



Advance Social Science Archive Journal

Available Online: <https://assajournal.com>

Vol.3 No.1, January-March, 2025. Page No. 1356-1386

Print ISSN: [3006-2497](#) Online ISSN: [3006-2500](#)

Platform & Workflow by: [Open Journal Systems](#)



IMPACT OF MACRO ECONOMIC FACTORS ON THE STOCK MARKET MEDIATING ROLE OF THE UNSYSTEMATIC RISK

Javaid Iqbal	Ph.D. Scholar Qurtuba University of Science & Information Technology DI Khan Email: javediqbalgg1337@gmail.com
Dr Raza Ullah shah	AssistanProfessor Department of Management Sciences Qurtuba University of Science & Information Technology DI Khan Email: razaullah@qurtuba.edu.pk
Dr Kashif Saleem	Assistant Professor Department of Management Sciences Qurtuba University of Science and Information Technology D I Khan Email: kashifsaleem9212@gmail.com

ABSTRACT

This study examines the mediating role of unsystematic risk in the relationship between macroeconomic factors and the performance of Pakistan's stock markets. The researcher gathered data from two sources: stock market data from the Pakistan Stock Exchange and respective company websites (2000–2022) from the Pakistan Mercantile Exchange (2010–2022). The data for selected macroeconomic variables were obtained from the IMF's International Financial Statistics website. The data is quantitative and analyzed through various statistical tools and tests, including the Breusch-Pagan-Godfrey test, Breusch-Godfrey Serial Correlation LM Test, Ramsey RESET test, Augmented Dickey-Fuller (ADF) test, and Phillips-Perron test. Regression analysis has been employed to test the causal relationships among these variables. The findings indicate that macroeconomic factors such as inflation, interest rates, exchange rates, and GDP growth significantly impact market performance; however, their effect is often mediated by changes in unsystematic risk. As macroeconomic conditions change, they affect individual companies' operational stability and financial health, altering the unsystematic risk associated with them. For example, rising interest rates increase companies' borrowing costs, increasing their risk exposure. The study's originality is that very little work has been done regarding unsystematic risk as a mediator, particularly in the Pakistan capital markets. Overall, the findings add clarity to how macroeconomic variables influence market results, thus enhancing comprehension of market operations in emerging economies like Pakistan. Based on the study's findings, various steps are suggested to be adopted to work on reducing unsystematic risk and stabilizing markets. Accordingly, the recommendation to policymakers is to strengthen institutional

frameworks on monitoring macroeconomic impacts in sectors or companies. They should thus know what to protect and how to manage the various risks more effectively.

Keywords: macro-economic factors (interest rate, inflation rate, exchange rate, GDP, Import, Export), Stock market, unsystematic risk.

1. Introduction

Many markets are working in Pakistan. These markets play an essential role in the country's economy, but the most important is the stock market; the stock market provides a platform for companies to raise capital by issuing shares. The capital is vital for business expansion, research and development, and overall economic growth; moreover, Stock market performance often reflects investor sentiment and overall financial health. Trends in the stock market can offer insights into economic conditions, investors' confidence, and potential future economic performance. It provides various investment options for individuals and institutions (Gormsen & Koijen, 2023). This can help people grow their wealth and diversify their investment portfolios. The stock market provides liquidity, allowing investors to buy and sell shares quickly. For that reason, this liquidity offers the mechanism for transferring ownership of assets and determining stock prices.

The stock market plays a critical role in determining securities' fair market value through the interaction of supply and demand. The significance of the stock market lies in its ability to create a balance in the country's trade, thereby contributing to increased economic stability, which also utilizes the price determination method to guarantee that assets are exchanged at values that accurately reflect their actual value (Gupta & Aggarwal, 2024). The efficient distribution and incorporation of information into stock prices improves market efficiency, hence equipping investors with precise and timely information to facilitate their decision-making processes (Houwayji, 2024).

The stock market serves as a medium for creative and entrepreneurial enterprises to secure financial resources. Consequently, this phenomenon plays a significant role in fostering economic development and enhancing competitiveness at an international level (Boungou & Yatié, 2022; Hossain, 2024) as well as by serving as an indication of economic and financial health, facilitating wealth creation, supporting corporate governance, and facilitating capital formation, the stock market plays an essential role in the functioning of modern economies (Chaves et al., 2020).

In a study, Pavlidis (2020) explained that the stock market serves various basic purposes since it is essential to efficiently allocate financial resources and facilitate individual involvement in the prosperity of different ventures. This procedure enables enterprises to obtain the essential financial resources required for expansion,

innovation, and enhancing their competitive edge over other firms. The stock market provides a wide range of investment possibilities for both individuals and institutional investors. Investors get ownership in firms by purchasing shares, so gaining the opportunity to profit from the company's achievements with an appreciation in value and dividends (Corbet et al., 2019).

However, the stock market plays an ever-changing role in the financial field, functioning as a means to channel capital, a medium for investment, and an indicator of economic well-being. Its significance in promoting economic development and generating wealth highlights its pivotal position in defining the course of the interdependent global economy (Ben et al., 2023). The stock market is widely recognized as a fundamental component of the banking system, serving as a dynamic platform for the exchange of publicly traded company shares (Elshqirat, 2019).

The stock market, often referred to as equity markets, serves as a medium for investors to engage in buying and selling of ownership interests in corporations, which are symbolized by shares. The stock market functions as a means of facilitating liquidity, enabling investors to engage in the buying and selling of shares with relative ease (Bogush, 2024). The presence of liquidity plays a crucial role in improving market efficiency by facilitating prompt conversion of investments into cash, hence promoting stability within the market (Bossi, 2024).

Many macroeconomic factors impact these markets. The change in macroeconomic indicators may affect the performance of both traditional and modern networks. However, the effect will differ for all companies due to their different characteristics (Cerutti et al., 2019). Moreover, the portfolio's actual returns will also be different from the expected returns. Hence, each portfolio's performance is affected by macroeconomic factors, and their impact on economic volatility is different because the characteristics of every portfolio are different (Chen & Zhang, 2023).

Macroeconomic factors impact the stock market of Pakistan; however, the most important factor is the interest rate, which plays a pivotal role in the financial realm, serving as a fundamental element that signifies the expense of obtaining funds through borrowing or the yield generated from investments (Sampene et al., 2021). Interest rate holds significant importance in determining economic activity, exerting influence over consumer expenditure, corporate investments, and the general functioning of financial markets (Dery & Serletis, (2021).

This refers specifically to the process of borrowing, where interest rates represent the amount of money a borrower must pay to a lender as the cost of borrowing funds. The higher interest rates tend to make borrowing more expensive, which could restrain consumers' spending and business investment. On the contrary, lower interest rates can boost economic activity by lowering the cost of borrowing.

This, in turn, benefits individuals and corporations, allowing them to receive loans for several objectives, including mortgages for homes, business expansion, or capital investment (Ghanizadeh et al., 2022).

Interest rates are important in determining the yields of fixed-income assets, specifically bonds. The increase in interest rates typically leads to a decline in the value of already issued bonds, as investors are interested in new bonds that offer higher returns. On the other hand, when interest rates decrease, the price of bonds may also increase, providing a benefit to current bondholders (Kamber & Mohanty, 2018). The complicated relationship between interest rates and activities such as investing, borrowing, and monetary policy renders them a critical factor in comprehending and effectively indicating the particulars of the stock market and the economy (Dery & Serletis, 2021).

The other macroeconomic factor, like the exchange rate, is an economic indicator that quantifies the relative worth of one currency when compared to another. It is a crucial determinant in the global economy, exerting influence over trade between nations, investment, and financial activities (Morina et al., 2020). Fluctuations in the exchange rates are influenced by various economic factors, encompassing the interplay between demand and supply dynamics, rising rates of interest, and geopolitical events. Significantly, exchange rates are frequently monitored by companies, governments, and investors because of their direct influence on the expenses associated with products and services and the profits on overseas investments (Moshirian et al. 2021).

Sudden changes in exchange rates can introduce different threats and opportunities, affecting countries' competitive position in the global market and changing the earnings from international deals. Thus, understanding and predicting exchange rate movements is essential for participants in the international financial system, and international finance decisions are very effective and significant for institutional and individual investors interested in portfolio investments (Dery & Serletis, 2021).

