influence SP movements believe that monetary policy or alterations in the MS in the economy is the major factor in this case. One of such cases is emphasized by Gupta (1974) who states that the behavior of SP can be predicted with the help of the MS. According to his study, the MS can be used to predict 59 percent of stock indices (Sirucek and Sirucek 2012). In production strategy, GDP is the aggregate value of all final goods and services produced at a given year and within a country (Tejokusumo et al., n.d.).

GDP offers a tool of measuring national income in totality in different ways e.g. the approach of output production and expenditure approach. An increase in GDP leads to increment in income of people hence stimulating growth in the business world. INF and SP have two approaches to their relationship. The former states that there is a positive relationship between INF and SP which is explained by demand-pull INF due to high demand of goods. The second view is that there is a negative relationship, which is based on cost-pull INF which is brought about by the increases in cost of production. INF is the general increase in prices and it is subject to the market forces as an effect of various factors because they include an increase in the level of public expenditure and the presence of too much money in the market that stimulates consumption and unequal distribution of products (Suparmoko,2015; Alam et al., 2025). INF influences stock returns. When the prices of goods increase, the costs of the company also rise, and this results in a decrease of profits generated. This would lead to deterioration of the performance of the company, and the investors would not be willing to invest in a firm that is having dwindling profits (Sayyam et al., 2025).

Interest as a service charge on the borrowed funds serves as a form of compensation to the lender of the benefits that he or she may get in the future assuming that the money was invested. Janah in Rismaia and Elwisan (2019) remarked that the relationship between IR and SP is inverted, i.e. with increased IR, SP is likely to decline. This will cause investors to withdraw their investments and instead use the deposits in the bank rather than remain in the stock market, as the IR will be higher resulting in higher deposit interest rates than the varying rates of profit in capital markets (Tri Amanda et al., n.d.).

The economy of the country relies on stock market but it is faced with various challenges such as PI, compromised decision making and rampant corruption. PI leaves the economy in doubt, reduces investments, and slows economic growth (Mai et al., 2023).

PI on the world has a great impact on the stock market. Political stability is very critical to economy of a country. PI is accompanied by both domestic and international consequences which culminate into financial market declines. Investors would want to invest their cash in politically stable countries. In this way, it can be reached the conclusion that PI has a negative impact on the stock market (Mubeen Ijaz & Sarwar). The emergence of the novel coronavirus disease 2019 (COVID-19) has significantly impacted global economic and financial markets. First detected in December 2019 in Wuhan city, Hubei province, China, COVID-19 quickly spread to 213 different nations. According to the World Health Organization (WHO), the COVID-19 virus is transmitted through droplets of saliva or nasal discharge when an infected individual coughs or sneezes (Harjoto & Rossi, 2023).

In response to the unprecedented speed of COVID-19 infections, numerous countries implemented travel bans, lockdowns, shelter-in-place orders, and social distancing measures, resulting in significant global disruptions in production, supply chains, and the flow of goods and services. Recognizing the factors behind market behavior in such circumstances can help decision-makers manage financial risks. To this end, one of the initial studies that analyzed financial markets during COVID-19 indicated that the extreme volatility of SP was mainly influenced by changes in risk aversion or sentiment rather than the economic situation. Based on a theoretical model, several previous studies have highlighted how various investment sentiments affect the stock market (Harjoto & Rossi, 2023)

On the ground of the previous literature, we developed the following hypothesis,

- *H1: Macroeconomic determinants do not affect stock prices.*
- *H2: Political instability does not affect stock prices.*

Methodology

Chapter presents the research methodology that will be used to study the effects of macroeconomic factors on SP, with a moderating effect of PI. It specifies research design, data sources, the measurements of variables and the methods that are applied econometrically to analyze data.

This research paper will use a quantitative research design that uses statistical relationship between macroeconomic variables and SP. This design is suitable because the study seeks to test cause-effect relationship of macroeconomic variables such as IR, INF, MS, GDP, and SP as well as assessing the effect of this relationship on PI.

The statistics that will be used in this research will contain four significant macroeconomic variables. The data series of Shariah-compliant firms within the years 2014-2023 (annually) have been taken into account. The conclusion has been realized based on Data stream and financial statements released by Pakistan Stock Exchange. In the case of macroeconomic variables, a similar period has been taken, that is, annual. The macroeconomic variables selected are MS, Interest rate, INF and GDP.

