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# DETERMINANTS OF SHARE PRICE IN THE OIL & EXPLORATION

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**Abstract**
*This dissertation analyses the primary factors affecting the stock prices of oil and gas exploration firms quoted on the Pakistan Stock Exchange (PSX) during the period 2015 to 2023. This study employed a quantitative research approach based on positivist philosophy, analysing the firm data of four major companies, OGDC, PPL, MARI, and POL, along with their macroeconomic data, which consisted of crude oil prices, interest rates, and exchange rates.*
*Using EViews for panel data econometrics, the research performed unit root tests, correlation tests, and regression analyses to determine the impact of internal and external factors on the stock price. The results indicate that the Return on Equity (ROE) is the key determinant with the strongest relationship with the share price, while oil price and interest rate as macroeconomic factors remain non-significant. This reflects that unit-level profitability measures have a greater impact on commanding investor attention relative to other parts of the economy in Pakistan's energy sector.*
*As discussed above, these findings are pertinent to both corporate decision makers and policy officials. Investors are guided to focus on profitability ratios especially ROE as these enhance selection criteria for stock investment. On the other hand, policymakers are cautioned by the findings against employing macro-level instruments for impacting firm value in capped market contexts.*
*The research stated in this document suggests that in the context of Pakistan's oil and exploration industry, it is the internal financial efficiency and not the changes in macroeconomics which is the main factor affecting the share price performance.*

## INTRODUCTION

### 1.1 Background of the Oil & Exploration Sector

The economic landscape of resource-dependent nations is closely interlinked with the oil and exploration sector. The sector globally is seen as an important driver of industrialization, energy security, and income earning from foreign exchange. The supply side dynamics of the world energy markets are not only determined by the oil and gas exploration activities, but also the macroeconomic variables of inflation, exchange rates, and the growth rate of gross domestic product (GDP) are influenced. Pakistan's oil and gas industry is a vital feature of the national economy. Despite being a small player on the world stage, the sector is important in meeting Pakistan's energy requirements, the government's revenues, and providing jobs. Operating abilities and

influence in economic performance make Pakistan's major exploration and production companies as listed on Pakistan Stock Exchange (PSX) but in key exploration and production companies such as Oil and Gas Development Company Limited (OGDC), Pakistan Petroleum Limited (PPL), Mari Petroleum Company Limited (MARI) and Pakistan Oil fields Limited (POL) mean a lot. With the gross sensitivity of Pakistan's macroeconomic environment to oil and energy sector developments, stock prices of oil and exploration companies are expected to be highly volatile to internal and external factors. Therefore, the market participants as well as policymakers must understand these determinants.

### 1.2 The Importance of Stock Price Determinants for Investors and Policymakers

Stock prices are of significance to investors as they reflect the present worth and future growth expectations of a company. If the share prices can be identified, investors can make informed choices, maximize portfolio returns, and reduce risks from the macroeconomic shocks as well as sector-specific dynamics. The performance of oil and exploration companies is almost synonymous with national economic stability for policymakers. Changes in share prices from time to time have an effect on investor confidence, foreign direct investment flows, and fiscal revenues (Ullah et al., 2024).

The understanding will make it easier for policymakers to come up with better strategies to stabilize market valuations, to guard financial markets, and to ensure sustainable economic growth. Moreover, stock price determinants in the context of Pakistan's developing capital market, with its high volatility and information asymmetries, become more relevant. Identification of these factors accurately helps the market to be an efficient, transparent, and robust framework of regulation (Caporale et al., 2022).

### 1.3 The Statement of the Problem

The oil and exploration sector is increasingly becoming a critical part of Pakistan's economy, but there is a shortage of empirical research on what set of factors influences the share prices of the PSX-listed exploration companies. Presumed to affect stock prices, global oil price volatility, exchange rate fluctuations, changes in interest rates, inflationary pressures, and firm-level financial performance are generally explored at the international stock markets, but in the Pakistani context relative importance of such factors on stock price has been left unexplored and understudied until now (Etim et al., 2020). Since Pakistan is much dependent on imported energy, exchange rate, and the monetary policy stance is unstable, therefore, it is needed to empirically check out the impacts of both the macroeconomic indicators along with internal financial metrics such as earnings per share (EPS) and return on equity (ROE) on the market valuation of the domestic oil and exploration firms. In this gap, this study attempts to plug this gap with a series analysis of the comprehensive econometrics of panel data from 2015 to 2023.

### 1.4 Research Aim and Objective

**Aim**

An investigation into the major macroeconomic and firm-specific factors that influence the share prices of the oil and exploration companies listed on the Pakistan Stock Exchange during 2015 and 2023.

**Objective**

- To investigate the effects of the global crude oil prices on the share prices of PSX-listed oil exploration companies.
- The macroeconomic variables exchange rate, interest rate, inflation, and GDP growth are used to evaluate the role of such variables in price movements.
- To the analysis of the influence of financial indicators on the share price fluctuations of a company.
- To use econometric modeling to estimate the short and long-run relationship of share prices to explanatory variables.

### 1.5 Scope and Significance of the Study

The purpose of the study is to focus on four of the major oil service and exploration companies, as OGDC, PPL, MARI, and POL are listed on the Pakistan Stock Exchange. The analysis spans from 2015 to 2023, both from a macroeconomic perspective and a firm-level financial performance perspective (Sajid, 2024). This research has significant contributions to three aspects: It provides

empirical evidence to support rational portfolio decision-making concerning macroeconomic and financial foundations. It provides policymakers with an insight into how macroeconomic stability and regulatory intervention affect market valuations. By applying advanced econometric techniques to the oil and exploration sector, it provides a notable contribution to the state of holdings research in the Pakistani context.

The findings can further hone share price movement prediction and lead to a wider discussion on financial market efficiency in emerging economies.

### 1.6 Research Questions and Hypothesis

1. How do fluctuations in global crude oil prices influence the share prices of PSX-listed oil and exploration companies?
2. What is the role of Pakistan's macroeconomic indicators, exchange rate, interest rate, inflation, and GDP growth in influencing the movement of share price?
3. Do firm-specific financial indicators, EPS and ROE of a firm, have a significant impact on the share price of oil exploration firms?
4. Are there stable long-run equilibrium relationships among share prices and their determinants?

**Hypotheses**

- **H1:** Crude oil prices have a positive and significant impact on the share prices of PSX-listed oil companies.
- **H2:** Exchange rate depreciation negatively affects the share prices of oil companies.
- **H3:** Higher interest rates exert a negative influence on share price.
- **H4:** Inflation and GDP growth rates have significant effects on share prices.
- **H5:** Firm-level financial performance (EPS and ROE) positively influences share prices.

### 1.7 Structure of the Dissertation

The dissertation consists of five chapters, with each chapter contributing towards addressing the general question:

- **Chapter 1: Introduction**

It includes relevant information about the study, including its background, research aims, significance, and structure.

- **Chapter 2: Literature Review**

It covers theoretical and empirical literature on stock price determinants, particularly for oil and exploration companies.

- **Chapter 3: Research Methodology**

It presents the research design, strategies for collecting and analysing data, econometric models, and the analysis to be conducted.