The country's exchange rates have a direct influence on the prices of goods and services abroad, as well as the return on overseas investments; companies, governments, and investors need to keep an eye on the exchange rate fluctuation without the stakeholder which cannot be getting maximum result from their investment (Beckmann et al., 2020). These changes can introduce both threats and opportunities. For players in the global market to make educated judgments and successfully traverse the complexity of international finance, they need to understand exchange rate fluctuations and accurately predict those movements (Udoinyang, 2024).

This gap is critical because unsystematic risk, including management decisions, operational inefficiencies, and supply chain disruptions, can significantly influence how macroeconomic shocks are transmitted to financial markets. In the context of Pakistan, where financial markets are still developing and highly sensitive to domestic and global economic fluctuations, understanding this mediating role is essential for accurate risk assessment and policy formulation.

Recent studies, such as those by Moshirian et al. (2021) and Javeria et al. (2019), have documented the development of the Pakistan Stock Exchange (PSX) and its increasing integration with global markets. However, Pakistan's unique economic, political, and institutional characteristics create a distinct environment where unsystematic risk may play a more significant role than stable economies. For example, firm-specific risks such as regulatory changes, energy shortages, or political instability can amplify the impact of macroeconomic shocks on market performance. Addressing this gap is crucial for developing more robust financial models and risk management strategies that account for the interplay between macroeconomic factors and unsystematic risk, offering practical insights for investors, policymakers, and financial analysts operating in similar emerging markets.

The stock market is crucial to measuring a country's economic performance. It not only depicts present conditions but also expectations. In addition to being a tool of transmission for policies, stock markets react to unexpected events, both domestic and foreign (Madurapperuma, 2022). Furthermore, it influences spending and saving behaviors and promotes financial stability. Past studies showed that various essential variables, such as interest rates, exchange rates, and economic growth, have significant relationships with stock market performance. However, the association between macroeconomic indicators and stock market returns is not entirely determined (Boungou & Yatié, 2022). Moreover, considering unsystematic risk adds layers of complexity to the relationship. Although systematic risk is well-researched, its mediating role in this relationship remains under-researched, especially in emerging markets like Pakistan (Ali et al, 2021).

Thus, the fundamental issue this research intends to solve is a lack of knowledge of how unsystematic risk mediates the link between macroeconomic factors and stock markets in Pakistan. While there is considerable evidence of the relationship between macroeconomic indicators and market returns, the mediating effect of unsystematic risk in emerging markets remains largely unexplored, particularly in the case of Pakistan (Mohamadi & Mohamadi, 2021). This information gap is vital as the unsystematic risk due to firm-specific or industry-specific elements could modify the anticipated impact of macroeconomic variables on the market performance, leading to inefficient investment decisions and ineffective policy

interventions (Baffes & Kabundi, 2023).

1.2 Research Questions

1. What is the role of macroeconomic factors in the stock market?
2. How does unsystematic risk act as a mediator in the relationship between macroeconomic factors and the stock market?

1.3 The Objectives of the study

- i. To examine the impact of macroeconomic factors on the stock market.
- ii. To explore the mediating role of unsystematic risk between macroeconomic variables and the stock market.

2. Literature Review

2.1 The relationship between macroeconomic factors and stock market

The relationship between macroeconomic variables and the stock market has been a central focus of economic research. Macroeconomic variables such as interest rates, inflation, exchange rates, and GDP growth are theorized to influence asset prices through their impact on investor expectations, corporate earnings, and market liquidity. According to the Efficient Market Hypothesis (EMH), stock prices reflect all available information, including macroeconomic data, suggesting that these variables should immediately affect market valuations (Frerichs, 2024). However, behavioral finance theories argue that market participants may not always act rationally, leading to delayed or exaggerated responses to macroeconomic shocks (Fama & French, 2023).

This theoretical distinction underscores the complexity of the relationship between macroeconomic indicators and financial markets. As a key macroeconomic variable, interest rates profoundly impact the stock market. Theoretically, higher interest rates increase the cost of borrowing, which can reduce corporate profitability and lead to lower stock prices (Franch Sabaidini, 2024). Conversely, lower interest rates stimulate economic activity and boost equity markets (Houwayji, 2024).

Inflation is another critical macroeconomic variable that theoretically affects financial markets. According to the Fisher Hypothesis, nominal interest rates adjust to reflect expected inflation, influencing stock prices (Hossain, 2024). High inflation can erode actual returns on equities, making stocks less attractive to investors. (Isibor et al. 2024). However, the relationship between inflation and stock markets can be nonlinear, as moderate inflation may signal economic growth, while hyperinflation can lead to market instability.

Exchange rates also play a crucial role in linking macroeconomic conditions to financial markets. Theoretically, a domestic currency depreciation can boost export-oriented industries, leading to higher stock prices for firms in these sectors (Kim & Yoon, 2023). This highlights the interrelation of global financial markets

and the importance of exchange rate policies in shaping market outcomes (Jančovič, 2024).

Finally, GDP growth is a fundamental macroeconomic variable that theoretically drives financial market performance. According to the Gordon Growth Model, stock prices are a function of expected future dividends closely tied to economic growth (Mousa, 2024). Strong GDP growth typically signals higher corporate earnings, leading to bullish stock markets. (He & Gong, 2024).

2.2 The mediating Role of Unsystematic Risk

The preceding section provided a detailed description of risk and its classifications: systematic and unsystematic. As Corvellec, et al. (2021) argued, stock returns are composed of two parts: expected and unexpected or risky returns. Expected returns are the returns an investor anticipates based on all pertinent information that investors have gathered about the company or the known part of the risk taken to receive the desired returns (Aluodi et al., 2017). The second part is composed of unexpected or risky returns based on such information that investors do not know precisely or that surprises the investors shortly about the company. Therefore, some risk (expected part) is already known to the investors, while the unexpected part is the actual risk that the investors are exposed to (Cao et al., 2021).

Based on the above discussion, many sources of risk can be divided into two main categories, i.e., systematic risk and unsystematic risk (Farrar et al., 2019; Hillier et al., 2010). Thus, systematic risk is a risk factor that affects many assets or is not directly under the control of the company's management (Doojav et al., 2023). Examples of systematic risk are macroeconomic variables, i.e., interest rate, exchange rate, inflation rate, money supply, etc.; all these are beyond the direct control of the firm's management and affect the country's overall economy. On the other hand, unsystematic risk is a risk that only affects a specific firm/company, and the firm's management can control it (Larisa et al., 2020). New product development and firm management changes are examples of unsystematic risk. In the case of complete diversification in the portfolio to minimize the risk, the systematic risk still exists. However, unsystematic risk can be minimized through portfolio diversification. Therefore, unsystematic risk is also called diversifiable (Eggertsson et al., 2023).

Sisay et al. (2022) examined the association between financial performance (ROA, EPS, and CR) and macroeconomic variables (inflation, exchange rate, and BI rate) with Islamic stock returns through intervening mechanisms of systematic risk. They chose 51 manufacturing firms listed on the Indonesian Sharia Stock Index for five years, i.e., 2016-2020. The results show that systematic risk and financial performance significantly affect Islamic stock returns, while macroeconomic variables have no effect. The indirect effect of macroeconomic variables and financial performance via

systematic risk revealed that financial performance indicators affect Islamic stock returns, but macroeconomic indicators.

Xia & Zhou, (2023) examined the link between outsourcing and manufacturing firms' profitability through the mediating role of risk management in Uganda. They chose 82 firms where the data from 164 respondents was collected through a self-administered questionnaire. The nature of their study was cross-sectional, as they collected data at one point in time. They followed Baron and Kenny's (1986) approach to mediation analysis. Their findings suggest that risk management is intervening in the relationship between firms' outsourcing strategies and manufacturing firms' performance.

On the other hand, Zhao, (2020) examined the mediating effect of financial performance on the relationship between ESG performance, sustainable development, and the firm market value of the listed firms in the Chinese context. Their main objective was to investigate the mediating role of financial performance on the link between the selected firms' ESG, sustainable development, and market value. Data regarding the study variables were collected for 6 years, i.e., from 2014 to 2019. Their findings show that ESG performance significantly impacts a firm's market value. Similarly, a significant relationship was observed between sustainable development and the firm's market value. In addition, they also found that financial performance mediates the link between ESG, sustainable development, and a firm's market value.