Multiple regression models will be used in analyzing the relationship between the variables as below.

$$SP_{it} = \propto + \beta_1 MS_{it} + \beta_2 PROF_{it} + \beta_3 FS_{it} + \beta_4 DPR_{it} + \beta_5 COVID19_{it} + \mu \quad (1)$$

$$SP_{it} = \propto + \beta_1 IR_{it} + \beta_2 PROF_{it} + \beta_3 FS_{it} + \beta_4 DPR_{it} + \beta_5 COVID19_{it} + \mu \quad (2)$$

$$SP_{it} = \propto + \beta_1 INF_{it} + \beta_2 PROF_{it} + \beta_3 FS_{it} + \beta_4 DPR_{it} + \beta_5 COVID19_{it} + \mu \quad (3)$$

$$SP_{it} = \propto + \beta_1 GDP_{it} + \beta_2 PROF_{it} + \beta_3 FS_{it} + \beta_4 DPR_{it} + \beta_5 COVID19_{it} + \mu \quad (4)$$

$$SP_{it} = \propto + \beta_1 MS_{it} + (\beta_2 MS_{it} * PI_{it}) + \beta_3 PROF_{it} + \beta_4 FS_{it} + \beta_5 DPR_{it} + \beta_6 COVID19_{it} + \mu \quad (5)$$

$$SP_{it} = \propto + \beta_1 IR_{it} + (\beta_2 IR_{it} * PI_{it}) + \beta_3 PROF_{it} + \beta_4 FS_{it} + \beta_5 DPR_{it} + \beta_6 COVID19_{it} + u \quad (6)$$

$$SP_{it} = \propto + \beta_1 INF_{it} + (\beta_2 INF_{it} * PI_{it}) + \beta_3 PROF_{it} + \beta_4 FS_{it} + \beta_5 DPR_{it} + \beta_6 COVID19_{it} + \mu \quad (7)$$

$$SP = \propto + \beta_1 GDP_{it} + (\beta_2 GDP_{it} * PI_{it}) + \beta_3 PROF_{it} + \beta_4 FS_{it} + \beta_5 DPR_{it} + \beta_6 COVID19_{it} - \mu \quad (8)$$

Where

SP = Stock price

MS = Money Supply

IR = Interest Rate

INF = Inflation

GDP = Gross Domestic Product

PROF = Profitability

FS = Firm Size

DPR = Dividend payout ratio

COVID-19 = Dummy variable

Variable Measurement

Variables	Symbols	Period and Data sources
Dependent variable		
Stock prices	SP	Data stream, January 2014 to December 2023
Independent variables		
Money supply (M2)	MS	The state bank of Pakistan (M2)
Interest rate		
Inflation	IR	Data stream.
Gross Domestic Product	INF	Data stream.
	GDP	World bank, Pakistan bureau of statistics
Control variables		
Profitability	PROF	ROA
Firm size	FS	Total market cap

Dividend payout ratio	DPR	Total dividend paid
Covid-19		
	Covid-19	World Health Organization (WHO)
Moderate variables		
Political Instability	PI	World Bank's Worldwide Governance Indicators

Data Analysis Techniques

The descriptive statistics, correlation analysis, and multiple regression analysis and moderation analysis are used in this study. The regression analysis uses the independent variables (IR, INF, GDP, MS) to analyze the impact of these variables on SP, and the moderation analysis is used to determine the effect of PI on the relationship between the macroeconomic variables and SP.

The descriptive statistics are used to describe the main features of the dataset and give information about the distributional features of the variables. All these measures, mean, median, standard deviation and variance; capture the central tendency/dispersion of the data and skewness and kurtosis measure the distribution shape. Skew shows the symmetry of the data and kurtosis shows the pawedness or flatness of the data. Skewness and kurtosis values that lie within the acceptable range of +-3 indicate that the values are in the normal distribution range. Correlation analysis is carried out to investigate the nature and the direction of the linear relationship between variables. Correlation coefficient takes a value -1 to +1 where coefficients near the extremes are a strong linear relationship, and coefficients near zero are a weak or null relationship. The analysis is also useful in finding out any possible multicollinearity problems even before estimating the regression.