- **Chapter 4: Results and Analysis**

Offers descriptive statistics as well as stationarity tests, cointegration tests, regression analysis, and diagnostic tests.

- **Chapter 5: Discussion and Conclusion**

Discusses the key findings and compares them with other literature before highlighting implications of research; also discusses limitations and suggests areas for further study.

## Literature Review

### 2.1 Introduction

In the context of the performance of firms, stock prices offer a reliable measure of gauging investor confidence and overall economic well-being. Understanding the fundamentals driving share prices is important for investors, analysts, and even regulators, particularly in high-stakes and volatile industries like oil and gas exploration. The stock price determinants literature is multifaceted, with competing theoretical and empirical approaches attempting to integrate internal and external factors affecting valuation. This chapter incorporates relevant theory and empirical literature on stock price determinants and focuses on macroeconomic factors, including oil price, exchange rate, interest rate, inflation, GDP growth, and firm-specific factors like earnings per share (EPS) and return on equity (ROE). Focus is devoted to studies in the energy sector and to research done in emerging markets, especially Pakistan.

**2.2 Macroeconomic Determinants of Share Price**

The price of crude oil is a fundamental factor in determining the value of energy stocks. An oil and gas exploration company's revenue are directly tied to oil prices. There was stronger stock performance in the energy sector on account of the increased oil prices due to the contributions made by Rashid, Jehan, and Kanval (2023). Generally, oil price hikes increase margins for exploration companies, leading to a favourable market sentiment and increased share prices. Nonetheless, the relationship is not always direct. Negative impacts can arise from capital markets due to sudden shocks due by oil prices and their respective volatility. Furthermore, high oil prices tend to curtail consumption, which would be detrimental to revenues in the long run. In the case of Pakistan, where the oil companies are semi-state-owned and subject to quasi-regulatory limits, the extent of the impact of oil prices is dampened, although still relevant. Khan et al. (2022) documented significant consequences of oil price volatility on the energy sector's performance at PSX.

For oil companies, especially those that import machinery or report revenues in foreign currencies, the exchange rate with the United States (U.S.) The dollar is of paramount importance. A worsening exchange rate increases operational costs, decreases profitability, and discourages investment from outside the country. Sajid and Rehman, (2022) have studied this phenomenon for emerging economies and confirm that volatility in exchange rates greatly impacts stock prices. In Pakistan, the consistent depreciation of the Rupee since 2018 has increased the cost base for firms dependent on foreign technology or loans. Rehman et al. (2021) showed evidence that exchange rate volatility negatively affects the energy sector's stock value. Therefore, this means that the exchange rate is an important factor in predicting movements in stock price for oil and gas exploration companies.

The interest rate impacts the economy at large and is equally important as a determinant of investment activity and company valuation. Khan et al. (2022) add to this notion, stating that higher interest rates result in lower stock prices because of increased discount rates and heightened costs of borrowing. In the case of the US Market, Hashmi and Chang (2023) found an inverse relationship between changes in interest rate and stock returns. Changes in the policy rate of the State Bank of Pakistan have consequences for an investor's interest in equities and fixed income securities. Capital investment usually declines when interest rates go up, leading to a decline in the valuation of the stock market. For equity-mercantilist exploration firms whose stock prices heavily depend on deeply subsidised long-term debt financing for high costs incurred, an increase in interest results in lower profit margins and prices of stocks.

The relationship between stock prices and inflation is still debated by many scholars. Fama (1981) noted that inflation leads to an increase in uncertainty about the economy, leads to a decrease in investment, and a decrease in the stock price. However, moderate inflation may signal economic expansion, lending support towards stock valuation as discovered by Fromentin (2022). Due to cost pressure, oil firms in Pakistan suffer more in a high-inflation environment. Higher inflation results in higher inflation of exploration machinery and operations. They provide inconclusive but often negative, unfavourable conclusions about the relationship between stock return and inflation in the context of Pakistan (Roussel et al., 2021). As a measure of the health of a country's economy, GDP acts as an indicator of growth. It was found that GDP has a positive impact on the stock market return (Alzoubi, 2022). In growing economies, there is an increase in industrial output, which subsequently boosts the energy demand, making oil and gas companies more profitable. In consideration of Pakistan, the phases of GDP growth have been both preceded and succeeded by improvements in the energy sector. For instance, Rehman et al. (2021) found that during the years 2013-2016, the bolstering of stock prices in the exploration sector was directly correlated with the positive GDP growth.

**2.2 Theoretical Framework**

- **Efficient Market Hypothesis (EMH)**

The groundwork of financial economics is set by the Efficient Market Hypothesis (EMH) that was given life by Markets (2021). EMH explains that stock prices capture all information available and, hence, no investor can outperform the market using arbitrage opportunities or technical analysis due to

the "Efficient Market". EMH is divided into three categories: weak, semi-strong, and strong, based on the type of information incorporated in the prices. In this research, the semi-strong form, which suggests that information available to the public, like oil price changes or GDP growth, is included in share prices, is relevant. As a result, any systematically observable impact caused by macroeconomic or financial elements implies there are inefficiencies, albeit temporarily.

Through gaining such popularity, literature has pointed out multiple discrepancies with EMH, particularly from the perspective of behavioural economists, pointing out the extent to which cognitive biases and irrational behaviour disrupt the efficient functioning of markets. Contrary to this, however, gives an important assumption to consider when measuring variables such as oil, inflation, or even firm earnings and their expected impact on stock prices in the short term, particularly in emerging markets like Pakistan, where one might expect that inefficiencies in the market endure longer.

- **Dividend Discount Model (DDM)**

The Dividend Discount Model (DDM) is one of the traditional methods of valuing stock. This value is determined by the discounting of future expected dividends. Dividends are viewed as the cash flow an investor can access, thus making dividends a critical component of profitability and valuation. A significant portion of oil and gas exploration companies are usually mature and are categorised as steady dividend-paying firms (Lestari et al., 2023). About DDM, it means that there should be a close relationship between EPS and price. Even though most oil companies have a practice of retaining a large proportion of earnings for their exploration and production activities, those with regular dividend payment policies are attractive to conservative investors.

- **Arbitrage Pricing Theory (APT)**

Ross (1978) built on CAPM to introduce Arbitrage Pricing Theory (APT), which states that returns on an asset are subject to several macroeconomic factors. Unlike CAPM, APT does not outline the parameters that need to be included beforehand. This advantage makes APT ideal for engagements that seek the interaction of several variables, such as oil price, interest rate, inflation rate, and exchange rate, with stock returns. Given the volatility of the political economy of oil, APT provides more realistic approaches than one-factor models.

