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iftikhar.hussain@fui.edu.pk
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Table of Contents

01

Impact of Credit and Systematic Risk on Firms Value: Moderating Role of Corporate Governance Quality and Political Stability in Asian Developing Markets

01

02

Holistic Nature of Occupational Health, Safety, and Environment towards Disaster Risk Management in Pakistan with Moderation Effect of Green Management

23

03

Impact of Workplace Ostracism on Organizational Citizenship Behavior: The Mediating Role of Job Performance and The Moderating Role of Perceived Organizational Support

45

04

Unpacking Financial Reporting Quality by Using MSCORE Model: Micro and Macro Insights

60

05

Does Consumer Regret Have an Impact on Negative WOM? The Role of Brand Hate and Brand Loyalty

80

06

Fintech-Based Financial Inclusion and Risk-Taking Behaviour of Financial Institutions: Evidence from South Asia

97

Impact of Credit and Systematic Risk on Firms Value: Moderating Role of Corporate Governance Quality and Political Stability in Asian Developing Markets

Munawar Hussain (Corresponding Author)

Ph.D. Scholar, PMAS-Arid Agricultural University Rawalpindi Pakistan (PMAS)

University Institute of Management Sciences (UIMS)

munawar.hussain@numl.edu.pk

&

Bushra Zulfiqar

Assistant Professor, PMAS-Arid Agricultural University Rawalpindi Pakistan

University Institute of Management Sciences (UIMS)

bushra.zulfiqar@uaar.edu.pk

Abstract

The aim of this study is to examine the impact of credit and systematic risk on firm value, moderating role of political stability and corporate governance quality across the Asian developing markets for non-financial listed firms. The dependent variable is firm value measured by using Tobin's Q model, ROA and stock return. The data was collected for listed firms across the developing markets. Major sources of data were FSA, BSA and annual reports of firms. Study used stratified simple random sampling technique. The time-period of study was 2013- 2022. Finally, credit risk (CR) reported negative significant impact on firm value in context of Pakistan, Bangladesh, Nepal, Jordan, Sri Lanka and Iraq but positive significant in Turkey. In contrast, systematic risk demonstrated a positive and significant relationship with firm value. Moderating role of political stability in relationship of systematic risk on firm value positive significant in Pakistan, Bangladesh, Bahrain, Sri Lanka, Jordan, Iraq and Turkey except Nepal reported negative significant. Contrary, political stability negatively moderated the relationship of credit risk is negative significant. Furthermore, in context of Pakistan and Bahrain, Iraq and Turkey corporate governance quality (CGQ) probability for CGQ-SR positive significant. It is stated that CGQ positive significantly moderates the impact of systematic risk on firm value in these markets. Contrary, Bangladesh, Sri Lanka, Jordan and Nepal reported insignificant moderation by CGQ due to lower quality and deficiencies. Finally, CGQ negatively moderated the relationship of credit risk and firms value in context of Pakistan, Bangladesh, Bahrain, Nepal, and Iraq, but positive significant moderated in Turkey, contrary insignificant only in Jordan and Sri Lanka. Study is implacable for researchers, investors and policy makers, the Govt. and managers of relevant sectors/firms. In future the study can be extended by making sensitivity and sectoral analysis for the determinants of firm value in different economic recessions.

Keywords: Systematic Risk, Credit risk, GDP, INF, CGQ, Political Stability

Introduction

Risk can be defined as “anything that can obstruct the achievement of a specific goal. Once risks can be identified and quantified, one of the first tasks is to manage them. To gain sustainable economic progress, the performance of a firm is a vital basis (Awais, Thaker, Raza, Usman, Mohsin, & Bhatti, 2021). In the research agenda, the performance of the Firm is considered a big interest in corporate finance. All beneficial firms that create ideals, pay government tariffs, promote modernization, and hire people are cost-effective. Investigating the provocation of firm performance may sustain penetration in what drives performance up and down.

The background of Asian developing market is probability differ from most advanced economies. In Asian developing markets i.e. Pakistan, Bangladesh, Nepal, Sri Lanka, Bahrain, Iraq, Turkey, and Jordan etc. Although these markets are consisting in developing markets, but some have more politically stable as compared to others. Similarly, the CGQ in developing markets mostly with same weights or minor differ. It is stated that the firms listing in these markets face many challenges i.e. political and CGQ influences etc. The macroeconomic factors of these markets are also different and in average as compared to most advance markets. The stronger CGQ and stable market gradually increasing the firms value for their investors. In

contrast, firms existing in lower market areas losing its values and shifting of investments is a common practice in line with developing market to advance. In line with Iqbal, Hussain, Khalique, and Tabassum (2020), sectors has a significant role in economic development of country. Every market has different economic recessions growth, stability crises, and recovery period. Unfortunately, risk are those factors that can influence the process of continues growth. This study is adding credit and systematic risk to evaluate its impact on firm value for Asian developing markets. Study also using moderating role of Corporate Governance quality (CGQ) and political stability in Asian developing markets.

Firm value represents the total company's worth in the market. It is calculated by adding the debts value of company and its market value. The market value for equity is the number of outstanding shares of a company multiplied by its stock price, while the present value of cash shows market strength. Higher firm value indicates a firm's ability to engender cash flow and grow its earnings over time. Previous research has found a positive relationship between firm value and financial performance measures such as profitability, liquidity, and leverage. Possibilities of losing money or not achieving desired outcomes called risk from an investment or business decision. The determinants of firm value from Korean market, the independent variable used to earn management and moderating role of corporate governance quality. However, the risk is necessary to evaluate the moderating role of CGQ in line with firm's value.

This study mainly incorporating credit risk and systematic risk as independent variable of firm's value. Credit risk with its instruments used and developed in z-score retain earning, total assets, sales, liabilities, working capital and EBIT etc. Credit risk defined as "borrowers or creditors may not fulfill their obligations" this leads to defaults and distress. Credit risk has a significant influence on cash flow; hence firms can maintain its value and timely return with operational activities. Altman in 1993 developed a strong Z-score for the measurement of credit risk at industry level. Recently, a few authors linked with the performance of financial sector as well (Azam, Khan, Fahad, & Akhtar, 2023). The consequences of credit risk in Asian developing markets differ as compared to developed markets. Similarly, due to lack of credit risk, shortage of funds firms value adversely influenced. The CGQ and political stable environment markets can play a vital role in increasing the firm's value or vice versa. Finally, underpinning assumptions of agency theory study incorporating moderating role of CGQ, other side political stability is caring out with innovative approach with the assumptions of stakeholder theory, in which firms consider all factors. Firms create value or destroy it with the interaction of stakeholders simultaneously, not focusing only share holder.

On the other hand, systematic risk is macro level risk, in context of markets systematic risk consisting of entire market risk, inflation rate, exchange rate, uncertainties and natural disasters etc. number of researchers used beta as instrument measurement of systematic risk i.e. (Choi, Kim, & Park, 2020; Naveed, Hussain, & Bilal, 2018; Song & Lee, 2025). This study is contributing mainly to existing literature with the impact of systematic and credit risk on firm's value, moderating role of political stability and corporate governance quality. At macro level stable political environment can play an important role in mitigating this risk, similarly at firm's level strong CGQ is also considerable. To increase the stock market index moderators also have a significant role, at domestic level firms, sectors and industries lead to economic value. It is stated that non-financial sectors have great contribution in economic value.

According to Naveed, Hussain, and Bilal (2018) the significance of sectors in the fiscal progress of country can't be eradicated. Performance and value of firms is evaluated using matrices such as ROI, remaining income, earning per share, earning per share, dividend yield, price-to-earnings ratio, sales growth information, marketplace capitalization, etc. Thus, this study tends to investigate the effects of risk factors (systematic risk credit risk), also adding control variables leverage, firm size liquidity, GDP and inflation etc. on firm's value measured by using ROA, Tobins,Q and stock return.

Political instability can cause the firms value and increase the risk. Recently, Alemu and Worku (2025) also used the political instability and corporate governance mechanism for firm's performance. The study reported the ownership structure, institutional ownership, managerial ownership, and minority shareholders to evaluate the role of corporate governance in firm's manipulation and its value for investors. The findings of study showed that ownership structure as element of CGQ positively influenced the market Performance that leads

to investor's confidence. This study used Ownership concentration and CEO ownership as managerial concentration as measurements of CGQ.

Gap Analysis

Firstly, the measurement of systematic risk by using change in variance mainly remained less explored. In existing literature researchers used beta and variance as measurement of systematic risk i.e. (Naveed, Hussain, & Bilal, 2018). However, the change in variance is main contribution of this study. This study mainly adds change in variance as measurement of systematic risk and then its impact on firm value. Secondly, study also adding credit risk as independent variable of firm value for non-financial listed firms in Asian developing markets. In this regard, the concept of credit risk mainly remains less explored for non-financial listed firms because this is repeatedly used for financial sectors. Another aspect the Asian developing markets are mainly less explored specially with the moderating role of political stability and corporate governance quality.

Finally, the moderating role of corporate governance quality of Asian developing markets with nine different items is also added firstly in this study. Furthermore, the moderating role of political stability also remained less explored, especially in context of developing markets. The statement argued that political stability leads to economic stability (Awais, Aziz, Usman, & Bhatti, 2021). This study mainly focuses on developing markets where the lack of political stability caused adversely. Theoretical extension moderating role of political stability underpinning assumptions of stakeholder theory remains less explored.

Problem Statement

There are several problems related to the impact of systematic and credit risk on firm value. Firstly, while there is a significant amount of research that has been conducted on this topic, there is still a lack of consensus on the precise effects of these types of risk on firm value. Another problem is that companies face challenges in managing systematic and credit risks effectively, particularly in different economic conditions. In the light existing body of literature number of researchers examine the firm value across different markets i.e. (Naveed, Hussain, & Bilal, 2018). The question remains untapped which are the most important risk influences that can impact the firm's value to achieve the objective efficiently? It is a very common problem in various developing markets. Today business environment faced several risks that cause changes occur at both internal and external levels. This makes the firms performance very complex to predict its future with accuracy. However, the degree of environmental changes is not a big matter but the firm's capabilities to deal the risk occur due to some internal, external factors is a big challenge.

The research objectives of this study in line with credit and systematic risk as independent variable and moderating role of CGQ and political stability are as follows. (1) To examine the effect of credit risk on firm's value for non-financial listed firms in Asian developing Markets. (2) To evaluate the effect of systematic risk on firms' value of non-financial listed firms in Asian developing Markets. (3) To check the moderating role of Political stability in impact of credit risk on firm value for non-financial listed firms in Asian developing Markets. (4) To check the moderating role of Political stability in impact of systematic risk on firm value for non-financial listed firms in Asian developing Markets. (5) To examine the moderating role of CGQ in impact of credit risk on firm value for non-financial listed firms in Asian developing Markets. (6) To evaluate the moderating role of CGQ in impact of systematic risk on firm value for non-financial listed firms in Asian developing Markets.

Accordance with research objectives, current study considering following research questions that mainly remain less explored in previous literature and need to incorporate for developing Asian markets i.e. what is the impact of credit and systematic risk on firm's value? Similarly, in line with moderating role what is moderating role of CGQ in impact of credit and systematic risk on firm's value? Finally, accordance with political stability what is moderating role of political stable market in impact of credit and systematic risk on firm's value of Asian developing markets? After incorporating mentioned research objectives and research questions study practically ensuring the significances for investors, managers, and policy makers, to reach out the economic stability because political stability can lead to economic stability or vice versa.

This study has some significance including economic benefits for stakeholders. The economic benefits include managers, shareholders, investors, and especially the non-financial sector. The sector has importance to deal

with the cetin categories of risk, control the risk, and diversified the risk in a proper mechanism. The investors can review the decision due to certain risks faced by firms at both internal and external levels. In case of lack of uncertainty, the asymmetric can be controlled.

Literature Review

Firm value is the consequence of managing achievement in financial positions (Awais, Kiani, Thas Thaker, Raza, & Qaim, 2021). ROA processes a company's ability to proficiently manage its assets to produce returns or returns for stockholders. The impact of systematic and credit risk on firm value has been widely studied in finance and economics literature. CAPM and Fama-French three-factor model have been used to examine the relationship between risk and return. However, recent studies have highlighted the limitations of these models and have suggested alternative approaches to measuring risk and its impact on firm value. For instance, some industries may be more sensitive to systematic risk factors such as interest rates and market volatility, while others may be more affected by industry-specific factors such as technological innovation and regulatory changes. Similarly, the impact of macroeconomic variables on firm value may vary across countries, subjects on dynamics such as political stability, exchange rates, and trade policies.

The theoretical perspective of risk is associated with the assumptions of Markowitz (1952). Markowitz proposed new risk measuring concepts and applying them to portfolio selection. They started with risk measuring ideas and how they relate to portfolio selection. He started with the concept of the average perceived risk of investors and their ambition to maximize their overall return with less risk. Markowitz model is thus a theoretical structure for the investigation of risk and return and their inner relationship. His framework gives rise to the idea of an efficient portfolio. Markowitz created the number of portfolios based on a given total of money and wealth and preferences.

Wijaya and Wijaya (2025) documented the ownership concentration in a systematic literature review evaluated the CGQ influenced in organizations audit quality and performance. The audit committee consists of number of auditors included in panel. Hence, this study provides a strong argument by conducting SLR on ownership concentrations and audit committee. Furthermore, concentrated ownership may cause weaken oversight due to conflicts of interest in Santosa, Setianingrum, and Yusuf (2022), contrast the diversified ownership structure improve transparency, good audit oversight and accountability.

Recently, Abulazm, Sakr, and Hamza (2025) documented the CGQ mechanism by using board independent, board size, audit quality, meetings, CEO duality, and ownership structure etc. The measurements are fully supported and report the contrast consequences. Furthermore, Kahan and Catan (2025) evaluated the impact of CGQ on firm value. The findings indicate a significant influence on firm value.

Most recent, several researchers examined the firm's performance by using various explanatory factors. According to Nguyen, Phan, and Hang (2024) performance of firms manifests the relationship among coming consequences and resources utilized in operating and business activities. Furthermore, when the performance of a company gets increased, it can be estimated from the ceaseless activities of the company for the formation of profits. Moreover, liquidity risk, credit risk, and market risk also affect firm performance.

Credit risk is the most significant variable affecting firms and financial performance. Credit risk is determined by asset quality. Recently Ajmal, Khan, Shad, AlKatheeri, and Jabeen,(2022) performed an empirical analysis on the financial sectors of Pakistan. Firstly, in advanced markets research on a firm's performance remained highly explored, by the major researchers (Kimura, Basso, & Kayo, 2015; Prieto-Carrón et al., 2006). Prieto-Carrón et al. (2006) and one must choose the most appropriate measure to be used measuredly depending on whether it is asserted that the firm pursues maximization profit, production level, and customer satisfaction. We assume profit-maximizing firms and, accordingly, we measure their performance by variable relating to profitability. In the agriculture industry, extensive research has been conducted on the aspects and drivers that influence financial performance. This study was conducted in the U.S. to examine the factors that influence business performance. Furthermore, a favourable correlation linking leverage and company operations when the environment is stable.

According to Kimura, Basso, and Kayo (2015) firms that operate in the same sectors and industries have similar qualities thus they anticipate working in the same environment. Most of the studies look at the factors

that determine capital spending level, with some fixing on country-level matters and recognized difference between developed and developing economies. The sensitivity analysis method is commonly applied to help make investment decisions regarding capital budgeting due to lack of performance. According to Akbar and Lanjarsih (2019), Capital adequacy has an impact on financial performance in Kenya's commercial and services industry this research is to recognize the link between assets infrastructure and firms' financial performance. The three major indicators used in literature to examine the firm's performance are ROE, ROA and ROI etc.

Firm performance can be measured by various methods. ROA is the most common measure of firm performance. Accordance with shreds of evidence, numerous researchers used ROA as the measurement of the effectiveness of firms. Profits serve as a headrest against opposing circumstances such as losses on loans, or losses affected by unpredicted fluctuations in interest rates (Gitogo, 2013). ROE is effective income scrabbled by the market value of equity and ROA is net income scaled by total assets.

Theory

Numerous studies have veteran the rationality of the CAPM and the relationship between systematic risk and firm value. One study by Fama and French (1995) found that beta was not a significant predictor of stock returns after controlling for firm size, book-to-market ratio, and momentum. This study challenged the validity of the CAPM and suggested that other factors may play a role in explaining the relationship between risk and return. A firm's total risk (systematic & credit) was positively related to its expected return. This study suggested that investors require compensation for both types of risk and that ignoring credit risk could lead to biased estimates of the relationship between risk and return. The impact of systematic and credit risk on firm value is a research topic that is related to the field of finance and economics. There are several theories that can be used to support this research topic, including Agency theory, CAPM, and Stakeholder theory.

According to the CAPM, the systematic risk of a firm, as measured by its beta, should have a significant impact on its value. The Capital Asset Pricing Model (CAPM) ruptures total risk into two components: systematic (non-diversifiable) and credit (diversifiable).

Agency theory suggests that the relationship between a firm's managers and its shareholders can impact the firm's value. Managers may have incentives to take on risky projects, even if they are not in the best interest of shareholders, which can increase the firm's credit risk. Conversely, managers may also have incentives to avoid risky projects, which can impact the firm's systematic risk.

Stakeholder theory states that firms not only maximize shareholder wealth but also consider the stakeholder, including employees, government, customers and suppliers etc. Firm can engage in different ways to increase the value, risk reduction, reputation and image of market, and value creation by satisfying stakeholders with loyal driven sales, productivity, and ensuring quality inputs.

Variables

Dependent Variable Firm Value

Firm value can be demonstrated from the stock price level that designates the future predictions of the company. The market value for equity is the number of outstanding shares of a company multiplied by its stock price, while the market value of debt is the present value of its future cash flow. Higher firm value designates a business's ability to generate cash flows and grow its earnings over time. Previous research has found a positive relationship between firm value and financial performance measures such as profitability, liquidity, and leverage. The dependent variable is measured by using three different proxies i.e. Tobin's, Q, ROA and stock return. These three measurements are used in the baes of test and re-test phenomena.

Independent Variables

Systematic Risk

Systematic risk is overall market risk, including various factors i.e. inflation, exchange rate risk and uncertainties. This risk is not controllable by investing in a portfolio of securities because it is not specific to any particular security or industry. Similarly, an increase in interest rates may cause bond prices to fall and

stock prices to decline as investors move their money out of stocks and into bonds. Firm value is derived from market capitalization, which is essential for well-governed firms. Equity shares increase market capitalization, which increases firm value. Considering firm value is essential for well-governed firms.

H1: There is significant impact of systematic risk on firm's value.

Credit Risk

Credit risk is lack of obligations by the borrowers, or defaults on your expected receivables. This type of risk is not related to the overall market or economy and is specific to a company or industry. Credit risk significantly influenced the firm's Performance of developed market. However, the moderating role of CGQ needs to be incorporated in future to enhance more effectiveness. By farming a diversified portfolio, stockholders can diminish the impact of credit risks that affect individual companies or industries. This is because events that affect an individual company or industry can still occur despite diversification, and some level of credit risk will always be present in an investment portfolio. The study used Altman z-score i.e. X1; working capital, X2; Retain earning, X3; EBIT, X4; market to book value, and X5; sales to assets as supported by (Spulbar, Cinciulescu, Ene, & Spulbar, 2025). The hypothesis on the base of existing evidence is as follows.

H2: There is significant impact of credit risk on firm's value.

Control Variables

Firm Size

Firm size is repeatedly comprised as a control variable in financial research, as it can affect firm performance and the risk-return relationship. Larger firms tend to have more diversified portfolios and may be less affected by credit risk compared to smaller firms. Furthermore, larger firms may have access to more financing opportunities, which may affect their cost of capital and ultimately their firm value. Previous studies have found a positive relationship between firm size and firm value (Fama & French, 1995).

H3: There is significant impact of firm's size on firms' value.

Liquidity

Liquidity is a measure of the ease with which an asset can be bought or sold in the market without affecting its price. In the context of financial markets, liquidity is an important determinant of asset prices and expected returns. Higher liquidity can reduce transaction costs and increase market efficiency, leading to lower risk and higher firm value. In addition, higher liquidity can reduce the impact of idiosyncratic events on stock prices, thereby reducing credit risk. Previous research has found a positive relationship between liquidity and firm value (Jihadi, Vilantika, Hashemi, Arifin, Bachtiar, & Sholichah, 2021).

H4: There is significant impact of liquidity on firm's value.

GDP

Higher GDP growth can lead to increased demand for goods and services, leading to higher revenue and profitability for firms. This can increase the expected returns and ultimately increase the firm's value. Previous research has found a positive relationship between GDP growth and firm value (Faradila & Effendi, 2023). Macroeconomic variables such as GDP and inflation (INF) have also been found to affect firm value. GDP growth has been found to be positively related to firm value, as it indicates favorable economic conditions and higher demand for goods and services (Faradila & Effendi, 2023). However, inflation has a negative impact on firm value, as it erodes the purchasing power of consumers and reduces profitability (Hong, 1977).

H5: There is significant impact of GDP on firm's value.

Inflation

Inflation is a quantity of the rate at which the universal level of values for goods and services is rising over time. It is an important macroeconomic variable that can affect the purchasing power of consumers and the profitability of firms. Prior researchers Barnes, Boyd, and Smith (1999) reported positive correlation between inflation and return.

H6: *There is significant impact of Inflation on firm's value.*

Leverage

The debt is an important variable at firm level. It consists of short-term and long-term debt. Previous research has found a negative relationship and firm value (Hong, 1977). The few empirical studies that have observed the connotation between return and risk in firms, as dignified by standard deviation or variance in accounting ROI, have produced inconsistent conclusions.

H7: *There is significant impact of leverage on firm's value.*

Moderator

This study used two different moderators i.e. CGQ and Political stability in Asian developing markets. Underpinning assumptions of agency theory the CGQ is used to evaluate the moderating role. The details are as follows. This study used nine different items to measure the CGQ i.e. gender diversity, Audit committee, compensation, attendance, tenure, board size, family ownership, CEOs ownership and Ownership concentrations etc. The study used composite index method for nine items of CGQ. The definitions concepts and measurements details are as follows.

Corporate Governance Quality (CGQ)

The diversity is combination of across gender, age and experience etc. The diversity in this study used as measurement of CGQ by considering female participations in firms' ownerships. It is measured as female director on board divided by total number of directors on board. The measurement is fully supported by number of researchers i.e. (Abulazm, Sakr, & Hamza, 2025). The audit committee consists of number of members included in panel. This study also used and measured the total number of audit committees serving in audit committee. There are different models used in audit committee selections. Most in advance markets the auditors consist of six members. In developing areas, the auditor includes four in committee. The measurement is strongly supported by existing literature i.e. (Abulazm, Sakr, & Hamza, 2025) documented the number of auditors in audit committee. Compensation means the basic and extra allowances paid for employees' benefits. This can lead to controlling the agency issue in case of strong corporate governance policies. The strong CGQ paid in time benefits to employees. However, in case of lack of compensation the agency issues may arise. To evaluate the CGQ the attendance of board of directors and members during different meetings conducted over the years is vital. The attendance indicates the presence of members during conducted meetings. Larger the attendance frequency caused better consequences on firms' existence.

BS is measured by the total number of directors on the board supported by (Abulazm, Sakr, & Hamza, 2025). The large number of directors can input greater effort to instruct task timely and meetings schedules accordingly. However, the shortage of directors can cause adversely, in context of developing markets the number of directors of probable found a few in panel. Hence, the consequences of developing markets are often in contrast to advanced markets. It indicates the involvement of family members in ownership structure. The number of family members holding boards and membership for decision making process. This can cause adverse consequences, i.e. due to lack of experience, education and awareness. The current study measured family ownership by using percentage of shareholding by family members or related individuals. For instance, it depends upon the market situations, especially in developing areas where the decision-making authorities remain constant and may cause contrast results. Ownership concentration is a key element in CGQ. It consists upon the dispersion of shared holding to small shareholders. It is used to control and better decision making through decentralization approach. Involvement of small shareholders in decision making and encouraging firm's value.

H8: *Corporate Governance Quality significantly moderates the impact of credit risk on firm value.*

H9: *Corporate Governance Quality significantly moderates the impact of systematic risk on firm value.*

Political Stability (Ps)

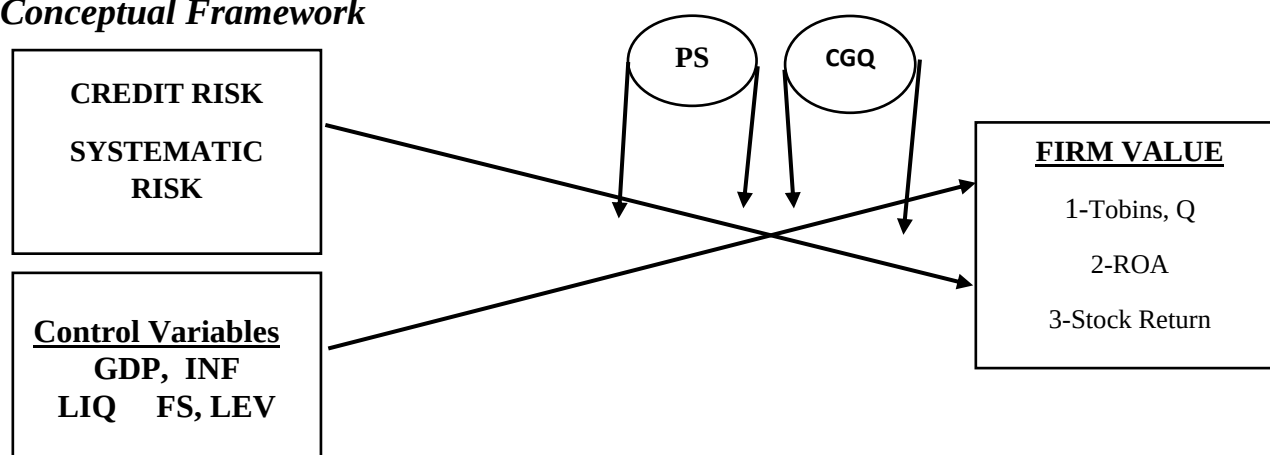
Political instability is measured by number of authors. Recently, Alemu and Worku (2025) also used the political instability and corporate governance mechanism for firm's performance. The hypotheses about moderating role of political stability are as follows.

H10: Political stability significantly moderates the impact of credit risk on firm value.

H11: Political stability significantly moderates the impact systematic risk on firm value.

This study used three measurements for dependent variables, i.e. firms value, hence all mentioned hypothesis is repeated for Tobins,Q, ROA and stock return.

Conceptual Framework



Research Methodology

Research Approach

The study used deductive research approach. In deductive approach researchers tend to focus on existing data with positivism philosophy and apply the under-pinning assumptions of existing theories. Hence, study focused on deductive reasoning and positivism philosophy. However, the details of data collection, procedures, sources, analytical tools, and methods are given below.

Research Design

The design of this research is quantitative in nature. Quantitative research design is used due to numeric facts and figures, secondary data in nature and measurements of factors used in numbers or ratios scale. Number of researchers used quantitative research design and applied deductive approach.

Secondary Data

As per research methodology, this research is secondary in nature. This paper considers listed companies of Asian developing markets for non-financial sectors. This study sample size 400 listed firms from these sectors and date includes from 2013-2022.