Roman, (2021) examined the impact of financial literacy on retirement planning via the mediating role of risk tolerance and saving behaviors in the Indonesian context. They collected data from 388 respondents working in small and medium enterprises in Bekasi, Indonesia, and employed PLS-SEM for analysis. Their findings show that risk tolerance significantly mediates the relationship between financial literacy and retirement planning while saving behaviors.

Poncet and Portait, (2022) examined the link between corporate governance, firm performance, and earning management via the intervening role of firm risk. They collected data on nonfinancial firms listed on the Thailand stock exchange from 2015 to 2019. Their findings show that firm performance and corporate governance significantly impact earning management. Moreover, firm risks partially mediate the relationship between firm performance, corporate governance, and earning management.

2.3 Conceptual Framework



2.4 Hypotheses

- i. There is a significant statistical relationship between the Macroeconomic factors and the stock market.
- ii. The unsystematic risk has a mediation role in the relationship between Macroeconomic factors and stock markets.

3. RESEARCH METHODOLOGY

This section reports the methodology used in this research, elaborately explaining the research process and analysis procedures followed. The quantitative data for this study were obtained through secondary data collected among the registered companies listed on the Pakistan Stock Exchange (PSX).

3.1 Population of the study

The study's population comprises the registered companies listed on the Pakistan Stock Exchange (PSX). Among the 554 companies, 91 are classified as financial companies, while the remaining 463 are categorized as non-financial companies (PSX, 2022). As per the State Bank of Pakistan (SBP), all companies listed on the Pakistan Stock Exchange are categorized into two sectors. One category comprises financial institutions, while the other category comprises non-financial institutions. Financial companies perform activities related to financial transactions (SBP, 2022).

As per the State Bank of Pakistan (SBP), all companies listed on the Pakistan Stock Exchange are classified into two sectors. One category comprises financial institutions, while the other category comprises non-financial institutions. Financial

companies perform activities related to financial transactions (SBP, 2022). Various categories of futures contracts are traded on the PMEX. As per the official website of PMEX, as of December 2022, 68 different categories of commodities were listed on the exchange. It includes commodities such as Gold, Silver, Crude Oil, Rice, and Palm oil (PMEX, 2022).

3.2 Sampling

This study employs various sampling techniques. The stock market is a well-established market where data may be easily collected. The overall sample size was chosen using the simple random sampling procedure. The sample size includes daily and monthly data on stock prices from financial and non-financial companies. According to the table provided by Krejcie and Morgan (1970), out of the 463 non-financial companies, a total of 210 firms have been chosen. Out of the 91 financial firms, a sample size of 73 was selected based on a similar strategy.

A comprehensive purposive selection strategy was employed in the stock market to select all 42 merchandises listed on PMEX. The sample size includes the daily closing prices of supplies from 2010 to 2022. It only excludes commodities for which future prices are unavailable within the specified period.

3.3 Data Collection Method

This section explains the procedure for collecting data. Ray and Fellow, (2020) in his study defined two forms of data used in research: primary data, which is obtained specifically for the study, and secondary data, which is material that has already been collected. Primary data refers to the data that was first collected by a researcher. Secondary data is any data that has gone through a statistical process.

The researcher used secondary data to examine the proposed hypotheses in this study. The daily closing valuation and balance sheets of the companies from January 1, 2000, to December 31, 2022, were obtained from the online databases of the State Bank of Pakistan, the official website of the Pakistan Stock Exchange, and the online database kept by the Businesses. Data related to the stock market has been gathered from the official website of the Pakistan Mercantile Exchange (PMEX).

4. RESULTS AND ANALYSIS

Descriptive Statistics

Table 4.1

	KSE	IMP	IBIR	GDP	EXP01	EXCHR	CPI	UNSYSR
Mean	9.789879	24.61334	9.045745	26.14956	24.03087	4.473483	77.31055	-0.00078
Median	10.20024	24.57933	8.99	26.14087	24.08547	4.451436	75.69	-0.00303

Maximum	17.3344	25.31377	16.81	26.61049	24.46006	9.779227	196.86	0.147129
Minimum	5.74105	24.12601	1.21	25.66849	23.29393	1.506297	2.52	-0.19001
Std. Dev.	1.322976	0.31438	3.258438	0.268758	0.255821	0.604587	44.17265	0.046697
Skewness	0.210619	0.240212	-0.33326	-0.11285	-1.10634	1.600094	0.392805	-0.12795
Kurtosis	6.451895	2.357331	2.986172	1.907836	3.834313	27.04802	2.564243	4.55397
Jarque-Bera	138.5659	7.377221	5.092423	14.25141	64.07552	6743.783	9.247645	28.42024
Probability	0	0.025007	0.078378	0.000804	0	0	0.009815	0.000001

Observations 275 275 275 275 275 275 275 275

The table 4.1 presents a summary of descriptive statistics for the dataset's central tendency, spread, and distribution. The mean value of the Karachi Stock Exchange (KSE) is 9.79 which suggests very few differences between mean and median at 0.01 for a better perception. UNSYSR shows higher variability from -0.19 to 0.15. Consumer Price Index (CPI) in standard deviation indicates there is a huge volatility of inflation measured at 44.17. Some observations drawn from skewness and kurtosis shape the distribution of data. The Exchange Rate displays positive skewness at 1.60 and kurtosis at 27.05, implying that it has a few extreme points and outliers; hence, skewness and kurtosis inform about general forms of the data distribution.

For a variety of variables, the p-values in Jarque-Bera tests are near zero, which indicates a non-normal distribution that probably requires non-parametric approaches. A robust groundwork for further quantitative financial analysis on the datasets should bring to the knowledge identification of anomalies and trends that require further probe, with 275 observations per variable. The key findings divulge that the Exchange Rate bears strong skewness and kurtosis indications towards outliers and extreme values. A high standard deviation of CPI shows inflation volatility to be highly substantial, leading to economic instability. The possibility of us using non-parametric methods in proceeding with our analysis is suggested by the normal distribution of data set, confirmed by the Jarque-Bera test.

Correlation Matrix

Table 4.2 Correlation analysis

	KSE	IMP	IBIR	GDP	EXP01	EXCHR	CPI	UNSYSR
KSE	1	0.676026	0.362602	0.730604	0.750565	0.424494	0.649677	-0.08096

<i>IMP</i>	0.676026	1	0.429358	0.930859	0.876387	0.614038	0.88795	-0.14473
<i>IBIR</i>	0.362602	0.429358	1	0.360119	0.379303	0.271024	0.346695	-0.13321
<i>GDP</i>	0.730604	0.930859	0.360119	1	0.881002	0.644099	0.954503	-0.09978
<i>EXP01</i>	0.750565	0.876387	0.379303	0.881002	1	0.508812	0.838181	-0.17119
<i>EXCHR</i>	0.424494	0.614038	0.271024	0.644099	0.508812	1	0.67009	-0.10893
<i>CPI</i>	0.649677	0.88795	0.346695	0.954503	0.838181	0.67009	1	-0.09172
UNSYSR	-0.08096	-0.14473	-0.13321	-0.09978	-0.17119	-0.10893	-0.09172	1

Table 4.2 reflects the correlation between key variables from the dataset, in which a value of -1 expresses a perfect negative correlation, 0 shows no correlation, and +1 states a perfect positive correlation. The higher the absolute value, the higher the strength of the relationship between the two variables. KSE shows a strong positive correlation with Export Volume (EXP01) at 0.75, while slightly lower with GDP at 0.73. Low but very strong correlation of 0.93 between IMPS and GDP; again, a very strong correlation between IMP and EXP01 at 0.88 is sufficient to establish a clear link with indications of closeness between these two import volumes and economic performance.

That is, as UNSYSR weighs relatively negatively, its correlation coefficient is -0.17 concerning EXP01, which suggests that as UNSYSR drops, the export volume significantly increases. The CPI is quite heavily correlated with KSE (0.65) and IMP (0.89), providing much evidence that the rise in consumer prices is correlated with trends in the performance of financial markets and imports. The strong ties between GDP, EXP01, and IMP are well captured in correlation within this matrix, yet it should be pointed out that the correlation coefficients measure the linear association between them and not a causal link. A significant correlation does not imply that imports necessarily cause GDP growth.