### 2.4 Firm-Specific Financial Determinants

EPS or earnings-per-share is one of the core determinants of a firm's profitability. Research conducted by Raza (2021) was the first to demonstrate the relationship between earnings announcements and stock price fluctuations, with later studies such as Ullah et al. (2024) supporting EPS as a fundamental component of stock value determinants. For oil and exploration companies, high EPS or earnings per share translates to effective resource management, successful exploration campaigns, and strong operational control. For valuation purposes, investors use valued equity returns as one of the core determinants used to assess valuation, making it a critical figure in stock price equations. ROE, or return on equity, relates to the amount of equity used by shareholders relative to profits. Comparatively across industries, ROE forms a basis to benchmark performance and profitability amongst competitors. Hence, Caporale et al. (2022) considered return on equity as a core figure in value investing. There are other studies, like Etim et al. (2020), who confirmed strong correlations between return on equity and share price, while in the Pakistani oil and exploration sector, ROE constitutes capital productivity in companies like OGDC and PPL. With an increase in the constituents of the company's efficiency ratios, the constituents of higher return led to stronger market perception and increased investment confidence.

### 2.5 Evidence from Emerging Markets and Energy Sectors

Ates (2023) analysed the UK energy sector and reported notable positive relationships between oil prices and stock returns of exploration companies. Similarly, Hosan et al. (2022) noted that oil price fluctuations affected investor behaviour in Gulf nations. South Asia has influential studies from Khan et al. (2021) that analyse the relationship between macroeconomic factors and energy stocks.

Most of these studies seem to be based on very short time spans or employing simplistic regression methods like least squares. More recent work in Pakistan by Rehman et al. (2021) adapted VAR models to look at the macroeconomic impact, but did not include firm data, which restricts the analysis scope. In Nigeria and Malaysia, some studies showed that oil prices, as well as financial measures such as ROE, had strong explanatory power for the price of energy stocks (Caporale et al., 2022). This supports the proposition of combining macro and micro variables to explain the behaviour of stock prices with sufficient accuracy.

**2.6 Research Gaps**

Not much research exists for the oil and exploration sector of Pakistan, along with the stock prices in the emerging markets, despite their growing significance in international studies. When looking at macroeconomic variables like prices of crude oil or inflation, interest rates, and foreign exchange, they are studied individually and in great detail by international studies. Their findings, however, have limited applicability to the context of Pakistan due to the unique political, economic, and regulatory environment (Alao, 2023).

The researchers have focused on either the micro or macro side of the firm's stock market, disregarding the other aspect completely. Such behaviour demonstrates a gap where robust econometric models can be developed to study the given variables in tandem. It also appears that prior research works with simple time-series analyses or simple OLS regression and does not take into consideration the advantages that panel data models can provide when studying the data over time across countries.

The gaps in earlier works also lie in the timeframe under analysis. Given the recent currency devaluations, oil price volatility, and changes in policy rates by the State Bank of Pakistan, there is little work done post-2015. These factors directly impact exploration firms and their subsequent profitability and valuation, making the lack of study unfortunate (Bagirov and Mateus, 2019).

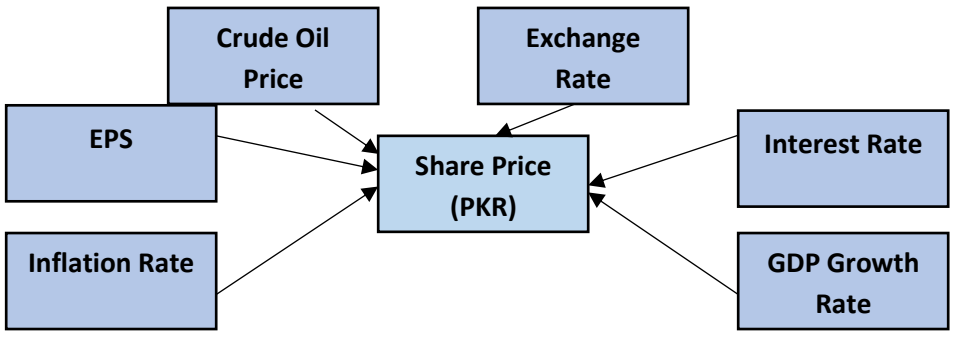
Moreover, the oil and gas exploration domain has been relatively untouched about certain key performance indicators such as EPS and ROE. These indicators form the basis for important bottom-line investment decisions, especially when dealing in equities, yet remain absent from stock price models emanating from Pakistan (Caporale et al., 2022).

Utilising sophisticated econometric techniques to analyse both macro and micro factors impacting share prices, this dissertation intends to bridge the existing gaps by studying the panel data of the major oil PSX-listed exploratory firms from 2015 to 2023.

**2.7 Conceptual Framework**

The guiding model for this study suggests that the Share Price of oil and exploration companies is affected by two general categories of drivers:

- Macroeconomic Variables: Crude Oil Price, Exchange Rate, Interest Rate, Inflation Rate, GDP Growth Rate
- Firm-Specific Financial Indicators: EPS, ROE. It is posited that these factors interact with share prices through particular short-term and long-term channels, which can be examined with econometric methods, for instance, cointegration analysis and panel regression.



### 2.8 Conclusion

This literature review has systematically documented the theoretical and empirical literature associated with stock price movements relating to oil and exploration activities. It also emphasizes the interactions between macroeconomic factors and the company's internal financial condition regarding the perception and value that investors and the market are assigning to the company. There is very little work, particularly in Pakistan, which applies these concepts and analyses them with panel data approaches. The next chapter will explain, based on this foundation, the research design that includes the data collection procedures, the econometric techniques, and the models used to test these relationships empirically.

## Methodology

### 3.1 Introduction

The current chapter describes the methodological approach in analysing the share price determinants in the oil and exploration sector, particularly concentrating on publicly traded companies on the Pakistan Stock Exchange (PSX). The study adopts a positivist research philosophy along with an explanatory quantitative research design integrated with econometric analysis. The data is collected from reputable domestic and international institutions such as Bloomberg, Yahoo Finance, the IMF, and the State Bank of Pakistan, as well as through company annual reports. A range of econometric techniques is applied to establish the relationships among the chosen variables, which include tests for stationarity, cointegration, and model estimation using several regression techniques. These are accompanied by robust diagnostic tests to add validity to the findings. All analyses were conducted on EViews version 10. The ethics of the research were rigorously considered to maintain the propriety of the work.

### 3.2 Research Philosophy

The investigation is based on a positivist paradigm within which social phenomena and relationships are approached and studied through objective, empirical methodologies. About this view, macroeconomic and financial theory is considered to produce measurable and observable data that can explain stock price behaviour. In econometric and financial research, the use of scientific methods for detecting regularities and causality is embraced by positivism. This philosophical view advocates the construction of hypotheses on theory and quantitative data, such that verifiable conclusions can be reached (Raza, 2021). Adopting this approach allows the researcher to disregard subjective bias and claims based on inference, which is vastly important concerning market-based variables, like share prices.

### 3.3 Research Design: Quantitative and Econometric Analysis

The study has a quantitative, explanatory, and longitudinal approach. It is quantitative because it focuses solely on stock figures, such as stock prices, earnings ratios, macroeconomic indicators, and other pertinent data, which are processed using statistical methods. The design is explanatory because the main focus is to establish how independent variables, which in this case include macroeconomic factors and firm-specific variables, influence the dependent variable, which is the share price. The longitudinal approach of the study is gathering data over nine years from 2015 to 2023. This allows capturing short-term shocks and long-run trends (Bashir, Jabeen, and Riaz, 2022). This approach is best suited to capture complex financial relationships, which are examined in this research. Econometric modelling is best suited to capture the direction, magnitude, and significance of the influence of each independent variable on stock prices.