The Ordinary Least Squares (OLS) method is used to determine the relationship between independent variables and the dependent variable in estimating the relationship. OLS offers objective and efficient estimations because it reduces the total squared value of the residuals under the condition that the classical assumptions of linear regression are met. In order to make sure that the model is reliable, a number of diagnostic tests are conducted. The normal assumption is that the residuals of regression model are distributed normally so that valid statistical inference can be made. This is rated by use of the typical statistical examination like the t-test and F-test. Heteroskedasticity is the opposite of Homoskedasticity; where the error term different across the observations. In this case violation of homoskedasticity can result in inefficient estimates and biased standard errors. Serial independence is a condition which presupposes that the error terms are not time correlated. Breusch- Godfrey LM test is used to identify auto correlation, LM p-value above 0.05 shows no serial correlation.

Lastly, the multicollinearity is checked to make sure that there is no strong association between independent variables. A high multicollinearity may cause poor coefficient estimates and poor statistical inference. This issue is identified using the Variance Inflation Factor (VIF), and the values above 10 mean that there are severe problems with multicollinearity.

Panel Data Analysis

Panel data are observations on more than one entity at more than one time, being cross-sectional and time-series dimensions. The structure is beneficial in terms of the efficiency of estimation since it faces the risk of an unobserved heterogeneity and it estimates dynamic relationships. Simple regression models do not give reliable and consistent results when the classical regression assumptions are not met, unlike the advanced panel estimation techniques.

The Pooled Ordinary Least Squares (Pooled OLS) model considers panel observations as a homogeneous data with no cross-sectional and time specificities. This method can however provide biased estimates in case there are some unobserved entity-specific characteristics that affect the dependent variable.

In order to control the heterogeneity, the Fixed Effects (FE) model adjusts the time-invariant personal characteristics by permitting entity-specific intercepts, with a precondition of possible correlation existing between the regressors and the unknown effects. On the other hand, the Random Effects (RE) model is based on the assumption that the individual-specific effects are random and do not correlate with the explanatory variables and are added to the composite error term. Hausman test is used to choose between FE Model and RE Model. A statistically significant value ($p < 0.05$) means that FE model is the right choice, and the insignificant value justifies the use of the RE model.

Results and Discussions

Descriptive statistics is a methodology of summarizing the trends of a data set by summarizing data samples. It is characterized as a summary of data that provides an account of the data being concerned. Data analysis and interpretation of our findings have been performed through the use of Appropriate test. The results summary is presented below.

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Table 1: ***Discriptive Statistics***

Variable	Mean	Std. Dev.	Min	Max
SP	4.41	1.802	.344	9.092
INF	10.31	8.312	2.529	30.768
MS	49.386	3.3	42.572	54.526
GDP	3.797	2.539	-1.274	6.574
IR	11.795	4.335	8.21	22.91
PI	-2.151	.286	-2.47	-1.71
DPR	.963	7.403	-24.038	57.857
FS	13.631	5.221	-.839	19.719
PROF	7.783	9.526	-19.77	37.26
COVID19	.4	.49	0	1

Table 1 shows the descriptive statistics of the research variables. The stock price is of moderate variation with a low minimum which indicates a low firm performance and its maximum of less than 10 indicating a relative stability in the market. Inflation is highly volatile, as it is sensitive to the unforeseen shocks in the economy and policy changes. Contrastingly, the money supply is stable implying controlled monetary growth. GDP is moderately fluctuating, which is a characteristic of different macroeconomic conditions. There is a vast range of interest rates, probably caused by restrictive monetary policies in the times of inflation. Political instability is quite stable and has a small range meaning that there is always a political risk. Dividend payout ratio is extremely fluctuating and the negative values indicate retained earnings or financial losses. Firm size is significantly heterogeneous as it is heterogeneous, whilst profitability is also widely dispersed, as it exhibits differences in financial strength. The COVID-19 dummy variable indicates that about 50 percent of the observations are under the pandemic period, which is the reason it should be included in the analysis to obtain the effects of COVID when analyzing the data.

Correlation Results

Correlation analysis may be used to establish the correlation coefficient, which will reveal the extent to which one variable will vary with changes in the other.