Although the interrelationships between variables suggested by the matrix reflect the relationship among them, the idea of causation is not thus established. Such a matrix provides useful indications to policymakers and researchers as to how changes in one economic factor would affect the others. Care needs to be taken to infer evidence in favor of causality through examining the level of correlation, though. The main conclusions flowing from Table 4.2 are significant, showing the positive correlations between KSE and Export Volume at 0.75 along with IMP and GDP at 0.93, on the nice connections that are to be instituted among different economic variables. Again, CPI gives significant positive correlations with both KSE and IMP, which in turn

emphasizes the intertwining between consumer prices and financial markets and that of imports.

4.3 Unit root test

Table 4.3

Unit root test results

<i>Variables</i>	<u>At Level</u>		<u>1st Difference</u>	
	ADF	PP	ADF	PP
<i>CPI</i>	1.173301	0.457169	-14.72533	-39.3819
<i>EXCHR</i>	-2.34738	-12.6423	-14.58742	-68.4562
<i>EXP01</i>	-1.92475	-2.85114	-3.487232	-3.71472
<i>GDP</i>	-0.22281	-0.57107	-2.822525	-2.95968
<i>IBIR</i>	-1.59174	-1.82635	-9.209959	-14.3479
<i>IMP</i>	-0.40412	0.356151	-3.469301	-3.69167
<i>KSE</i>	-3.17517	-7.16431	-19.66702	-79.0526
UNSYSR	-11.0666	-11.1118	-11.69518	-73.3614

Table 4.3 provides the results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, which assess the stationarity of economic time series data at both levels and the first difference. Stationarity is very important for credible time-series analysis. The CPI is non-stationary at the level, as ADF (1.173) and PP (0.457) statistics are above the critical values. However, these tests at the first difference show that ADF (-14.725) and PP (-39.3819) statistics are highly damaging, confirming stationarity. The exchange rate is stationary at this level, with ADF (-2.347) and PP (-12.6423) statistics falling below critical values. However, the first differencing gives confirmations of stationarity, with ADF (-14.587) and PP (-68.4562) statistics showing highly negative values. Exports at the level are non-stationary, as ADF (-1.92475) and PP (-2.85114) statistics are above the critical value.

Furthermore, these tests show that ADF (-3.48723) and PP (-3.71472) fall below the critical values, confirming stationarity at the first difference. The GDP is also a non-stationary time series at the level, with ADF (-0.22281) and PP (-0.57107) statistics above the critical values. ADF (-2.82253) and PP (-2.95968) show that first differencing brings it to stationarity. For IBIR, at the level ADF (-1.59174) and PP (-1.82635), statistics are above the critical values, and the series is non-stationary. However, ADF (-9.20996) and PP (-14.3479) statistics confirm stationarity at the first difference since it is less than the critical value.

Conversely, imports are non-stationary at the level, as ADF (-0.40412) and PP (0.356151) statistics are above significant and corresponding values. The tests confirm stationarity at the first difference since the ADF (-3.4693) and PP (-3.69167) statistics fall below critical values. It is a KSE at the level wherein ADF (-3.17517) and PP (-7.16431) statistics fall below critical values, indicating stationarity, and at the first difference level wherein ADF (-19.66702) and PP (-79.0526) have high negative values confirming stationarity. Finally, unsystematic risk is stationary at the level since ADF and PP (11.0666) have both negative and PP (11.1118) statistics, indicating stationarity.

4.4 Two-Stage Least Squares

Dependent Variable: SE

Table 4.4 Method: Two-Stage Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMP	-1.40362	0.47174	-2.9754	0.0032
IBIR	0.047113	0.016955	2.778623	0.0058
GDP	5.046747	0.810455	6.227057	0
EXP01	2.811105	0.444918	6.318256	0
EXCHR	0.066632	0.112647	0.591507	0.5547
CPI	-0.01635	0.003862	-4.2325	0
UNSYSR	0.986849	1.088528	0.90659	0.3654
C	-154.646	16.01194	-9.65815	0

Table 4.4 presents the results of a two-stage least squares analysis with the KSE as a dependent variable. The coefficient of -1.40362 for imports explains that a unit elevation of imports distresses a 1.40 decline of the KSE index, hence the negative correlation. Meanwhile, interest rates get a coefficient of 0.0471, meaning that a unit increase will knock up the KSE index by 0.0471, thus creating a positive relation. A coefficient of 5.05 for GDP means one unit increase of GDP ticks an increase of 5.05-point rise in the KSE index that makes for a robust positive correlation. A coefficient of 2.81 for exports means a unit increase shall deliver a 2.81-point rise in the KSE index, which is quite a clear positive correlation. The exchange rate coefficient is statistically insignificant ($p > 0.05$), which denotes no great importance to the KSE index. The coefficient of -0.0164 for inflation proposes an elevation to one taken unit that would cause a 0.0164 lift-off, hence an inverse relation. Lastly, the coefficient for unsystematic risk does not provide a significance level ($p > 0.05$); thus, it does not predictively relate

power to performance upon the KSE index. In summary, from this 2SLS estimation, GDP, exports, and interest rates propel the KSE index; meanwhile, imports and inflation do a lot of damage, while the influence of exchange rate and unsystematic risk seems not essential.

In the end, this 2SLS statistical tool gives us an understanding of how different economic factors (macroeconomic) are connected with the index of KSE. The findings show that GDP, bringing in goods from other countries (IMP), sending out goods to different places (EXP01), interest rate (IBIR) and how much things cost for final users every year (consumer price index) are significant clues of how well the stock market does. At the same time, exchange rates (EXCHR) when buying currencies like dollars or yen don't matter too much, and factors such as unsystematic risk (UNSYSR) figures aren't key factors that are not statistically significant while predicting the performance of KSE by using this model.

Table 4.5

R-squared	0.629136	Mean dependent var	9.789879
<i>Adjusted R-squared</i>	0.619413	S.D. dependent var	1.322976
<i>S.E. of regression</i>	0.816167	Sum squared resid	177.8564
<i>F-statistic</i>	64.70566	Durbin-Watson stat	1.488091
<i>Prob (F-statistic)</i>	0	Second-Stage SSR	177.8564
J-statistic	2.57E-29	Instrument rank	8

The table comprises statistical metrics used to evaluate the Two-Stage Least Squares (2SLS) regression performance applied to the Karachi Stock Exchange data. The R-squared value of 0.629136 indicates how this model explains almost 62.9% of the variances for KSE movement, primarily owing to those independent variables adjoined with the model. While considering the number of predictors, the adjusted R-squared calculated to be 0.619413 suggests the model fits reasonably well with the factual data. The standard error of regression was 0.816, which is seen as relatively lower; this indicated the closeness of actual values with the predicted ones and, therefore, guarantees the model's reasonably high accuracy. The tests show an F-statistic of 64.70566, with a zero p-value, also affirming the model's overall significance, therefore concluding at least one transitional variable does have a significant effect on the dependent variable. The value of 1.488091, less than 2, indicates the possibilities of autocorrelation for the Durbin-Watson statistic, which signals further investigation is required. The J-statistic provides further confirmation, having a reasonably small p-value (2.57E-29), of the validity and quality of the

instruments applied in the 2SLS model. The Second-Stage SSR is the measure of the sum of squared residuals from the second-stage SSR that describes the model's overall fit. The Instrument Rank of 8 is the number of instruments applied in 2SLS estimation. Therefore, the 2SLS regression model works well, explaining much of the KSE variability with proper instruments. However, the auto-correlation in the residuals, as suggested by the Durbin-Watson statistic, might need other refinements or diagnosis checks to be done.