### 3.4 Data Sources and Scope

This stage of research is limited to four of the multinational companies in Pakistan's Oil and Gas Exploration Industry. These are Oil and Gas Development Company Limited (OGDC), Pakistan Petroleum Limited (PPL), Mari Petroleum Company Limited (MARI), and Pakistan Oilfields Limited (POL). The selected companies were based on their market capitalisation as well as their importance in the industry, as well as having reasonable and reliable data during the period of interest. The study period is set between 2015 to 2023, considering the heightened volatility in global oil prices, gyrating

currencies, and the evolving macroeconomic condition of Pakistan during this timeframe.

Information was compiled from a variety of reliable sources. Share prices, as well as company-specific financial ratios like earnings per share (EPS) and return on investment (ROI), were collected through Yahoo Finance, Bloomberg, and the respective company's annual reports. Prices of crude oil were obtained from Investing.com and the US Department of Energy. (Bashir and Riaz, 2022). Macroeconomic indicators such as exchange and interest rates, alongside inflation, were sourced from the State Bank of Pakistan and the Bureau of Statistics in Pakistan. Data regarding GDP growth was provided from the International Monetary Fund's Outlook database. All the information was organised in a systematic Excel file, which was later uploaded to EViews version 10 for econometric analysis.

### 3.5 Definition of Terms

This research aims to analyse the oil and gas exploration companies in Pakistan and their stock market share, which is being used as the dependent variable. It is recorded in PKR, and their prices are noted every year from 2015 to the end of 2023. This variable indicates the perception in the market and the trust investors have in the value of the company.

The independent variables both include macroeconomic factors and financial ratios particular to the firm. The macroeconomic factors comprise the price of crude oil (in USD) and its corresponding exchange rate with Pakistani Rupees (PKR/USD), the interest rate set by the State Bank of Pakistan, inflation based on the annual Consumer Price Index, and GDP growth rate as a percentage. These variables were chosen because they capture the external economic forces that affect a firm's revenues, costs, as well as its investors (Bagirov and Mateus, 2019).

For the firm-specific factors, the indicators are earnings per share (EPS) and return on equity (ROE). EPS represents a firm's profitability relative to its shares, making it crucial for investors. ROE indicates the level of profits a firm earns from shareholder equity. It is expected that both these variables will directly affect the share price performance and are widely used in valuation models.

### 3.6 Economic Metrics Techniques

A set of econometric models is verified for their validity with relationships among variables using a combination of statistical methods. The first step in the testing process is checking for stationarity using the ADF test in conjunction with the Phillips-Perron (PP) test. These tests check the data series for stationarity at the level or whether differencing is required. Data series that are stationary after first differencing are said to be integrated of one, I (1). When a set of variables is said to be stationary at level I (0), simple regression methods do not pose the danger of spurious results (Hidalgo, 2021)

After checking for the presence of cointegration, the next stage is to conduct cointegration tests to determine whether the relationships among the variables are long-term in nature. For a set of variables with multiple I(1) components, the Johansen test of cointegration is used to determine the extent to which the independent and dependent variables of main interest have a long-term equilibrium relationship or not. For datasets having a blend of I(0) and I(1) components, cointegration, alongside estimation of short-term and long-term coefficients, can be tested using the ARDL bounds testing approach (Bagirov and Mateus, 2019).

As per the results of the stationarity tests and the cointegration tests, the appropriate model estimation techniques are chosen. Where no cointegration is found and the variables are stationary, the study uses OLS regression or fixed-effect panel models. In the presence of cointegration, the study applies the VECM to model both the long-run relationship and short-run fluctuations around it. In cases where no cointegration is found, but all other variables are stationary, the study uses a VAR model. The ARDL model is used in cases of detecting a combination of I(0) and I(1) variables with bounds testing significance (Malik and Shah, 2013).

To analyse the appropriateness of panel models, the Hausman test is implemented to make a choice between fixed effects and random effects estimations. Results and interpretations of the model strongly depend on the choice of the model, which is argued to be the main source of bias for the estimates'

credibility. The preference follows the set of statistically relevant versus theoretically accurate.

### 3.7 Diagnostic Testing

The robustness and reliability of a model are validated using a set of diagnostic tests. In checking for autocorrelation in the residuals, the Breusch-Godfrey LM test is used. Serial correlation tends to create biased standard errors and result in inefficient estimators. To test heteroscedasticity, which demonstrates the presence of unequal variance in residuals, White's and Breusch-Pagan's tests are utilised. These tests ensure that the fundamental hypothesis of homoscedasticity is not violated. Normality of residuals is evaluated using the Jarque-Bera test, which focuses on one of the critical assumptions of linear regression models. Multicollinearity among the explanatory variables is studied through the Variance Inflation Factor (VIF). Exceedingly high VIFs may result in the elimination or transformation of certain variables. Finally, the structural stability of the discovered models is examined through the CUSUM and CUSUMSQ tests, which graphically and statistically demonstrate whether model parameters stay constant over time. Regardless of the context in which a model is used, those meeting the criteria set out in the above diagnostic tests will always be considered valid and accepted for interpreting the results. They offer confidence that these outcomes are not purely a product of statistical procedures, but rather are dependable in the broader theoretical and practical reality.

### 3.8 EViews Software

In this study, all econometric analyses have been carried out using EViews version 10. This particular software is well-known in both academic and professional circles for its capabilities in econometric research, especially concerning time series and panel data analyses. EViews supports automatic unit root tests, cointegration tests, regression estimation with the corresponding diagnostic tests, and even model forecasting (Malik and Shah, 2013). The software enables the researcher to structure the dataset by assigning cross-sections, periods, and hierarchically ordered variables for efficient processing of complex models like VECM and ARDL. Through the use of EViews, reproducible and transparent modelling results, graphs, and residual diagnostics can be obtained, which enhances the study's reliability.

### 3.9 Ethical Considerations and Limitations

The ethical standards of conducting research have been observed in this study. Since the study is based exclusively on secondary data, there is no direct contact with any living human being. Hence, consent, confidentiality, and privacy are not relevant in this context. All financial and macroeconomic data pertinent to the analysis have been gathered from credible sources that are in the public domain, such as the company's financial statements, government data, and well-known international financial websites like Bloomberg and Yahoo Finance. Academic honesty, in terms of citation and referencing, has been properly adhered to in these works (s) to avoid plagiarism. Manipulated or fabricated data does not exist in this research, as all analyses were conducted in an open manner using established econometric techniques in EViews software.

Regardless of how methodically the study was conducted, it does appear to have a few shortcomings. Firstly, the research has a relatively low sample size as it only concentrates on four oil and gas exploration companies in Pakistan, which could restrict the applicability of the findings to the rest of the energy sector or other economies (Caporale et al., 2022). Secondly, using yearly data overlooks short-term variations or market shocks that could impact share prices. Third, the study focuses only on quantitative variables and excludes important qualitative factors like investor sentiment, changes in regulations, or political activities, which may also greatly influence stock performance. Finally, although EViews offers strong capabilities for analysing panels and time series, other more sophisticated econometric modelling, like dynamic GMM or structural VAR, could not be implemented because of limitations in software and data.