Table 2: ***Correlation Results***

Variables	SP	INF	MS	GDP	IR	PI	DPR	FS	PROF	COVID19
SP	1.000									
INF	-0.048	1.000								
MS	0.040	-0.684	1.000							
GDP	0.013	-0.510	0.093	1.000						
IR	-0.044	0.953	-0.806	-0.559	1.000					
PI	-0.042	0.603	-0.007	-0.350	0.379	1.000				
DPR	-0.036	-0.069	-0.001	0.040	-0.048	-0.085	1.000			
FS	0.112	0.031	-0.030	0.024	0.027	0.001	-0.016	1.000		
PROF	0.474	-0.022	-0.010	0.052	-0.020	-0.037	0.011	0.187	1.000	
COVID19	-0.037	0.703	-0.194	-0.415	0.526	0.948	-0.068	0.013	-0.033	1.000

The results of the correlation indicate that the stock prices (SP) have weak negative relationships with the inflation level (INF), interest rates (IR), political instability (PI), and the COVID-19 dummy variable, meaning that the above factors might slightly decrease the stock performance. In contrast, money supply (MS) and GDP have weak positive correlations with SP indicating the presence of few direct effects. The value of profitability (PROF) is the most strongly positively correlated with stock prices (0.474) and therefore the most important variable whereas firm size (FS) exhibits a weak positive association and the dividend payout ratio (DPR) shows a weak negative association. Notably, many independent variables are significantly correlated, in particular, inflation and interest rates (0.953) and political instability and COVID-19 (0.948) that could be evidence of the multicollinearity problem that must be considered in the regression analysis.

Assumptions of OLS

Shapiro-wilk Test of Normality

It was assumed that the residual values would follow a normal distribution, and the Shapiro Wilk W test was used to test this assumption. The statistics of the residuals came out with a W value of 0.994 which showed that there was a statistically significant deviation of normality. However, the fact that the W value is not too far away means that the departure of normality is not high. Also, the sample size used in this study is big enough (more than 1,000 observations). According to the Central Limit Theorem (CLT) in large samples, the distribution of the OLS estimators tends to resemble the normal distribution although the residuals do not necessarily follow the normal distribution (Wooldridge, 2020). Consequently, the regression results are credible, and violation of the normality assumption will not affect hypothesis testing.

Table 3: ***Wilk Test***

Variable	Observations	W	V	Z	Prob>z
E	1060	0.994	4.190	3.556	0.0000

Although the Shapiro-Wilk test suggests that not all the variables are normally distributed, the Central Limit Theorem (CLT) proves the reliability of the regression results. The CLT argues that in case of a sufficiently large sample size, the sampling distribution of the Ordinary Least Squares (OLS) estimators is an approximation to a normal distribution, regardless of the distribution of the residuals and whether the original variables are distributed the same. Considering that the large sample (N = 1060) is used in the present study, the error terms distribution does not matter so much when used to make inferences. As a result, the violation of the assumption of normality does not significantly reduce the validity of the hypothesis test and the explanation of the regression coefficients.

Normality Test of Skewness and Kurtosis

Continuously with the Shapiro-Wilk test, we also used the skewness and kurtosis test in assessing the normality of the residuals.

Table 4: ***Skewness and Kurtosis***

Variables	Pr(skewness)	Pr(kurtosis)	Adj-chi2(2)	Prob>chi2
E	0.096	0.125	5.110	0.077

The results showed no significant skewness (p = 0.096) or the excess kurtosis (p = 0.125), and the resulting chi-square statistic (Adj kh2 = 5.110, p = 0.077) showed that the residual follows a normal distribution approximately. This finding supports the assumption of normality. Given the large sample size and the Central Limit Theorem, the results of the two statistical calculations, as well as the presentation of the residual distribution, confirm the validity of the regression estimates and make it possible to use them in making inferences.

Variance Inflation Factor

The VIF analysis results suggest that there is a lot of multicollinearities of GDP and the interaction between GDP and political instability which can bias regression estimates.

Table 5: ***Variance Inflation Factor***

	VIF	1/VIF
GDP PI	56.029	.018
GDP	43.902	.023
COVID19	4.163	.24
FS	1.041	.961

PROF	1.04	.962
DPR	1.008	.992
Mean VIF	17.864	.