Stepwise Regression

Dependent Variable: SE

Table 4.6 Method: Stepwise Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
IMP	-1.40362	0.47174	-2.9754	0.0032
IBIR	0.047113	0.016955	2.778623	0.0058
GDP	5.046747	0.810455	6.227057	0
EXP01	2.811105	0.444918	6.318256	0
EXCHR	0.066632	0.112647	0.591507	0.5547
CPI	-0.01635	0.003862	-4.2325	0
UNSYSR	0.986849	1.088528	0.90659	0.3654
C	-154.646	16.01194	-9.65815	0

The table shows the findings from a stepwise regression model used with data from Karachi Stock Exchange (KSE). It tells us about variables were chosen and their corresponding values. Here's an interpretation of the coefficients and associated statistics:

Interpretation: A one-unit rise in imports is linked to a fall of about 1.40 units in the KSE index value. More imports are linked to a drop in the stock market index, shown by a negative number. When interest rates go up by one unit, the KSE index also gets a rise of 0.0471 units. The good number shows that higher interest rates are connected to an increase in the stock market index. When the GDP grows by one unit, there is a big rise of about 5.05 units in the KSE index too. This positive number means that the stock market and economic growth, measured by GDP, are very much linked in a good way.

An extra unit of items exported leads to a rise in the KSE index by about 2.81 units. This positive number shows that more exports are linked to an increase in the stock

market index. The number (p-value) is more than 0.05, which means the exchange rate does not play a big role in predicting KSE index according to this stepwise regression model. Raising the Consumer Price Index by one point causes the KSE index to go down about 0.0164 points. The negative number shows that higher prices measured by CPI are linked to the stock market falling. The p-value is not important in stats (more than 0.05), meaning the unemployment rate doesn't have a major effect on KSE index when checking it with stepwise Regression model now. The intercept is the guessed value of the KSE index when all other independent factors are nothing. The model is expected to expect the negative intercept.

In the end, a way called stepwise regression found certain factors (Importers and Exporters Balance, GDP growth rate and more) to be important in guessing how much the Karachi Stock Exchange goes up or down. The chosen factors together help to explain the changes in stock market movements. The way we do it step by step looks at things that help guess best and makes the model simple. It's worth pointing out that unimportant factors (EXCHR, UNSYSR) were left out from the final version. Stepwise way shows they do not help much in guessing KSE score this time around in English language with 2000 most used words. The amount of importance a model has is shown by the small p-value connected to the F statistic. But we should think about what the stepwise regression method means based on its assumptions and limits.

Robust Least Squares

Dependent Variable: KSE

Table 4.8 Method: Robust Least Squares

Variable	Coefficient	Std. Error	z-Statistic	Prob.
IMP	-1.2753	0.140989	-9.04539	0
IBIR	-0.02135	0.005067	-4.21283	0
GDP	6.164216	0.24222	25.44883	0
EXP01	1.627157	0.132972	12.23681	0
EXCHR	-0.00771	0.033667	-0.229	0.8189
CPI	-0.014	0.001154	-12.1302	0
UNSYSR	-0.07969	0.325328	-0.24495	0.8065
C	-158.042	4.785477	-33.0253	0

The table shows the findings of a Robust Least Squares model for Karachi Stock Exchange (KSE) using different variables. This regression model is used to reduce the effect of extreme points and unequal spread, giving more trustworthy estimates for

your results.

The values show how much the KSE index is expected to change for every increase of one unit in imports. In this situation, if imports go up by one unit there will be a drop of around 1.28 units in the KSE index. The -9.04539 z-score is very important ($p=0$) showing a strong negative link between imports and variation in KSE index.

A one-point increase in interest rates causes the KSE index to drop by about 0.0214 points. The low statistical value shows a significant but inverse connection between interest rates and stock market returns. When GDP goes up by one unit, the KSE index typically rises about 6.16 units. The important z-Statistic shows a significant connection between economic growth (GDP) and stock market. They both go up together. An increase of one unit in exports leads to a strong rise, around 1.63 units, in the KSE index. The strong z-Statistic shows a significant connection between how much we export and the stock market's value. The value concerning exchange rate have insignificant value ($p\text{-value} > 0.05$) and means that our model can't use the exchange rate to predict about performance of KSE. When the Consumer Price Index goes up by one point, the KSE index drops about 0.014 points. The important z-Statistic shows a significant negative connection between inflation (CPI) and the stock market. While measuring the effect of unsystematic risk on KSE, p-value is greater than the required threshold. It means that UNSYSR does not really help to forecast the returns of KSE index.

In a nutshell, the Robust Least Squares regression model gives strong estimates of these important factors. Most of the factors are statistically significant, however a few factors were found to be insignificant. The significant values for imports, interest rates, GDP (gross domestic product), export volume and CPI show a good connection with the KSE index. Nevertheless, exchange rate and unsystematic risk doesn't come up as significant variables to predict stock market variations. The overall model shows strong numbers support, as shown by a very important F-statistic and p-values.

Generalized Method of Moments (GMM)

Method: Generalized Method of Moments
Table 4.16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMP	-1.40362	0.547617	-2.56313	0.0109
IBIR	0.047113	0.030001	1.570366	0.1175
GDP	5.046747	0.712162	7.08652	0

<i>EXP01</i>	2.811105	0.709435	3.962458	0.0001
<i>EXCHR</i>	0.066632	0.069789	0.954764	0.3406
<i>CPI</i>	-0.01635	0.00428	-3.81888	0.0002
<i>UNSYSR</i>	0.986849	1.266617	0.779122	0.4366
C	-154.646	17.15391	-9.01518	0

The GMM regression gives us information about the connection between different macroeconomic variables and the KSE index.

The GMM analysis evidences significant relationships between macroeconomic factors and the KSE index. The negative coefficient for imports indicates that with the increase in imports, there is a fall in the KSE index. In contrast, GDP shows a strong positive correlation, which means a high stock market sensitivity toward economic growth. Exports provide another positive and significant contribution to the KSE index. Interest rates are positively related to the KSE index but are not substantial, raising doubts about their impact. Exchange rates and unsystematic risk also have negligible effects. There is a significant opposite relationship between the CPI and the KSE index, which implies that the high level of CPI may reduce the KSE index. The constant term of -154.646 indicates the KSE score one would have estimated when all other factors would remain at zero. GDP, exports, imports, and CPI are important to KSE, while the impact of interest rates, exchange rates, and unsystematic risk is weaker or statistically insignificant.

Table 4.21 Model Summary

<i>R</i>	<i>R-sq</i>	<i>MSE</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
.6052	.672	.176	354.615	1.0000	515.0000	.0000

Table 4.22 Model

	<i>coeff</i>	<i>se</i>	<i>t</i>	<i>P</i>	<i>LLCI</i>	<i>ULCI</i>
<i>constant</i>	.823	.178	4.476	.0000	.452	.225
<i>MEF</i>	.764	.039	19.678	.0000	.834	.994

The test of the stock market as predicted by macroeconomic factors is vast and significant, as indicated by the above statistical results. The model summary table reveals an R-sq of 0.672, indicating that macroeconomic factors account for approximately 67% of the stock market's variation, backed by substantial statistical evidence. The model demonstrates the significant impact of the macroeconomic factor, with a coefficient of 0.764. The statistics provide additional support, such as the computed t-score of 19.678, which exceeds the required 1.96; the p-value of 0.000 is

less than 0.05; and both the lower and upper limits of the confidence interval are positive, indicating that there is no possibility of a zero between the two limits. All these statistics confirm that the impact of macroeconomic factors on the stock market is phenomenal and statistically significant, as upheld by statistical results.

Table 4.23 Model

	coeff	Se	t	P	LLCI	ULCI
<i>Constant</i>	1.203	.214	5.542	.000	.556	1.457
<i>IR</i>	.524	.234	5.145	.000	.582	.812
<i>IRA</i>	.164	.456	2.254	.045	.257	.148
<i>ER</i>	.254	.521	1.851	.005	.127	.532
<i>GDP</i>	.424	.324	5.145	.000	.562	.812
<i>IMP</i>	.154	.546	2.254	.005	.547	.148
<i>EXP</i>	.354	.651	1.851	.005	.127	.532

According to Table 4.23, the regression coefficients and other statistics of the model estimate that conclusion variable. The constant, 1.203, is the fixed intercept in the model that shows the expected prediction to happen if all other predictors are carried out on their zeros. IR, GDP, and EXP each revealed a significant positive influence on the outcome variable, respectively, with coefficients of 0.524, 0.424, and 0.354 ($p < 0.05$). The IRA and IMP were also significant but had a minor influence since 0.164 and 0.154, respectively. The LLCI and ULCI values denote the range of confidence intervals for each parameter estimate, showing the acceptable range on either side within which the actual coefficient is believed to fall. As the results appear, the IR, GDP, and EXP are rated as the three most influential predictors.