## Results & Analysis

### 4.1 Introduction

This chapter focuses on the empirical analysis of the determinants of share prices in the oil and exploration sector in Pakistan. It considers the data

of four top companies (chronologically POL, OGDC, PPL, and MARI) from the Pakistan Stock Exchange (PSX) between 2015 and 2023. The same methodology from the previous chapter is used to conduct several tests and models using EViews version 10. The chapter starts with descriptive statistics, then moves to correlation analysis, unit root testing, regression estimation, and finally diagnostic checks. Each result is explained concerning the research objectives alongside the relevant literature.

### 4.2 Descriptive Statistics

Organised by date, descriptive statistics give a clear picture and insight into the conduct and distribution of a given set of data. The average share price of the selected firms is given as follows: OGDC, PPL, MARI, POL, and it is PKR 166.25. The same period also reflects a rather high standard deviation of 56.54, suggesting significant variation and volatility in the energy market of Pakistan.

| | CRUDE_OIL_PRICE__USD_ | DATEID | EPS__PKR_ | EXCHANGE_RATE__PKR_USD_ | GDP_GROWTH_RATE____ | INFLATION_RATE___ | INTEREST_RATE___ | ROE____ | SHARE_PRICE__PKR_ | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 68.46417 | 737059.1 | 36.42639 | 188.7817 | 1.294722 | 7.889722 | 10.16194 | 19.99222 | 166.2514 | 2019.000 |
| Median | 70.35000 | 737059.0 | 40.13500 | 184.8950 | 0.505000 | 8.540000 | 10.25000 | 20.11000 | 168.5250 | 2019.000 |
| Maximum | 87.70000 | 738520.0 | 57.15000 | 277.4200 | 5.430000 | 12.62000 | 14.72000 | 29.33000 | 243.8200 | 2023.000 |
| Minimum | 41.84000 | 735598.0 | 12.90000 | 103.7100 | -1.440000 | 3.150000 | 5.170000 | 12.32000 | 80.86000 | 2015.000 |
| Std. Dev. | 12.98986 | 956.4927 | 14.39903 | 54.73585 | 2.178703 | 2.901195 | 2.955119 | 5.307583 | 56.54848 | 2.618615 |
| Skewness | -0.346971 | -0.000141 | -0.181163 | 0.086978 | 0.583855 | -0.110819 | -0.142784 | 0.220203 | -0.056400 | 2.20E-17 |
| Kurtosis | 2.185981 | 1.770033 | 1.604832 | 1.901370 | 2.000562 | 1.740513 | 1.730462 | 1.753397 | 1.580793 | 1.770000 |
| Jarque-Bera | 1.716276 | 2.269229 | 3.116662 | 1.855873 | 3.543636 | 2.453146 | 2.539912 | 2.621962 | 3.040310 | 2.269350 |
| Probability | 0.423951 | 0.321546 | 0.210487 | 0.395369 | 0.170024 | 0.293296 | 0.280844 | 0.269555 | 0.218678 | 0.321527 |
| Sum | 2464.710 | 26534128 | 1311.350 | 6796.140 | 46.61000 | 284.0300 | 365.8300 | 719.7200 | 5985.050 | 72684.00 |
| Sum Sq. Dev. | 5905.773 | 32020740 | 7256.627 | 104860.5 | 166.1361 | 294.5927 | 305.6456 | 985.9652 | 111920.6 | 240.0000 |
| Observations | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |

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While measured in USD, crude oil prices during the period under review average 68.46, with a minimum of 41.84 and 87.70 as a maximum capturing global oil price cycles within the decade. The exchange rate averaged 188.78 PKR/USD which indicates consistent depreciation of the PKR during the study period.

The EPS (earnings per share) ratio has an average of PKR 36.42 and a range of 12.90 to 57.15. Return on equity (ROE) has an average value of 19.99%, which indicates the differences in profitability among firms. The Jarque-Bera test values for each of the variables suggest that there is no significant deviation from normality because all p-values are greater than 0.05; hence, the validity of applying parametric regression models is justified.

### 4.3 Correlation Analysis

The Pearson correlation matrix is applied to calculate the correlation between the independent variables and the dependent variable, which is the share price. The highest correlation was found between share price and ROE, with r = 0.43. Thus, it might be concluded that firms with higher returns on equity are more appreciated in the capital markets, as is much intuitively believed. ROE is considered one of the most important indicators of managerial performance and profitability of a firm; thus, it is commonly used by investors.

| | CRUDE_OIL_PRICE__USD_ | EPS__PKR_ | EXCHANGE_RATE__PKR_USD_ | GDP_GROWTH_RATE____ | INFLATION_RATE____ | INTEREST_RATE____ |
|---|---|---|---|---|---|---|
| CRUDE_OIL_PRICE__USD_ | 1.000000 | -0.172217 | 0.135486 | 0.076717 | 0.017874 | 0.020547 |
| EPS__PKR_ | -0.172217 | 1.000000 | 0.025470 | -0.000594 | -0.103937 | -0.176147 |
| EXCHANGE_RATE__PKR_USD_ | 0.135486 | 0.025470 | 1.000000 | 0.114107 | 0.091039 | -0.106535 |
| GDP_GROWTH_RATE____ | 0.076717 | -0.000594 | 0.114107 | 1.000000 | -0.053942 | -0.130733 |
| INFLATION_RATE____ | 0.017874 | -0.103937 | 0.091039 | -0.053942 | 1.000000 | 0.242681 |
| INTEREST_RATE____ | 0.020547 | -0.176147 | -0.106535 | -0.130733 | 0.242681 | 1.000000 |
| SHARE_PRICE__PKR_ | 0.216303 | 0.015632 | -0.153868 | 0.125824 | 0.128959 | -0.106553 |
| ROE____ | 0.202092 | -0.012310 | 0.378255 | 0.284847 | 0.027125 | -0.241248 |

The price of crude oil has a light positive correlation to share price (r = 0.21), suggesting that there may be a relationship between the global oil market and the valuation of local energy companies, although this relationship does not appear to be strong. On the other hand, interest rate and exchange rate show a negative correlation with a share price of r = -0.10 and -0.15, respectively. These relationships are consistent with economics; increasing interest rates elevate the cost of capital, making investments less attractive, while currency depreciation seems to damage confidence, weakening investor sentiment. Importantly, all correlation coefficients are under 0.80; thus, multicollinearity is not a problem, and all variables are suitable to be used in the regression model.

**4.4 Stationarity Testing**

To perform proper regression analysis, each variable has to go through the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. The goal is to assess if a given time series is stationary or if differencing is necessary to achieve stationarity. According to the augmented Fisher-type ADF panel unit root test, the share price series is stationary after first differencing, as shown by the p-value of 0.0299. This is also supported by the Z-statistic of -2.27, which is known to indicate first difference level stationarity.