Population and Sample

The population of this study consist of non-financial listed firms Asian developing markets. There are various sectors by which the non-financial firms are listed and include details i.e. textile sector, sugar, energy, chemicals and food etc. In Asian developing markets i.e. Pakistan, Bangladesh, Nepal, Sri Lanka, Bahrain, Iraq, Turkey and Jordan etc. The study used only listed firms for non-financial sectors in mentioned stock markets. The sample size of this study consists of listed firms from these major sectors. The sample size consists of 400 listed firms from eight major developing markets. The whole population of Asian developing markets as per stock exchange data base as follows. The study sets selection criteria to finalize the sample size. The firms established after 2016 or in 2019 excluded from this study. Number of firms was established in 2018 and 2021, so the time duration of this study consists of 2013 to 2022. Study included only those firms have complete duration. Secondly, the study excluded firms have incomplete data set. Study also excluded

delisted firms or firms still not listed at any stock exchange. The study also excluded some firms having missing data for items or proxies, i.e. production cost and inventory were missing.

Sampling Technique

Study used simple random sampling. In simple random sampling number of firms selected on the base of selection criteria. Other firms are excluded because the aim of study is fulfilled on the basis of selected firms.

Data Analysis

The data is analyzed by using EViews software. Study used major analytical tools i.e. descriptive summary, correlation matrix, regression and moderation analysis etc.

Tools of Analysis

Descriptive statistics is a branch of statistics that deals with summarizing and describing the main features of a set of data. It involves collecting, analyzing, and interpreting data to provide a clear and concise description of the data. Descriptive statistics provides a way to summarize and describe the key characteristics of a data set, making it easier to understand and interpret the data. OLS stands for Ordinary Least Squares in this equation is estimated by finding the coefficients that minimize the sum of the squared errors. These coefficients represent the slope and intercept of the line that best fits the data. Once the coefficients are estimated, they can be used to predict the value of the dependent variable for any given value of the independent variable.

Econometric Model

Regression

FV its Tobin's $Q = \alpha_0 + \alpha_1 SR_{it} + \alpha_2 CR_{it} + \alpha_3 LIQ_{it} + \alpha_4 LEV_{it} + \alpha_5 FS_{it} + \alpha_6 LEV_{it} + \alpha_7 GDP_{it} + \alpha_8 INF_{it} + \mu$

FV its ROA = $\alpha_0 + \alpha_1 SR_{it} + \alpha_2 CR_{it} + \alpha_3 LIQ_{it} + \alpha_4 LEV_{it} + \alpha_5 FS_{it} + \alpha_6 LEV_{it} + \alpha_7 GDP_{it} + \alpha_8 INF_{it} + \mu$

FV its SR = $\alpha_0 + \alpha_1 SR_{it} + \alpha_2 CR_{it} + \alpha_3 LIQ_{it} + \alpha_4 LEV_{it} + \alpha_5 FS_{it} + \alpha_6 LEV_{it} + \alpha_7 GDP_{it} + \alpha_8 INF_{it} + \mu$

For Fixed effect econometric equation as follows.

FV its Tobin's $Q = \alpha_0 + \alpha_1 SR_{it} + \alpha_2 CR_{it} + \alpha_3 LIQ_{it} + \alpha_4 LEV_{it} + \alpha_5 FS_{it} + \alpha_6 LEV_{it} + \alpha_7 GDP_{it} + \alpha_8 INF_{it} + \mu + \varepsilon_{it}$

FV its ROA = $\alpha_0 + \alpha_1 SR_{it} + \alpha_2 CR_{it} + \alpha_3 LIQ_{it} + \alpha_4 LEV_{it} + \alpha_5 FS_{it} + \alpha_6 LEV_{it} + \alpha_7 GDP_{it} + \alpha_8 INF_{it} + \mu + \varepsilon_{it}$

FV its SR = $\alpha_0 + \alpha_1 SR_{it} + \alpha_2 CR_{it} + \alpha_3 LIQ_{it} + \alpha_4 LEV_{it} + \alpha_5 FS_{it} + \alpha_6 LEV_{it} + \alpha_7 GDP_{it} + \alpha_8 INF_{it} + \mu + \varepsilon_{it}$

For Moderation equations are as follows.

$$FV_{ROAit} = \beta_0 + \beta_1 CR_{it} + \beta_2 PS_{it} + \beta_3 CR_{it} * PS + \beta_3 SR_{it} + \beta_3 SR * PS_{it} + \varepsilon_{it}$$

$$FV_{TQit} = \beta_0 + \beta_1 CR_{it} + \beta_2 PS_{it} + \beta_3 CR_{it} * PS + \beta_3 SR_{it} + \beta_3 SR * PS_{it} + \varepsilon_{it}$$

$$FV_{SRit} = \beta_0 + \beta_1 CR_{it} + \beta_2 PS_{it} + \beta_3 CR_{it} * PS + \beta_3 SR_{it} + \beta_3 SR * PS_{it} + \varepsilon_{it}$$

$$FV_{ROAit} = \beta_0 + \beta_1 CR_{it} + \beta_2 CGQ_{it} + \beta_3 CR_{it} * CGQ + \beta_3 SR_{it} + \beta_3 SR * CGQ_{it} + \varepsilon_{it}$$

$$FV_{TQit} = \beta_0 + \beta_1 CR_{it} + \beta_2 CGQ_{it} + \beta_3 CR_{it} * CGQ + \beta_3 SR_{it} + \beta_3 SR * CGQ_{it} + \varepsilon_{it}$$

$$FV_{SRit} = \beta_0 + \beta_1 CR_{it} + \beta_2 CGQ_{it} + \beta_3 CR_{it} * CGQ + \beta_3 SR_{it} + \beta_3 SR * CGQ_{it} + \varepsilon_{it}$$

Explanation:

- FV Tobin Q Firms Value measured by TOBINs Q Model
- FV ROA Firms Values measured by ROA
- FV SR Firms Values measured by Stock return
- CR Credit Risk
- SR Systematic Risk
- CGQ Corporate Governance Quality
- It Time period and Cross sectional as panel
- μ Fixed Effects model
- ε_{its} Error term

Variables Measurement Table

Variables	Measurements
Firm Value	Tobin's Q model, Market value of Equity + Book Value of debt / Total Assets; ROA return on assets and Stock return by Prices
Systematic risk	Systematic risk is measured by using variance and then Change in variance. $\text{Cov}(X, Y) = \sum (X_i - \bar{X})(Y_i - \bar{Y}) / n - 1$
Credit Risk	Credit Risk = Credit Risk by Altman Z-Score $\text{Z-Score} = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + X_4 + 0.99 X_5$ X1; working capital, X2; Retain earnings, X3; EBIT, X4; market to book value, and X5; sales to assets.
Political Stability	Political stability is measured by using political rights and violence index of market. The data source is used as WBI (Hussain, Zulfiqar, & Hanif, 2025).
CGQ	The CGQ is measured by using composite index of nine different instruments with weights. The details of items used in CGQ measurements are Gender Diversity, Audit Committee, Compensation, Attendance, Tenure Affiliation etc. (Hussain, Zulfiqar, & Hanif, 2025).
Firm Size	Natural log of Total Assets
Leverage	Debt to Equity Ratio or (Total Debt / total Equity)
GDP	GDP Per Capita
INF	Change in CPI

Z-score model is one of the two most well-known multidimensional models of risk (Trujillo Ponce et al., 2014). There has been wide use of credit risk assessment in the Pakistan Stock Exchange. Firm's value can be measured by various techniques. However, in this study the firm's value measured by using the Tobin's Q model developed by James Tobin's (1969). Recently authors extended the Tobin's q model to measure the firm's value by market to book value i.e. Fama and French (1995).

The corporate governance quality (CGQ) is measured by index of nine instruments. The CGQ is measured by using index of nine different instruments. The details of items used in CGQ measurements are Gender Diversity, Audit Committee, Compensation, Attendance, Tenure Affiliation etc. Political stability is measured by using political rights and violence index of market. The data source is used as WBI. The results are as follows.

Results And Analysis

Unit Root

Table 01. Unit root test Results

Variables	Probability	Level/ Difference
<i>FV</i>	0.0000	Level
<i>ROA</i>	0.0001	1 st difference
<i>S_RETURN</i>	0.0000	Level
<i>FS</i>	0.000	Level
<i>LEV</i>	0.0000	Level
<i>LIQ</i>	0.0000	Level
<i>GDP</i>	0.0012	1 st difference
<i>INF</i>	0.0015	1 st difference
<i>PS</i>	0.0000	Level

Unit root test I sued to check the stationery of data. The probability of unit root should be less than 5%. The p _value at simple level or 1st difference reported less than 5% for all factors. This is also fundamentals assumption of regression to evaluate each factors stationery. Critical analysis as follows.

According to above results the probability of dependent variable firm value (FV) is < 5%. The probability of FV exists at simple level. Similarly, probability of returns on Assets (ROA) is also < 5% or 0.000, but this

value exists at 1st difference. The probability of stock return is also less than 5% and significant at simple level. Furthermore, the probability of other independent variables of firm value like firm size (FS) is < 5% or 0.000. The probability of FS exists at simple level. However, probability of leverage (LEV) is also < 5% or 0.000. The probability liquidity (LIQ) is also less than 5% and significant at simple level. Finally, the probability of GDP and Inflation is also < 5%, the probability of these both factors exist at 1st difference. However, probability of political stability (PS) is also < 5% or 0.000. It is summarized in the light of above discussion that probability for the determinants of firm value exists less than 5% at simple level and 1st difference. All factors are stationery and there is no chance of autocorrelations or regression issues. Furthermore, studies also used descriptive summary to check the behavior of data. The behavior indicates by using mean, median, minimum and maximum values, standard deviation etc. The details of the determinants of firm value are as follows.

Descriptive Summary

Table 02: Descriptive summary Results

	TOBINS Q	ROA	S_RETUR N	FS	LEV	LIQ	CR	CO V	GD P	INF	PS	CG Q
Mean	4.015	13.16	13.7	-2.1	-0.41	2.72	58.1	1.63	3.18	0.89	-1.7	8.83
Median	1.348	1.58	13.13	3.66	0.66	1.09	9.34	1	4.39	0.09	-1.9	1.11
Maximum	14.3	61.8	24.63	31.9	2.22	14.5	60.5	9.2	13.8	7.9	7.5	41.8
Minimum	-4.134	-96.3	13.7	-2.25	-94.1	-47.4	-8.18	-1.77	-12	-30	-2.8	-3.8
Std. Dev.	5.185	18.9	6.344	42.9	18.7	4.1	142.1	1.82	3.27	3.73	0.74	13.3
Skewness	-0.059	4.01	0.3359	4.49	1.2	3.15	2.68	1.56	-1	2.48	-0.5	23.7
Kurtosis	2.111	2.28	3.932	2.07	2.56	2.95	3.63	2.54	2.96	1.3	3.02	1.66
Observations	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000

Descriptive summary is also diagnostic testing mostly used in study to check the behavior of data. Different components indicate the behavior of data. The mean, minimum maximum values, the range of data and standard deviation etc. are reported for each factor in above table. Critical analysis and interpretation are as follows.

According to above table mean value of firm value Tobins Q is 4.015, ROA 13.16 and stock return 137.07. It indicates the central tendency in these factors. Similarly, the mean value of firm size is -2.16567 and leverage is -0.410. Mean of liquidity 2.7214, inflation is 0.8988 and political stability is -1.72334. Furthermore, minimum and maximum values for the firm value are -4.13454 & 14.304. The median is 1.3480. Medians exist between minimum and maximum values. It indicates the range of data. The existence of median in range of data shows the normal behavior of factors. Similarly, the minimum and maximum values for ROA are -96.30 to 61.85717, stock return 13.70000 & 24.63150. The median 1.581037 exists within range of minimum and maximum values. Same as the median stock return is 131.3000 also exists in the range of minimum and maximum values. However, minimum values for firm size, leverage and liquidity are -2.256, -94.1. The maximum values are 3.937854, 2.224704 and 14.59730. The median values for these factors are 3.661549, 0.660264 and 1.094945. The median values exist between the ranges of minimum and maximum it indicates the normal behavior of data.

Minimum and maximum values for the GDP and Inflation are -12.000, -30.20. The maximum values are 13.80000 and 7.900000. The median values are 4.396457 and 0.096800. The median values exist between the ranges of minimum and maximum it indicates the normal behavior of data. Finally, minimum and maximum values for political stability are -2.79497 and -0.45294. Median is -1.90026 indicates normal behavior and within range of minimum maximum values. The standard deviation for all factors reported in above table indicates the distance from mean, the firm value (FV) 5.185175, return on assets (ROA) -96.3082, stock return 63.440009, firm size (FS) 42.99557, and leverage (LEV) 18.79730, liquidity (LIQ) 4.108413 GDP 3.267509

Inflation (INF) 3.739255 and political stability (PS) is 0.746956. Furthermore, study also used the correlation matrix test to evaluate the relationship between factors. The details are as follows. Political stability means -1.7 CGQ 8.83, the standard deviation, minimum maximum values i.e. -2.8, -3.8 & 7.5, 41.8. Similarly, mean exit between the range and standard deviation little deviate from mean. Finally, kurtosis and skewedness values for all above variables are nearly 2 and 3 less than the threshold. It shows the normality of data. The details of correlation matrix are as follows.

Correlation Matrix

Table 03; Correlation Matrix Results

	TOBINSQ	ROA	STOCK_R	FS	CR	SR	LEV	GDP	INF	PS	CGQ
TOBINSQ	1										
ROA	0.296	1									
STOCK_R	-0.08	0.043	1								
FS	0.019	-0.005	0.020	1							
CR	0.558	0.499	0.148	-0.01	1						
SR	0.391	0.672	0.014	0.005	0.477	1					
LEV	0.113	0.056	0.380	0.611	0.271	0.423	1				
GDP	0.246	0.133	0.017	-0.02	0.246	0.101	0.224	1			
INF	0.557	0.233	-0.34	0.039	0.218	0.3801	0.188	-0.07	1		
PS	-0.038	-0.025	-0.024	-0.01	-0.025	-0.03	0.148	-0.05	-0.03	1	1
CGQ	0.149	0.178	0.041	-0.00	0.328	0.114	0.088	0.042	0.057	0.055	-0.01

Correlation matrix is used to value the relationship between variables. The weaker of stronger relationships exist in factors. In case of exceed the limit of .70 issue of multi-collinearity exist. This study reported the correlation matrix table to examine the relationship between factors and indicate the issue of multi-collinearity if exist.

According to above table Tobin's, Q and credit risk (CR) are .55 correlated with each other's. The relationship is positive and strong between these factors. However, firm value and systematic risk are .68 correlated with each other's. The credit risk and systematic risk are .47 correlated, systematic risk and firm size are GDP and INF are -0.05, leverage with credit and systematic risk is 5% and 38% correlated. Finally, stock return is 69%, with firm value, 57% with ROA, 62 with systematic risk, 24 with firm size, and 62with GDP, 69correlated with inflation, 14 with leverage, 62with liquidity and 64 with return on assets.

It is stated that correlation matrix is used to examine the relationship and issue of multi-collinearity between variables. The variables are strongly positively correlated with each other's. There is no single value that is less great than 70. All factors are correlated with each other's but less than 70%. It is concluded that there is no issue of multi-collinearity existing among the variables. Hence, it is reported that there is no issue of multi-collinearity exist, so another assumption or regression is fulfilled upon the data used in this study. Regression is used to check the cause and effects relationship between variables. Before this regression its assumptions are mandatory to be fully filled. The results for regression analysis are given below.

Regression

Table 04; Dependent Variable FV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.09409	0.102285	-30.2497	0.0000
CR	-0.019066	0.000816	-23.37229	0.0000
FS	-0.044585	0.001667	-26.75201	0.0000
GDP	0.512343	0.018382	27.87208	0.0000
INF	-0.558972	0.027436	-20.37393	0.0000
LEV	0.038402	0.003712	10.34412	0.0000
LIQ	0.969424	0.017385	55.76315	0.0000
SR	2.378645	0.095437	24.92362	0.0000

R-square 0.872773, indicate the power of explanatory factors, adjusted R-square 0.872581 shows the change in statistics values, Prob (f-statistics) is highly significant with 0.0000, and Durban Watson value is 1.952133 near about 2, indicates that no issue of auto correlation in data.

According to table the sign of coefficient for credit risk (CR) is negative with -0.019066, firm size (FS) is negative with -0.044585 and probability are highly significant with 0.0000. It is stated that due to one unit change in credit risk the firm's value gradually reduced. The negative sign indicates the adverse relationship between these two factors. Beta shows change in factors and its impact on firm value in units. For instance, the sign of coefficient for GDP is positive with 0.512343 and its probability is highly significant with 0.0000. It is stated that due to one unit change in GDP the firm's value gradually increased.

However, the sign of coefficient for inflation (INF) is negative with -0.558972 and its probability is highly significant with 0.0000. It is stated that due to one unit change in inflation the firm's value gradually dropped. Beta shows change in factors and its impact on firm value in units. Sign of coefficient for leverage (LEV) is positive with 0.038402 and its probability is highly significant with 0.0000. It is stated that due to one unit change in leverage the firm's value gradually increased. Finally, the sign of coefficient for liquidity (LIQ) is positive with 0.969424, systematic risk (SR) is positive with 2.378645 and its probability is highly significant with 0.0000. It is stated that due to one unit change in liquidity the firm's value gradually increased. It is stated that due to one unit change in systematic risk the firm's value gradually increased.

Table 05; Dependent Variable: ROA

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	-9.078519	0.303891	-29.87429	0.0000
CR	-0.018692	0.002424	-7.712550	0.0000
FS	-0.125089	0.004952	-25.26250	0.0000
GDP	0.602398	0.054613	11.03028	0.0000
INF	-1.415157	0.081512	-17.36137	0.0000
LEV	0.163203	0.011030	14.79669	0.0000
LIQ	3.490369	0.051650	67.57703	0.0000
SR	7.668524	0.283546	27.04504	0.0000

R-square 0.925848, indicate the power of explanatory factors, adjusted R-square 0.915721 shows the change in statistics values, Prob (f-statistics) is highly significant with 0.0000, and Durban Watson value is 1.982133 near about 2, indicates that no issue of auto correlation in data.

According to table the sign of coefficient for credit risk (CR) is negative with -0.018692, firm size (FS) is negative with -0.125089, inflation (INF) is negative with -1.415157 and its probability is highly significant with 0.0000. It is stated that due to one unit change in credit risk the firm's value gradually reduced. The negative sign indicates the adverse relationship between these two factors. Beta shows change in factors and its impact on firm value in units. It is stated that due to one unit change in firm size the firm's value gradually reduced. The negative sign indicates the adverse relationship between these two factors. For instance, the sign of coefficient for GDP is positive with 0.602398 and its probability is highly significant with 0.0000. It is stated that due to one unit change in GDP the firm's value gradually increased.

Sign of coefficient for leverage (LEV) is positive with 0.163203, liquidity (LIQ) is positive with 3.490369 and its probability is highly significant with 0.0000. It is stated that due to one unit change in leverage the firm's value gradually increased. It is stated that due to one unit change in liquidity the firm's value gradually increased. Finally, the sign of coefficient for systematic risk (SR) is positive with 7.668524 and its probability is highly significant with 0.0000. It is stated that due to one unit change in systematic risk the firm's value gradually increased.

Table 06: Dependent Variable: S_RETURN

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	41.30763	0.845284	48.86836	0.0000
CR	-0.131202	0.006741	-19.46235	0.0000
FS	-0.023206	0.013773	-1.684930	0.0921
GDP	14.07159	0.151909	92.63196	0.0000
INF	-10.24130	0.226728	-45.16992	0.0000
LEV	-0.324026	0.030679	-10.56165	0.0000
LIQ	6.049146	0.143667	42.10530	0.0000
SR	29.30008	0.788695	37.15007	0.0000

R-square 0.941956, indicate the power of explanatory factors, adjusted R-square 0.941868 shows the change in statistics values, Prob (f-statistics) is highly significant with 0.0000, and Durban Watson value is 1.97212 near about 2, indicates that no issue of auto correlation in data.

According to table the sign of coefficient for credit risk (CR) is negative with -0.131202, firm size (FS) is negative with -0.023206, inflation (INF) is negative with -0.324026, and its probability is highly significant with 0.0000. It is stated that due to one unit change in credit risk the firm's value gradually reduced. The negative sign indicates the adverse relationship between these two factors. Beta shows change in factors and its impact on firm value in units. The negative sign indicates the adverse relationship between these two factors. For instance, the sign of coefficient for GDP is positive with 14.07159 and its probability is highly significant with 0.0000. It is stated that due to one unit change in GDP the firm's value gradually increased. The negative sign indicates the adverse relationship between these two factors. Beta shows change in factors and its impact on firm value in units. Sign of coefficient for leverage (LEV) is positive with -0.324026 and its probability is highly significant with 0.0000. It is stated that due to one unit change in leverage the firm's value gradually increased. The sign of coefficient for liquidity (LIQ) is positive with 6.049146, systematic risk (SR) is with 29.30008 and its probability is highly significant with 0.0000. It is stated that due to one unit change in liquidity the firm's value gradually increased. It is stated that due to one unit change in systematic risk the firm's value gradually increased.

Hausman Test

Table 07 Redundant Fixed Effects Tests

Pool: POOL

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.000556	(51,193172)	0.00045
Cross-section Chi-square	0.000008	51	0.0000

The probability of Hausman test is highly significant indicates the fixed effects model rather than random model. In case of significant probability, the fixed model is most appropriate for this study.

Correlated Random Effects - Hausman Test

Pool: POOL

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000052	8	0.00042

These above tables are reported in two steps cross sections fixed effects and random based Hausman test to check that fixed vs common model is appropriate. Same in step two fixed vs random model evaluated. The above results stated that in both cases fixed model rae appropriate because probability is less than 5%.

Fixed Effects Model

Table 08: Fixed affects model FV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.094090	0.102285	-30.24970	0.0000
CR	-0.019066	0.000816	-23.37229	0.0000
SR	2.378645	0.095437	24.92362	0.0000
FS	-0.044585	0.001667	-26.75201	0.0000
LEV	0.038402	0.003712	10.34412	0.0000
LIQ	0.969424	0.017385	55.76315	0.0000
GDP	0.512343	0.018382	27.87208	0.0000
INF	-0.558972	0.027436	-20.37393	0.0000

R square is 0.872773, adjusted r is 0.872581 probability of f-statistics is significant, value of Durban Watson is nearly 2.

According to table the sign of coefficient for credit risk (CR) is negative with -0.019066, firm size (FS) is negative with -0.044585, inflation (INF) is negative with -0.558972 and its probability is highly significant with 0.0000. It is stated that due to one unit change in credit risk the firm's value gradually reduced. The negative sign indicates the adverse relationship between these two factors. Beta shows change in factors and its impact on firm value in units.

Furthermore, the sign of coefficient for systematic risk (SR) is positive with 2.378645, GDP is with 0.512343, and its probability is highly significant with 0.0000. It is stated that due to one unit change in systematic risk the firm's value gradually increased. Sign of coefficient for leverage (LEV) is positive with 0.038402, liquidity (LIQ) is positive with 0.969424 and its probability is highly significant with 0.0000. It is stated that due to one unit change in leverage the firm's value gradually increased.

Table 09: Dependent Variable: ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.078519	0.303891	-29.87429	0.0000
CR	-0.018692	0.002424	-7.712550	0.0000
SR	7.668524	0.283546	27.04504	0.0000
FS	-0.125089	0.004952	-25.26250	0.0000
LEV	0.163203	0.011030	14.79669	0.0000
LIQ	3.490369	0.051650	67.57703	0.0000
GDP	0.602398	0.054613	11.03028	0.0000
INF	-1.415157	0.081512	-17.36137	0.0000

R square is 0.915848, adjusted r is 0.915721 probability of f-statistics is significant, value of Durban Watson is nearly 2.

According to table the sign of coefficient for credit risk (CR) is negative with -0.018692, firm size (FS) is negative with -0.125089, inflation (INF) is negative with -1.415157 and its probability is highly significant with 0.0000. It is stated that due to one unit change in credit risk the firm's value gradually reduced. Finally, the sign of coefficient for systematic risk (SR) is positive with 7.668524 and its probability is highly significant with 0.0000. It is stated that due to one unit change in systematic risk the firm's value gradually increased. For instance, the sign of coefficient for GDP is positive with 0.602398 and its probability is highly significant with 0.0000. It is stated that due to one unit change in GDP the firm's value gradually increased. Sign of coefficient for leverage (LEV) is positive, liquidity (LIQ) is positive with 3.490369 with 0.163203 and its probability is highly significant with 0.0000. It is stated that due to one unit change in leverage the firm's value gradually increased.

Table 10: Dependent Variable: S_RETURN

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	41.30763	0.845284	48.86836	0.0000
CR	-0.131202	0.006741	-19.46235	0.0000
SR	29.30008	0.788695	37.15007	0.0000
FS	-0.023206	0.013773	-1.684930	0.0921
LEV	-0.324026	0.030679	-10.56165	0.0000
LIQ	6.049146	0.143667	42.10530	0.0000
GDP	14.07159	0.151909	92.63196	0.0000
INF	-10.24130	0.226728	-45.16992	0.0000

R square is 0.941956, adjusted r is 0.941868 probability of f-statistics is significant, value of Durban Watson is nearly 2.

According to table the sign of coefficient for credit risk (CR) is negative with 0.131202, systematic risk (SR) is positive with 29.30008 and its probability is highly significant with 0.0000. It is stated that due to one unit change in credit risk the firm's value gradually reduced. The negative sign indicates the adverse relationship between these two factors. Beta shows change in factors and its impact on firm value in units. However, the sign of coefficient for inflation (INF) is negative with -0.324026 its probability is highly significant with 0.0000. It is stated that due to one unit change in inflation the firm's value gradually dropped. For instance, the sign of coefficient for firm size is positive with -0.023206, GDP is positive with 14.07159 and its probability is highly significant with 0.0000. It is stated that due to one unit change in GDP the firm's value gradually increased. The negative sign indicates the adverse relationship between these two factors. Beta shows change in factors and its impact on firm value in units. Sign of coefficient for leverage (LEV) with -0.324026 and its probability is highly significant with 0.0000. The sign of coefficient for liquidity (LIQ) is positive with 6.049146 and its probability is highly significant with 0.0000. It is stated that due to one unit change in liquidity the firm's value gradually increased.