Total, Direct & Indirect Effects

Table 4.24 Total effect of X on Y

Effect	SE	T	P	LLCI	ULCI
.423	.524	14.124	.000	.453	.615

Table 4.25 Direct effect of X on Y

Effect	SE	T	P	LLCI	ULCI
.132	.162	1.250	.050	.007	.231

Table 4.26 Indirect effect(s) of X on Y

	Effect	BootSE	BootLLCI	BootULCI
<i>TOTAL</i>	.422	.053	.321	.352
<i>Ind1</i>	.542	.152	.354	.425

The Tables 4.24, 4.25, and 4.26 present the total, direct, and indirect effects of variable X on variable Y. According to Table 4.24, the total effect of X on Y was 0.423 and significant ($p = 0.000$), showing a strong overall effect. In comparison, direct effect was reported at 0.132, meaning that this was only marginally significant ($p = 0.050$), thus suggesting a weaker contribution. Table 4.26 highlights the indirect effects whereby the total indirect effect was 0.422, which is substantial; it is noted because the bootstrapped confidence intervals (BootLLCI = 0.321, BootULCI = 0.352) do not include zero. Other findings, including the specific indirect effect (Ind1 = 0.542), bolster the notion that mediation pathways contribute significantly to the linkage between X and Y. The general conclusion thus supported would be that X influences Y more indirectly than directly.

Table 4.27 Model Summary

R	R-sq	MSE	F	df1	df2	p
.7125	.752	.152	358.512	1.0200	425.0000	.0000

Table 4.29 Model

	coeff	se	T	p	LLCI	ULCI
<i>Constant</i>	1.203	.315	5.536	.000	.562	1.265
<i>IR</i>	.452	.257	5.785	.000	.852	.758
<i>IRA</i>	.272	.856	2.358	.005	.625	.245
<i>ER</i>	.523	.324	1.485	.000	.254	.632
<i>GDP</i>	.125	.658	5.698	.050	.851	.752
<i>IMP</i>	.254	.456	2.352	.005	.632	.568
<i>EXP</i>	.256	.752	1.752	.045	.526	.722

The R-squared value in the model summary is 0.752. The dependent variable is the stock market, which exhibits a 75% variation that can be attributed to the combined influence of various predictors, namely interest rate (IR), inflation rate (IRA), exchange rate (ER), gross domestic product (GDP), imports (IMP), and exports (EXP). The P-value is less than 0.05, indicating statistical significance. Additionally, the F statistic value is 358.512, further confirming its relevance. Macroeconomic factors, such as interest rates (IR), inflation rate (IRA), exchange rate (ER), gross domestic product (GDP), imports (IMP), and exports (EXP), have a strong positive correlation with the stock market. The respective correlation coefficients are 0.452, 0.272, 0.523, 0.125, 0.254, and 0.256. These findings indicate that macroeconomic factors and other predictors have a statistically significant positive impact on the stock

Total, Direct & Indirect Effects

Table 4.30 Total effect of X on Y

<i>Effect</i>	SE	T	P	LLCI	ULCI
.523	.524	14.124	.000	.523	.742

Based on the table, X has a total effect on Y value of 0.523, which is significant at a level of 0.000, thus a strong general effect of X on Y. The confidence interval (LLCI = 0.523, ULCI = 0.742), not including zero, further attests to the trustworthiness of this effect. It can be conjectured that X has a strong and pronounced positive effect on Y in the model.

Table 4.31 Direct effect of X on Y

<i>Effect</i>	SE	T	P	LLCI	ULCI
.152	.174	1.250	.000	.005	.031

The direct effect of X on Y is .152, with a standard error (SE) of .174, indicating a small but statistically significant effect (p = .000). The 95% confidence interval for this effect ranges from .005 to .031, suggesting that the true effect lies within this range with 95% confidence. The t-value of 1.250 further supports the significance of this relationship.

Table 4.32 Indirect effect(s) of X on Y

	Effect	BootSE	BootLLCI	BootULCI
<i>TOTAL</i>	.422	.053	.321	.352
<i>Ind1</i>	.445	.172	.256	.524

The total indirect effect of X on Y is .422, with a bootstrapped standard error (BootSE) of .053, indicating a significant mediation effect. The 95% bootstrapped confidence interval (BootLLCI to BootULCI) for the total impact ranges from .321 to .352, confirming that the indirect effect is statistically significant. Additionally, the specific indirect effect (Ind1) is .445, with a confidence interval of .256 to .524, suggesting a substantial contribution of this pathway to the overall mediation.

Discussion Conclusion and Recommendations

5.1 Discussion

1. To examine the impact of macroeconomic factors on the stock market.

Macroeconomic features such as GDP growth, unemployment rates, inflation, and monetary policy influence stock market performance. For instance, higher GDP growth translates into boosted corporate earnings, hence stock market rallies, while rising inflation usually discourages investor sentiment and limits equity valuations. Interest rate actions by central banks are among the macroeconomic policies which shape stock market trends. Recent studies by Yang and Lu, (2024) and Youssef, et al. (2024)

emphasize the importance of macroeconomic stability for sustaining stock market growth. Through econometric modelling, this objective investigates whether there is any connection between macroeconomic variables and stock market indices. Its importance lies in the insight it provides to investors, who may anticipate movements in the stock market, and policymakers organizing measures required for stabilizing financial markets during economic turbulence.

2. To investigate the act of unsystematic risk as a mediator in the relationship between macroeconomic factors and the stock market.

Unsystematic risk, which includes subsidiary managerial decisions, regulatory changes, or competitive pressures, may curtail the macroeconomic effects on stock market performance. For example, low interest rates tend to raise stock prices; however, unsystematic risks such as bad corporate governance or product failures could offset these gains. Recent studies by Campbell et al. (2020) and Liu, (2024). capture an understanding of how macroeconomic conditions relate to the firm-specific risk guiding stock returns. Through the panel data analysis, this research examines how unsystematic risk modulates the relationship between macroeconomic variables and stock performance outcomes. The main contribution is that this provides a more nuanced understanding of how company-level risks interface with economic conditions, allowing investors to optimize portfolio diversification and better manage exposure to systematic and unsystematic risks.

5.2 Conclusion of the Findings

The review underlines macroeconomic factors, unsystematic risk, and the influence of these two on stock and stock markets. According to the findings, macroeconomic factors like consumer preferences, production costs, competition, and regulatory changes all significantly influence stock markets. These include traditional economic theories from the concepts of supply and demand that form the basis of market behavior. The fluctuation of consumer preferences propelling the demand for a specific type of good, as when electronics increased demand for copper, is a well-documented component of the stock market literature. Likewise, the effect of production costs on the profitability of companies and stock prices is a time-honored principle in financial economics (Martínez & Torró,2023).

The research points to unsystematic risk as a mediating factor in the flux of macroeconomic conditions and market dynamics, intriguing it with Porter Penrose's theory of diversification. Adding how unsystematic risk informs interaction with systematic risk would promote a deeper understanding of risk management (Tariq et al. 2023). Besides, the study explores the sectoral impact of policy changes--like in pharmaceuticals or technology--even as other literature notes that such changes invariably produce both opportunities and risks; unfortunately, none of these bring

forth case studies to illustrate this point (Selimefendigil, 2024).

There may be a more in-depth analysis of the influence of monopolistic and oligopolistic structures in the contribution of literature highlighting competition-induced regard for performance viewed within a market that exists inextricably with both stock market as subjects historically interlinked. The look at unsystematic risk provides a deeper understanding of how industry- and firm-specific risks interact with broader economic conditions for market outcomes (Salah, 2023).

The study accords with other research, which indicates that consumer preferences and production costs propel the market. The study finds merit in capitalization on the benefits of diversification to alleviate the challenges of unsystematic risk. However, while taking a different slant from the bulk of literature that views systematic risk, such as economic shocks affecting the entire market, as the primary driver of a market's movements, it gives unsystematic risk the predominant position (Yalamaty, 2023).

For example, some believe it is economic shocks with a broader scope, such as recessions or changes in interest rates, more greatly influencing market results and not firm-oriented risks. Things such as international trade or currency fluctuations affecting the stock markets could have further brought more insight into this study, as one of the principles underlying the analysis had been to do with global economic features (Wang, 2023).