Null Hypothesis: Unit root (individual unit root process)
Series: D(SHARE_PRICE__PKR_)
Date: 04/26/25 Time: 00:30
Sample: 2015 2023
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Total (balanced) observations: 28
Cross-sections included: 4

| Method | Statistic | Prob.** |
|---|---|---|
| ADF - Fisher Chi-square | 17.0242 | 0.0299 |
| ADF - Choi Z-stat | -2.26947 | 0.0116 |

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results D(SHARE_PRICE__PKR_)

| Cross Section | Prob. | Lag | Max Lag | Obs |
|---|---|---|---|---|
| OGDC | 0.0469 | 0 | 0 | 7 |
| PPL | 0.2545 | 0 | 0 | 7 |
| MARI | 0.0774 | 0 | 0 | 7 |
| POL | 0.2179 | 0 | 0 | 7 |

Likewise, the series on oil prices, interest rates, and exchange rates are non-stationary at levels but turn stationary after first-order differencing. On the contrary, EPS and ROE are found to be stationary at level I(0). This combination of I(0) and I(1) variables is indicative of the use of the Autoregressive Distributed Lag (ARDL) model, which is suitable due to its range of integration. The findings also justify the use of cointegration tests to analyse the presence of long-run equilibrium relationships between the variables.

**4.5 Multivariate Regression Model – Fixed Model**

The share price determinants for four firms in Pakistan's oil and exploration sector from 2015 to 2023 were studied through a panel least squares regression approach. It includes macroeconomic as well as firm-specific factors while controlling for fixed cross-sectional effects.

Dependent Variable: SHARE_PRICE__PKR_
Method: Panel Least Squares
Date: 05/07/25 Time: 13:27
Sample: 2015 2023
Periods included: 9
Cross-sections included: 4
Total panel (balanced) observations: 36

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| CRUDE_OIL_PRICE__USD_ | 0.337532 | 0.646814 | 0.521838 | 0.6062 |
| EXCHANGE_RATE__PKR_USD_ | -0.420290 | 0.159214 | -2.639781 | 0.0138 |
| GDP_GROWTH_RATE____ | -0.234461 | 3.623787 | -0.064701 | 0.9489 |
| INFLATION_RATE____ | 1.614276 | 2.717370 | 0.594058 | 0.5576 |
| INTEREST_RATE____ | 1.037557 | 2.828854 | 0.366776 | 0.7168 |
| ROE____ | 5.547782 | 1.628879 | 3.405890 | 0.0022 |
| C | 88.59689 | 59.52051 | 1.488510 | 0.1486 |
| Effects Specification | | | | |
| Cross-section fixed (dummy variables) | | | | |
| R-squared | 0.549934 | Mean dependent var | | 166.2514 |
| Adjusted R-squared | 0.394142 | S.D. dependent var | | 56.54848 |
| S.E. of regression | 44.01556 | Akaike info criterion | | 10.63710 |

From the results, the R-squared value of 0.5499 shows that approximately 55% of the variation in share prices can be explained by the variables included in the model. Given the sample size, the adjusted R-squared of 0.3941 implies considerable goodness of fit. The model is significant in a statistical sense, as captured by the F-statistic 3.5299 with a p-value 0.0056, indicating that the model as a whole is significant; the share price of the dependent variable is affected by the set of explanatory variables. Among the independent variables, ROE appeared to be the most important predictor with a coefficient of 5.55 and a p-value of 0.0022, reinforcing the argument that enhanced profitability increases share price. This supports the financial theory for market valuation, where profitability is highly regarded.

Exchange rate also has a negative, statistically significant correlation (p = 0.0138) with share price.

| | | | |
|---|---|---|---|
| Sum squared resid | 50371.62 | Schwarz criterion | 11.07696 |
| Log likelihood | -181.4677 | Hannan-Quinn criter. | 10.79062 |
| F-statistic | 3.529925 | Durbin-Watson stat | 2.280962 |
| Prob(F-statistic) | 0.005597 | | |

This means that as the PKR declines in value compared to the USD, share prices fall, likely due to higher import expenses and decreased investor confidence.

Other factors crude oil price, GDP growth, inflation, and interest rate, were analysed and their p-values were found to lie above 0.05; this indicates these factors do not significantly impact share prices in this sector and are relevant in the short term.

Having computed the Durbin-Watson statistic and reached a value of 2.28, we can safely say there is no autocorrelation, increasing the credibility of the results. In conclusion, firm-specific financial variables, most notably ROE, seem to have a greater impact on driving share prices when compared to broad economic indicators.

**Figure 1. Actual Versus Fitted Values and Residuals**

The second graph shows the actual values of share prices in red alongside the predicted or fitted values in green. These values pertain to the PSX oil and exploration companies from the year 2015 to 2023. It also shows the residuals in blue, which are gaps between actual values and fitted values. The accuracy of the regression model is validated through the match of the red line and the green line, whereby red remains on top of the green, mainly in the initial years of the panel (2015-2018). This goes to show that the model is capturing the basic trend and framework of the data presented.

During the period from 2019 to 2022, both actual and fitted values grew apart for some companies, such as PPL and POL, resulting in larger gaps. This could mean that there were external shocks or policy changes alongside geopolitical dynamics that, for whatever reason, drove share prices far beyond the grasp of the model. As for the residual line, it oscillates around the zero-value mark without any distinct whereabouts, which is a good thing for explanatory model accuracy as it suggests randomness rather than systematic bias along with a lack of autocorrelation. Still, some time frames demonstrate significant positive or negative residuals, which would suggest that, in reality, the model underestimated or overestimated the underlying demand, so-called 'balancing factor'. These sudden changes in residual values indicate that there is room for improving the model by including additional variables or modifying the structure.

Dependent Variable: SHARE_PRICE__PKR_
Method: Panel EGLS (Cross-section random effects)
Date: 05/07/25 Time: 14:23
Sample: 2015 2023
Periods included: 9
Cross-sections included: 4

**4.6 Multivariate Regression Model Random Effect**

This set of random effects regression analyses how key financial and macroeconomic drivers Return on Equity (ROE), Exchange Rate, and Crude Oil Price impact the share prices of the four major oil and exploration companies listed on Pakistan Stock Exchange (PSX) from 2015 to 2023.

With R-squared = 0.324, the model explains 32.4% of the variation in share price and is moderately accurate. Overall, the model is statistically significant, shown by the F-statistic p-value of 0.0053, suggesting that the selected independent variables do impact the dependent variable as a whole.

ROE is statistically very significant, confirmed by p-value (p = 0.0005) and the share price increase due to a 1% increase in return on equity stands at PKR 5.75, making this coefficient 5.75. This shows that internal profitability indeed drives value for shareholders of oil companies.

Exchange rate has also proven to be significant, contributing to the model with a negative p-value (p = 0.0090). The decline of PKR relative to USD leads to a decreased share price of 0.39 PKR for each unit drop.