Country Wise Analysis

Table 11 Overall Results

Variables	1-PAKISTAN		2-BANGLADESH		3-BAHRAIN		4-NEPAL	
	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
SR	8.12	0.00	0.05	0.062	3.21	0.60	0.012	0.00
CR	-4.74	0.01	-0.01	0.00	0.81	0.00	-9.62	0.00
PS*SR	3.24	0.00	0.00	0.067	1.28	0.10	2.297	0.00
PS*CR	-1.88	0.01	0.001	0.061	-0.2	0.51	19.29	0.00
CGQ*SR	293	0.046	18.3	0.00	0.00	0.70	2.28	0.00
CGQ*CR	24.6	0.047	0.06	0.001	0.00	0.00	0.75	0.00
_cons	-0.32	0.00	1.06	0.00	0.00	0.00	-0.09	0.00
	5SRILANKA		6-JORDAN		7-IRAQ		8-TURKEY	
	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
SR	23.74	0.529	1.86	0.04	1.36	0.02	1.12	0.00
CR	-2.54	0.00	-0.49	0.06	-14.3	0.04	0.03	0.00
PS*SR	3.2	0.73	0.755	0.28	21.9	0.23	0.01	0.01
PS*CR	-1.8	0.14	-0.17	0.2	2.11	0.05	10.6	0.03
CGQ*SR	7.3	0.65	0.05	0.79	0.03	0.08	2.4	0.03
CGQ*CR	0.00	0.59	0.00	0.96	0.12	0.00	1.6	0.03
_cons	-7.5	0.13	6.46	0.00	-4.24	0.62	-16.6	0.00

The study reported overall country wise analysis for the eight major markets in Asian countries. The major non-financial listed firms are included for analysis. As per above table in context of Pakistan and Bangladesh, credit risk (CR) and systematic risk indicated by (SR) or change in variance have negative sign of coefficient and significant probability at 99% level of significance. The above tables shows that sign coefficient for

systematic risk (SR) is positive significant in context of Pakistan, Bangladesh, Bahrain, Nepal, Jordan, Iraq and Turkey etc. Contrary, only in Sri Lanka reported insignificant. It is summarized that in overall developing markets the systematic risk has positive significant impact on firm's value except Sri Lanka. Recently, a few studies supported these arguments, i.e. systematic risk significantly impact on firm's value (Hanif, Naveed, & Rehman, 2019). On the other side, insignificant relationship reported in Sri Lanka due to some market-based uncertainties and unstable environment. Contrary, credit risk (CR) reported negative significant impact on firm value in context of Pakistan, Bangladesh, Nepal, Jordan, Sri Lanka and Iraq but positive significant in Turkey. Turkey demonstrates strong corporate governance quality (CGQ) and political stability. It is noted that, due to the effectiveness of these systems, credit risk has led to an increased impact on firm value through timely recovery. Finally, moderating role of political stability is negative significant in relationship of credit risk and firms value for Pakistan, Bahrain, Sri Lanka and Jordan, contrary, positive significant moderated in Turkey, Iraq, Nepal and Bahrain etc. However, moderating role of CGQ is reported positive significant in relationship of credit and systematic risk on firm value in Pakistan, Bangladesh, Bahrain, Nepal, Iraq and Turkey but insignificant in Sri Lanka and Jordan. It is stated that the CGQ mechanism of Sri Lanka and Jordan is different as compared to other markets, but these are same as developing markets with similar many other characteristics. Finally, it is argued that other developing markets gradually improved in context of political stability and CGQ mechanism, but a few markets still need to improve.

Moderation Analysis

Table 12 Tobin's Q

VARIABLES	PAKISTAN		BANGLADESH		BAHARAIN		SRILANKA	
<i>TOBINSQ</i>	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
<i>PS*SR</i>	0.1582	0.0405	0.723	0.00	2.80	0.28	24.84	0.00
<i>PS*CR</i>	-0.476	0.0506	-0.44	0.00	-0.9	0.028	-7.91	0.00
<i>CGQ*SR</i>	0.1582	0.0405	43.95	0.46	0.00	0.00	5.012	0.78
<i>CGQ*CR</i>	-0.1648	0.0101	-2.483	0.00	-0.00	0.00	9.66	0.72
VARIABLES	JORDAN		NEPAL		IRAQ		TURKEY	
<i>TOBINSQ</i>	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
<i>PS*SR</i>	1.510	0.00	-3.84	0.02	14.58	0.019	1.23	0.00
<i>PS*CR</i>	0.00	0.00	0.535	0.02	0.946	0.22	-0.03	0.00
<i>CGQ*SR</i>	0.010	0.971	0.015	0.8	0.736	0.00	0.004	0.00
<i>CGQ*CR</i>	0.0013	0.981	-0.00	0.38	-0.048	0.067	2.26	0.008

Moderating role of political stability in relationship of systematic risk on firm value positive significant in Pakistan, Bangladesh, Bahrain, Sri Lanka, Jordan, Iraq and Turkey except Nepal reported negative significant (Hanif, Naveed, & Rehman, 2019). Contrary, political stability negatively moderated the relationship of credit risk is negative significant. PS-CR probability is less than 5%, and the sign of coefficient is negative. It is stated that political stability negatively impacts the relationship of credit risk on firm's value and positive moderate systematic risk and firm's value. PS-SR sign of coefficient is positive, and probability is less than 5%. Credit risk insignificant reported in Iraq with the moderation effects of political stability.

Furthermore, in context of Pakistan and Bahrain, Iraq and Turkey corporate governance quality (CGQ) probability for CGQ-SR positive significant. It is stated that CGQ positive significantly moderates the impact of systematic risk on firm value in these markets. Contrary, Bangladesh, Sriana, Jordan and Nepal reported insignificant moderation by CGQ due to lower quality and deficiencies. However, it is stated that other developing markets improved their CGQ mechanism similar, there is need to improve in these markets.

Finally, CGQ negatively moderated the relationship of credit risk and firms value in context of Pakistan, Bangladesh, Bahrain, Nepal, and Iraq, but positive significant moderated in Turkey, contrary insignificant only in Jordan and Sriana. These differ results are reported due to some different characteristics and mechanisms of CGQ at internal level of markets. Finally, it is argued that CGQ negatively significant moderated the relationship of credit risk and firms value in major Asian developing markets.

Table 13 ROA

VARIABLES	PAKISTAN		BANGLADESH		BAHARAIN		SRILANKA	
ROA	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef	P>t
PS*SR	0.01390	0.01239	11.63	0.009	3.61	0.596	6.331	0.00
PS*CR	-0.1331	0.04770	-0.69	0.195	-1.75	0.101	-0.01	0.345
CGQ*SR	0.0645	0.02362	13.075	0.533	0.00	0.00	8.167	0.898
CGQ*CR	-0.9440	0.07833	-0.557	0.975	-0.00	0.00	3.540	0.725
VARIABLES	JORDAN		IRAQ		NEPAL		TURKEY	
ROA	Coef	P>t	Coef	P>t	Coef	P>t	Coef	P>t
PS*SR	0.297	0.011	9.552	0.00	15.69	0.00	1.238	0.00
PS*CR	-0.00	0.00	0.0712	0.837	-1.5543	0.00	-0.035	0.00
CGQ*SR	0.127	0.537	0.3917	0.00	0.1733	0.071	0.000	0.00
CGQ*CR	0.0300	0.447	-0.027	0.00	-0.005	0.637	2.26	0.0008

In above table dependent variable used as firm value measured by ROA, in context of Pakistan and Bahrain, Iraq and Turkey corporate governance quality (CGQ) probability for CGQ-SR positive significant. It is stated that CGQ positive significantly moderates the impact of systematic risk on firm value in these markets. Contrary, Bangladesh, Sriana, Jordan and Nepal reported insignificant moderation by CGQ due to lower quality and deficiencies. However, it is stated that other developing markets improved their CGQ mechanism similar, there is need to improve in these markets. Moderating role of political stability in relationship of systematic risk on firm value positive significant in Pakistan, Bangladesh, Bahrain, Sri Lanka, Jordan, Iraq and Turkey except Nepal reported negative significant (Hanif et al., 2019). Contrary, political stability negatively significantly moderates the relationship of credit risk is negative significant. PS-CR probability is less than 5%, and the sign of coefficient is negative. It is stated that political stability negatively impacts the relationship of credit risk on firm's value and positive moderate systematic risk and firm's value. PS-SR sign of coefficient is positive, and probability is less than 5%. Credit risk insignificant reported in Iraq with the moderation effects of political stability.

Finally, corporate governance quality (CGQ) was found to negatively moderate the relationship between credit risk and firm value in Pakistan, Bangladesh, Bahrain, Nepal, and Iraq, while it positively and significantly moderated this relationship in Turkey. In contrast, the moderation effect was insignificant in Jordan and Sri Lanka. These variations can be attributed to differences in the internal characteristics and mechanisms of CGQ across markets. Overall, the findings suggest that CGQ plays a negatively significant moderating role in the relationship between credit risk and firm value in major Asian developing markets.

Table 14 Stock Return

VARIABLES	1-PAKISTAN		2-BANGLADESH		3-BAHARAIN		4-SRILANKA	
STOCKRETURN	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
PS*SR	1.380	0.00	59.3	0.01	333.6	0.013	517.7	0.00
PS*CR	-0.049	0.006	-30.5	0.00	29.0	0.164	-1.84	0.24
CGQ*SR	58.32	0.039	213.3	0.98	0.00	0.00	-0.001	0.01
CGQ*CR	-48.87	0.040	186.3	0.06	0.00	0.00	0.002	0.06
VARIABLES	5-JORDAN		6-NEPAL		7-IRAQ		8-TURKEY	
STOCKRETURN	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
PS*SR	42.9	0.00	288.1	0.00	10.9	0.00	17.6	0.00
PS*CR	-0.00	0.00	-24.73	0.00	-4.72	0.00	-0.67	0.00
CGQ*SR	16.0	0.01	2.512	0.26	1.78	0.00	0.067	0.00
CGQ*CR	3.56	0.00	0.108	0.70	-0.14	0.00	3.95	0.00

0The sign of coefficient for PS-SR moderating role of political stability in impact of systematic risk on firm value positive significant in Pakistan, Sri Lanka, Jordan, Iraq, Nepal and Turkey. It is stated that in all these markets systematic risk is highly significantly moderated by political stability. In contrast, Bahrain reported insignificant moderation for credit risk, however moderation of political stability and Bangladesh positive

significant. Second factor PS-CR credit risk evaluated with the moderating role of political stability founded that negative significant in Pakistan, Bangladesh, Jordan, Nepal, Iraq and Turkey, contrary insignificant in Bahrain and Sri Lanka.

Finally, CGQ significant moderating role reported in, Bangladesh, Sri Lanka, Jordan, and Pakistan, Bahrain, Iraq, Jordan and Turkey etc. Contrary, insignificant only in Nepal due to lower mechanism of CGQ. However, significant moderating role of CGQ in impact of credit risk and systematic risk found in Pakistan, Turkey, Iraq and Bahrain. It is summarized in line with Turkey market both moderators have significant impact of firm value.

Key Findings and Conclusion

Key Findings

Credit risk was found to have a negative and significant impact on firm value in Asian developing markets, indicating that higher credit exposure and default probability reduce firms' financial performance and market worth. Finally, credit risk (CR) reported negative significant impact on firm value in context of Pakistan, Bangladesh, Nepal, Jordan, Sri Lanka and Iraq but positive significant in Turkey. In contrast, systematic risk demonstrated a positive and significant relationship with firm value, suggesting that firms in these markets are often rewarded for bearing market-wide risks, possibly due to higher expected returns or investors' risk return. It is summarized that in overall developing markets the systematic risk has positive significant impact on firm's value except Sri Lanka. In line with underpinning assumptions of portfolio theory, the risk systematic and relationship with the return. However, by using the change in covariance this study preliminary, argued that change in covariance risk and return timely predictable by the investors in certain portfolios. This is a better measurement of risk and indicates true form of risk return relationship.

Moderating role of political stability in relationship of systematic risk on firm value positive significant in Pakistan, Bangladesh, Bahrain, Sri Lanka, Jordan, Iraq and Turkey except Nepal reported negative significant (Hanif, Naveed, & Rehman, 2019). Contrary, political stability negatively moderated the relationship of credit risk is negative significant. Contrary, considering the other factors, i.e. political stability and CGQ mechanism market portfolio can be expected with better return.

Furthermore, in context of Pakistan and Bahrain, Iraq and Turkey corporate governance quality (CGQ) probability for CGQ-SR positive significant. It is stated that CGQ positive significantly moderates the impact of systematic risk on firm value in these markets. Contrary, Bangladesh, Sri Lanka, Jordan and Nepal reported insignificant moderation by CGQ due to lower quality and deficiencies. Finally, CGQ negatively moderated the relationship of credit risk and firms value in context of Pakistan, Bangladesh, Bahrain, Nepal, and Iraq, but positive significant moderated in Turkey, contrary insignificant only in Jordan and Sri Lanka. The credit risk moderating role of political stability of Iraq found insignificant. Finally, this is stated that the political stability index of advanced markets and developing is different in whole world. Finally, it is strongly argued by this study, "political stability leads to economic stability or vice versa." These findings are argued underpinning theory of stakeholder assumption, i.e. firms should not only focus on shareholders, but also consider the other factors, government, political environment, stakeholder and macroeconomics factors. Additionally, the scope of agency theory extended in these assumptions i.e. moderating role of political stability, the conflicts of stakeholders are strongly considerable in the market.

Finally, findings about Corporate Governance Quality as moderating role in impact of credit and systematic risk on firm's value, CGQ positive significantly moderate the impact of systematic risk on firm's value in Bangladesh and Bahrain, controversy CGQ significant moderate the impact of systematic risk on firm's value in Nepal, Iraq and Turkey. However, in context of Bangladesh the CGQ reported no significant moderating role in impact of systematic risk on firm's value. Recently, Alemu and Worku (2025) argued that corporate governance items positive significant support the firm's mechanism. These findings are supported and linked with agency theory in words i.e. principal and agent relationship. Strong corporate governance mechanism can control this relationship in case of conflicts. However, in line with agency assumptions a few markets still need to improve CGQ mechanism and especially controlling the credit risk defaults. Credit risk reported to cause decrease in firms value, this study argued in context of strong CGQ mechanism timely recovery,

evidenced borrowings, strong regulations, can leads to higher cash inflows that enhance the firms value and can protect investors' confidence. There are higher conflicts in developing markets, can be control with strong CGQ development.

Least but not last, CGQ in impact of credit risk positive significant moderating role in Bahrain, Bangladesh, Nepal, Iraq and Turkey and Pakistan. It is summarized that systematic and credit risk mostly reported significant consequences in developing markets. However, political stability results in a moderating role i.e. some are significant and a few are insignificant. Similarly, CGQ in some markets are also reported significant, but a few markets show significant CGQ role i.e. Turkey, Bahrain and Nepal and Pakistan etc.

Conclusion

It is concluded in the light of above discussion that the aim of study is to examine the impact of risk on firm's value, moderating role of political stability and corporate governance quality. The risk includes systematic and credit risk. Other control variables are used i.e. firm size, leverage, liquidity, GDP and inflation etc. Study used three different measurements of dependent factors. The firm value measured by Tobin's Q, return on assets as accounting ration and future return by using stock prices change or return. Study used political stability and CGQ as moderating variable. Political stability significantly moderates the relationship of risk n firm's value like negative in credit risk and positive moderation in systematic risk on firm's value. However, CGQ also significantly moderate in Turkey, Pakistan, Iraq, and Bahrain etc. but insignificant in Nepal, Sri Lanka and Jordan. Data collected for non-financial listed firms across Asian developing markets form WBI and central banks, stock exchanges etc. The population of this study consist of textile, food, sugar and chemical sectors in Asian developing markets. Sample size finalized by using stratified sampling technique. The number of listed firms used in this study is about 450. Data collected form Thomson router, annul financial report and major financial statements for listed firms of Asian developing markets. Study excluded delisted firms, incomplete data for selected periods, firms established or not full filling the time frame of this study. Findings of study reported by using OLS and fixed effects model indicate that credit risk (CR) is negative, significant firm size (FS) is also negative and significant. For instance, the sign of coefficient for GDP is positive and its probability is highly significant. In contrast, the sign of coefficient for inflation (INF) is negative and its probability is highly significant. Sign of coefficient for leverage (LEV) is positive significant, liquidity (LIQ) is positive significant. Finally, the sign of coefficient for systematic risk (SR) is positive and its probability is highly significant. Finally, study has some limitations, implications and future recommendations given below in detail.

The study is implacable for policy makers, researchers and students etc. Study is also implacable for the investors to take cetin decision especially for non-financial sectors. Study is also implacable for the Govt. to get the better advantages of revenue. Study has numerous implications to improve the corporate Governance quality of developing economies. Policy makers at both market levels, by focusing on current political stability or instability can consider strongly implication. Especially, instable political based markets to set strong policies and make possible to secure investors in market. The investors' security is based upon the value of firms operating in which market they are in and need to set strategies from the top level of administration i.e. people in governance making and decision-making processes. Similarly, second stand of this study that mostly remains differ consequences in Asian developing markets is CGQ, because the quality level is very lower and need to set strong regulations at firm's level too. This study is limited for developing Asian markets and non-financial listed firms only. The study is limited to textile, sugar, food, chemical and energy sectors listed firms. Studying is limited for the time-period of 2013-2022. Study is limited to only those firms having complete data sets. Study is limited for non-financial sectors of Asian developing economies.

In future the study can be extended by adding more economies or across developing and developed markets. The study can be extended by adding some other variables. The study can be extended for updated time-period of data. The study can be extended across financial and non-banking financial institutions. In future the study can be extended by making sensitivity and sectoral analysis for the determinants of firm value in different economic recessions.

References

- Awais, M., Aziz, S., Usman, U., & Bhatti, O. K. (2021). Role of Game Theory in Stock's Investment: Having Loss-aversion Bias During the Stressed Condition. *International Journal of Management (IJM)*, 12(3).
- Awais, M., Kiani, A. K., Thas Thaker, M. A. M., Raza, A., & Qaim, S. (2021). Analyzing Nexus between Financial Reforms and Savings in Pakistan: An Econometric Investigation. *International Journal of Innovation, Creativity and Change*, 15(8), 351-365.
- Awais, M., Thaker, M. A. B. M. T., Raza, A., Usman, U., Mohsin, M., & Bhatti, O. K. (2021). The process of risk management: sketching the providers of islamic micro-finance. *International Journal*, 77(11/1).
- Abulazm, H., Sakr, A., & Hamza, H. (2025). The Impact of Corporate Governance Mechanisms on Financial Reporting Quality: Empirical Evidence from Egyptian Listed Firms. *Open Access Library Journal*, 12(1), 1-26.
- Ajmal, M. M., Khan, M., Shad, M. K., AlKatheeri, H., & Jabeen, F. (2022). Socio-economic and technological new normal in supply chain management: lessons from COVID-19 pandemic. *The International Journal of Logistics Management*, 33(4), 1474-1499.
- Akbar, T., & Lanjarsih, L. (2019). Determination of company profitability and value of banks in Indonesia based on risk profile, capital structure, corporate governance and asset structure. *Account and Financial Management Journal*, 4(11), 2041-2047
- Alemu, F. M., & Worku, M. D. (2025). Impacts of corporate governance mechanisms on dynamics of banks financial performance: empirical evidences from private commercial banks of Ethiopia. *Cogent Business & Management*, 12(1), 2477286.
- Azam, A., Khan, I., Fahad, M. S., & Akhtar, M. A. (2023). Prediction of Insolvency by Using Altman Z-score Model: A Study of Selected Indian Private Banks. *Boletin de Literatura Oral-Tradition Oral Literature*, 10(1), 684-695.
- Barnes, M., Boyd, J. H., & Smith, B. D. (1999). Inflation and asset returns. *European Economic Review*, 43(4-6), 737-754.
- Choi, S. J., Kim, K., & Park, S. (2020). Is systemic risk systematic? Evidence from the US stock markets. *International Journal of Finance & Economics*, 25(4), 642-663.
- Fama, E. F., & French, K. R. (1995). Size and book-to-market factors in earnings and returns. *The journal of finance*, 50(1), 131-155.
- Faradila, S., & Effendi, K. A. (2023). Analysis of financial performance and macroeconomic on firm value. *Jurnal Manajemen*, 27(2), 276-296.
- Gitogo, J. K. (2013). J. and Kasimolo, T. (2013). The relationship between derivatives and the financial performance of commercial banks in Kenya. *International Journal Social Sciences and Entrepreneurship*, 1(2), 414-428.
- Hanif, H., Naveed, M., & Rehman, M. U. (2019). Dynamic modeling of systemic risk and firm value: A case of Pakistan. *Cogent Business & Management*, 6(1), 1651440.
- Hong, H. (1977). Inflation and the market value of the firm: Theory and tests. *The Journal of finance*, 32(4), 1031-1048.
- Hussain, M., Zulfiqar, B., & Hanif, M. (2025). Impact of Earning Management on Firms Value: Moderating Role of Political Stability and Corporate Governance Quality. *Journal of Political Stability Archive*, 3(3).
- Iqbal, Z., Hussain, M., Khalique, M., & Tabassum, A. (2020). New Insight in Working Capital Determinants Making Sensitivity Analysis for Non-financial Listed firm's Evidence from Pakistan. *Journal of Managerial Sciences*, 11(04), 1-22.

- Jihadi, M., Vilantika, E., Hashemi, S. M., Arifin, Z., Bachtiar, Y., & Sholichah, F. (2021). The effect of liquidity, leverage, and profitability on firm value: Empirical evidence from Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(3), 423-431.
- Kahan, M., & Catan, E. (2025). Corporate governance and firm value. *NYU Law and Economics Research Paper Forthcoming*.
- Kimura, H., Basso, L. F. C., & Kayo, E. K. (2015). Decision models in credit risk management. *Decision Models in Engineering and Management*, 57-73.
- Markowitz, H. (1952). The utility of wealth. *Journal of political Economy*, 60(2), 151-158.
- Naveed, M., Hussain, M., & Bilal, A. R. (2018). New Insights Into Dividend Policy: A Customised And Dynamic Sectoral Analysis. In *Oxford Conference Series: August 2018* (P. 49).
- Nguyen, K. Q. T., Phan, T. H. N., & Hang, N. M. (2024). The effect of liquidity on firm's performance: Case of Vietnam. *Journal of Eastern European and Central Asian Research (JEECAR)*, 11(1), 176-187.
- Prieto-Carrón, M., Lund-Thomsen, P., Chan, A., Muro, A. N. A., & Bhushan, C. (2006). Critical perspectives on CSR and development: what we know, what we don't know, and what we need to know. *International affairs*, 82(5), 977-987.
- Santosa, P. W., Setianingrum, A., & Yusuf, C. (2022). Corporate governance and leverage on firm value: Evidence of Indonesian large firms. *Jurnal Keuangan Dan Perbankan*, 26(4), 862-873.
- Song, J. Y., & Le, T. V. (2025). The Conditional Beta Risk-Return in the Pricing Models of Individual Stocks. *European Journal of Business and Management Research*, 10(2), 84-94.
- Spulbar, C., Cinciulescu, D., Ene, C. C., & Spulbar, L. F. (2025). Altman Z-Score Modeling and Financial Risk analysis: An Empirical Study on Companies Listed on the Bucharest Stock Exchange. *Studies in Business and Economics*, 20(2), 314-340.
- Wijaya, S. O., & Wijaya, S. (2025). The Influence of Corporate Governance on Audit Quality: A Systematic Literature Review. *eCo-Fin*, 7(1), 216-229.

Holistic Nature of Occupational Health, Safety, and Environment towards Disaster Risk Management in Pakistan with Moderation Effect of Green Management

Adnan Shahzad

MPhil Scholar, Department of Business and Management Sciences, Superior University, Lahore.
adnanshehzadhse@gmail.com

Muhammad Naeem Shahzad

Assistant Professor, Faculty of Business and Management Sciences, Superior University, Lahore.
muhammadnaeem.shehzad.01@superior.edu.pk

Mirza Nasir Jahan Mehdi

Assistant Professor, Faculty of Management Sciences, MY University Islamabad.
dr.nasirmirza@myu.edu.pk

&

Farzana Khan

Program Leader, Faculty of Business and Management Sciences, Superior University, Lahore
farzana_khan@superior.edu.pk

Abstract

Environmental green practice supports the world convergence through reducing ecological hazards. Occupational health focuses on protecting and enhancing the physical, mental, as well as social well-being of workers in various sectors. The integration of occupational health, safety, and environment practices with disaster risk management at a holistic level is important in the reduction of risks and for sustainable development, particularly in disaster-vulnerable countries such as Pakistan. This study is oriented to examine the expected effect of Occupational Health, Safety, and Environment towards Disasters Risk Management in Pakistan with Moderation Effect Green Management. The cross-section data for the period of 2001-2024 related to green management, Environment, health and safety, has been collected from official reports & databases, and reports of National Disaster Management Authority, Pakistan Environmental Protection Agency, Occupational Safety & Health Administration, International Labor Organization, United Nations Environment Program, World Health Organization, State Bank of Pakistan, and United Nations Development Program. After checking the different diagnostics tests, calculating the descriptive statistics, and deliberating the Cross Section Pearson's correlation, it was ensured the long-term effect of green management, Environment, health and safety through different Techniques including the ARDL Bound Test and VECM in the E-Views. The empirically calculated findings declare that Noise & Air Quality, Workplace Culture, Biological & Physical Hazards, Climatic Green and Environmental Projects, and Casualty Level, affect insignificantly towards disaster Risk Management while rest of the factors affect significantly on the disaster Risk Management, which leads to meet the maximum objectives of this study. The significant results proclaim the empirical allegiance of all the study factors towards disaster risk management. The insignificant findings instigate the policy makers to reappraise the green considerations and flaws in promoting the green innovations must be controlled by some concrete green policies and green investment awareness programs. By and large, the lenient low green management cost can boost the green projects in the long run to protect the environment, solve the health issues and safety aspects overall.

Keywords: Green management, Disaster Risk Management, Ecological Hazards, ARDL Bound Test, Cross Section, VECM, Empirical Allegiance, Diagnostic Tests, Green Innovations and Policy Makers.

Introduction

The integration of occupational health, safety, and environment [HSE] practices with the effect of disaster risk management [DRM] at a holistic level is important in the reduction of risks and for sustainable development, particularly in disaster-vulnerable countries such as Pakistan (Adewumi et al., 2024; Javed et al., 2020; Khan et al., 2021). An integrated approach not only deals with the short-term effects of disasters but is also concerned with long-term sustainability and resilience (Shahbaz et al., 2020). Environmental practice, which is also green management, supports this convergence through reducing ecological hazards and enhancing sustainable approaches (Aggarwal & Aggarwal, 2023). Occupational health focuses on protecting and enhancing the physical, mental, as well as social well-being of workers in various sectors (Qudrat, 2023). The

long-term exposure to noise can lead to hearing impairment, tinnitus, and irritability, sleep disorders, and impaired cognitive function (Awais, Thaker, Raza, Usman, Mohsin, & Bhatti, 2021; Botah, 2023). Similarly, indoor air pollution due to particulates like dust, chemicals, and poisonous vapors can lead to respiratory diseases like asthma and chronic bronchitis, and cardiovascular diseases in the long run (Khalid, 2020). Fear of losing a job can lead to excessive stress, anxiety, depression, and decreased job satisfaction (Aslam, 2023). The above problems can be addressed by the employers through proper communication, allocation of counselling activities, skill development programs, and incorporation of fair performance appraisal policies which are structured by the policy makers (Abbas & Guo, 2023).

Background of the Study

Chronic exposure to high-level noise has been linked with high blood pressure and cardiovascular disease (Yıldız & TOMBAL-kARA, 2024). Similarly, indoor air pollution due to particulates like dust, chemicals, and poisonous vapors can lead to respiratory diseases like asthma and chronic bronchitis, and cardiovascular diseases in the long run (Khalid, 2020).