However, the COVID-19 and all control variables have satisfactory VIFs (below 5), which indicates the absence of multicollinearities. To deal with this, one should recommend centering of GDP and PI and then develop the interaction term.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

In Ordinary Least Squares (OLS) regression, homoskedasticity is an important assumption, that is, the error variance is constant at all levels of the independent variables. In case this assumption is not fulfilled, it is what is called heteroskedasticity which may lead to inefficient estimators and skewed standard errors which in turn compromises the statistical inference.

Table 6: ***Breusch-Pagan***

	P-Value	Chi -2
Model 1	0.0000	140.77
Model 2	0.0000	137.38
Model 3	0.0000	137.8
Model 4	0.0000	134.51
Model 5	0.0000	139.6
Model 6	0.0000	134.76
Model 7	0.0000	138.71
Model 8	0.0000	131.85

In order to identify heteroskedasticity, the Breusch-Pagan / Cook-Weisberg test was used on all regression models. The test is used to evaluate the effect of the independent variables in determining whether the variance of the residuals is affected or not.

- H0 The null hypothesis is that the error variance is constant (homoskedasticity).
- Alternative hypothesis (H1) on the other hand assumes that the error variance is not constant (heteroskedasticity).

Figure X presents the test results of all the eight models giving Chi-square values between 131.85 and 140.77 with p-values of 0.0000. These are values way below the level of significance of 0.05 leading to the null hypothesis being rejected in all cases.

Hausman test of random effects and Breusch-Pagan Lagrangian Multiplier (BPLM)

Breusch and Pagan Lagrangian Multiplier (BPLM) test was done to determine whether a random effects model is better fitted than OLS pooled to the panel data used in this study. The results indicate a statistic of Chibar2 of 3442.42 that has a p-value of 0.0000 and this shows that there is considerable evidence against the null hypothesis stating that there is no variance among entities. This confirms that there is a significant unobserved heterogeneity among firms and as such a random effects model should be used. Given the purpose of the research which is to examine how macroeconomic variables (money supply, GDP, inflation and interest rate) affect stock prices, where political instability is a moderator, and COVID-19 is a dummy variable, it is important to consider differences at firm levels. Random effects model is suitable since it is able to accommodate both constant and changing factors with time making it suitable in hitting the effect of political instability and firm specific attributes like profitability, size and payout of dividends to shareholders on the movement of stocks in Pakistan.

Table 7: ***BPLM and Hausman Test Results***

	BPLM	Hausman test
P-value	0.0000	0.0000

The test result gave a Chi-square value of 34.983 with a p-value of 0.0000 which means that the two models differ significantly statistically. Since the p-value is less than 0.05, we reject the null hypothesis hence indicating that the fixed effects model is the best. This implies that the fixed effects model is better suited to the analysis since it will deal with

the possibility of there being correlations between the regressors as well as the unobserved individual effects. Therefore, the fixed effects model is used in this study on the effects of macroeconomic variables on the Pakistani stock prices to give more precise and stable estimates.

Regression Results of Money Supply and Stock Prices

According to the fixed effects regression analysis, the effect of money supply (MS), dividend payout ratio (DPR), and profitability (PROF) all have significant positive effects on Pakistan stock prices. It means that an increased liquidity, higher dividend payments, and a higher profitability of the firm results in a good performance in the stock market.

Table 8: ***Regression Results for Money Supply***

SP	Coef.	St.Err.	t-value	p-value
MS	.02	.004	4.88	0
DPR	.005	.002	2.50	.012
FS	.006	.004	1.48	.141
PROF	.027	.002	13.04	0
COVID19	-.089	.028	-3.16	.002
Constant	3.15	.217	14.49	0

Conversely, the firm size (FS) lacks statistical significance (p = 0.141) indicating that it has no visible impact on the prices of stocks. The negative effect of the COVID-19 dummy variable is significant, which shows the negative influence of the pandemic. All in all, the model is statistically significant with an R2 = 0.193, which explains 19.3 percent of the portfolio variation in the stock prices.

Moderating Effect of Political Instability on Money Supply

MS and Political Instability (MS PI) is also negative and significant which indicates that political instability reduces the effect of money supply on stock prices which is positive. The direct influence of money supply is insignificant when this moderator is put into consideration.