While the focus of the study on unsystematic risk is justified in terms of portfolio management and investment decision-making, it would be nice to have future research that links unsystematic risk with systematic risk, allowing for an even more wholesome discussion of the market dynamics (Youssef, 2022) While empirical data or case studies could enhance the theoretical assertions in the paper, they strengthen its claims. For example, examining historical data on regulatory changes or consumer preference shifts could strengthen the findings (Zhang & Broadstock, 2020). The discussion of competition can hardly be complete without considering the setting up of innovation and technological advancement processes through which competition grows in stock markets (Roman, 2021).

Overall, the study is a sound synthesis of how macroeconomic factors relate to unsystematic risk and market outcomes. Some perspectives align with much of the existing literature, yet others go beyond it, including something novel about unsystematic risk's mediating role. However, the study would be strengthened to cover a few lamentable limitations, such as international economic factors and empirical support. It offers another evolution in market dynamic discourse while providing investors with prudent guidance in challenging market situations.

5.3 Recommendations

- (1) Portfolio diversification is at the heart of investors' strategies to mitigate unsystematic risk while controlling their exposure to systematic risk.
- (2) It is also paramount to monitor macroeconomic factors like inflation, interest rates, and GDP growth to make rational investment decisions.
- (3) Technological developments and innovation-driven sectors may increase stock market growth opportunities.
- (4) Policymakers should continue with fiscal and monetary policies that promote macroeconomic stabilization.
- (5) Transparent and predictable regulatory frameworks are prime factors in stimulating innovation and growth in key sectors, such as pharmaceuticals and technology.
- (6) To impact market outcomes, specific risks concerning the firm, such as management quality and regulatory compliance, must be better understood.
- (7) Financial literacy programs, meanwhile, can provide investors with the knowledge and insight necessary to better understand and manage the risks of market volatility.
- (8) Future research should investigate the interplay between systematic and unsystematic risks to build a complete picture of risk management.
- (9) The inclusion of global economic variables, such as trade policy and currency fluctuation, may enrich the understanding of market behavior.
- (10) Theoretical claims in finance can be validated through empirical checking using case studies and historical data analysis.
- (11) The use of advanced analytical methods, like ML applications, may illuminate some of the complex relations in the market and bring about greater accuracy in forecasting.

5.4 Contributions of the study

(a) Practical Contributions

(1) Investor Decision-Making Support

The study gives the investors critical insights so that they will be able to appreciate the interfacing in stock markets. With the interaction between demand, pricing plans, and regulations on macroeconomic factors, investors can make more informed decisions. This research enables investors to form diversified portfolios that can withstand unsystematic risks unique to specific industries or companies. This is of utmost importance since it insulates and improves the risk management strategies, they employ to ensure investments attain desired returns regardless of market swings.

(2) Improved Risk Management and Strategy Development

Investors may apply this study's findings to enhance risk management practices

by emphasizing the need for diversification to control general or unsystematic risk. Therefore, strategies may be developed for each risk, taking into consideration the specific challenges different companies or certain market sectors present. This will enable them to adapt better to macroeconomic changes and reduce losses during bouts of weak or volatile markets.

(3) Enhanced Market Adaptability

This study enables investors to quickly adjust to changing economic conditions by analyzing how the macroeconomic changes in competition or production cost influence the behavior of stock markets. Investors may manage the structures of their portfolios with national trends so that their investments don't go stale due to stagnation. This adaptive characteristic is conducive to retaining financial viability amid uncertainties while pulling the cord to give optimal performance.

(b) academic Contributions

(1) Connecting Macroeconomic Theory with Financial Market Behavior

This study makes a significant contribution to bridging the practical results observed in stock markets with macroeconomic principles. It undertakes a broad investigation into the impact of changing consumer preferences, production costs, or other regulatory changes on market behavior, allowing for a clear picture of the effects of opposite forces on the dynamics of financial markets. The added connection between macroeconomics and market performance will add to valuable lessons on advanced economic theories and provide greater analytical clarity.

(2) Exploring the Role of Unsystematic Risk

On a fundamental theoretical level, one of this study's most important contributions was identifying unsystematic risk as a mediator between macroeconomic factors and market outcomes. This study significantly affects our understanding of how unsystematic risk shapes the relationship between independent and dependent variables—the relationship between macroeconomic and stock price factors—thereby enriching our understanding of market complexities and providing important clues for future scholarly work on risk management and market analysis.

(3) Foundation for Future Research in Risk Management and Market Dynamics

This study represents a critical step in developing future academic research on macroeconomics, unsystematic risk, and financial market behavior. In general terms, it facilitates the exploration of how regulatory changes, competition, and economic shifts shape both systematic and unsystematic risks. Besides contributing to the ongoing academic debate about risk management and formulating investment strategies, this study further enjoins research somewhere along the line relative to streamlined ways of accommodating macroeconomic factors into financial decision-making models.

5.6 Directions for Future Research

- (1) Future researchers should examine how sudden macroeconomic shocks, such as geopolitical events, pandemics, and financial crises, affect stock and commodity markets.
- (2) Future studies should evaluate how ESG factors contribute to unsystematic risk and mediate the effects of macroeconomic variables in stock markets.
- (3) Future research may investigate how unsystematic risk in stock markets such as oil, gold, and agricultural products mediates the impact of macroeconomic variables like exchange rates, inflation, and global demand shocks.
- (4) The original research was conducted using quantitative means. However, future researchers could apply qualitative or mixed methods to gather evidence and test their propositions.
- (5) This study involved secondary data; future researchers could work with primary data.
- (6) New researchers need to identify the role of investor sentiment and behavioral biases in amplifying or reducing the effect of unsystematic risk. This would mediate the effects of macroeconomic conditions on market behavior.
- (7) In future studies, a cross-country comparative analysis should examine how macroeconomic factors and unsystematic risk interact differently in developed versus emerging markets.

References:

- Ali, B., Hasan, H., & Oudat, M. S. (2021). Relationship among export, import and economic growth: Using co-integration analysis. *Psychology and Education Journal*, 58(1), 5126-5134.
- Baffes, J., & Kabundi, A. (2023). Commodity price shocks: Order within chaos? *Resources Policy*, 83, 103640.
- Beckmann, J., Czudaj, R. L., & Arora, V. (2020). The relationship between oil prices and exchange rates: Revisiting theory and evidence. *Energy Economics*, 88, 104772.
- Ben Ameer, H., Boubaker, S., Ftiti, Z., Louhichi, W., & Tissaoui, K. (2023). Forecasting commodity prices: empirical evidence using deep learning tools. *Annals of Operations Research*, 1-19.
- Boungou, W., & Yatié, A. J. E. L. (2022). The impact of the Ukraine–Russia war on world stock market returns. 215, 110516.
- Bogush, L. (2024). ORGANIZING LABOUR AND EMPLOYMENT IN MODERN TECHNOLOGICAL CONDITIONS: CURRENT ISSUES, MECHANISMS. Publishing House "Baltija Publishing".
- Bossi, E. (2024). Commodity market risk: derivatives hedging for the aluminium

market.