The work environment is one of the main determinants of employees' health, well-being, and performance. A good work environment not only boosts morale but also reduces risk from all forms of workplace hazards. The environment includes the physical work area design and the organizational culture, which influences the perception of employees regarding their safety and well-being. Workplace culture influences the attitudes of employees towards health and safety to a large degree. A culture of respect, communication, and safety among employees gives a sense of responsibility to employees, and accidents are less likely to occur. According to some research, organizations that maintain open communication and employees' feedback on safety concerns experience fewer accidents (Khan, Awais, Khan, & Khan, 2017; Qamar, 2021). Physical risks, for instance, excessive heat or cold, noise, and unsafe machinery, lead to accidents and injuries (Botah, 2023). Biological hazards, including exposure to infectious agents, mold, and allergens, have the potential to result in illness and lasting effects on health (Khalid, 2020). Lack of protection and inadequate safety training have been determined by some of the studies to increase exposure to these hazards and make it crucial to have effective hazard management practices (Ahmad, 2021).

Green management is about putting in place environmentally friendly practices and sustainable measures to reduce the adverse environmental effects of business operations. It brings environmental concerns into organizational policies, decision-making, and daily activities with a view to waste reduction, resource conservation, and fostering sustainability. Green management has now been regarded as a strategic process that is not only advantageous to the environment but also boosts organizational image, reduces costs, and satisfies environmental regulation (Haji et al., 2022). Green projects mostly deal with renewable energy like solar, wind, and hydropower in a bid to reduce their consumption of fossil fuels (Naeem, 2020). Bashir (2020) illustrates how green bonds make it easy to finance green projects, reduce greenhouse gas emissions, and thereby encourage sustainable energy infrastructure (Khan, 2021). Following research and businesses that install renewable energy systems reduce energy costs and greenhouse gas emissions and align themselves with the global efforts of sustainability (Genovese et al., 2024). Moreover, green infrastructure investments such as energy-efficient buildings and ecologically friendly transport establish a greener business model (Antonopoulos, 2022). Climatic green and environmental approaches are another imperative element of green management. These initiatives are for climate change mitigation and biodiversity preservation by means of reforestation, pollution prevention, and water-saving programs (Suriyankietkaew et al., 2022). Khan et al. (2023) highlights that ESG factors are necessary for the promotion of investments in climate change and environmental sustainability programs (Liu et al., 2023). Some studies indicate that the companies which are engaged in climate projects not only reduce their ecological footprint but also gain higher market reputation as they draw green consumers (Rafiq, 2021). Adopting green management strategies and giving due importance to environmental and renewable programs make companies responsive to environmental change while contributing constructively to worldwide sustainability (Aggarwal & Aggarwal, 2023). Not only do these activities reduce environmental impact of industries, but also instill responsibility and sustainability, with long-term benefits to the environment and the companies which are engaged in health and safety projects (Naushad et al., 2024).

Disaster risk management [DRM] is a broad process that aims to find, investigate, and reduce the risk of natural and anthropogenic hazards. It includes planning and preparation, response, and recovery from disaster in a way that mitigates their effect on life, property, and the environment. Effective DRM weaves together practices of risk assessment, early warning, emergency response, and resilience-building among communities so as to avoid vulnerabilities and be better prepared (Malik, 2021). Economic consequence which disasters can bestow is among the major drivers of disaster risk management. These are quantified as damage to infrastructure, loss of livelihood, and cost of rehabilitation and reconstruction (Onukwulu et al., 2022). Rauf et al. (2021) describe how extreme storm surges result in extreme economic loss, saline inundation, and destruction of infrastructure, and how effective risk assessment must be conducted in order to reduce economic losses. Casualty rates are also the top priority for disaster risk management. Earthquakes, floods, and cyclones tend to result in a high number of deaths due to lack of preparedness and inadequate response measures. They can be avoided by regulating these factors by proper planning, early evacuation, and efficient emergency response (Shahbaz, 2020). Displacement is a grave effect of disasters that makes people leave their homes and livelihood sources. Displacement tends to lead to long-term socio-economic issues, such as loss of earnings, lack of shelter, and decreased access to basic services. Khan et al. (2021) study shows the role of storm surges towards displacement of people and further cementing the importance of integrated disaster risk management interventions that can decrease the impacts of disaster issues in health, safety & environment by adopting green technology (Khan et al., 2023).

Health, Safety, & Environmental [HSE] Issues in Pakistan, USA, & China

Across numerous industries in Pakistan, health, safety and environment [HSE] related issues remain a significant concern. Some health factors that impact worker wellbeing are air quality from industrial emissions and noise pollution from construction sites (Rafiq, 2021). There are gaps in productivity because working is not permitted when air pollution is above international standards. There is also the issue of job security where many employees work in the informal economy with no formal contracts or benefits (Liu et al., 2023). A lot of industries have poor Safety Conditions which is characterized with minimal use of Personal Protective Equipment [PPE] and lack of safety trainings (Aslam et al., 2023). The use of unsafe machinery, old equipment, and carelessly managing dangerous materials increases the likelihood of injuries (Arshad, 2021). Environmental issues include poor workplace culture where employees disregard simple safety standards, hygiene hazards such as dirty restrooms, and physical hazards such as exposed electrical wires, inadequate emergency exits, or too many people in one area (Naushad et al., 2024). These concerns are made worse with the absence of stringent implementation of labor law (Baig, 2021).

In the USA there is still HSE concerns, even with stricter regulations like the Occupational Safety and Health Administration [OSHA]. The air quality and noise pollution from industrial areas, particularly around manufacturing factories and urban cities, is a health hazard to workers (Qudrat-Ullah, 2023). While there is more job security compared to developing nations during the economic recessions and the rise of automation also creates a sense of uncertainty (Sheena et al., 2022). Although safety measures are well governed, there is negligence in some industries like construction, mining, and agriculture leading to accidents and injuries (Kamra, 2024). Compliance to worker safety regulations is often neglected by small businesses that don't have the financial resources to meet mandated compliance costs (Gatti et al., 2023; Zeb, Sher, Awais, & Syed, 2017). Issues regarding the environment include unhealthy workplace culture like discrimination, harassment, and undue stress at work (Costa et al., 2022). There are biological threats as well which include exposure to mold and physical threats from machinery predominately in the healthcare and construction sectors (Suriyankietkaew et al., 2022).

In China, the rapid pace of industrialization poses numerous HSE problems. Workers' health is badly affected by high levels of air and noise pollution in these regions due to manufacturing activities, resulting in chronic respiratory and stress-related issues (Nasir & Saeed, 2020). Working conditions are most often precarious, especially in factories on short term contracts, which makes workers fearful of losing their jobs (Zaidi et al., 2021). There are notable differences in safety provisions as larger state-owned enterprises tend to employ better safety practices than private or informal enterprises (Antonopoulos, 2022). There is generally a lack of safety equipment and frequent accidents occur because of poor safety training and obsolete machinery. The

organizational culture in most of these places is highly centralized, which discourages employees from raising concerns regarding safety issues (Imran et al., 2020). Workers' safety is further threatened due to exposure towards biological and physical hazards like harmful chemicals and unsafe structural conditions. The lack of robust enforcement of legislations on labor put together with the absence of a strong safety culture that ultimately exacerbates the problems of health and safety (Awan, 2022).

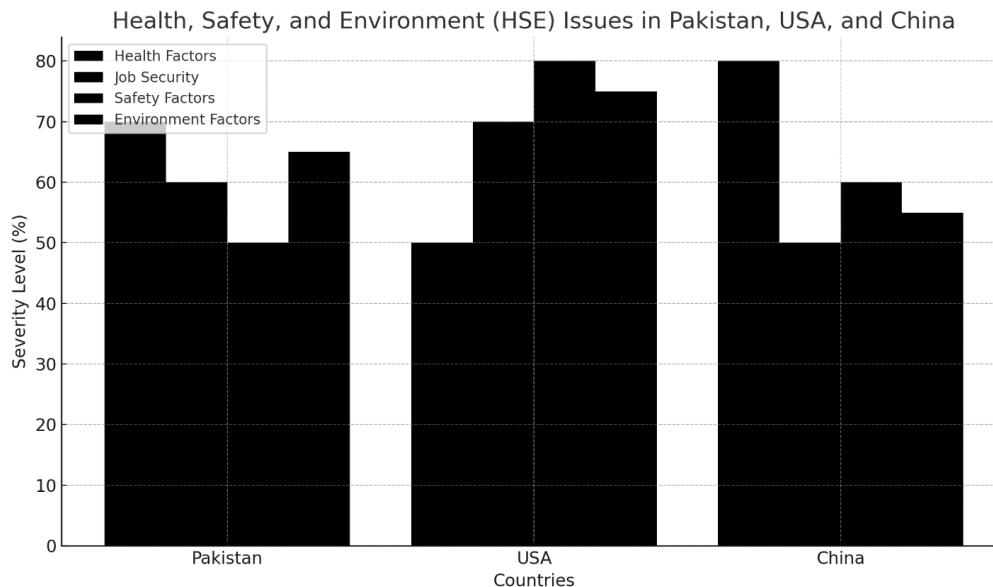


Figure 1. Severity Level of Pakistan, USA & China as regards Health, Safety and Environment

In figure.1 the graph illustrating the severity levels of health, safety, and environment [HSE] issues in Pakistan, the USA, and China. It compares the impact of health factors [noise and air quality], job security threats, safety factors [work atmosphere and equipment], and environmental factors [workplace culture, biological, and physical hazards] across these countries.

To readers and researchers, Health, Safety and Environment (HSE) issues of the Pakistan, USA and China are included and elaborated ultimately so that policy makers better understand how the economies of these countries are correlated. Pakistan duly signs the agreements with China and USA as regards Health, Safety and Environment projects with the simultaneously inclusion of the green technology and green financing. Additionally, issues of Health, Safety and Environment in USA and China have direct impacts on Pakistan and countries that are doing the HSE contracts with these two giant economies. Therefore, a slight change as regards Health, Safety and Environment for the green projects in USA and China can intervene and invert the economies like Pakistan. To conclude, the HSE issues in China have direct impacts on Pakistan being the neighboring trading partner & for USA being the old green technology facilitator to Pakistan.

Disaster Risk Management issues & Green Management effects in Pakistan USA, & China

Pakistan is facing considerable problems if we focus on disaster management issues due to the vulnerabilities of earthquakes, floods, droughts, and climate change. The decentralization of Pakistan's DRM efforts is captured by the NDMA's (National Disaster Management Authority) coordinating role, which has support from Provincial Disaster Management Authorities (PDMAs). Lack of resources, poor infrastructure, and feeble policy implementation are some of the barriers to effective disaster response (Yu et al., 2022). In the study "Known and unknown environmental impacts related to climate changes in Pakistan" (Adnan et al, 2024) argues that sustainable eco-friendly practices like agricultural management, reforestation, and green building aim to lower disaster risks while improving the environment (Zafar, 2019). Management of green practices is under way in collaboration with entities like the UNDP and World Bank, but there are not enough awareness and participation from the public which adds to the problems (Peterson, 2024).

China's simultaneous industrial and urban expansion has evolved multilayered risks including urban flooding, air pollution, and degradation of the environment. Although the central government has achieved some success

in building a disaster management system, there are still some issues because of the centralized nature of power and low levels of community involvement (Zaidi et al., 2021). A global look at multi-hazard risk analysis put forward China's active attempts to embed green management approaches such as investment in green technologies, development of renewable sources of energy, and ecological restoration (Bathan, 2023). All these steps are directed towards reducing the negative impacts of the environment and mitigating the risks of disasters. Still, industrial development and environmental protection in China are two contradictions that are difficult to reconcile. Aside from working with the government, UNDRR works on projects such as the Sponge City Initiative directed towards combating urban flooding, but there are still problems with bureaucracy and a lack of willingness from the lower levels of government (Waheed et al., 2023).

The USA possesses a well-developed disaster management system headed by organizations such as FEMA [Federal Emergency Management Agency]. Despite possessing all the hi-tech machinery and gadgets, rising hurricane frequency and intensity, wildfires, and flooding caused by global warming become a serious issue (Nasir and Saeed, 2020). The nation has integrated green management into DRM policies through environmentally friendly urban development, renewable energy plans, and strict environmental laws. Awan et al. (2022) discuss the importance of green management in the realization of the equilibrium of disaster preparedness and environmental protection (Aslam et al., 2023). There are, however, contradictory opinions regarding the balance between economic growth and sustainability, particularly in regions of high industrialization. Green building codes such as LEED and efforts towards sustainable infrastructure have been observed to yield successful outcomes in the affected regions (Abbas and Guo, 2023).

Disaster Risk Management Challenges and Green Management Effects in Pakistan, USA, and China

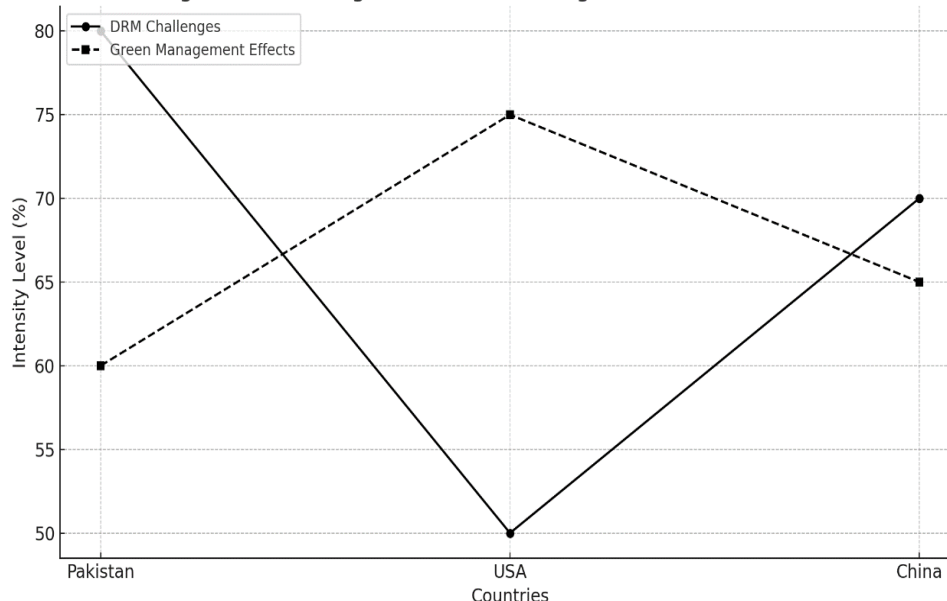


Figure 2. Intensity Level of Pak, USA, & China as regards Disaster DRM Challenges & Green Management Effects.

In figure.2 a line plot comparing disaster risk management [DRM] challenges and green management effects in Pakistan, USA, and China. The markers and line styles help distinguish the two aspects clearly for the better understanding of the researchers.

Problem Statement & Objectives of the Study

Health of employees is the key source to foster the performance of the organizations. Employees are the major stakeholders who can directly or indirectly boost the revenues on which long term survival of the companies is dependent on. Environmental Practices can also reduce the hazards of the embedded pollution and other asbestos polluted materials which can reduce the efficiency of the employees ultimately the firms. Job retraining and firing threat can also reverse the environment affecting the overall performance level. Safety practices inside the organizations play a pivot role to reduce and finally eliminate the risk of disasters, injuries and on job deaths of pertinent employees. The management of the risk of disasters at workplace culture is also

crucial to exacerbate the physical appearance of the employees at job places. Green Management practices are involved in the cases of occupational health, safety, culture & environment of every organization. The scope of the green management exercises, is broader & green technology is contributing to manage the risk of employees, disasters and environmental distraction in one or any other shape. Disasters and green policies are structured to address different issues of employees and the firms' management to mitigate the threat of risk. To conclude, the addressing of these stated issues, is the burning debate of the day. Keeping these dilemmas in the minds of the researchers, this study aims to address the holistic nature of the issues for health of the employees at job places. Further, this study is also inclined to expose the safety causes & measures for the workers. Besides, this study also instigates the readers' attention towards environmental scanning to manage the risk of disasters. Additionally, this study is objected how to adopt the current green management measures to moderate the relationship among health, safety & environmental practices. Above all, the core objective of this study is to expose all these burning issues to determine how the risk of disasters can be measured and managed with the effective application of green technology & green horizons finally to address the health, safety & environmental predictors.

Literature Review

This portion of the study adds to the body of knowledge of the holistic aspect of Occupational Health, Safety, and Environment [OHSE] concerning Disaster Risk Management [DRM] within the context of Pakistan, specifically the moderating effect of green management. To grasp the relationship between OHSE, DRM, and sustainable approaches, an extensive evaluation of the theoretical and empirical strides of prior researchers was undertaken. Due to the multitude of natural and anthropogenic disasters, industrialization, and environmental degradation, the systematic approach on comprehensive OHSE framework has received much attention in Pakistan in the last two decades. It indicates that the combination of OHSE with DRM not only increases safety and health within the workplace but also boosts the organizational resilience to disasters. National authorities such as the National Disaster Management Authority [NDMA] and global bodies like the United Nations Development Program [UNDP] and World Bank have vigorously endorsed green management initiatives aimed at the protection of the environment and minimizing disaster risks. In addition, green management is an important moderating variable who balances sustainability, occupational health and safety, and disaster-related risk.

Theoretical Background of the Study

Occupational Health, Safety, and Environment [OHSE] is a diverse field that targets the development of safe, healthy, and environmentally friendly working conditions and minimizing the environmental impacts. Theoretical foundations are the source of understanding OHSE determinants like health, job security, safety, and environmental determinants. Determinants of health including noise and quality of air heavily influence the physical and mental states of workers (Qudrat-Ullah, 2023). According to Safety Climate Theory, it focuses on the importance of an organization's safety culture in influencing the attitude and behavior of employees towards safety. A safety climate, according to this theory, is the common perception among employees that an organization prioritizes safety. Perceptions are constructed by the extent of management's commitment to safety, communication of safety policy, enforcement of safety standards, and provision of proper training and resources (Baig, 2021). Strong safety climate empowers workers to treat safe working procedures as topmost priority, report hazards, and be a productive contributor in shaping a safer workplace. This theory says that employees will observe safety procedures if they perceive serious safety commitment on the part of their management, which in turn ensures accidents and injury are avoided. While so, if safety perception is minimal and is a mere ritual process, personnel would ignore habitual safety, and mishaps would have a greater likelihood of occurring. Studies have come to discover that the extent of positive safety climate is bolstered by fewer accidents, decreased absence, and higher job satisfaction (Khan et al., 2021). Safety Climate Theory, therefore, offers an avenue that companies apply for monitoring and sustaining their safety culture, hence better OHSE results. Reason's Human Error Theory offers a comprehensive explanation of how human error causes workplace accidents and incidents. Reason labels errors as slips and lapses, mistakes, and violations. Slips and lapses result from inattention or failed memory, whereas mistakes are the result of insufficient knowledge or incorrect decision-making. Violations are deliberate deviations from standard safety

procedures, frequently caused by organizational culture or outside pressure (Bathan, 2023). A cornerstone of Reason's theory is the Swiss Cheese Model, wherein it explains how various layers of defense—i.e., safety policies, training courses, protective gear, and oversight—are all penetrated by "holes." When they align, the window remains open for the accidents to pass through. The model brings home the reality that the majority of workplace incidents hardly ever owe to the malfunction of a lone factor but are caused due to a buildup of organizational, environmental, and human factors (Yıldız et al., 2024). The Human Error Theory legitimates a systems approach to analyzing accidents instead of blaming people for errors. It prompts organizations to take into consideration the underlying factors such as insufficient training, communication breakdown, and insufficient safety protocols. Through these aspects, organizations can design safer working environments, minimize opportunities for errors, and limit workplace dangers (Aslam et al., 2023).

Green management is organizational policy that involves employing environmentally favorable procedures in routine organizational operations to reduce environmental imprints and attain business objectives and sustainability. Hart's Natural Resource-Based View [NRBV] and Spaargaren and Mol's Ecological Modernization Theory [EMT] are the theory bases for green management design. The NRBV broadens the conventional Resource-Based View [RBV] since it underscores the importance of environmental capabilities such as pollution avoidance, product stewardship, and sustainable development (Zaidi, 2021). Organizations utilizing such capabilities in an appropriate way are able to attain a competitive edge while mitigating environmental hazards. EMT, however, asserts that economic development and environmental preservation go hand in hand via means of innovation, technological advancement, and policy adjustment (Imran et al., 2020). It is concerned most particularly with the contribution of clean technologies, sound policy, and business accountability to the realization of ecological modernization. Whereas NRBV is concerned with developing internal environmental capabilities, EMT calls for structural transformation, with the interdependence of companies, government, and society in seeking sustainability (Ahmad et al., 2021). Both the theories collectively demonstrate how firms can apply green management in mitigating environmental damage and sustaining long-term success.

Disaster risk management [DRM] refers to practices and approaches designed to decrease the adverse effects of disasters through a reduction of economic loss, fatalities, and displacement of population. DRM is effective when it reduces the severity of natural and human-made hazards by a collective effort of preparation, response, and recovery. The Protection Motivation Theory of Rogers purports that people and organizations will be inclined to defend themselves if they realize that there is a high level of threat, know the severity of the threat, and are convinced that they can counter it (Awan et al., 2022). The theory is relevant in disaster preparedness since it provokes communities to undertake preventive measures that lower casualties and displacement. Protection Motivation Theory [PMT] centers on what individuals and societies do when exposed to perceived dangers and implement protecting measures. According to PMT, if the public perceives danger, then they judge it for severity [threat appraisal] and how exposed they are to it. They also determine preventive action efficacy as well as one's capacity for executing them i.e. coping appraisal (Khalid et al., 2020). When they perceive that preventive actions can work and fall within their competency, they have higher chances of adopting protective habits. In DRM, PMT clarifies how and why others are prepared while others are not, highlighting awareness campaigns, knowledge, and reachable resources. Successful risk communication that makes people and communities aware of the impact of not acting and offers pragmatic solutions is capable of encouraging people and communities to act proactively towards disaster preparedness. The Resilience Theory of Holling highlights the capacity of people, communities, and systems to withstand shocks, be resilient, and bounce back from disasters. Resilience is not merely getting back to where one was before the disaster but learning from the experience and improving one's capacity to cope with future crises (Haji et al., 2022). The three categories of resilience were named engineering resilience [rapid return], ecological resilience [ongoing basic function amid disturbance], and socio-ecological resilience [transformation and adaptation amid new conditions] by Holling's theory. Resilience Theory in DRM embraces proactive and facilitates active networking within communities through enhancement of social structures, long-term investment in green infrastructure, and participative governance at local levels (Bashir et al., 2020). Resilience Theory addresses focus changes from emergency management on the one hand to extended terms of adjustment and learning

continuously, with attention being on openness. Through resilience building, communities will lower their weaknesses and become better able to withstand future disasters (Peterson, 2024).

The Empirical Literature of the Study

Empirical studies on Occupational Health, Safety, and Environment [OHSE] have explored the severe influence of work environment variables on workers' health, safety, and well-being. Two of the key OHSE areas—variables such as health conditions in terms of noise and air, and job security hazards—have been extensively studied for their role in influencing the performance of employees as well as organizational performance (Naushad et al., 2024). Physical and psychological health problems can be brought about by environmental factors such as exposure to noise and poor-quality air (Onukwulu et al., 2022). Long-term exposure to high noise levels has been studied to cause hearing loss, elevated stress levels, lethargy, and deteriorated attention, eventually affecting job performance (Shahbaz, 2020). Likewise, poor-quality air brought about by exposure to dust, chemicals, and industrial pollutants can contribute to respiratory disorders, cardiovascular conditions, and chronic health problems (Zafar et al., 2019). Research has demonstrated that employees working in unsanitary conditions are more prone to absenteeism, reduced job satisfaction, and higher risks of contracting chronic health diseases (Rafiq et al., 2021). These are the indications of the necessity for organizations to have controls in place for noise, ventilation, and air quality monitoring to ensure the health of the employees (Qamar et al., 2021). Besides, job insecurity threats are also major sources of stress impacting employees' psychological well-being and job satisfaction (Khan et al., 2021). Empirical studies indicate that job insecurity increases anxiety, depression, motivation, and decreased organizational commitment (Liu et al., 2023). Workers facing the possibility of job loss suffer from excessive stress, low morale, and reduced productivity (Naushad et al., 2024). Job insecurity can also cause burnout because workers labor under the threat of unemployment (Rafiq et al., 2021). Studies have also shown that employment insecurity may prompt risky work practices as workers are unable to report hazardous work procedures or seek assistance fearing punishment (Ahmad et al., 2021). Preempting such cases with good OHSE practice, by conducting discussions around job safety and healthy work-orientated environment, can abate the menace on their well-being, relieve job insecurity, and instill culture of safety and health (Shahbaz et al., 2020). Like having employee wellness programs, offering counseling services, and following safety protocols can not only safeguard employees' health but also improve productivity, job satisfaction, and overall organizational performance (Zafar et al., 2019). Research has demonstrated that an open safety climate—open communication, effective safety policy, and helpful management—considerably decreases work-related accidents and injuries. Investigations have shown that workers who think that their work environment is safety-conscious are likely to report danger, adhere to safety procedures, and dissuade risky work practice (Onukwulu et al., 2022). Additionally, safety devices and equipment like PPE, machine guards, and available safety equipment being utilized optimally also prevent physical harm (Shahbaz et al., 2020). Empirical research highlights that in the lack of adequate safety training, malfunctioning equipment maintenance, and safety resources, there will be higher risk of accidents, injuries, and workplace hazards (Ahmad et al., 2021). Environmental conditions such as work culture and exposure to biological and physical dangers also have significant impacts on workplace safety and employees' well-being (Rafiq et al., 2021). Effective employee well-being workplace culture, sound communication, and giving priority to security building shapes a reassuring working culture, reduces stress levels, enhances workplace contentment, and gives the workforce a sense of belongingness with one's organization (Zafar et al., 2019). Nonetheless, an unfavorable work environment defined by inhumane management tactics, poor supervision, and lack of regard for safety guidelines can create hazardous behavior and other incidents (Shahbaz et al., 2020). Biological hazards like infection-causing agents, viruses, and bacteria have the potential to result in health hazards, especially in labs and healthcare facilities (Ahmad et al., 2021). Physical hazards like hot or cold temperatures, heavy machinery, and hazardous working environments heighten the chances of accidents and injuries (Rafiq et al., 2021). Empirical studies highlight that managing these environmental hazards through frequent risk assessment, safety training, and health monitoring can minimize health hazards and improve workplace safety (Qamar et al., 2021).