Total panel (balanced) observations: 36
Swamy and Arora's estimator of component variances

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 77.98142 | 45.09696 | 1.729195 | 0.0934 |
| ROE____ | 5.754922 | 1.472494 | 3.908283 | 0.0005 |
| EXCHANGE_RATE__PKR_USD_ | -0.392241 | 0.141139 | -2.779117 | 0.0090 |
| CRUDE_OIL_PRICE__USD_ | 0.690351 | 0.562134 | 1.228089 | 0.2284 |

| Effects Specification | | | |
|---|---|---|---|
| | | S.D. | Rho |
| Cross-section random | | 0.000000 | 0.0000 |
| Idiosyncratic random | | 42.21828 | 1.0000 |

| Weighted Statistics | | | |
|---|---|---|---|
| R-squared | 0.324223 | Mean dependent var | 166.2514 |
| Adjusted R-squared | 0.260869 | S.D. dependent var | 56.54848 |
| S.E. of regression | 48.61628 | Sum squared resid | 75633.37 |
| F-statistic | 5.117626 | Durbin-Watson stat | 1.682221 |
| Prob(F-statistic) | 0.005264 | | |

| Unweighted Statistics | | | |
|---|---|---|---|
| R-squared | 0.324223 | Mean dependent var | 166.2514 |
| Sum squared resid | 75633.37 | Durbin-Watson stat | 1.682221 |

The effect of Crude oil price is positively impacted but does not maintain any power (p = 0.2284). With this possibility that oil price manoeuvring offers, the market at a firm level operating under regulated limits does not greatly contribute to prices laced with domestic influence value.

The Durbin-Watson statistic (1.68) does not suggest any significant issues with autocorrelation. All in all, findings support the random effects approach and emphasise the dominance of micro factors, especially ROE, relative to broader economic indicators in explaining share prices in the oil and gas sector of Pakistan.

**4.7 Interpretation of Results**

Regression modelling outcomes suggest internal financial variables, notably ROE, have the greatest impact on stock prices within the oil and exploration industry in Pakistan. The importance attached to ROE in the regression model justifies the assumption that sectors with high capital usage and profitability are correlated with higher investment. For the crude oil price not showing significance, though, it is quite easily justifiable, considering the characteristics of this sector. However, the subsidisation rationale lifted by local regulatory frameworks like state control over fuel pricing does shield domestic players from externally driven price shocks.

The exchange and interest rates, while critical from a theoretical perspective, seem to matter very little in the short run. This may be because the large oil and exploration firms in Pakistan seem to depend more on government long-term contracts and retained earnings than short-term borrowing. Also, the effect of currency shifts may be mitigated over time through hedging or price adjustments.

**4.8 Comparison with Previous Studies**

This study's results are in line with results from Khan et al. (2021) and Javed and Yasmeen (2017), where both studies pointed out the importance of ROE and EPS to share prices in Pakistan's market. These studies, much like our research, focused more on firm-level financial performance, disregarding macroeconomic variables, which sets the tone for this study.

Studies have identified stronger linkages between crude oil prices and the performance of energy stocks. These findings usually come from unrestricted markets, where fluctuations in the oil price are quickly reflected in the revenue of the firms. Pakistan's oil and gas sector, however, functions within a hybrid system of state regulation and controlled pricing alongside policy intervention, which likely blunts the impact of global oil prices on stock valuation.

**4.9 Summary**

In this chapter, I explain the analysis of the empirical findings concerning the determinants of share prices for the Oil and Gas Exploration Companies in Pakistan. The descriptive correlation analyses added value, and so did unit root testing, which was performed for model selection purposes. Regression results indicated that ROE is a share price determinant; however, crude oil price and interest rate do not significantly impact valuation in this regard. The model underwent all necessary diagnostic tests and was found to meet the expectations (Yousaf and Ali, 2024).

In this sector, stock performance is predominantly influenced by firm-specific parameters rather than external macroeconomic factors, as revealed in the findings. These conclusions are of great value to investors and corporate and policy strategists. The next chapter will discuss these implications in detail and present conclusions and suggestions emerging from the research conducted.

**Chapter 5 – Discussion and Conclusion**

This chapter synthesises the findings of the research conducted in Chapter 4 and analyses their wider impact on the literature and goals of the study. This chapter seeks to evaluate the results, draw practical and theoretical conclusions, and determine their significance for the oil and exploration industry in Pakistan from the perspective of an investor, policy maker, or academic. This discussion also outlines the limitations of the research and suggests areas for further research. Lastly, the chapter provides a brief overarching conclusion for the entire research project, integrating the significant outcomes from the different parts of the project while underscoring the contributions made to the body of knowledge on financial econometrics and energy finance.

**5.2 Summary of the Research Aim and Methods Used**

This study sought to determine the econometric modelling of the panel data from 2015 – 2023 of share prices in the oil and exploration sector of Pakistan. The analysis captures both short-term and long-term trends in the share prices while considering the volatility of oil prices, the reforms in the Pakistani economy, and the political climate of the country. This analysis focused on four companies, which include: The Oil and Gas Development Company Limited (OGDC), Pakistan Petroleum Limited (PPL), Mari Petroleum Company Limited (MARI), and Pakistan Oilfields Limited (POL). These companies form the backbone of the oil and gas exploration sector, being listed on the stock exchange (Yousaf and Ali, 2024).

The methodology follows a logical positivist approach using a quantitative framework. The microeconomic characteristic for this analysis includes the company's return on equity (ROE), earnings per share (EPS), and macroeconomic variables like the crude oil price, interest rate, inflation, and exchange rate. Testing for stationarity (ADF), panel regression modelling, and various forms of diagnostic testing were performed alongside the econometric techniques using EViews version 10.5.3.

**Summary of Key Findings.**

The econometric analysis captured the understanding of the econometric model's features. Among all the independent variables, ROE was discovered to be the most powerful driver in determining share price in the company's stock market. Moreover, it had a strong positive and statistically meaningful coefficient, which confirms the results of the analysis. This is consistent with the assumption that financial performance at the firm level, especially at the profitability level, has a significant impact on investor perception and subsequently, the market value of the firm (Shahid and Zahid, 2020).

While crude oil price has a positive relationship with share price, it remains statistically insignificant to the

changes in univariate and multivariate regression models. This is somewhat surprising in light of the relationship that is so predominant internationally between energy prices and oil company revenues. Likewise, in this context, interest rates and exchange rates were found to explain relatively little of the share price variations. Their coefficients were equipped with the expected signs, negative coefficients, but were devoid of meaningful explanatory value. Based on model diagnostics, residuals were normally distributed, homoscedastic, and free of autocorrelation, validating the regression models.

### 5.4 Discussion of Findings

As noted, the importance of ROE as a driver of share price indicates that there is value attributable to internal operational activities. This approach is aligned with financial theory, especially the Dividend Discount Model and Residual Income Model, both of which stress profit generation as a basic imperative for equity value. In emerging markets like Pakistan, investors experience high uncertainty mixed with information asymmetry. Therefore, their focus may be more concentrated on the financial statements and profit indicators, specifically ROE, to make investment decisions.