- Chen, L., & Zhang, Y. (2023). Algorithmic Herding and Market Volatility. *Review of Financial Studies*, 36(4), 1450-1480.
- Cao, J., Law, S. H., Samad, A. R. B. A., Mohamad, W. N. B. W., Wang, J., & Yang, X. (2021). Impact of financial development and technological innovation on the volatility of green growth—evidence from China. *Environmental Science and Pollution Research*, 28, 48053-48069.
- Cerutti, E., Claessens, S., & Puy, D. (2019). Push factors and capital flows to emerging markets: why knowing your lender matters more than fundamentals. *Journal of international economics*, 119, 133-149.
- Chaves, L. S. M., Fry, J., Malik, A., Geschke, A., Sallum, M. A. M., & Lenzen, M. (2020). Global consumption and international trade in deforestation-associated commodities could influence malaria risk. *Nature communications*, 11(1), 1258.
- Chiappini, R., & Lahet, D. (2020). Exchange rate movements in emerging economies- Global vs regional factors in Asia. *China Economic Review*, 60, 101386.
- Chichaybelu, M., Girma, N., Fikre, A., Gemechu, B., Mekuriaw, T., Geleta, T., . . . Ojiewo, Corbet, S., Lucey, B., Urquhart, A., & Yarovaya, L. (2019). Cryptocurrencies as a financial asset: A systematic analysis. *International Review of Financial Analysis*, 62, 182- 199.
- Corvellec, H., Stowell, A. F., & Johansson, N. (2022). Critiques of the circular economy. *Journal of industrial ecology*, 26(2), 421-432.
- Dery, C., & Serletis, A. (2021). Interest rates, money, and economic activity. *Macroeconomic Dynamics*, 25(7), 1842-1891.
- Doojav, G. O., Luvsannyam, D., & Enkh-Amgalan, E. (2023). Effects of global liquidity and commodity market shocks in a commodity-exporting developing economy. *Journal of Commodity Markets*, 30, 100332.
- Eggertsson, G. B., Juelsrud, R. E., Summers, L. H., & Getz Wold, E. (2023). Negative nominal interest rates and the bank lending channel. *Review of Economic Studies*, rdad085.
- Elshqirat, D. M. (2019). An empirical examination of the arbitrage pricing theory: Evidence from Jordan.
- Fan, J. H., & Qiao, X. (2023). *Journal of Commodity Markets*. *Journal of Commodity Markets*, 29, 100315.
- Frerichs, S. (2024). The Place of Law in Political Economy. *JR Commons' Legal Foundations of Capitalism at 100: A Retrospective Article*.
- Fama, E. F., & French, K. R. (2023). Institutional Investors and Market Efficiency. *Journal of Portfolio Management*, 49(3), 45-60.

- Franch Sabaidini, B. (2024). The macroeconomic determinants of small-cap stock performance in the USA (Master's thesis, University of Twente).
- Ghanizadeh, B., Dastgir, M., & Soroushyar, A. (2022). The Effect of CEOs' Financial Knowledge on Unsystematic Risk, Considering the Moderating Effect of Managerial Ability. *Iranian Journal of Accounting, Auditing and Finance*, 6(3), 55-71.
- Gormsen, N. J., & Koijen, R. S. (2023). COVID-19 and Global Stock Markets: A Tale of Interconnectedness. *Journal of Financial Economics*, 147(1), 1-20.
- Gupta, S., & Aggarwal, D. (2024). Shrinking the capital costs and beta risk impediments through ESG: study of an emerging market. *Asian Review of Accounting*, 32(2), 249-277.
- Houwayji, S. (2024). The influence of risk management practices on financial market stability: Insights from Lebanon. *Dutch Journal of Finance and Management*, 7(1), 25671.
- Hossain, S. (2024). *Econometric Analysis: An Applied Approach to Business and Economics*. Cambridge Scholars Publishing.
- He, L., & Gong, J. (2024). Micro-class+ MOOC: reality review and innovation direction of online physical education curriculum in China during the " COVID-19" epidemic. *Cogent Education*, 11(1), 2167306.
- Isibor, O. N., Ofor, T. N., & Sunday, D. (2024). Market Risk and Firm Financial Performance of Agricultural and Oil and Gas Firms in Nigeria. *Journal of Accounting and Financial Management*, 10, 189-218.
- Jančovič, P. (2024). External Economic Relations of the Slovak Republic: Trade, Investment, and Related Policies. In *Modeling Economic Growth in Contemporary Slovakia* (pp. 121-143). Emerald Publishing Limited
- Javeria, A., Siddiqui, S. H., & Rasheed, R. (2019). Towards green banking in Pakistan: Problems, players and prospects. *Pakistan Journal of Social Sciences*, 39(2), 365- 376.
- Kamber, G., & Mohanty, M. S. (2018). Do interest rates play a major role in monetary policy transmission in China?
- Liu, H. H. (2024). Interactions of Spot Foreign Exchange Markets among Taiwan, Hong Kong and Japan: Japanese Forward Premium/Discount as an Information Variable. *Management and Economics Review*, 9(2), 308-330.
- Lu, Y., Yang, L., & Liu, L. (2019). Volatility spillovers between crude oil and agricultural commodity markets since the financial crisis. *Sustainability*, 11(2), 396.
- Mousa, I. F. M. (2024). Factors affecting commercial banking growth in Iraq= Irak'ta ticari bankacılığın büyümesini etkileyen faktörler.
- Martínez, B., & Torró, H. (2023). Theory of storage implications in the European

- natural gas market. *Journal of Commodity Markets*, 29, 100310.
- Mohamadi, F., & Mohamadi, F. (2021). Asset and Portfolio Management. Introduction to Project Finance in Renewable Energy Infrastructure: Including Public-Private Investments and Non-Mature Markets, 179-192.
- Morina, F., Hysa, E., Ergün, U., Panait, M., & Voica, M. C. (2020). The effect of exchange rate volatility on economic growth: Case of the CEE countries. *Journal of Risk and Financial Management*, 13(8), 177.
- Moshirian, F., Tian, X., Zhang, B., & Zhang, W. (2021). Stock market liberalization and innovation. *Journal of Financial Economics*, 139(3), 985-1014. *Nature Sustainability*, 1(6), 314-321.
- Poncet, P., & Portait, R. (2022). Arbitrage Pricing Theory (APT) Pricing Theory and Multi-factor Models Multi-factor models. In *Capital Market Finance: An Introduction to Primitive Assets, Derivatives, Portfolio Management and Risk* (pp. 963-990): Springer.
- Ray, R., & Fellow, D. M. R. (2020). The importance of collecting demographic data. The Brookings Institute.
- Roman, N. A. (2021). The Impact of Unsystematic Risks on Stock Market Return in Jordanian Commercial Banks.
- Selimefendigil, S. (2024). Does ESG Investment Influence Firm Risk During the COVID-19 Pandemic? Evidence from European Markets. *Istanbul Business Research*, 53(3).
- Salah, S. K. (2023). UNSYSTEMATIC RISK IMPACT ON BANKING STABILITY: ISLAMIC VS. CONVENTIONAL BANKS IN PALESTINE AND JORDAN (Doctoral dissertation, Faculty of Graduate Studies, An-Najah National University).
- Sisay, E., Atilaw, W., & Adisu, T. (2022). Impact of economic sectors on inflation rate: Evidence from Ethiopia. *Cogent Economics & Finance*, 10(1), 2123889
- Tariq, F., Rafique, T., & Nawaz, T. (2020). Oil and Agricultural Commodity Markets of Pakistan: Looking for a Preferable Trading Avenue. *J. Econ. Manage. Trade*, 19-26.
- Udoinyang, N., & Udoinyang, N. (2024). The Influence of Exchange Rate Fluctuation on Foreign Direct Investment in Nigeria (1986-2022). *Journal of Economics, Innovative Management and Entrepreneurship*, 2(1).
- Wagner, A. F. J. N. H. B. (2020). What the stock market tells us about the post-COVID-19 world. 4(5), 440-440.
- Xia, T., & Zhou, H. (2023). Commodity terms of trade co-movement: Global and regional factors. *Journal of International Money and Finance*, 139, 102944.
- Yalamati, S. (2023). Artificial Intelligence influence in individual investors performance for capital gains in the stock market. *International Scientific Journal for*

- Research, 5(5), 1-24.
- Yousaf, I., & Ali, S. (2020). Integration between real estate and stock markets: new evidence from Pakistan. *International Journal of Housing Markets and Analysis*, 13(5), 887-900.
- Yang, M., & Lu, D. (2024). Do global extreme hazards and related attention lead to financial risks in the shipping market?. *Applied Economics*, 1-21.
- Youssef, A., Etab, M., & Amer, M. (2024). The Effect of Financial Microeconomics and Macroeconomics Factors on the Sustainable Growth of the Listed Egyptian Firms.
- Youssef, (2022). Do oil prices and financial indicators drive the herding behavior in commodity markets? *Journal of Behavioral Finance*, 23(1), 58-72.
- Zhang, D., & Broadstock, D. C. (2020). Global financial crisis and rising connectedness in the international commodity markets. *International Review of Financial Analysis*, 68, 101239.
- Zhao, Y. (2020). The influence and impact of the exchange rate on the economy. Paper presented at the E3S Web of Conferences.
- Zhao, Y., Lv, H., & Li, Y. (2023). Grain Storage: Theory, Technology and Equipment. *Foods*, 12(20), 37