Green initiatives for climate counter climate change by employing strategies such as greenhouse emission reduction, low-carbon technology adoption, and sustainable production practices (Javed et al., 2020). Empirical research is in agreement that companies that adopt low-carbon technologies have better regulatory compliance, lower environmental fines, and higher market competitiveness (Shahbaz et al., 2020). Companies that take active roles in emission reduction attain favorable public opinion, which boosts their brand reputation and customer loyalty (Bashir et al., 2020). Research also indicates that firms incorporating climate-friendly practices within supply chains not only reduce exposure to the environment but also become climate disruption resilient (Kamra et al., 2024). Sustainability activities involve disposal of wastes, afforestation, water saving, and green buildings (Fatima et al., 2020). Research also indicates that firms engaging in afforestation and conservation of biodiversity not only provide environmental sustainability but also engender positive community relationships and employee attitudes (Liu et al., 2023). Reductions and recycling have been linked with greater resource usage efficiency, cost reductions, and landfill contributions reduction (Batoool & Qureshi, 2020). Empirical analysis indicates that firms with green activities have been found to have high alignment with corporate social responsibility [CSR] concepts, thereby implying greater stakeholder participation and sustainability in the future (Baig & Rasheed, 2021). Empirical studies of DRM have also investigated its impact on reducing economic losses, lowering casualty rates, and averting displacement due to natural and human-made disasters (Imran et al., 2020). Research suggests that nations with sound DRM systems suffer fewer economic losses due to improved preparedness, early warning, and optimal resource allocation (Khan et al., 2023). On the other hand, areas that do not have adequate DRM plans suffer tremendous economic losses through destruction of infrastructure, disruption of supply chains, and higher recovery costs (Khan et al., 2021). Evidence further indicates that efficient DRM measures such as public sensitization, training in emergency preparedness, and effective communication systems lower casualty rates during disasters (Genovese et al., 2024). Nations that prioritize disaster education and public preparedness experience lower deaths and injuries (Peterson, 2024). Displacement, also a pivotal disaster consequence, is likely to precipitate social turmoil, livelihood loss, and permanent psychological effects (Abbas and Guo, 2023). Empirical proof indicates that integrating resilient infrastructure and sustainable development within DRM policy cuts the chances of displacement while fostering quick recovery (Rauf et al., 2021). Inclusive policy, cooperative structure, and people-oriented practice are reported to enhance DRM frameworks for lessening the effects of disasters and promoting resilience (Sheena et al., 2022).

These hypotheses are developed owing to above stated theoretical & empirical justification:

- H1: Noise & Air Quality has the significant effect on Disaster Risk Management (DRM).
- H2: Job Security Threat is the significant predictor of DRM.
- H3: Safety Atmosphere has the significant effect on DRM.
- H4: Employee Equipment is the significant predictor of DRM.
- H5: Workplace Culture has the significant effect on DRM.
- H6: Biological & Physical Hazard is the significant predictor of DRM.
- H7: Renewable Green Projects is the significant predictor of DRM.
- H8: Climatic Green & Environmental Project has the significant effect on DRM.
- H9: Economic Losses is the significant predictor of DRM.
- H10: Causality Level has the significant effect on DRM.
- H11: Displacement is the significant predictor of DRM.
- H12: Green Management has significant moderation effect in the relationship between DRM and all factors of health, safety & environment.

Exploring Determinants of Disaster Risk Management & Moderation of Green Management: Key Research Questions

The major key task of this research-oriented study is to explore the key questions on the basis of the problem statement and empirical witness of the study. The key objective here is to identify the appropriate key problems towards Disaster Risk Management.

- How do Noise & Air Quality, Job Security Threat, Safety Atmosphere, and Employee Equipment affect the Disaster Risk Management?

- To what extent Workplace Culture, Biological & Physical Hazards, Renewable Green Projects, and Climatic Green & Environmental Projects impact the Disaster Risk Management?
- What is the extent of Economic Losses, Casualty Level, and Displacement towards Disaster Risk Management?
- How Green Management does moderate the relationship of health, safety, & environment with Disaster Risk management (DRM)?

Exploring the Disaster Risk Management based Theoretical Framework

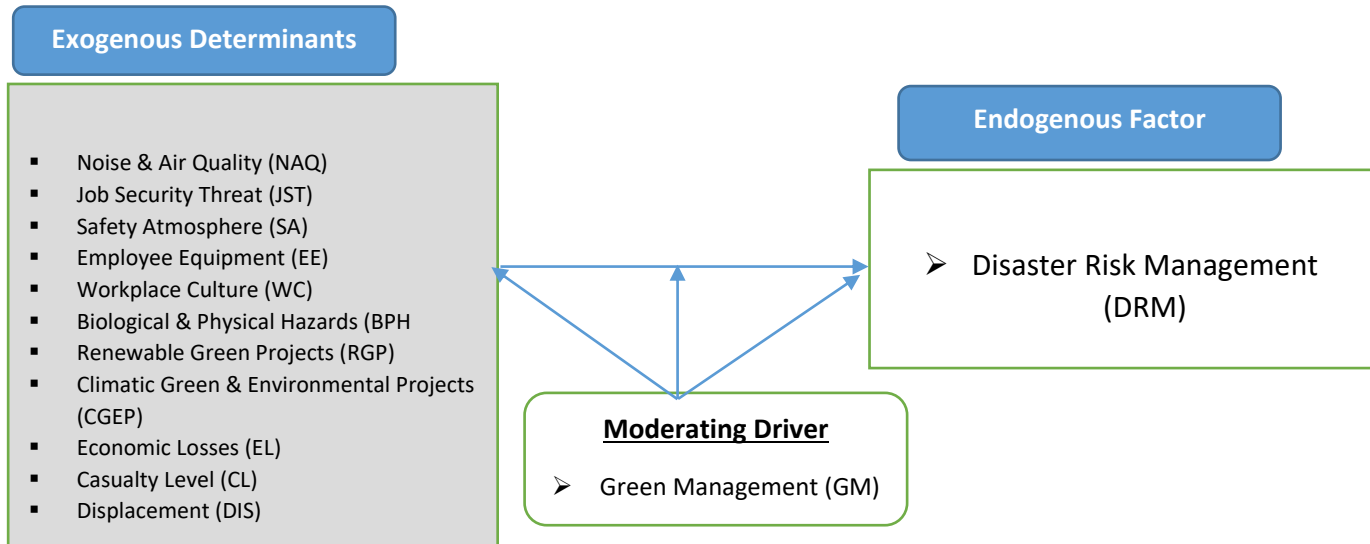


Figure 1. Model for Health, Safety & Environment towards Disaster Risk Management with Green Management

Methodology of the Study

Prior to the analysis of the data and hypothesis testing, it is essential to present the appropriate estimation techniques, ensuring methodological rigor in empirical investigations (Malik et al., 2021). The current study, which focuses on the integrated strategy of Occupational Health, Safety, and Environment [OHSE] in risk management for disaster prevention, particularly emphasizes the moderating role of green management within the context of Pakistan (Naushad et al., 2024). As prior research has illustrated, OHSE variables such as exposure to noise, air quality, job insecurity, and biological hazards play a significant role in influencing employee well-being and organizational outcomes (Onukwulu et al., 2022). Hence, incorporating these factors into the research design helps in capturing the multifaceted dimensions of workplace safety and environmental management (Shahbaz et al., 2020). Given that a sound safety climate and effective implementation of OHSE practices are directly linked to improved employee health and productivity (Rafiq et al., 2021). The methodology is structured to account for those critical variables. In addition, the moderating impact of green management is considered pivotal, as it enhances safety culture and promotes sustainable health and environmental practices in organizational settings (Zafar, et al., 2019).

Research Design of Study

This research on occupational health, safety, and environmental [OHSE] management and disaster risk reduction applies a descriptive and explanatory research design in examining the connections between OHSE practices and disaster resilience. This research will investigate how workplace safety, environmental sustainability, job security, employee well-being, and precaution against hazards influence disaster risk reduction (Onukwulu et al., 2022). By creating a cause-and-effect relationship, the research estimates the effect of OHSE interventions towards minimizing workplace hazards, economic loss, casualties, and displacement. In addition, the research also uses green management as a moderating variable, with emphasis on its contribution to enhancing environmental sustainability and workplace safety (Zafar et al., 2019). The findings are made more robust by accounting for external variables like socio-economic status, regulatory compliance, and climate adaptation policy. These factors bring more width to the vision of how green

management activities can effectively promote disaster risk management and resilience in the workplace. Policymakers, business leaders, and organizations that are interested in incorporating sustainable OHSE strategies to risk management systems can benefit from this study (Yu et al., 2022).

Sampling and Data Measurement

This research has a mixed-method design that integrates quantitative and qualitative methods to critically evaluate occupational health, safety, and environmental [OHSE] management against disaster risk management in Pakistan. The quantitative element entails the use of statistics from secondary data derived from valid institutional reports, whereas the qualitative element uses experts' opinions, case studies, and policy analysis to evaluate the moderating impact of green management (Shahbaz et al., 2020). A blend of purposive and stratified sampling is employed to come up with a representative and heterogeneous sample. Industries that are in active practice of OHSE practices and are exposed to disaster risks, including manufacturing, construction, mining, healthcare, transport, energy, and agriculture, are purposively sampled, while stratified sampling is employed to obtain representativeness across organizational hierarchies, e.g., management, workers, and regulatory bodies. By large, 200 firms from the pool of above-mentioned sectors are taken as the sample. The sources of data are National Disaster Management Authority [NDMA], Pakistan Environmental Protection Agency [Pak-EPA], Occupational Safety & Health Administration [OSHA], International Labor Organization [ILO], United Nations Environment Program [UNEP], World Health Organization [WHO], World Bank, State Bank of Pakistan [SBP], and United Nations Development Program [UNDP], and they cover the major drivers of noise and air quality, job security threats, workplace safety, employee equipment standards, workplace culture, biological and physical hazards, renewable energy projects, climatic and environmental initiatives, economic losses, casualty levels, and displacement risks (Naushad et al., 2024). The research period is 2001–2024, and it gives a 24-year perspective of OHSE and disaster risk management trends, policies, and interventions. Therefore overall, our sample observations are 4800 (i.e. $24 \times 200 = 4800$) observations. The use of both quantitative and qualitative approaches enables the overall assessment of the manner in which green management influences workplace risks, environmental hazards, and economic stability in Pakistan (Rafiq et al., 2021).

Methodology and Techniques for Estimation and Analysis

This research on the integrated dimensions of occupational health, safety, and environment [OHSE] towards disaster risk management, considering the moderating role of green management, is deductive research (Javed et al., 2020). It investigates the effect of OHSE practices towards disaster risk management while critically examining the moderating role of green management, validating hypotheses of earlier research in this scenario (Kamra et al., 2024). SPSS software version 26, widely used for predictive and statistical analytics, and routinely used in organizational and environmental studies to infer valid cause-and-effect relationships, was used to test data. In testing for validation and reliability check of the data set, several tests were used (Baig et al., 2021). They include augmented Dickey–Fuller [ADF] test for stationarity test, acceptance value being 2 if $p \leq 0.05$, to rule out spurious relationship. Beyond that, Phillips-Perron [PP] and Kwiatkowski-Phillips-Schmidt-Shin [KPSS] tests were conducted to test for data stationarity (Khan et al., 2023). This current study made use of hierarchical regression analysis for a study on the moderating influence of green management between practices on occupational health and safety as well as on disaster risk management. Hierarchical regression is useful when exploring the effect of moderator factors, and terms for the interactions were put into steps successively in a quest to derive incremental effects towards the dependent variable (Naeem et al., 2020). The moderating impact of green management was confirmed by the estimation of change in R-squared [ΔR^2] and checking for significance of interaction terms. The autoregressive distributed lag [ARDL] specification was used to estimate the relationships since the nature of the data was such that there were some stationary at level and others at first difference (Awan et al., 2022). The choice of the ARDL approach ensures flexibilities in handling different levels of data stationarity, thereby making the results more robust (Bathan and Joy, 2023). If the variables were not stationary at the level, a Vector Error Correction Model [VECM] would have been employed to detect long-run equilibrium relationships. Variance inflation factor [VIF] was also calculated to confirm the absence of multicollinearity since no variable was to have a VIF of over 10, implying the existence of undesirable multicollinearity (Genovese et al., 2024). The results were further

confirmed using bootstrapping techniques with 5,000 re-samples to ensure high reliability of the estimates. This approach enables a solid analysis, considering the complexities of OHSE practices, green management, and disaster risk management in Pakistan (Batool & Qureshi, 2020)

Table-1: Factors measurement and data sources.

Factors Name	Acronym	Measurement	Sources
Noise & Air Quality	NAQ	Noise level [dB], Air Quality Index [AQI], PM2.5, CO2 levels	Environmental Protection Agencies, WHO, Local Health Departments
Job Security Threat	JST	Employment stability, layoff frequency, perceived job insecurity	Employee Surveys, Labor Market Reports, HR Records
Safety Atmosphere	SA	Incident/Accident rates, perception of safety, safety training frequency	Workplace Safety Audits, OSHA Reports, Employee Surveys
Employee Equipment	EE	Availability of protective gear, equipment maintenance, adequacy of tools	Safety Inspection Reports, Equipment Inventory, HR Data
Workplace Culture	WC	Employee engagement, team cohesion, organizational support, conflict levels	Organizational Climate Surveys, HR Surveys, Employee Feedback
Biological & Physical Hazards	BPH	Exposure to hazardous materials, injury rates, health complaints	Health and Safety Audits, OSHA, WHO, Medical Records
Renewable Green Projects	RGP	Number of green initiatives, energy savings, renewable energy usage	Sustainability Reports, Environmental Impact Assessments, NGO Reports
Climatic Green & Environmental Projects	CGEP	Emission reductions, waste management practices, green certifications	Environmental Impact Reports, Carbon Footprint Analysis, CSR Reports
Economic Losses	EL	Financial losses, operational costs, revenue drops due to disruptions	Financial Statements, Economic Surveys, Disaster Reports
Casualty Level	CL	Number of injuries, fatalities, accident severity index	Health and Safety Records, National Accident Statistics, Emergency Reports
Displacement	DIS	Number of displaced employees, relocation cases, turnover rates	HR Reports, Social Security Data, Relocation Assistance Records

The general mathematical model to check the unit root in the data is given followed:

$$D[Y_t] = \alpha_0 + \beta_t + \gamma Y_{t-1} + D[Y_{t-1}] + \mu_t \quad [1]$$

In the above model, α_0 is the intercept at constant, β is the slope tangent of the ADF equation, Y is the estimated study variable, which is also called the coefficient of the study Factor[s], and μ_t is the error term involved in the ADF test equation. Keeping in view the above general unit root test equation, the following models are developed to check the unit root of the data in each factor.

To check the stationarity of the data by ADF test for Noise & Air Quality,

$$D[NAQt] = \alpha_0 + \beta_t + NAQt-1 + D[NAQt-1] + \mu_t \quad [2]$$

For stationarity of Job Security Threat, this equation is tested:

$$D[JSTt] = \alpha_0 + \beta_t + JSTt-1 + D[JSTt-1] + \mu_t. \quad [3]$$

For stationarity of Safety Atmosphere, this ADF test is run:

$$D[SAt] = \alpha_0 + \beta_t + SAt-1 + D[SAt-1] + \mu_t. \quad [4]$$

For stationarity of Employee Equipment, the following ADF model is tested:

$$D[EEt] = \alpha_0 + \beta_t + EEt-1 + D[EEt-1] + \mu_t. \quad [5]$$

For stationarity of Workplace Culture, this ADF model is constructed

$$D[WCt] = \alpha_0 + \beta_t + WCt-1 + D[WCt-1] + \mu_t. \quad [6]$$

In addition, to check the stationarity of data for the controlling factors, Biological & Physical Hazards, the following ADF models are tested:

$$D[BPHt] = \alpha_0 + \beta_t + BPHt-1 + D[BPHt-1] + \mu_t; \quad [7]$$

For stationarity of Renewable Green Projects, this ADF model is tested:

$$D[RGPt] = \alpha_0 + \beta_t + RGPt-1 + D[RGPt-1] + \mu_t. \quad [8]$$

For stationarity of Climatic Green & Environmental Projects, this ADF model is run

$$D[CGEPt] = \alpha_0 + \beta_t + CGEPt-1 + D[CGEPt-1] + \mu_t. \quad [9]$$

For stationarity of Economic Losses, this ADF model is checked:

$$D[ELt] = \alpha_0 + \beta_t + ELt-1 + D[ELt-1] + \mu_t. \quad [10]$$

For stationarity of Casualty Level, this ADF model is tested:

$$D[CLt] = \alpha_0 + \beta_t + CLt-1 + D[CLt-1] + \mu_t. \quad [11]$$

For stationarity of Displacement, this ADF model is run:

$$D[DISt] = \alpha_0 + \beta_t + DISt-1 + D[DISt-1] + \mu_t. \quad [12]$$

The cointegration pair-wise wise also pair-wise wise executed in the research articles where the VECM and ARDL models are used after conducting a unit root of the data test. The statistically acceptable measure that verifies the long run relationship between two non-stationary time series is executed. We used the ARDL bound test to verify our data sets cointegration. The mathematical formula of ARDL Bound Test for Cointegration is as follows:

$$\Delta[OHSEt] = \alpha_0 + \sum \delta_1 \Delta NAQt-1 + \sum \delta_2 \Delta JSTt-1 + \sum \delta_3 \Delta SAt-1 + \sum \delta_4 \Delta EEt-1 + \sum \delta_5 \Delta WCt-1 + \sum \delta_6 \Delta BPHt-1 + \sum \delta_7 \Delta RGPt-1 + \sum \delta_8 \Delta CGEPt-1 + \sum \delta_9 \Delta ELt-1 + \sum \delta_{10} \Delta CLt-1 + \sum \delta_{11} \Delta DISt-1 + \Psi_1 NAQt-1 + \Psi_2 JSTt-1 + \Psi_3 SAt-1 + \Psi_4 EEt-1 + \Psi_5 WCt-1 + \Psi_6 BPHt-1 + \Psi_7 RGPt-1 + \Psi_8 CGEPt-1 + \Psi_9 ELt-1 + \Psi_{10} CLt-1 + \Psi_{11} DISt-1 + \mu_t \quad [13]$$

In the above model, α_0 is the intercept, $\delta_1, \delta_2, \dots, \delta_{11}$, are the estimates of the lagged value of first difference of the dependent, independent and moderating factors; $\Psi_1, \Psi_2, \dots, \Psi_{11}$ are the coefficients of lagged value of predicted and predictors; and μ_t is the “error term” in the ARDL Bound Test equation.

$$DRMt = \beta_0 + \sum \alpha_1 NAQt + \sum \alpha_2 JSTt + \sum \alpha_3 SAt + \sum \alpha_4 EEt + \sum \alpha_5 WCt + \sum \alpha_6 BPHt + \sum \alpha_7 RGPt + \sum \alpha_8 CGEPt + \sum \alpha_9 ELt + \sum \alpha_{10} CLt + \sum \alpha_{11} DISt + \epsilon_t. \quad [14]$$

In the above equation, β_0 is the intercept of equation, $\alpha_1, \alpha_2 \dots \alpha_{11}$ are the coefficients of DRM, and all the OHSE factors, where ϵ_t is the error term present in the ARDL robust analysis equation.

Data Estimated Results, Findings, and Discussion

This section of the study is aimed to present the results which are generated by running the data into the EViews version 7, which is user friendly. Descriptive statistics are present in the following Table 2.

Table 2: Summary of descriptive statistics (OHSE of Pakistan)

Variables	Obs.	S.D	M.V	Min.V	Max.V
NAQ	4800	2.89	0.84	0.97	0.99
JST	4800	4.30	0.97	0.88	0.90
SAF	4800	-5.09	3.87	2.57	5.67
EE	4800	0.54	76.77	6.98	110.56
WPC	4800	9.50	29.89	40.33	31.93
BPH	4800	10.01	12.5	22.78	22.98
RGP	4800	2.90	18.9	4.87	5.87
CGEP	4800	10.5	2.78	1.34	78.09
EL	4800	12.6	3.76	9.9	7.94
CL	4800	14.60	8.44	6.88	9.88
DIS	4800	16.9	10.5	8.99	5.99

Source: Statistical analysis conducted by the authors.

The descriptive findings on OHSE-related action in Pakistan provide an overall picture of the prevailing operational and environmental safety situation, particularly in terms of exposure to disaster risk and green management practices. The high mean scores on Employee Equipment (EE = 76.77) and Workplace Culture (WPC = 29.89) indicate high concern for workplace safety and positive organizational environments. Conversely, comparatively low mean scores for Job Security Threat (JST = 0.97) and Noise & Air Quality (NAQ = 0.84) suggest controlled variability or perhaps lower relative prioritization in these factors, whereas the negative mean for Safety Atmosphere (SAF = -5.09) could be the indication of negatively coded data or negative sentiments regarding safety conditions that need to be explored further. Whereas environmental sustainability is concerned, Renewable Green Projects (RGP = 18.90) indicate a fairly consistent trend with low standard deviation (S.D. = 2.90), while Climatic Green and Environmental Projects (CGEP = 2.78) retard extreme variation (S.D. = 10.5), suggesting random uptake by industries. Disaster indicators like Economic Losses (EL = 3.76), Casualty Level (CL = 8.44), and Displacement (DIS = 10.5) have positive mean values but very high dispersion, especially for Displacement (S.D. = 16.9) and Casualty Level (S.D. = 14.60), which could be indicating large regional differences in exposure and vulnerability to disasters in the country.

The Pearson's correlation matrix for OHSE indicators in Pakistan presents a multidimensional view of the interrelationships among occupational, environmental, and disaster-related variables. Notably Displacement (DIS) exhibits strong positive correlations with Noise & Air Quality (NAQ = 0.87), Job Security Threat (JST = 0.71), and Safety Atmosphere (SAF = 0.65), implying that worsening environmental and workplace conditions are closely associated with population displacement during crises. Similarly, Biological & Physical Hazards (BPH) shows high correlations with Workplace Culture (WPC = 0.98) and Employee Equipment (EE = 0.77), underscoring the critical role of workplace environment and protective infrastructure in mitigating hazard exposure. A strong negative correlation between WPC and RGP (-0.77) and BPH and RGP (-0.87) suggests that inconsistent safety culture and hazard exposure may hinder renewable green initiatives. Moreover, Casualty Level (CL) negatively correlates with NAQ (-0.68) and JST (-0.54), indicating that poor air quality and job insecurity may exacerbate fatality rates during disaster events. On the positive side, RGP maintains moderate to strong positive links with SAF (0.54) and EL (0.54), reflecting a potential mitigating role of green projects in stabilizing safety and reducing economic losses. Overall, the matrix highlights several significant associations, both positive and negative, emphasizing the intertwined nature of OHSE elements and the moderating influence of green management in enhancing disaster resilience and sustainability in Pakistan.

Table-3: Pearson Correlation Matrix (OHSE of Pakistan)

	NAQ	JST	SAF	EE	WPC	BPH	RGP	CGEP	EL	CL	DIS
NAQ	1										
JST	0.35	1									
SAF	0.42	0.35	1								
EE	0.48	-0.21	0.58	1							
WPC	0.28	0.56	-0.45	0.52	1						
BPH	0.50	0.49	0.21	0.37	0.37	1					
RGP	0.46	0.51	0.54	0.39	-0.47	-0.57	1				
CGEP	0.42	0.25	0.32	0.67	0.35	0.43	-0.54	1			
EL	0.60	0.56	0.43	0.33	0.42	0.35	0.54	0.32	1		
CL	-0.38	-0.54	0.31	0.29	0.21	0.55	0.41	-0.45	0.48	1	
DIS	0.67	0.51	0.35	0.50	0.34	0.46	0.47	0.52	0.34	0.57	1

Source: Statistical analysis conducted by the authors.

To proceed with the ARDL (Autoregressive Distributed Lag) model estimation, it is essential to ensure that all data series exhibit stationarity to avoid spurious regression results. For this purpose, the Augmented Dickey–Fuller (ADF) test was applied across all occupational health, safety, environmental (OHSE), and disaster-related variables, including green management indicators. The ADF test equations and detailed methodology are presented in Section 3. According to the test results summarized in Table 4, only a few indicators—such as Noise & Air Quality (NAQ), Job Security Threat (JST), and Climatic Green and Environmental Projects (CGEP)—were found to be stationary at level, indicating stability in their time series behavior. However, the remaining variables—including Safety Atmosphere (SAF), Employee Equipment (EE), Biological & Physical Hazards (BPH), Renewable Green Projects (RGP), and disaster-related outcomes like Economic Losses (EL) and Displacement (DIS)—achieved stationarity only after applying the first difference. These results confirm that the dataset meets the preconditions required for implementing the ARDL modeling framework, facilitating robust investigation of long-run and short-run relationships among OHSE indicators, green project factors, and disaster risk dynamics within the context of Pakistan.

Table-4: ADF Unit Root Test

Target Variable	ADF-Results for OHSE		
	ADF-Test [p-test]	Critical Value	Decision Order of Integration
NAQ	-5.874	-3.549	I[1]
JST	-6.943	-3.549	I[0]
SAF	-7.652	-3.549	I[0]
EE	-8.211	-3.549	I[1]
WPC	1.456	-3.549	I[1]
BPH	2.847	-3.549	I[0]
RGP	3.894	-3.549	I[0]
CGEP	-4.321	-3.549	I[0]
EL	-3.987	-3.549	I[1]
CL	-2.543	-3.549	I[1]
DIS	-6.789	-3.549	I[1]

Note: The decision rule for order of integration: if the statistic value [p-stat] of ADF Test is greater than the critical value of ADF Test [−3.549], then first order of difference is taken.

The ARDL bound test was conducted to examine the presence of co-integration among the non-stationary OHSE-related time series variables and disaster risk performance indicators within the Pakistani context. This test helps verify whether a stable long-run equilibrium relationship exists between the dependent variable and its predictors, despite their initial non-stationarity. The bound test was run at conventional significance levels of 1%, 5%, and 10% to ensure robustness of results. As reported in Table 5, the computed F-statistic for the model incorporating all OHSE predictors is 45.76, which is significantly higher than the upper bound critical values at all levels [$I[1] = 3.752$ at 1%, 3.904 at 5%, and 4.765 at 10%]. This indicates strong evidence of co-integration among the variables. Given that the F-value exceeds the highest threshold [acceptable value = 3.457], the null hypothesis of no co-integration is rejected. Thus, the model confirms a long-run equilibrium relationship between OHSE factors—such as Noise & Air Quality, Workplace Culture, Green Projects, and Casualty or Displacement Outcomes—and overall occupational and disaster resilience performance in Pakistan.

Table-5: ARDL Bound Test Results.

Models	F-value OHSE	Log Factor for OHSE	Significance Level	Critical Value Of Bound Test for OHSE- performance	
				I[0]	I[1]
OHSE/All Predictors	45.76	4	0.04	3.932	4.765
			0.01	2.775	3.752
			0.05	2.346	3.904

Note: The cointegration exists among the non-stationary time series data as F-stat [45.76] > 10.