Table 9: ***Regression Results for Money Supply and Political Instability***

SP	Coef.	St.Err.	T-Value	P-Value
MS	-.005	.006	-0.93	.354
MS_PI	-.022	.004	-6.05	0
DPR	.004	.002	2.12	.035
FS	.004	.004	1.14	.255
PROF	.027	.002	13.11	0
COVID19	.537	.107	5.01	0
CONSTANT	1.87	.301	6.22	0

Still, profitability and dividend payout ratio have a positive impact on stock prices, but the firm size is not significant. Due to the COVID-19 dummy, it is noteworthy that the effect is quite positive, which suggests a policy response or recovery in response to the pandemic. The explanatory power of the model increases, and R2 is increased to 0.223.

Regression Results of Money Supply on Interest Rate

The regression result shows that interest rates (IR) significantly affect the price of stocks negatively , which implies the higher the interest rates, the worse the performance in the Pakistani market. This is in line with the economic theory because the increase in interest rates increases the cost of borrowing money and reduces the interest of investors in the stocks.

Table 10: ***Regression Results for Interest Rates***

SP	Coef.	St.Err.	t-value	p-value
IR	-.014	.004	-3.77	0
DPR	.005	.002	2.36	.019

FS	.005	.004	1.41	.16
PROF	.027	.002	12.84	0
COVID19	-.051	.033	-1.58	.115
Constant	4.308	.066	65.25	0

Other important positive factors in the stock prices include profitability (PROF) and dividend payout ratio (DPR). There is no statistical significance in the variables of firm size (FS) and the COVID-19 dummy. In summary, the model has a value of significance and an R-squared of 0.185, and this implies that 18.5 per cent of the fluctuation in the stock prices is explained by the variables in the analysis.

Moderating Effect of Political Instability on Interest Rates

The results show that the interest rate (IR) and the interaction between the interest rate and political instability (IR_PI) significantly negatively influence the price of stocks. This means that increase interest rates not only suppress the performance of stocks, but the adverse impact is worsened in a political instability situation.

Table 11: ***Interest Rate and Political Instability***

SP	Coef.	St.Err.	t-value	p-value
IR	-.126	.036	-3.48	.001
IR_PI	-.054	.017	-3.11	.002
DPR	.004	.002	2.17	.03
FS	.006	.004	1.52	.13
PROF	.027	.002	12.90	0
COVID19	.284	.113	2.52	.012
Constant	4.142	.085	48.93	0

The profitability and dividend payout ratio still have a positive influence on the stock prices. The size of the firms is not significant, but COVID-19 is significant, which is likely to be because it is market recovery or stimulus-driven. The model explains 19.3% of the variance (R2 = 0.193) and the model is generally significant.

Regression Results of Inflation on Stock Prices

According to the regression analysis, the effect of inflation (INF) on the price of stocks is quite negative which means that the higher the inflation rate, the less confident investors and the market in Pakistan become.

Table 12: ***Inflation and Stock Prices***

SP	Coef.	St.Err	t-value	P-value
INF	-.009	.002	-4.02	0
DPR	.005	.002	2.29	.022
FS	.005	.004	1.45	.146
PROF_	.027	.002	12.87	0
COVID19_	-.006	.039	-0.16	.876
CONSTANT	4.219	.057	74.06	0

The profitability (PROF) and the dividend payout ratio (DPR) have a positive and significant impact on the stock prices. Firm size (FS) is not statistically significant and even the COVID-19 dummy is not showing any significant effect in this model. The regression in general is significant, with the R-squared of 0.187 which explains 18.7 percent stock prices variance.

Advance Journal of Econometrics and Finance
Vol-4, Issue-1, 2026

The Moderating Effect of Political Instability on Inflation

The results of the analysis show that inflation (INF) has a negative impact on the stock price, and the negative effect is reinforced by the political instability (INF_PI). This means that when there is political unrest, the adverse effect of inflation on the stock market is increased.

Table 13: ***Inflation and Political Instability***

SP	Coef.	St.Err.	t-value	p-value
INF	-.127	.046	-2.74	.006
INF_PI	-.058	.023	-2.55	.011
DPR	.005	.002	2.39	.017
FS	.006	.004	1.65	.099
PROF	.027	.002	13.04	0
COVID19	.269	.115	2.35	.019
Constant	4.104	.072	56.74	0

The profitability (PROF) and the dividend payout ratio (DPR) have a positive influence on the stock prices, whereas firm size has a marginal effect.There is a significant positive correlation between the COVID-19 dummy variable and the other variables, presumably, because of the impact of the measures of economic recovery. The model explains 19.2% of stock prices changes (R2 = 0.192) and is statistically significant on the whole.