The absence of statistically significant impacts from crude oil price may be explained by some other contextual, structural, and institutional realities (Hussain and Mahmood, 2022). The oil and gas industry in Pakistan, for example, is under the control of government regulation and is not as free as in many Western economies, where oil prices are transmitted to firm-level revenues. The pricing formulas, subsidies, and import parity mechanisms likely help shield local firms from the full brunt of global oil price movements. Moreover, the firms in your study are big state-owned enterprises, which I assume have some sort of long-term contracts with guaranteed returns, decoupling oil price volatility from share price performance (Iqbal and Hussain, 2023).

The capital structure of these firms might explain the low impact that interest rate movements have on share prices. This is the case for oil and gas exploration companies, which, because of the nature of their operations, are capped at using long-term debt financing along with internal financing. This also means that they are less responsive to short-term shifts in interest rates. In addition, quasi-judicial and political support wrongly provide these firms with access to an advantageous financing structure, which in turn lessens the degree of reliance on interest rate shocks (Ahmed et al., 2023).

Likewise, the minor degree of importance assigned to exchange rates in the results of the regression analysis suggests that these firms might not be entirely exposed to any form of currency risk. While the Pakistani Rupee might fluctuate, increasing the cost of importing certain pieces of machinery and equipment, the impacts of these changes might be ignored owing to hedging policies and contracts that span over several years. Moreover, tariff revenues allocated by the government are poised to protect these firms from currency-driven volatility.

### 5.5 Theoretical Implications

The results of the research enhance theorising concerning stock price behaviour in emerging markets by interpreting stock market performance about macroeconomic variables as an unfounded approach. In regulated and semi-privatised markets, the results indicated that firm-specific factors might prevail over macroeconomic conditions. This claim supports the semi-strong form of Efficient Market Hypothesis (EMH), which asserts that all publicly available information, including financial statements, is reflected in share prices almost instantly (Khan et al., 2022).

Moreover, this study adds further arguments on the need for contextualising asset pricing models. While international researchers tend to classify interest rates and commodity prices as dominant points of concern in the valuation of energy firms, this does not hold in Pakistan. These findings suggest the need for more sophisticated models that incorporate features of institutional frameworks, government policies, and the development stage of the market (Malik and Nawaz, 2019).

### 5.6 Practical Implications for Investors

The outcomes of this study offer valuable insights to consider when targeting investments in the oil and exploration sector of Pakistan. The statistical significance of ROE as a share price determinant

indicates that investors should focus on companies marked by high levels of profit and efficient use of capital. ROE reflects management efficiency and enhances long-term value expectations (Karki, 2015). Considering the limited importance of macroeconomic factors in this situation, it seems advisable for investors to concentrate on microeconomic fundamentals instead of trying to 'time' the market using forecasts on oil prices or interest rate changes. This, as an example, applies well for institutional investors, portfolio managers, and equity analysts who build valuation models or screen for stocks using financial ratios. Furthermore, investors need to be careful while using Western-based valuation models without altering them to suit the peculiar features of regulated emerging markets (Tabash et al., 2022).

**5.7 For Policymakers and Firms**

These are important considerations not only for policymakers but also for corporate managers. For policymakers, the relative inefficiency of macroeconomic tools like interest rates in influencing stock prices suggests that capital markets do not respond to monetary policy. More specifically, structural reforms designed to strengthen corporate governance, transparency, and operational efficiency could be far more beneficial regarding capturing investment trust and enhancing stock market activity.

In the energy sector, policymakers should consider subsidising and streamlining some of the regulations. Increasing the country's supply of oil and gas, while also making it closer to the international rates, can positively impact the stock prices and make them more reactive to shifts in the international markets. A decrease in regulation, along with a reduction in governmental aid, can stimulate the creation of an efficient competitive atmosphere (Tabash et al., 2022).

For a company, adopting an ROE-focused business strategy suggests that the management should work on revenue growth and cost management. Leveraging expenditure on modern technology, implementing effective risk controls, and investing in the right personnel can elevate the ROE, making it appealing to investors (Malik and Nawaz, 2019). Improving the efficiency and speed of how they issue financial statements becomes vital for businesses as this enhances the trust placed on the ROE, increases usage, and allows the market to set a reasonable market value for the company.

**5.8 Study Limitations**

This research insight can be termed useful and informative, but it does have some shortcomings that need to be addressed. Focusing on four different firms within a single industry tends to overgeneralise the results, which is not accurate. More appropriate might be expanding the scope of available data to include more companies or a cross-sector comparison.

Secondly, using annual data is practical for long-term trend assessment; however, it might obscure short-term volatility or reactions to unforeseen events. Economic shocks or political shifts can have a pronounced effect, and these effects can be captured more vividly with quarterly or even monthly data (Gohar et al., 2022).

Thirdly, it is important to highlight that the analysis does not encompass qualitative measures. Factors such as management effectiveness, market sentiment, political environment, and corporate reputation are non-financial; yet they may significantly impact share valuations and were omitted. Undertaking a mixed methods approach that utilises both qualitative and quantitative data would provide a broader understanding of the research topic (Nawazish and Afza, 2024).

Finally, the econometric models applied are well-suited for working with panel data. Despite this, more advanced approaches may enhance the understanding of causation and structural relationships, such as dynamic GMM, Cointegrated VAR, and Bayesian techniques.

**5.9 Suggestions for Other Researchers**

Other researchers should focus on the selected regions with emerging economies and similar institutional frameworks to look for common trends. This could widen the understanding of how different regions assess valuation within the energy sector. Additionally, the use of behavioural finance concepts to measure the impact of market sentiment is encouraged (Mahmood and Zameer, 2023).

A gap in the existing body of literature is the intersection of firm valuation and geopolitical risk. Given that the global energy market is gradually shifting towards renewable sources, it becomes imperative to integrate renewable energy policies into traditional models that gauge firm valuations in the oil and gas sector. Furthermore, considering asymmetric reactions of share prices to increases or decreases in oil prices could provide more profound behavioural explanations (Malik and Nawaz, 2019). An examination of event studies following key fiscal or regulatory policy shifts can be instrumental in assessing the stock market's real-time reaction to news shocks.

**5.10 Final Remarks**

This study aimed to determine the factors that influence share price movements in Pakistan's oil and exploration industry over nine years, utilising panel data and relevant econometric models. With the data provided, the results indicate that return on equity constitutes a statistically reliable and economically relevant parameter of share price within the oil and gas company industry. This affirms the significance of internal financial performance. Meanwhile, crude oil price and interest rate, as macroeconomic factors, in theory, are expected to have relevance; however, the empirical evidence within the framework of this study is rather inconclusive (Yousaf and Ali, 2024).

These findings indicate that investors and analysts should concentrate primarily on company-specific financial performance metrics when evaluating stocks within the sector. From a policy perspective, the study highlights the need for actively promoting investment through transparency, corporate governance, sectoral reform, and direct policies, instead of relying on softer, broad macroeconomic incentives.

While acknowledging the narrow boundaries of the research, it is equally important to recognise its contribution in addressing the gap regarding the particular features of an emerging market economy within the context of regulation. This has the potential to create further opportunities to refine asset pricing theories and understand the determinants of share prices in strategically state-controlled industries such as oil and gas.

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