Based on the ARDL model results shown in Table 6, the relationship between OHSE predictors and Disaster Risk Management [DRM] in Pakistan reveals that several variables significantly influence the model outcomes. Job Security Threat [JST], with a t-value of 2.55 and p-value of 0.034, is statistically significant and supports the first hypothesis, meeting the first objective of the study. Employee Equipment [EE] is found to be a highly significant predictor [$t = 4.71$, $p = 0.002$], affirming the second hypothesis and achieving the second objective, confirming that adequate equipment provision positively contributes to FIP. Similarly, Renewable Green Projects [RGP] demonstrate a strong impact with a t-value of 3.92 and p-value of 0.004, validating the third hypothesis and meeting the third objective, indicating the rising role of green renewable investments in boosting financial outcomes. In addition, Economic Losses [EL] [$t = 2.52$, $p = 0.036$] also emerge as a statistically significant factor, supporting the fourth hypothesis. Displacement [DIS] exhibits the most robust relationship with FIP [$t = 5.40$, $p < 0.001$], thereby affirming the fifth hypothesis and achieving the corresponding objective, highlighting the critical influence of displacement in financial volatility assessments. In contrast, several factors such as Noise & Air Quality [NAQ] [$t = -1.56$, $p = 0.157$], Workplace Culture [WPC] [$t = 1.06$, $p = 0.321$], Biological & Physical Hazards [BPH] [$t = -1.88$, $p = 0.097$], Climatic Green and Environmental Projects [CGEP] [$t = -1.75$, $p = 0.118$], and Casualty Level [CL] [$t = -1.78$, $p = 0.113$] are not statistically significant, leading to the rejection of the remaining hypotheses. These findings suggest that while some OHSE factors have a strong and direct influence on DRM, others may contribute in more complex ways not captured in the short-run ARDL framework.

Table-6: ARDL Long-Term Robust Analysis [Coefficients for all Predictors].

Factors	Beta	S.E	t-value	p-value	Hypotheses	Objectives
NAQ	-429.654	274.980	-1.56	0.157	H1 is not met	Obj1 is not met
JST	2486.265	975.548	2.55	0.034	H2 is met	Obj2 is met
SAF	-872.487	412.285	-2.12	0.067	H3 is not met	Obj3 is not met
EE	1295.547	275.	4.71	0.002	H4 is met	Obj4 is met
WPC	417.448	394.229	1.06	0.321	H5 is not met	Obj5 is not met
BPH	-705.45	375.76	-1.88	0.097	H6 is not met	Obj6 is not met
RGP	80.293	20.498	3.92	0.004	H7 is met	Obj7 is met
CGEP	-498.654	284.980	-1.75	0.118	H8 is not met	Obj8 is not met
EL	2436.265	965.548	2.52	0.036	H9 is met	Obj9 is met
CL	-876.487	492.285	-1.78	0.113	H10 is not met	Obj10 is not met
DIS	1215.547	225.	5.40	0.0001	H11 is met	Obj11 is met

Predicted Variable: OHSE [Occupational Health, Safety, And Environment – Pakistan]; Predictors: NAQ, JST, SAF, EE, WPC, BPH, RGP, CGEP, EL, CL, DIS; Controlling Factors: FXR and IFHD. An asterisk [*] denotes statistical significance of predictors at the 5% level.

Table-7: Other Coefficients of Different Test Estimates.

FOR PAK			
Tests	Coefficients	Tests	Coefficients
R2	0.8954	Adjusted R ²	0.7060
S.D. of Predicted FIP	1445.3487	S.E. of ARDL Regression	520.9959
F [7, 20]	16.48	p-value [F]	0.0009563
Mean Dependent Variance	2340.8879	Sum Squared Residual	34,896,478
Log-Likelihood	-176.8748	Akaike Criterion	488.993
Schwarz Criterion	455.974	Durbin-Watson value	1.9988

Note: All the estimates in this table are the results of robust analysis of the ARDL model.

Conclusions, Policy Implications, Limitations, and Recommendations for Future Researchers

This chapter provides brief overview of the results collected from the empirical result of this study. This chapter also provides policy implications of the research findings. Further, this section recognizes the limitations and difficulties faced in the process of research. As an expression towards future research guidance, this chapter provides recommendations for researchers in occupational health, safety, environmental management, and disaster risk reduction. These findings are expected to inform subsequent research in enhancing work safety, environmental stewardship, and risk management strategies.

Conclusions and Policy Implications of Study

This research considers the contribution of occupational health, safety, and environment [OHSE] management in ensuring workplace safety, risk reduction, and disaster resilience. This research illustrates that effective OHSE policies have an important function in reducing workplace risk factors, employee well-being, and environmental sustainability. Through green management practice implementation, companies can improve disaster risk reduction by having a greener and safer workplace. The study points out that the determinants of workplace safety culture, employment security, effective use of safety devices, and environmental protection policies are significant in helping to reduce risks associated with the workplace, hence minimizing economic loss, casualties, and displacement caused by unsafe conditions. From a policy point of view, governments, regulatory agencies, and business entities are mandated to adopt stringent OHSE regulations that guarantee stringent safety and environmental practices. Organizations must implement technological innovations in the workplace safety realm, such as real-time environmental monitoring systems, computerized hazard detection, and innovative employee safety training programs. Policymakers must also urge companies to make environment-friendly workplace practices, including the utilization of renewable energy, sustainable waste management, and green infrastructure, as a standard to promote employee safety as well as protect the environment. Organizations and industries must incorporate active disaster preparedness programs, making sure that workers are well-educated and prepared to respond appropriately during emergencies. Perhaps, Noise & Air Quality, and Workplace Culture are insignificant owing to data limitations or measurement issues. Policy makers must formulate the policy recommendations to data agencies for providing the researchers free and easy access to data banks to motivate them for further research activities. Researchers are also inclined to make sure the appropriate data collection for the significance of results.

Impacting reinforcement of regulatory processes, fostering green financial incentives, and enhancing inter-sectoral and government agency coordination can increase the efficacy of OHSE interventions in disaster risk reduction. Enforcement of safety and sustainability cultures within organizations not only saves lives but also guarantees long-term economic and environmental advantages. OHSE strategies can be combined with Sustainable Development Goals [SDGs] to provide economic stability, environmental resilience, and overall well-being, which will make workplaces resilient enough to deal with future challenges

Limitations and Future Recommendations

Although this research offers valuable information regarding the contribution of occupational health, safety, and environmental [OHSE] management to disaster risk reduction, it has limitations. One of its main limitations is that it used secondary data sources, including regulatory documents, industry accounts, and previous research. This can miss actual workplace realities, gaps in implementation, or the pragmatism of OHSE interventions at various organizations. A more direct observational or experimental method would allow for better understanding of the mechanisms by which OHSE strategies function in the real world. Another challenge is industry and geographic differences in OHSE policies and compliance. Occupational safety regulations, environmental sustainability measures, and disaster mitigation measures vary among industries and countries, and hence making it challenging to universalize the results to all industries. For example, construction, manufacturing, and mining industries have unique workplace risks that require different types of safety protocols than office or service work. This dissimilarity is the reason why conclusions of this study cannot be entirely applied to any work setting. Another limitation is in the timeline of data gathering. Although the study investigates the nexus of OHSE practice and disaster risk reduction, long-term

trends and sustainability effects would necessitate longitudinal data. Most OHSE interventions have effects that could be ascertained only after a few years, especially when measuring improvements in worker safety, regulatory compliance, and disaster resilience. Short extended monitoring prevents ascertaining the long-term effect of OHSE interventions. Another weakness is that there is little integration of the social and psychological elements of occupational safety. While physical safety practices, environmental risks, and monetary sanctions are widely discussed, employee stress, mental health, corporate culture, and behavioral safety compliance are not discussed at length. These factors play an important role in disaster response and preparedness because workplace uncertainty and stress have the potential to diminish workers' capacity to observe safety procedures and respond to dangerous situations effectively. The role of emerging technologies in providing workplace safety and environmental protection is not examined thoroughly by the study. The emergence of AI-fuelled risk assessment software, IT-based hazard detection, predictive safety analysis, and smart PPE is revolutionizing OHSE management. However, the applicability of these technologies is not fully unleashed in the analysis as the study is mainly dependent on off-the-shelf frameworks.

Further expansion of the scope of research into cross-industry and cross-country comparisons is also a necessary measure. Industries and nations vary with regard to regulatory enforcement and occupational safety cultures. By analyzing the performance of OHSE policies across various industries and regions, researchers can determine the best practices and document significant differences that influence disaster risk reduction outcomes. In addition, future research should include analyzing data longitudinally to monitor the long-term impact of OHSE interventions. By monitoring trends over a number of years, researchers can determine if workplace safety, environmental sustainability, and disaster resilience improvement is maintained in the long term. This would generate more concrete proof regarding the effectiveness of different OHSE measures and assist policymakers to design more efficient regulatory systems. Greater focus on the inclusion of new technologies in managing OHSE in future research should also be prioritized. Real-time analysis of data, automated safety monitoring systems, and wearable safety technology can increase workplace safety and environmental sustainability. Knowing how these technologies affect disaster risk reduction can offer new answers to enhancing workplace resilience. Another significant research area is the integration of informal labor markets into OHSE research. As a significant percentage of the world's workforce works in unregulated or semi-regulated settings, it is crucial to know how safety and environmental controls can be integrated in these markets. Effective policies in standard work settings are not necessarily effective in small businesses or solo contractors and thus must be modified safety and sustainability interventions. Future research should investigate the impact of climate adaptation policies on workplace safety. With increasing climatic deepening, organizations need to integrate environmental risk-reduction mechanisms into safety policies. Researching the influence of climate adaptation measures like heat stress management, flood-proof structures, and resource sustainable utilization on workplace safety will be central to creating inclusive OHSE models.

References

- Abbas, H. W., & Guo, X. (2023). Climate-Related Vulnerability Assessment toward Disaster Risk Reduction: Insight from Pakistan. *Journal of Homeland Security and Emergency Management*, 20(3), 307-350.
- Adewumi, A., Olu-lawal, K. A., Okoli, C. E., Usman, F. O., & Usiagu, G. S. (2024). Sustainable Energy solutions and climate change: A policy review of emerging trends and global Responses. *World Journal of Advanced Research and Reviews*, 21(2), 408-420.
- Aggarwal, P., & Agarwala, T. (2023). Relationship of green human resource management with environmental performance: mediating effect of green organizational culture. *Benchmarking: An International Journal*, 30(7), 2351-2376.
- Afzal, A., Rasoulinezhad, E., & Malik, Z. (2022). Green finance and sustainable development in Europe. *Economic research-Ekonomska istraživanja*, 35(1), 5150-5163.
- Ahmad, M., et al. (2021). Evaluating occupational hazards and the influence of green compliance mechanisms. *Safety Science*, 139, 105256.
- Antonopoulos, C. A. (2022). *Heat, Wildfire and Energy Demand: An Examination of Residential Buildings and Community Equity* (Doctoral dissertation, Portland State University).

- Arshad, M. A., et al. (2021). Understanding disaster vulnerability in industrial zones: Green management as a buffer. *International Journal of Environmental Research and Public Health*, 18(9), 4725.
- Aslam, B., Iqbal, K. M. J., Akhtar, N., Mottaeva, A. B., Fedorovna, T. T., Barykin, S., & Khan, M. I. (2023). Coherence analysis of national maritime policy of Pakistan across shipping sector governance framework in the context of sustainability. *Sustainability*, 15(9), 7665.
- Awais, M., Thaker, M. A. B. M. T., Raza, A., Usman, U., Mohsin, M., & Bhatti, O. K. (2021). The process of risk management: sketching the providers of islamic micro-finance. *International Journal*, 77(11/1).
- Awan, H. M., et al. (2022). Organizational green culture and emergency management: A case from textile sector. *Journal of Environmental Management*, 302, 113972.
- Baig, M. A., & Rasheed, R. (2021). Green HRM as a moderator in disaster-preparedness culture. *Global Environmental Change*, 71, 102410.
- Bashir, N., et al. (2020). Role of green HRM in advancing disaster risk governance in developing economies. *Corporate Social Responsibility and Environmental Management*, 27(5), 2379–2390.
- Bathan, J., & Joy, C. A. (2023). Modeling the mediating effects of occupational safety and health management between organization culture and business performance among employees of construction companies. *International Journal of Open-Access, Interdisciplinary & New Educational Discoveries of ETCOR Educational Research Center*, 2(4), 131-156.
- Batool, A., & Qureshi, M. I. (2020). Green logistics and workplace safety: Intersections for sustainable operations. *Sustainability*, 12(2), 389.
- Botah, K. Y. (2023). Integration of Sectoral Policies: Potentials and Obstacles in a Complex and Interconnected World. *Journal of Social and Policy Issues*, 156-162.
- Costa, D. G., Peixoto, J. P. J., Jesus, T. C., Portugal, P., Vasques, F., Rangel, E., & Peixoto, M. (2022). A survey of emergencies management systems in smart cities. *IEEE Access*, 10, 61843-61872.
- Fatima, S., et al. (2020). Environmental behavior and corporate sustainability: A cross-sectoral study. *Journal of Cleaner Production*, 268, 122153.
- Gatti, D., Del Lo, G., & Serranito, F. (2023). Unpacking the green box: Determinants of Environmental Policy Stringency in European countries.
- Genovese, M., Blekhman, D., & Fragiaco, P. (2024). An exploration of safety measures in hydrogen refueling stations: delving into hydrogen equipment and technical performance *Hydrogen*, 5(1), 102-122.
- Haji, M., Kerbache, L., & Al-Ansari, T. (2022). Food quality, drug safety, and increasing public health measures in supply chain management. *Processes*, 10(9), 1715.
- Hossain, D., Mamun, Q., & Islam, R. (2024). Unleashing the potential of permissioned blockchain: addressing privacy, security, and interoperability concerns in healthcare data management. *Electronics*, 13(24), 5050.
- Imran, M., et al. (2020). Holistic integration of climate risk in disaster planning. *Natural Hazards Review*, 21(3), 04020022.
- Javed, B., et al. (2020). The effects of sustainable practices on environmental performance: Evidence from Pakistan. *Environmental Science and Pollution Research*, 27, 43570–43580.
- Kamra, J., Mani, A. P., Sharma, M., & Joshi, S. (2024). The nexus between green supply chain management and sustainability performance in the past decade. *Sustainability*, 16(17), 7474.
- Khan, A. A., Ahmed, I., Javed, H., & Aqsa, T. (2023). Earthquake Disaster Risk Reduction Strategies in Pakistan. *Bulletin of Business and Economics (BBE)*, 12(4), 433-446.
- Khan, M. S., et al. (2021). Disaster risk reduction and green governance: A comparative analysis. *Natural Hazards*, 106, 213–234.
- Khan, S., et al. (2021). Role of green innovation and employee behavior in disaster risk reduction. *Technological Forecasting and Social Change*, 164, 120512.
- Khalid, S., et al. (2020). Examining disaster risk perception and environmental literacy in Pakistan industrial workforce. *Natural Hazards*, 102, 697–718.
- Khan, S., Awais, M., Khan, M. N., & Khan, O. A. (2017). Moderating Effect of Employee's Emotional Intelligence on the Relation of Emotionally Intelligent Project Manager and Employee Engagement. *Foundation University Journal of Business & Economics*, 2(2), 41-67.

- Khan, S. M., Shafi, I., Butt, W. H., Diez, I. D. L. T., Flores, M. A. L., Galán, J. C., & Ashraf, I. (2023). A systematic review of disaster management systems: approaches, challenges, and future. *Directions Land*, 12(8), 1514.
- Liu, Y., Salman, A., Khan, K., Mahmood, C. K., Ramos-Meza, C. S., Jain, V., & Shabbir, M. S. (2023). The effect of green energy production, green technological innovation, green international trade, on ecological footprints. *Environment, Development and Sustainability*, 1-14.
- Malik, M. Z., et al. (2021). Occupational health and safety (OHS) practices in Pakistan: A roadmap for future policy. *Journal of Safety Research*, 78, 221–231.
- Naeem, H., et al. (2020). Transformational leadership and green behavior: A path to disaster preparedness. *Business Strategy and the Environment*, 29(8), 3210–3221.
- Nasir, M., & Saeed, A. (2020). Environmental degradation and industrial accidents: Mitigation through green compliance. *Ecological Indicators*, 117, 106674.
- Naushad, M., Kutty, S. R. M., Hossain, S., Birniwa, A. H., & Jagaba, A. H. (Eds.). (2024). *Biorefinery of Industrial Effluents for a Sustainable Circular Economy*. Elsevier.
- Onukwulu, E. C., Agho, M. O., & Eyo-Udo, N. L. (2022). Circular economy models for sustainable resource management in energy supply chains. *World Journal of Advanced Science and Technology*, 2(2), 034-057.
- Peterson, C. L. (2024). *Globalization and Pandemic Management: Issues and Outcomes from COVID-19*. Routledge.
- Qamar, Z., et al. (2021). Linking environmental management systems to workplace safety behavior in Pakistani firms. *Environmental Research*, 197, 111086.
- Quadrat-Ullah, H. (2023). A review and analysis of green energy and the environmental policies in South Asia. *Energies*, 16(22), 7486.
- Rafiq, M., et al. (2021). Occupational stress and green workplace culture. *Sustainability*, 13(8), 4421.
- Raman, R., Manalil, S., Dénes, D. L., & Nedungadi, P. (2024). The role of forestry sciences in combating climate change and advancing sustainable development goals. *Frontiers in Forests and Global Change*, 7, 1409667.
- Sandbrink, J. B., Hobbs, H., Swett, J. L., Dafoe, A., & Sandberg, A. (2024). Risk-sensitive innovation: leveraging interactions between technologies to navigate technology risks. *Science and Public Policy*, 51(6), 1028-1041.
- Shahbaz, M., et al. (2020). Environmental regulations, green innovation, and industrial safety: A study in Pakistan. *Environmental Impact Assessment Review*, 84, 106411.
- Sheena, B. S., Hiebert, L., Han, H., Ippolito, H., Abbasi-Kangevari, M., Abbasi-Kangevari, Z., & Gholizadeh, A. (2022). Global, regional, and national burden of hepatitis B, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The lancet Gastroenterology & hepatology*, 7(9), 796-829.
- Suriyankietkaew, S., Krittayarungroj, K., & Iamsawan, N. (2022). Sustainable Leadership practices and competencies of SMEs for sustainability and resilience: A community-based social enterprise study. *Sustainability*, 14(10), 5762.
- Waheed, A., Fischer, T. B., Kousar, S., & Khan, M. I. (2023). Disaster management and environmental policy integration in Pakistan—an evaluation with particular reference to the China–Pakistan Economic Corridor Plan. *Environmental Science and Pollution Research*, 30(48), 105700-105731.
- Wedagedara, S., & Dissanayake, D. (2024). Employer Obligations on Occupational Health and Safety (OHS) Laws A Contemporary Review. *Journal of Human Resource Management Perspectives*, 9(2).
- Yıldız, T. D., & TOMBAL-kARA, T. D. (2024). Challenges and recovery opportunities in waste management during the mining and enrichment processes of ores containing uranium and thorium—A review. *Gospodarka Surowcami Mineralnymi-Mineral Resources Management*, 25-62.
- Yu, Z., Waqas, M., Tabish, M., Tanveer, M., Haq, I. U., & Khan, S. A. R. (2022). Sustainable supply chain management and green technologies: a bibliometric review of literature. *Environmental Science and Pollution Research*, 29(39), 58454-58470.
- Zafar, A., et al. (2019). Environmental auditing, employee safety, and risk management practices: A tri-sector study in Pakistan. *Journal of Environmental Assessment Policy and Management*, 21(4), 1950033.

- Zaidi, S. H., et al. (2021). Climate change and OHSE in Pakistan: Assessing corporate response. *Journal of Environmental Planning and Management*, 64(6), 1089–1107.
- Zeb, M., Sher, A., Awais, M., & Syed, H. A. (2017). Engaging customers by fostering learning process and strategic flexibility together in cellular sector of Pakistan. *Foundation University Journal of Business & Economics*, 2(2), 17-40.

Impact of Workplace Ostracism on Organizational Citizenship Behavior: The Mediating Role of Job Performance and The Moderating Role of Perceived Organizational Support

Dr. Saira Aziz

University of Sahiwal, Sahiwal
sairaaziz@uosahiwal.edu.pk

&

Muhammad Haris ul Mahasbi
University of Sahiwal, Sahiwal

COMSATS University Islamabad, Sahiwal Campus
harisulmahasbi@cuisahiwal.edu.pk

Abstract

This study investigates the mediating role of job performance in the relationship between workplace ostracism and organizational citizenship behaviour (OCB). It also examines the moderating effect of perceived organizational support (POS) on the relationship between job performance and OCB. Using a cross-sectional design, quantitative data was collected through questionnaires from 250 mid-level managers in Pakistan's automotive assembly sector. Statistical analysis using PLS-SEM revealed that workplace ostracism has a significant negative influence on job performance ($\beta = -0.527$), while job performance has a significant positive influence on OCB ($\beta = 0.278$). The findings confirm that job performance significantly mediates the negative effects of workplace ostracism on OCB. However, the moderating role of perceived organizational support was not statistically supported. These results provide key insights for managers and policymakers, emphasizing the need for inclusive policies to combat workplace ostracism, which can in turn enhance employee performance and foster positive citizenship behaviours within organizations.

Keywords: Workplace ostracism, Organizational citizenship behavior, Job performance, Perceived organizational support, Social exchange theory, Pakistan

Introduction

It is a common occurrence for workers to be ignored by their coworkers, a practice known as "workplace ostracism" (Singh, Subramani, David, & Jan, 2024). As a result of workplace ostracism, individuals are unable to meet their psychological requirements since they are unable to socialize (Khan, Fatima, Fayyaz, & Hussain, 2024). Indeed, ostracism in the workplace can have a negative influence on employees' physical well-being (Fatima, Bilal, Imran, & Sarwar, 2023). Because of the greater emphasis on cooperation and interpersonal communication, it is important to recognize the harmful impact of workplace ostracism (Dahiya, Singh, & Pandey, 2025).

Workplace ostracism is a considerable factor in determining a person's sense of belonging and productivity at work. Contrary to popular belief, very little study has been done on the effects of ostracism (Burhan, 2025) because of its prevalence and harmful impact, workplace ostracism has become an organizational issue, according to (Ågotnes, Nielsen, Skogstad, Gjerstad, & Einarsen, 2024; Robinson & Schabram, 2019). Many studies have indicated that the presence of workplace ostracism is linked to a variety of workplace conducts such as job abandonment, violence, and personal conflict. Because of the significance of demands for satisfaction and the necessity of self-regulation, ostracism can have a substantial impact on workplace behaviors such as performance.

There is an increase in the interest in the study of organizational citizenship behaviors (OCB) which are behaviors in workplace that occur beyond the technical core but are a part of the social and psychological environment of working however, in the end they can contribute to the overall performance of an organization (Fan, Wider, & Chan, 2023; Shafiq, Akhtar, Ismail, & Awais, 2021). In today's corporate climate, the usefulness of OCB is enhanced by the boundary-spanning nature of work functions. The importance of OCB may also grow in international environments where major economic and societal change is taking place as

businesses recognize that performance involves both in-role and discretionary features (Fan, Wider, & Chan, 2023). Personnel can exhibit their citizenship behavior in five ways: altruism, conscientiousness, sportsmanship, courtesy, and courtesy (Dedic, Hadzaihetovic, & Mujezinovic, 2022).

The existing literature lacks insight into how workplace ostracism impacts OCB, shaping varied employee responses to exclusion. Understanding conditions that lead to prosocial, antisocial, or withdrawn behaviors remains underexplored. The context-dependent nature of workplace ostracism highlights the value of quantitative analysis to obtain a thorough understanding of this phenomenon (Fatima et al., 2023). Emotional exhaustion happens when people are overworked, especially if they feel isolated at work. Lack of support from others also adds to this feeling of tiredness (Wang, Ma, Yuan, & Chen, 2023). Although many researchers have investigated the direct effects of workplace ostracism, few have looked at the causal processes that associate workplace ostracism to behavioral consequences. Therefore, the purpose of this investigation is to analyze the workplace ostracism in HEIs of Pakistan via quantitative experiences by examining the impact of workplace ostracism on OCB with an emphasis on the controlling role of perceived organizational support. This study also highlights how emotional exhaustion reduces work performance due to overworked administrative staff in Pakistan. Mirza, Haider, Taj, and Bilal (2020) claimed that workers experiencing stress in the workplace are strongly associated with negative outcomes that can lead to long-term losses.

The primary objectives of this research are to analyze how workplace ostracism affects job performance in relation to OCB and to evaluate whether job performance mediates the relationship between workplace ostracism and OCB. Additionally, the study aims to assess the moderating effect of perceived organizational support on the connection between job performance and OCB. These objectives collectively seek to deepen the understanding of factors influencing employee behavior and performance within the organizational context.

While it is established that workplace ostracism is a common and detrimental phenomenon, significant gaps remain in the literature regarding its specific impact on positive employee behaviors. Researchers note that very little study has been done on the effects of ostracism and that few have explored the causal mechanisms that link it to behavioral consequences (Das & Ekka, 2024). Specifically, the literature lacks insight into how workplace ostracism shapes organizational citizenship behavior (OCB) (Ametepe, Otuaga, Nnaji, & Arilesere, 2024). To address this gap, the primary objective of this research is to analyze how workplace ostracism affects job performance and OCB. The study further aims to evaluate the mediating role of job performance in the relationship between workplace ostracism and OCB, and to assess the moderating effect of perceived organizational support on the link between job performance and OCB. The significance of this study lies in its potential to deepen the understanding of these critical factors, providing valuable insights for managers in Pakistan's automotive sector to ease the negative effects of social exclusion and establish a more productive and supportive working environment.

Literature Review

Social Exchange Theory serves as a foundational framework for understanding workplace relationships and their influence on employee behaviors and performance (Cropanzano, Anthony, Daniels, & Hall, 2017). Human interactions are based on a cost-benefit analysis, where individuals are motivated to engage in relationships that offer mutual rewards, reciprocity, and trust (Cross & Dundon, 2019). This theory is applied here to explore how workplace dynamics, particularly ostracism, job performance, OCB, and perceived organizational support, affect each other.

Research questions formulated for this study delve into the complexities of workplace relationships and behaviors through the perspective of social exchange theory. Firstly, this study seeks to investigate how workplace ostracism influences job performance, considering social exchange theory's assertion that trust and reciprocity are foundational to effective relationships. Negative interactions, such as ostracism, may disrupt these reciprocal bonds, potentially leading to diminished job performance. Second, the research looks at whether job performance acts as a mediator in the link between OCB and workplace ostracism. Social exchange theory suggests that individuals are more likely to engage in cooperative, citizenship-oriented behaviors when positive reciprocal relationships exist; however, ostracism could weaken these ties, impacting

performance and readiness to participate in citizenship behaviors (Yi, Gong, & Lee, 2013). Finally, the study addresses the controlling role of perceived organizational support on the link between job performance and OCB. Social exchange theory posits that support and reciprocity from the organization can strengthen positive social exchanges, possibly buffering against the adverse effects of ostracism (Fatima, Bilal, Imran, Ayub, & Arshad, 2024). Together, these questions aim to deepen the understanding of how social exchange theory can explain the impact of workplace relationships and support on worker behavior and performance.