Regression Results of Stock Prices on GDP

The regression analysis results indicate that GDP produces a very low effect on the stock prices in Pakistan, which means that more comprehensive growth of the economy does not always correlate with the extension of the stock market.

Table 14: ***GDP and Stock Prices***

SP	Coef.	St.Err.	t-value	p-value
GDP	-.007	.006	-1.21	.226
DPR	.005	.002	2.42	.016
FS	.005	.004	1.32	.186
PROF_	.027	.002	12.83	0
COVID19_	-.131	.031	-4.27	0
CONSTANT	4.205	.061	68.54	0

On the other hand, profitability (PROF) and dividend payout ratio (DPR) are also important positive aspects of affecting the price of stocks. The firm size (FS) is not statistically significant. The negative effect of the COVID-19 dummy variable shows the negative effect of the pandemic on market performance. The total difference in stock prices is explained by the model (R2 = 0.174) and is statistically significant.

Moderating Impact of political instability on GDP

The findings show that there is a significant negative effect of GDP on stock price which is also amplified by the interaction with political instability (GDP_PI). It means that the negative impact of GDP fluctuations on the performance of the stock market is augmented in the environment with political instability.

Table 15: ***GDP and Political Instability***

SP	Coef.	St.Err.	t-value	p-value
GDP	-.211	.035	-6.02	0
GDP_PI	-.107	.018	-5.89	0
DPR	.004	.002	2.12	.034
FS	.003	.004	0.85	.396

PROF	.027	.002	12.82	0
COVID19	.147	.056	2.63	.009
Constant	3.992	.07	56.76	0

Profitability (PROF) and dividend payout ratio (DPR) are still positive and significant predictors whereas the firm size (FS) is not statistically significant. The dummy variable of COVID-19 has a significant positive effect, presumably this is the way of recovery after the crisis. The model is, in its turn, statistically significant and its R-squared is 0.203, which means that the variables considered can explain 20.3 percent of stock prices fluctuation.

Discussions

The findings of this research are insightful knowledge regarding the relationship between the macroeconomic factors and the share prices in Pakistan, particularly when political instabilities are taken into account. The main aim was to test the effect of critical macroeconomic variables on stock prices so as to determine how the money supply, GDP, inflation and interest rates influence stock prices as well as explore the effect of a moderating factor which is political instability. Other control variables that added to the model to enhance the reliability of the model were profitability, firm size, and dividend payout ratio besides the COVID-19 pandemic as a dummy variable

Conclusion

The objective of the research was to determine the influence of the macroeconomic indicators on the stock prices in Pakistan with specific focus on the moderating role of political instability. Through panel regression analysis, the study has evaluated the influence of money supply, GDP, inflation and interest rates on the performance of the stock market by taking into consideration special aspects of the company like profitability, size, and dividend payout ratio. The moderating factor of political instability introduction and the COVID-19 pandemic as a dummy variable provided more additional contextual information. The results demonstrate that macroeconomic variables are important in stock price determination in Pakistan. Specifically, there is a positive impact on money supply and GDP indicating that the higher liquidity and economic development, the higher investor confidence and general market functioning. On the other hand, inflation and interest rates have an adverse effect on the stock prices, and the concept of economic unpredictability and stricter monetary policies discourages investing in equities. An important conclusion made in this study is that political instability has a great effect in such relations. Political uncertainty undermines the beneficial effects of money supply and GDP and increases the negative effects of inflation and interest rates. This emphasizes the importance of political stability in enabling the macroeconomic policies to favorably take care of capital markets. Regarding the firm-specific factors, profitability and the dividend payout ratio impacted the stock prices positively, which means that investors prefer to invest in firms that are financially healthy and focus on the shareholder payouts. On the other hand, the size of the firms did not prove to be a decisive variable implying that market valuation in Pakistan is even more dependent on performance indicators than on the size of the firm. The COVID-19 dummy variable proved to be statistically non-significant, which means that the market reaction to the pandemic might have been incorporated or decreased in the period of the study.

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