Workplace Ostracism and Job Performance

Both scholars and legislators now give workplace ostracism top priority (Fatima et al., 2024). Many organizations have certain personnel who are routinely shunned or disregarded by their peers (Sharma & Dhar, 2024). This results from their perceived challenge to the "status quo," or conventional wisdom. Such workers might bring fresh ideas or challenge accepted wisdom, which would irritate some others. As a result, they are shunned since they are thought to be upsetting the accepted rules in the company. Ostracism in the workplace has been proven to cause negative reactions. Research has shown that when people are rejected, it adversely affects their cognitive performance (Koay & Lai, 2023). Individuals experiencing a "deconstructed cognitive state" lose self-awareness (Williams & Carter-Sowell, 2009). People in this mood often pay more attention to the present than they should be thinking long term or forward. This limited attention can restrict their viewpoint and keep them focused on near experiences without a strong feeling of more general personal or future-oriented goals. Ostracism can affect the capacity of an individual to regulate or modify behavior to conform to social norms. This results in an increased tendency to indulge in adaptive behaviors (Oaten, Williams, Jones, & Zadro, 2008) and can hinder the ability to think rationally. In the end, being aware of oneself and being capable of understanding the long-term consequences of one's behavior as essential components of self-regulation, could be diminished (Wagner & Heatherton, 2015). According to the concepts of negative reciprocity those who have been marginalized feel it is acceptable to respond directly to people who have excluding them (Findor, Hruška, Hlatky, Hrustič, & Bošeljová, 2023). This could result in them engaging in more socially-oriented negative work behavior (Hua, Zhao, He, & Chen, 2023).

Thus, research has shown the connection between workplace ostracism with workplace behavior that is negative, like aggressiveness (Chow, Tiedens, & Govan, 2008) and deviant behavior in the workplace (Ferris, Brown, Berry, & Lian, 2008). Furthermore, as per the theory of social exchange and rules of reciprocity, disregarded employees are less likely to recompense such actions to their colleagues. Studies of social rejection have linked it to a decline in prosocial behavior (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007) and Positive social behavior was clearly connected with social acceptance (Schonert-Reichl, 1999). In this context, studies show that those who feel the support of their organization and their coworkers and supervisors tend to be more inclined to participate in civic behavior (Thompson, Bergeron, & Bolino, 2020). Understanding the connections between workplace ostracism and the behavior of the organization's citizenship. The employee may feel alienated, less motivated, or even resentful, ultimately leading to diminished job performance. Therefore, from the view of social exchange theory, workplace ostracism can create an imbalance in the expected mutual support and reciprocity, negatively impacting job performance as the employee no longer perceives a rewarding relationship with their workplace environment (Yao, Ayub, Ishaq, Arif, Fatima, & Sohail, 2022). We can hypothesize on the relationship between these factors.

H1: Workplace ostracism is negatively associated with job performance.

Job Performance and OCB

Earlier research on the factors influencing OCB concentrated on human, organizational, and work elements and leadership style (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Number new studies have started to investigate OCB's precursors from the standpoint of social network characteristics (Bolino, Hsiung, Harvey, & LePine, 2015). It is hypothesized that employees with more network contacts are more likely to participate in OCB (Scott, Zagenczyk, Li, Gardner, Coglisier, & Laverie, 2018). Team cohesiveness can have a substantial effect on OCB as an organizational attribute (Lin & Peng, 2010). Further research has revealed that members of highly cohesive teams often put in more effort, are more engaged in exchanging information and expertise, and engage in more positive behaviors (Huang, 2009).

An employee's proactivity, self-development, and desire to assist peers increase the closer they are to the center of a friendship network (Zhongfeng & Raman, 2023). Similar to how and when emotions brought on by social interaction may result in stronger or weaker ties in partnerships, groups, or networks, positive affect theory describes how and when these changes will effect team cohesiveness (Barsade & Knight, 2015). The degree of a individual's centrality in a alliance and OCB may thus be mediated by team cohesiveness, albeit research on team unity as the intermediating variable is still uncommon in the theory (Chiniara & Bentein, 2018).

According to social exchange theory, when personnel observe that their organization provides them with fair treatment, support, and resources, they get the impression of obligation or motivation to "repay" the organization by going beyond their basic job requirements (Farid, Xiongying, Raza, Gul, & Hanif, 2023). This reciprocation often manifests as OCBs that support colleagues and contribute to a positive workplace (Wang, Zhang, Li, & Henry, 2023). Employees who perform well and receive positive feedback, support, or rewards from their organization are likely to participate in OCB. Personnel view these behaviors as a way of balancing the favorable social exchange with the organization. Therefore, from the viewpoint of social exchange theory, job performance and OCB are linked because high-performing employees feel valued and reciprocate by engaging in actions that foster a collaborative and supportive work environment (Luqman, Zhang, & Hina, 2023). This mutual exchange strengthens both individual and organizational success.

H2: Job performance is positively associated with OCB.

Mediating Role of Job Performance

A person's performance in a job is a behavior that is distinct from the job's consequences, such as productivity and success. Industrial psychology emphasizes the importance of job performance as a key component (Armstrong & Taylor, 2023). Any company's success depends heavily on the performance of its employees. According to previous studies, workplace satisfaction increases when specific attributes help employees do a better job (Dziuba, Ingaldi, & Zhuravskaya, 2020). As a result, a work environment that allows employees to do their duties to the best of their abilities while also providing exceptional service to consumers is needed (Masa'deh, Obeidat, & Tarhini, 2016). Encouraging work environments are also required to improve the attitude of employees, which in turn results in higher performance (Bashir, Amir, Jawaad, & Hasan, 2020).

Social exchange theory suggests that employees' actions are influenced by the rewards and support they perceive within their social environment. When employees experience workplace ostracism, they feel excluded and undervalued, leading to a breakdown in positive social exchanges (Laeque & Khan, 2024). This lack of social reward and support can reduce motivation, which then diminishes job performance. According to social exchange theory, when employees do not feel a sense of belonging or support, they may lack the motivation to reciprocate through high job performance, much less engage in discretionary actions like OCB (Blakely, Andrews, & Moorman, 2005). When employees feel valued and included, they experience positive social exchanges, motivating them to reciprocate through higher job performance and the willingness to go above and beyond through OCB (Cohen, Ben-Tura, & Vashdi, 2012). Job performance becomes a key mediator in this relationship, which fosters a reciprocal relationship with their organization and colleagues, leading to increased OCB.

Therefore, based on social exchange theory, job performance acts as a bridge between workplace ostracism and OCB. When ostracism negatively affects job performance, it reduces the likelihood of employees engaging in OCB. This can be hypothesized as follows.

H3: Job performance mediates the relationship between workplace ostracism and OCB.

Moderating Role of Perceived Organizational Support

Employees build impressions of how much their employer values and cares about them (Carr, Hayes, & Piercy, 2023). Perceived organizational support is a term used to describe the views that employees have about their workplace and how it affects their ability to make sense of their work environment. A practice known as "personification" is used by employees to imbue an organization with human traits (Braxton & Lau-Gesk,

2020). When a company is depicted as an individual, employees may be able to discern whether or not they are being treated favorably or unfavorably by an organization (Waterwall & Alipour, 2021).

Employees form opinions about how genuine an organization is based on the rewards it offers and the working conditions it provides. Social exchange theory suggests that resources feel more valuable when they are offered freely rather than out of obligation. So, when employees see that the company has chosen its benefits and growth programs out of genuine care, they value systems like pay, promotions, and job improvement opportunities more highly (Ali & Anwar, 2021). Such benefits should be repaid in some way, according to the principle of reciprocity. Emotional labor has been shown to have negative effects on both job happiness and productivity, according to a new study. There is evidence supporting the moderating influence of POS. It is discovered that disgruntled employees' creativity was at its peak when both continuous commitment and the POS for creativity were high (Khaliq, Malik, Waseem, & Farooqi, 2024).

Studies like this one have demonstrated that POS moderates the link between stressors and outcomes in both the personal and professional realms. Researchers discovered that the connection between job stress and nurse health was modulated by the presence of POS (occupational stress). It is found that POS among sales staff reduced the unfavorable association between role ambiguity and job satisfaction, role conflict, and the inclination to stay (Stamper & Johlke, 2003). Building on social exchange theory, we argue that the willingness of a high-performing employee to engage in OCB is not automatic; rather, it depends on the quality of their relationship with the organization. Perceived organizational support (POS) is a critical indicator of this relationship's quality. When employees with high job performance also perceive high organizational support, they feel valued and obligated to reciprocate beyond their formal duties, thus strengthening the positive link between their performance and OCB. Conversely, when a high-performing employee perceives low support, they may feel their efforts are unappreciated. In this context, they are likely to limit their contributions to their core job tasks and are less motivated to engage in voluntary citizenship behaviors, thereby weakening the relationship between job performance and OCB. (Olanrewaju, 2021). Based on this argument we hypothesized that.

H4: *Perceived organizational support moderates the relationship between job performance and OCB, such that the positive relationship is stronger when perceived organizational support is high and weaker when it is low.*

Theoretical Framework

The study will laid the foundation on Social exchange theory which found the idea of reciprocity (Aburumman, Salleh, Omar, & Abadi, 2020). The theory of social exchange posits that people are wired to seek out and establish relationships based on reciprocity and mutual trust in order to get the most out of their interactions with one another (Wang & Wang, 2019). Equitable exchange of positive and negative commitments is what is meant by the notion of reciprocity (Aburumman et al., 2020). A non-political work environment, in which academics can form trusting relationships and thus feel less ostracized at work, appears to promote fairness and justice. The self-serving behaviors of individuals in an organization lead to conflicts of interest and distrust between coworkers (Xuecheng, Ahmad, Iqbal, & Saina, 2022). Workplace distrust leads to negative interactions (i.e. ostracism) because employees are unwilling to interact and maintain relationships with those they have mistrust in their workplace (Chang, 2021). Because of this, social exchange theory supports these connections. The study's theoretical framework can be seen in Figure 1.

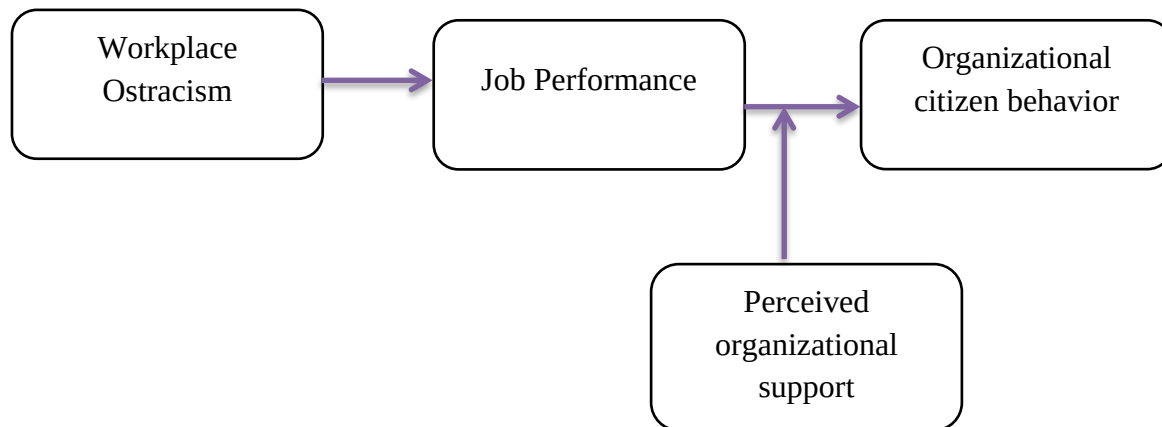


Figure 1: Theoretical Framework

Methodology and Data Collection

This study employed a cross-sectional design to evaluate a theoretical model that proposes a causal links among job performance, OCB, perceived organizational support, and workplace ostracism. The research was conducted in the automotive assembly sector of Pakistan while focusing on mid-level managers. Middle managers from three prominent automobile assembly firms in Pakistan constituted the target population. The unit of analysis for this study was the individual mid-level manager. Participants were selected through a purposive sampling method. We chose purposive sampling to specifically target managers who have relevant knowledge about workplace dynamics. This industry and managerial level were selected due to the substantial influence of middle managers on interpersonal workplace dynamics and performance outcomes. They are particularly attuned to organizational support and social exclusion, such as ostracism, due to their frequent role as intermediaries between operational personnel and senior leadership. Moreover, their function requires exceptional professional performance and civic involvement, both of which are directly linked to the study focus. The human resource departments of the collaborating organizations granted their approval and support. These departments provided lists of middle-level managers, and we directly contacted the selected individuals to invite them to participate in the study and elucidate its objectives. The current study followed suggestions to reduce social desirability bias (Walzenbach, 2019). We reassured research participants that their responses would be kept confidential and made it evident that the survey was intended for academic research only. Also, we thoroughly reviewed each item on the questionnaire to make sure the language remains neutral, therefore preventing any positive or negative implication in the questionnaire. Data was gathered using a quantitative procedure over a validated questionnaire from a sample of middle level managers. The total questionnaire distributed were 500, where 250 responses were received as the remaining 50% were not filled completely that were not considered for further statistical analysis.

Operationalization of Constructs

In this research, several constructs were measured using established items from prior studies. For workplace ostracism, ten items from (Ferris et al., 2008) were used to capture employees' experiences of exclusion in the workplace. Job performance was assessed using six items based on (Ang, Van Dyne, & Begley, 2003) to evaluate how employees meet job responsibilities. Similarly, perceived organizational support was measured with eight items from (Rhoades, Eisenberger, & Armeli, 2001), focusing on employees' sense of organizational backing. OCB was also examined through six items, adapted from (Henderson, Foster, Matthews, & Zickar, 2020), to understand employees' voluntary contributions beyond their formal roles. Using these validated items ensures a consistent and reliable approach to capturing these constructs within the study.

Table 1

Constructs	Items	Reference
Workplace ostracism	10	(Ferris et al., 2008)
Job performance	6	(Ang, Van Dyne, & Begley, 2003)
Perceived organizational support	8	(Rhoades, Eisenberger, & Armeli, 2001)
Organizational citizen behavior	6	(Henderson et al., 2020)

Questionnaire scale

Statistical Data Analysis Tool

PLS-SEM method used to test the data. For the execution of the hypothesis, Smartpls 4.0 version was used. The structural equation modeling (SEM) technique employed to test the causal relationship model of workplace ostracism. First, we present the demographic profile of the respondents in table 2.

Table 2

Demography	Description	Frequency
Gender	Male	180
	Female	70
Age Group	18–27	60
	28–37	110
	38–47	61
	48–57	13
	58 Above	6

Demographic Profile

Measurement Model

Measurement model is the first phase to analyze the reliability of the items of variables. Reliability is measured through composite reliability. While average variance extracted has been used for measuring convergent validity which should be higher than 0.50 of each construct. While outer loading less than 0.70 and threshold for composite reliability is 0.70. For discriminant validity, the Fornell-Lacker method was used that shows how much constructs are distant from each other.

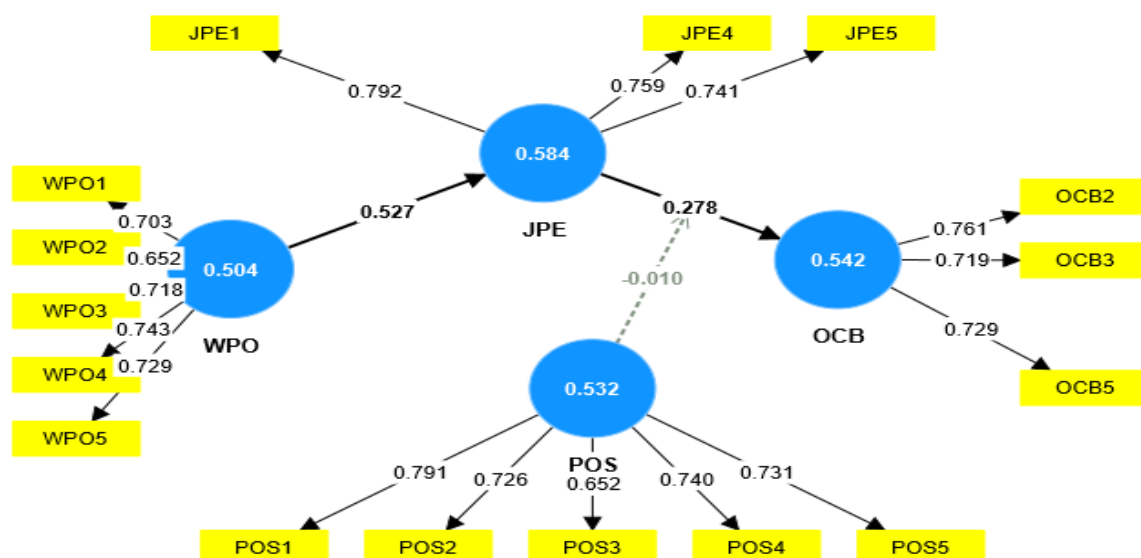


Figure 2
Measurement Model

Validity and Reliability of Constructs

Table 3 represents the validity and dependability assessments for every construct based on item loadings, Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). The loading of every item shows how authentically it reflects its corresponding construct. Calculated for every construct, Cronbach's alpha gauges internal consistency reliability, therefore reflecting the general closeness of the items; larger values usually above 0.7 indicate more consistency. With a suggested threshold of 0.7 or above, Composite Reliability evaluates each construct's general dependability and shows that the questions regularly measure the intended notion. Where values above 0.5 indicate that items within each construct together capture a substantial amount of variance, average variance extracted further supports convergent validity. These measures taken together confirm that the constructions fairly and consistently reflect the desired concepts for the research. After conducting CFA for this investigation few items were deleted (having less item loadings than 0.7) as per the recommendations of (Hair, Hollingsworth, Randolph, & Chong, 2017).

Table 3

Constructs	Items	Loadings	Alpha	CR	AVE
JPE	JPE1	0.792	0.646	0.808	0.584
	JPE4	0.759			
	JPE5	0.741			
OCB	OCB2	0.761	0.592	0.780	0.542
	OCB3	0.719			
	OCB5	0.729			
POS	POS1	0.791	0.794	0.850	0.532
	POS2	0.726			
	POS3	0.652			
	POS4	0.740			
	POS5	0.731			
WPO	WPO1	0.703	0.757	0.835	0.504
	WPO2	0.652			
	WPO3	0.718			
	WPO4	0.743			
	WPO5	0.729			
			0.891	0.900	0.902

Measurement Model Results (Convergent Validity)

Discriminant Validity and Cross Loading

To measure the discriminant validity there are multiple methods like cross loading and HTMT, while the most suitable method is Fornell-lacker that was utilized in current study to analyse the AVE value of study that shows that diagonal values are higher than corresponding values and constructs are discriminant valid. The Fornell-Larcker criterion confirm discriminant validity for the constructs. Each construct's AVE square root exceeds its correlations with other constructs, and each item loads highest on its designated construct. This indicates that each construct is distinct and captures unique aspects of the model.

Table 4

	JPE	OCB	POS	WPO
JPE				
OCB	0.758			
POS	0.645	0.693		
WPO	0.722	0.578	0.623	

Fornell and Lacker Discriminant Validity Matrix

Structural Model

Assessment Direct Relationships

This study focusses on model evaluation and direct relationship analysis. All the hypotheses were found significant except for moderation.

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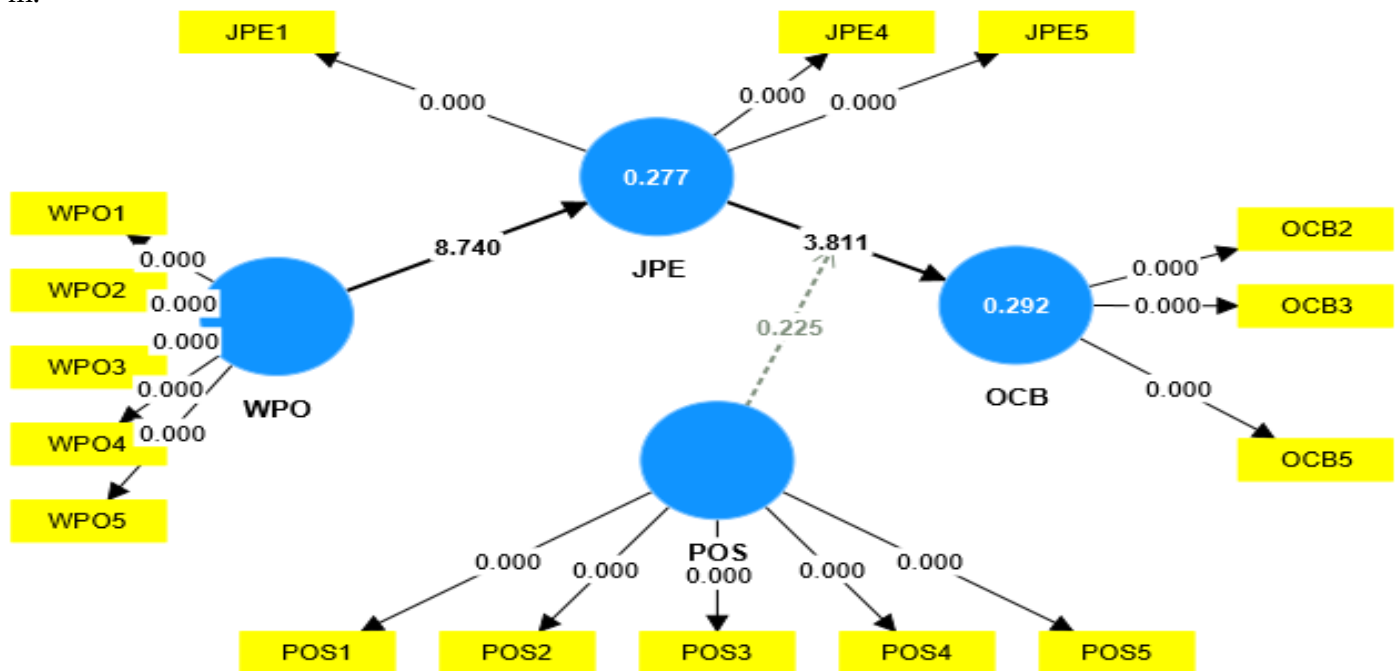


Figure 3
Structural Model Direct Relationship

Table 5

Hypothesis	Relationships	Std. Beta	Std. Error	T-Value	P-Value	2.50%	97.50%	Decision
H1	WPO -> JPE	-0.527	0.060	8.740	0.000	0.407	0.643	Supported
H2	JPE -> OCB	0.278	0.073	3.811	0.000	0.134	0.419	Supported

Results of hypothesis testing (Direct effects)

H1 and H2 hypothesis were supported as shown in Table 5 where P-values were less than 0.05 and T-Values were higher than 1.645.

Mediation Analysis

The test for mediation hypothesis is represented in table 6.

Table 6

Hypothesis	Relationships	Std. Beta	Std. Error	T-Value	P-Value	2.50%	97.50%	Decision
H3	WPO -> JPE -> OCB	0.146	0.044	3.295	0.001	0.067	0.241	Supported

Test of mediation analysis

H3 hypothesis that shows the mediating impact of JPE between WPO and OCB were supported as shown in Table 6 where P-values were less than 0.05 and T-Values were higher than 1.645.

Moderation Analysis

In moderation analysis, T-value becomes very vital. First, through the PLS algorithm evaluate the T-value change from the main effect model. The moderating hypothesis result shown in table 7.

Table 7

Hypothesis	Relationships	Std. Beta	Std. Error	T-Value	P-Value	2.50%	97.50%	Decision
H4	POS x JPE -> OCB	-0.010	0.043	0.225	0.822	-0.072	0.101	Not Supported

Test of moderation (interaction terms)

H4 hypothesis that shows the moderating impact of POS between JPE and OCB were not supported as shown in Table 7. This hypothesis was not supported as P-value is not less than 0.05 and T-Value was less than 1.645.

Discussion and Conclusion

H1 postulated that workplace ostracism influences job performance. The findings show a substantial influence of workplace ostracism influences job performance in the organization ($\beta = -0.527$, $T = 8.670$, $p\text{-value} < 0.05$). The result showing a significant negative relationship between workplace ostracism and job performance reinforces the findings of previous research. This outcome is specifically supported by Koay and Lai (2023), who found that social rejection harms cognitive performance, and Yao et al. (2022), who noted that ostracism negatively impacts job performance by creating an imbalance in the workplace social environment. First to investigate the relationship between work performance and organizational citizen behavior is H2 maintained that work performance shapes organizational citizen conduct. The statistical result verified the H1 hypothesis by checking that job performance considerably affects organizational citizenship behavior ($\beta = 0.278$, $T = 3.811$, $p\text{-value} 0.05$). Our finding that higher job performance is associated with increased OCB is consistent with the principles of social exchange theory. This result aligns with the work of Luqman, Zhang, and Hina (2023), who also argued that high-performing employees reciprocate their positive position by engaging in helpful, voluntary behaviors that benefit the organization.

H3 posited the workplace ostracism impact as mediating the relationship between job performance and OCB. While the outcome of the present investigation also showed that workplace ostracism impact as mediating the relationship between job performance and OCB ($\beta = 0.146$, $T = 3.295$, $p\text{-value} < 0.05$).

H4 posited that Perceived organizational support impact as moderating the relationship between job performance and OCB. Interestingly, our result showing that POS did not moderate the link between job performance and OCB contrasts with the findings of Stamper and Johlke (2003), who found that POS can buffer against other workplace stressors. The absence of a moderating effect in our study may be due to the specific context of the automotive assembly sector, where other cultural or relational factors might be more influential in promoting OCB.

Theoretical Implications

The current investigation results represent a significant relationship between job performance (JPE), OCB (OCB), and workplace ostracism (WPO). The positive relationship between JPE and OCB suggests that an increase in job performance is linked to an increase in citizenship behaviors within the organization. This suggests that when employees perform well in their roles, they are more inclined to contribute beyond their formal responsibilities and support the organization's social structure and culture. The negative relationship between WPO and JPE indicates that workplace ostracism is negatively associated with job performance. This suggests that ostracism in the workplace may undermine employees' ability or motivation to perform effectively, possibly due to reduced morale or a sense of exclusion. This outcome has critical implications, as it highlights the detrimental impacts of ostracism on organizational productivity and employee well-being.

The mediation analysis confirms that JPE mediates the relationship between WPO and OCB. This implies that the impact of workplace ostracism on job performance partially mediates its adverse effects on OCB. In other words, workplace ostracism not only directly decreases employees' engagement in citizenship behaviors but also indirectly discourages them by lowering job performance. This finding underscores the significance of creating an inclusive workplace environment, as ostracism can negatively influence both individual performance and broader organizational behavior. These results underscore the importance of job performance as a mediating factor in the link between workplace ostracism and citizenship behavior. This highlights the need for organizational strategies to minimize ostracism and reinforce job performance, thereby fostering a positive and collaborative organizational culture.

Practical Implications

By applying statistical research results logically to study workplace ostracism on OCB within Pakistan context, many practical guidelines can be drawn logically from them as practical guidelines can be drawn logically from statistical findings that reveal effects such as perceived superiority of top management support as well as competitive advantages to create effective managerial guidelines for organization citizenship behavior in practice.

Since WPO directly reduces JPE and indirectly decreases OCB, it is essential for organizations to prioritize creating an inclusive and supportive work environment. Implementing anti-ostracism policies, promoting awareness about the negative effects of ostracism, and encouraging open communication can help prevent behaviors that lead to exclusion. Enhancing job performance is also critical, as it plays a mediating role in fostering OCB. Organizations can support job performance by providing employees with necessary resources, regular constructive feedback, and recognition for their efforts, which in turn can inspire them to contribute positively beyond their formal roles. Additionally, promoting a positive social climate at work can further enhance OCB, as employees who feel supported and connected are more likely to engage in citizenship behaviors. This can be achieved by organizing team-building activities, encouraging collaborative projects, and fostering a culture of mentorship. Managers should be trained to recognize and address instances of ostracism effectively, as they play a pivotal role in maintaining a positive work environment. Finally, establishing a confidential feedback mechanism allows employees to report feelings of exclusion or other workplace issues, enabling management to address these concerns promptly. By proactively addressing workplace ostracism, supporting job performance, and fostering inclusivity, organizations can enhance both individual productivity and collective organizational behaviors, leading to a more effective and cohesive work environment.

Conclusion

In conclusion, this study investigated the mechanisms through which workplace ostracism affects positive employee behaviours in Pakistan's automotive assembly sector. Our findings confirm that the negative impact of ostracism on organizational citizenship behaviour is significantly mediated by job performance. While social exclusion directly harms an employee's ability to perform their job, this diminished performance, in turn, reduces their willingness to engage in voluntary citizenship behaviours. Notably, perceived organizational support did not protect the relationship between performance and OCB in this context. The primary contribution of this research is the clarification of this pathway, providing strong evidence for managers that fostering an inclusive work environment is a critical strategy for enhancing both individual performance and overall organizational effectiveness.

Limitations and suggestions for Future Research

This study has limitations that present opportunities for future research. The cross-sectional design prevents the inference of causality, and the data was collected from a single industry in Pakistan, which may limit the generalizability of the findings. Based on our results, we propose several specific directions for future inquiry. Our most compelling finding was the non-significant moderating role of perceived organizational support. Future research should therefore investigate other potential buffers, such as leadership styles (e.g., transformational leadership) or team-level factors like psychological safety, to understand what might protect the link between job performance and OCB. Furthermore, while our study confirmed job performance as a

key mediator, future studies could use diary or longitudinal methods to explore the day-to-day impact of ostracizing events on employee performance and their subsequent citizenship behaviours.

References

- Aburumman, O., Salleh, A., Omar, K., & Abadi, M. (2020). The impact of human resource management practices and career satisfaction on employee's turnover intention. *Management Science Letters*, 10(3), 641-652.
- Ågotnes, K. W., Nielsen, M. B., Skogstad, A., Gjerstad, J., & Einarsen, S. V. (2024). The role of leadership practices in the relationship between role stressors and exposure to bullying behaviours—a longitudinal moderated mediation design. *Work & Stress*, 38(1), 44-72.
- Ali, B. J., & Anwar, G. (2021). An empirical study of employees' motivation and its influence job satisfaction. *Ali, BJ, & Anwar, G.(2021). An Empirical Study of Employees' Motivation and its Influence Job Satisfaction. International Journal of Engineering, Business and Management*, 5(2), 21-30.
- Ametepe, P. K., Otuaga, E. U., Nnaji, C. F., & Arilesere, M. S. (2024). The moderating role of workplace ostracism between employee training, employee participation and organizational commitment among bank employees. *Arab Gulf Journal of Scientific Research*, 42(2), 239-258.
- Ang, S., Van Dyne, L., & Begley, T. M. (2003). The employment relationships of foreign workers versus local employees: A field study of organizational justice, job satisfaction, performance, and OCB. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 24(5), 561-583.
- Armstrong, M., & Taylor, S. (2023). *Armstrong's handbook of human resource management practice: A guide to the theory and practice of people management*. Kogan Page Publishers.
- Barsade, S. G., & Knight, A. P. (2015). Group affect. *Annu. Rev. Organ. Psychol. Organ. Behav.*, 2(1), 21-46.
- Bashir, A., Amir, A., Jawaad, M., & Hasan, T. (2020). Work conditions and job performance: An indirect conditional effect of motivation. *Cogent Business & Management*, 7(1), 1801961.
- Blakely, G. L., Andrews, M. C., & Moorman, R. H. (2005). The moderating effects of equity sensitivity on the relationship between organizational justice and organizational citizenship behaviors. *Journal of Business and Psychology*, 20, 259-273.
- Bolino, M. C., Hsiung, H. H., Harvey, J., & LePine, J. A. (2015). "Well, I'm tired of tryin'!" Organizational citizenship behavior and citizenship fatigue. *Journal of Applied Psychology*, 100(1), 56.
- Braxton, D., & Lau-Gesk, L. (2020). The impact of collective brand personification on happiness and brand loyalty. *European Journal of Marketing*, 54(10), 2365-2386.
- Burhan, Q. U. A. (2025). Workplace mistreatments by the management toward employees and its behavioral consequences. *South Asian Journal of Business Studies*, 14(2), 141-158.
- Carr, C. T., Hayes, R. A., & Piercy, C. W. (2023). "Posts are my own": effects of social media disclaimers on perceptions of employees and their organizations from tweets and retweets. *Corporate Communications: An International Journal*, 28(5), 724-743.
- Chang, K. C. (2021). The affecting tourism development attitudes based on the social exchange theory and the social network theory. *Asia Pacific Journal of Tourism Research*, 26(2), 167-182.
- Chiniara, M., & Bentein, K. (2018). The servant leadership advantage: When perceiving low differentiation in leader-member relationship quality influences team cohesion, team task performance and service OCB. *The Leadership Quarterly*, 29(2), 333-345.
- Chow, R. M., Tiedens, L. Z., & Govan, C. L. (2008). Excluded emotions: The role of anger in antisocial responses to ostracism. *Journal of Experimental Social Psychology*, 44(3), 896-903.
- Cohen, A., Ben-Tura, E., & Vashdi, D. R. (2012). The relationship between social exchange variables, OCB, and performance: what happens when you consider group characteristics?. *Personnel Review*, 41(6), 705-731.
- Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review with theoretical remedies. *Academy of management annals*, 11(1), 479-516.

- Cross, C., & Dundon, T. (2019). Social exchange theory, employment relations and human resource management. In *Elgar introduction to theories of human resources and employment relations* (pp. 264-279): Edward Elgar Publishing.
- Dahiya, R., Singh, A., & Pandey, A. (2025). Social strife at work: unravelling the link between workplace relationship conflict and employee ostracism behavior. *International Journal of Conflict Management*, 36(1), 48-69.
- Das, S. C., & Ekka, D. (2024). Workplace Ostracism and Turnover Intention in Organizations: A Meta-analytic Review. *Technology*, 5(1), 48-73.
- Dedic, S., Hadzaihmetovic, N., & Mujezinovic, M. (2022). The Role of Leadership Styles in Organizational Citizenship Behavior. *International Journal of Business & Administrative Studies*, 8(4).
- Dziuba, S. T., Ingaldi, M., & Zhuravskaya, M. (2020). Employees' job satisfaction and their work performance as elements influencing work safety. *System Safety: Human-Technical Facility-Environment*, 2(1), 18-25.
- Fan, Q., Wider, W., & Chan, C. K. (2023). The brief introduction to organizational citizenship behaviors and counterproductive work behaviors: a literature review. *Frontiers in Psychology*, 14, 1181930.
- Farid, H., Xiongying, N., Raza, J., Gul, H., & Hanif, N. (2023). How and when organizational justice impact extra-role customer service: A social exchange perspective of thriving at work. *Current Psychology*, 42(12), 9743-9758.
- Fatima, T., Bilal, A. R., Imran, M. K., Ayub, A., & Arshad, H. (2024). Who is likely to hide knowledge after peer ostracism? An exchange-based perspective of contact quality and need to belong. *VINE Journal of Information and Knowledge Management Systems*, 54(1), 108-128.
- Fatima, T., Bilal, A. R., Imran, M. K., & Sarwar, A. (2023). Manifestations of workplace ostracism: an insight into academics' psychological well-being. *South Asian Journal of Business Studies*, 12(1), 79-103.
- Ferris, D. L., Brown, D. J., Berry, J. W., & Lian, H. (2008). The development and validation of the Workplace Ostracism Scale. *Journal of applied psychology*, 93(6), 1348.
- Findor, A., Hruška, M., Hlatky, R., Hrustič, T., & Bošellová, Z. (2023). Equality, reciprocity, or need? Bolstering welfare policy support for marginalized groups with distributive fairness. *American Political Science Review*, 117(3), 805-821.
- Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial management & data systems*, 117(3), 442-458.
- Henderson, A. A., Foster, G. C., Matthews, R. A., & Zickar, M. J. (2020). A psychometric assessment of OCB: Clarifying the distinction between OCB and CWB and developing a revised OCB measure. *Journal of Business and Psychology*, 35(6), 697-712.
- Hua, C., Zhao, L., He, Q., & Chen, Z. (2023). When and how workplace ostracism leads to interpersonal deviance: The moderating effects of self-control and negative affect. *Journal of Business Research*, 156, 113554.
- Huang, C. C. (2009). Knowledge sharing and group cohesiveness on performance: An empirical study of technology R&D teams in Taiwan. *Technovation*, 29(11), 786-797.
- Joshi, M. (2022). Inter-role conflict and job depressive symptoms: The mediating role of perceived organizational support and the moderating role of employee resilience among middle-aged working women. *International Journal of Health Sciences*, 6(S1), 64-88.
- Khaliq, A. A., Malik, J. T., Waseem, M., & Farooqi, U. (2024). Perceived organizational support: Fostering employee creativity in media houses through work engagement. *Multidisciplinary Science Journal*, 6(11), 2024226-2024226.
- Khan, M. H., Fatima, S., Fayyaz, H., & Hussain, S. (2024). From Ostracism to Expediency: The Mediating Role of Emotional Exhaustion. *Journal of Social & Organizational Matters*, 3(2), 385-398.
- Koay, K. Y., & Lai, C. H. Y. (2023). Workplace ostracism and cyberloafing: a social cognitive perspective. *Management Research Review*, 46(12), 1769-1782.
- Laeque, S. H., & Khan, A. (2024). The Chain Reaction from Workplace Ostracism to Knowledge hiding: Testing a Sequential Mediation Model in Pakistan's BPO Sector. *Journal of Business and Management Research*, 3(1), 257-268.

- Lin, C. C. T., & Peng, T. K. T. (2010). From organizational citizenship behaviour to team performance: The mediation of group cohesion and collective efficacy. *Management and Organization Review*, 6(1), 55-75.
- Luqman, A., Zhang, Q., & Hina, M. (2023). Employees' proactiveness on enterprise social media and social consequences: An integrated perspective of social network and social exchange theories. *Information & Management*, 60(6), 103843.
- Masa'deh, R. E., Obeidat, B. Y., & Tarhini, A. (2016). A Jordanian empirical study of the associations among transformational leadership, transactional leadership, knowledge sharing, job performance, and firm performance: A structural equation modelling approach. *Journal of management development*, 35(5), 681-705.
- Mirza, N. S., Haider, A., Taj, T., & Bilal, H. (2020). The impact of workplace ostracism on job performance with the mediating role of emotional exhaustion: evidence from public sector universities of Pakistan. *Review of Economics and Development Studies*, 6(3), 651-659.
- Oaten, M., Williams, K. D., Jones, A., & Zadro, L. (2008). The effects of ostracism on self-regulation in the socially anxious. *Journal of Social and Clinical Psychology*, 27(5), 471-504.
- Olanrewaju, F. R. (2021). Influence of proactive coping ability, emotional intelligence and perceived organizational support as a correlates of work demand among private and public organizations in ogun state, nigeria. *Clinical Psychology and Mental Health Care*, 3(3).
- Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of management*, 26(3), 513-563.
- Rhoades, L., Eisenberger, R., & Armeli, S. (2001). Affective commitment to the organization: the contribution of perceived organizational support. *Journal of applied psychology*, 86(5), 825.
- Robinson, S. L., & Schabram, K. (2019). Workplace ostracism: What's it good for? *Current directions in ostracism, social exclusion, and rejection research*, 155-170.
- Schonert-Reichl, K. A. (1999). Relations of peer acceptance, friendship adjustment, and social behavior to moral reasoning during early adolescence. *The Journal of Early Adolescence*, 19(2), 249-279.
- Scott, K. L., Zagenczyk, T. J., Li, S., Gardner, W. L., Coglisier, C., & Laverie, D. (2018). Social network ties and organizational citizenship behavior: Evidence of a curvilinear relationship. *European Journal of Work and Organizational Psychology*, 27(6), 752-763.
- Shafiq, M., Akhtar, A., Ismail, M., & Awais, M. (2021). Lean management readiness assessment framework for humanitarian organizations supply chain management. *Bulletin of Business and Economics (BBE)*, 10(3), 151-171.
- Sharma, N., & Dhar, R. L. (2024). Workplace ostracism: A process model for coping and typologies for handling ostracism. *Human Resource Management Review*, 34(1), 100990.
- Singh, S., Subramani, A., David, R., & Jan, N. A. (2024). Workplace ostracism influencing turnover intentions: Moderating roles of perceptions of organizational virtuousness and authentic leadership. *Acta Psychologica*, 243, 104136.
- Stamper, C. L., & Johlke, M. C. (2003). The impact of perceived organizational support on the relationship between boundary spanner role stress and work outcomes. *Journal of management*, 29(4), 569-588.
- Thompson, P. S., Bergeron, D. M., & Bolino, M. C. (2020). No obligation? How gender influences the relationship between perceived organizational support and organizational citizenship behavior. *Journal of applied psychology*, 105(11), 1338.
- Twenge, J. M., Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Bartels, J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of personality and social psychology*, 92(1), 56.
- Wagner, D. D., & Heatherton, T. F. (2015). Self-regulation and its failure: The seven deadly threats to self-regulation.
- Walzenbach, S. (2019). Hiding sensitive topics by design?: an experiment on the reduction of social desirability bias in factorial surveys.
- Wang, H., Zhang, Y., Li, P., & Henry, S. E. (2023). You raise me up and I reciprocate: linking empowering leadership to organizational citizenship behavior and unethical pro-organizational behavior. *Applied psychology*, 72(2), 718-742.

- Wang, J., & Wang, X. (2019). *Structural equation modeling: Applications using Mplus*: John Wiley & Sons.
- Wang, Y., Ma, J. Y., Yuan, M., & Chen, C. C. (2023). More pain, more change? The mediating role of presenteeism and the moderating role of ostracism. *Journal of Organizational Behavior*, 44(6), 902-919.
- Waterwall, B., & Alipour, K. K. (2021). Nonfamily employees' perceptions of treatment in family businesses: Implications for organizational attraction, job pursuit intentions, work attitudes, and turnover intentions. *Journal of Family Business Strategy*, 12(3), 100387.
- Williams, K. D., & Carter-Sowell, A. R. (2009). Marginalization through social ostracism: Effects of being ignored and excluded. *Coping with minority status: Responses to exclusion and inclusion*, 104-122.
- Xuecheng, W., Ahmad, N. H., Iqbal, Q., & Saina, B. (2022). Responsible Leadership and Sustainable Development in East Asia Economic Group: Application of Social Exchange Theory. *Sustainability*, 14(10), 6020.
- Yao, L., Ayub, A., Ishaq, M., Arif, S., Fatima, T., & Sohail, H. M. (2022). Workplace ostracism and employee silence in service organizations: the moderating role of negative reciprocity beliefs. *International Journal of Manpower*, 43(6), 1378-1404.
- Yi, Y., Gong, T., & Lee, H. (2013). The impact of other customers on customer citizenship behavior. *Psychology & Marketing*, 30(4), 341-356.
- Zhongfeng, F., & Raman, A. (2023). Influence of Centrality in a Friendship Network on Organizational Citizenship Behaviour. *International Journal of Instruction*, 16(1).

Unpacking Financial Reporting Quality by Using MSCORE Model: Micro and Macro Insights

Asad ur Rehman

PhD Scholar, Department of Management Sciences
National University of Modern Languages, Islamabad

Dr. Aijaz Mustafa Hashmi

Associate Professor, Department of Management Sciences
National University of Modern Languages, Islamabad
amustafa@numl.edu.pk

&

Dr. Ishtiaq Ahmed

Assistant Professor, Department of Management Sciences
National University of Modern Languages, Islamabad

Abstract

The reliability and relevance of finance reporting is key to building financial assertion between firms and their stakeholders. Financial statements are essential in the decision-making process such as investment decision, financing decision, dividend decision and working capital management decision. The consumers of financial statements needed good quality financial information to make productive decisions thus it is imperative and essential to maintain transparency of the financial statements. Financial statements may, however, be undermined by the high economic policy uncertainty and inflationary environment. One should also analyze the factors that affect transparency of financial reports and credibility. The proposed study will fill in the literature gap, by examining how the macroeconomic uncertainty and firm-level governance systems influence the determination of the financial reporting quality. The agency theory focuses on the macroeconomic and microeconomic factors as determinants of quality of financial reporting. Economic policy uncertainty and inflation are the macroeconomic factors. The microeconomic factors are corporate governance mechanisms and financial distress. The study uses logistic regression to analyze whether uncertainty in economic policy, inflation, corporate governance mechanism and financial distress is some of the factors that impact on the quality of financial reporting. The M-Score model, which involves the use of specific and total accruals, was utilized in this research by which the earnings manipulation in the financial reports was identified. The data used in the research is taken based on the non-financial firms listed in the Pakistan Stock Exchange (PSX) between the years 2013 and 2024. It was found that high economic policy uncertainty and inflation impact negatively on the quality of financial reporting. Financial reporting quality also has a negative correlation with financial distress. Conversely, corporate governance mechanism was found to have a positive correlation with financial reporting quality. The research deduced that uncertainty in economic policy, inflation and financial distress is a factor that decreases the quality of financial reports. Nevertheless, the earnings manipulation is mitigated by the strong corporate governance mechanism and improves the quality of finance reporting. The research can be helpful to the regulators to verify the quality of financial reporting. This paper showed that firms that have a high level of economic policy uncertainty, inflation and financial hardship must focus their financial statements to provide the transparency. Moreover, firms need to introduce an effective corporate governance system to reduce earnings management and improve the credibility of financial reports.

Keywords: FRQ, Economic Policy Uncertainty, Inflation, Financial Distress Corporate Governance, M-Score Model

The emphasis on reliability and credibility of financial statements is fast growing particularly after the major corporate scandals such as Xerox, Enron, WorldCom, and Maxwell. (Shah et al., 2024). The main areas of concern were the value of financial reporting, its accuracy, relevance and adherence to the existing accounting standards. In the ever-evolving relevant sphere, the credibility of such disclosures is the key to building the stakeholders' confidence in the organizations. Ensuring such adherence and standards for financial outcomes

is becoming a vital issue in organizations. The financial statement users needed to obtain good quality financial information to make robust decisions regarding their investments (Yusran, 2023). Mainstream stakeholders can obtain confidence regarding financial affairs using knowledge of what factors affect the financial outlays. Consequently, such relevant information should be affirmed in the financial statements without biasness. The quality of the information contained in the financial reports is high when it is not subject to earnings management.

According to Ahmad et al. (2023), earnings management refers to the intentional reporting of financial statements by the administration in order to deceive the stakeholders regarding the inherent economic performance of the company using subjective financial reporting tools. The faithfulness of financial reports is a leading priority among regulators, certified public accountants, and other stakeholders of financial reports. Financial reporting quality is related to all of the processes of a corporation, and it presents accurate financial information to ensure the quality of reporting transparency and exactly reflects the performance of the business (Ozer et al., 2024). The recent empirical research shows that accountability in most of the developing nations is ungrounded in accounting standards and is merely oriented in adherence to the applicable regulations (Yusran, 2023). The examples of the prominent corporate collapses in Pakistan includes but not limited to major banking sector companies, firms from textile sector and also from other major manufacturing sectors have brought out the critical role about how firms should be administered with the intent of ensuring proper relevant and faithful financial affairs of firms. The Pakistani ownership is not decentralized as it is in the modern countries, and families and important institutions hold significant positions in the major firms. The corporate governance effectiveness is obstructed by ownership form of the publicly traded corporations in Pakistan. The annual report of World Bank (2015) states that the country needs major gains in the fields of governance in order to release the potential of the country. The poor performance of Pakistan also makes it a significant concern regarding the reform efforts (Shah et al., 2024).

In this study, the researchers have also pointed out the importance of these factors such as the economic policy uncertainty, inflation, corporate governance and financial distress in explaining the integrity of financial reporting. The economic policy has a great influence on the different market players and the decisions they take. Economic policy uncertainty is a term that is used to describe the lack of predictability in the shift in policy that transforms the macroeconomic environment (He et al., 2020). The economic policy has a direct and indirect impact on the behavior of a company. It can also affect commercial trade, monetary policies, industrial laws, tax, and also influence business behavior outside the macroeconomic aspect (Lee & Jeong, 2024). Kim and Li (2018) believe that the uncertainty due to economic policies impacts the actual economy once the economic crisis has taken place. The ambiguity in economic policy has been academically pursued in establishing the impacts of economic policy on economic growth. Some investigators have noted the contribution of the economic policy uncertainty on the firm level along with the firm level factors (Viana et al., 2023). This uncertainty in economic policy would impact financial reporting accuracy in terms of an increased level of ambiguity, which could enable earnings manipulation due to the increased agency issues between internal and external stakeholders. As a result, the communication weaknesses in the shareholders, both external and internal, in combination with the asymmetry of the information enables the management to distort the performance of the company (Bermpei et al., 2022). Consequently, the amplification of economic policy uncertainty gives issues, and not an absolute impossibility, to recognize malpractices in gain by investors (Kim & Yasuda, 2021).

The studies by Yung and Root (2019) have shown that the more strategies of earnings manipulation are used by a company at the time when the state of economic policy uncertainty is high. Ma and Hao (2022) the increase in the financial pressure is based on the higher economic policy uncertainty that leads to the lower level of the stability of the cash flow. This is instability in finance which weakens the capacity to pay the debts and raises the expenses of financing. The result of such a behaviour will be that the firms will report the financial information in positive values rather than depicting the actual picture of the firm performance. The inflation impacts quality of the financial reporting. The study conducted by Viana et al. (2023) claims that one of the factors that cause inflation is increased macroeconomic instability. More pressure can be exerted on the developed countries to prepare financial statements in the inflationary environment as the market and the

regulators will conduct more scrutiny and care about the quality of financial reporting. Conversely, when the economy is in a situation of inflation, managers in the emerging markets are able to employ greater earnings management hence reporting exaggerated performance due to the weak institutional structure of such economies. The inflation can negatively affect the quality of the financial reporting as the increasing prices result in making it more difficult to define the financial reality to the population and analysts (Scholtens & Kang, 2013). The increased inflation rate leads to managers engaging in the earnings management habit thus compromising the quality of the financial reporting. In another research and literature by Rigamonti et al. (2024), the likelihood of a company applying real-based and accrual-based earnings management practices is greater in the high inflationary period.

Financial distress is the first microeconomic aspect that influences the quality of financial reporting. According to Sehgal et al. (2021), financial distress is a state that occurs when a company faces a challenge in the management of its cash flows in order to pay its contractual financial obligations. Failure to respond promptly to the financial problems of a company can cause insolvency (Aviantara, 2023). The management must critically examine financial statements of the company to ensure that the business survives. Low-end businesses are usually tempted to play with their profits. Zang (2012) pointed out that financially troubled firm and those that are below par in financial performance are more likely to engage in earnings manipulations, as opposed to financially sound, performance-based firms. The Zamri et al. (2022) study also indicated that the financial distress firms develop the earnings manipulation activities in order to achieve their financial goals. The reaction of investors to failure to achieve management projections is more pronounced in financially stricken firms compared to other organizations (Ranjbar & Amanollahi, 2018). Financial distress creates predatory behavior amongst managers who are given a chance to make earnings appear high and the quality of financial reporting is compromised.

The next microeconomic problem that influences the quality of financial reporting is corporate governance. Corporate governance also improves the quality of financial statements, hence lessening the agency conflict that exists (Waris & Din, 2023). The agency theory takes into consideration the relationship between the owners (principals) and the managers (agents) that is characterized by conflict of interests. The study is encouraged to make decisions that are more meaningful to his benefits due to their conflict with their interests (Susanto & Widayawati, 2019). The agency cost should imply the cost that is required to monitor and reduce the opportunistic behaviour of managers. According to Nguyen et al. (2024), the corporate governance is supposed to reduce the cost of the agency and to maximize the shareholder profit. Good corporate governance will reduce knowledge gap between the outsiders and insiders hence transparency. Development of an adequate accounting system would enhance governance and minimize the problems of agency between different parties. The management would effectively work in the interest of the shareholders as well as an increase in good governance structure with improved financial information (Sassi & Damak-Ayadi, 2023).

Although the macroeconomics variables like the policy uncertainty on the economy, and inflation have a tremendous impact on the firm information environment. However, relatively few studies have investigated the relationship between the macroeconomic policy uncertainty and the financial reporting quality in developed economies that have suggested further research on whether other characteristics like the company governance affects the financial reporting quality (Bermpei et al., 2022). In addition, the issue of quality of financial reporting is hardly addressed in the emerging markets, like in Pakistan (Shah et al., 2024). The current research is analyzing the impact of the economic policy uncertainty on the quality of financial reporting in Pakistan under the high rate of economic policy uncertainty and the high rate of inflationary environment that could also influence the quality of the financial reporting of the firms. Moreover, another microeconomics variable, which is under analysis in this paper, is the corporate governance and financial distress. One of the new markets in which these corporate reforms are striking cruel blows is Pakistan (Shakri et al., 2024). This study is addressing the gap through excavating these important micro and macro revelations that affect quality of financial reporting. This research outlines a solid evidence to the extent of our knowledge of the multifarious agents that influence the actions of financial reporting in that they have revealed that macroeconomic uncertainty and the systems of governance can be in various channels, this research gives credible evidence to the realization of the complexity of forces that affect corporate reporting behavior. The

research also excavates regarding the financially distressed companies, whether they are the opportunistic journalists or become more scrutinized. This puzzle has been resolved when it was discovered that distressed firms enjoy lower quality of financial reporting that supports the hypothesis of monitoring.

Literature Review

Agency Theory

Jensen and Meckling (1976) explained agency theory as a contractual relationship in which several individuals function as principals (shareholders) who engage various agents (managers) to operate effectively on behalf of the principals. When the agent seeks to enhance personal benefits at the cost of the principals' interests, it results in agency conflict. Agents possessing substantial expertise are endeavoring to make ambitious selections aimed at enhancing their own profit rather than that of the investors. The principal is unable to oversee the agent's operations on a daily basis, so exacerbating this gap and leading to increased conflict. Owing to a misalignment with the principal's interests, the agent endeavors to create selections that predominantly enhance his own benefits (Susanto & Widyaswati, 2019).

Macroeconomic and firm-level uncertainties could increase the intensity of the agency conflicts and the quality of the financial reporting. It leads to more information asymmetry and managerial discretion, which discourages the disclosure of financial reporting because of the economic policy uncertainty. As a result of increased uncertainty, which can further provide more opportunities at window dressing in the case of increased information mismatch between the management and the investors. Agency conflicts also increase the information asymmetry, which inhibits the ability of investors to make informed decisions on investment since false information is shared. Shareholders costs are benefits to the management because the shareholders are manipulated by the management in annual reports by managing the earnings and putting their interests above that of the investors thereby compromising the quality of financial reporting (Mos, 2024). The presence of inflationary conditions perverts real economic performance and increases the uncertainty. This increase in discretion rises agency issues and probabilities of opportunistic reporting thus diminishing financial reporting quality. Previous literature has supported that, the inflation makes the faithful representation and comparability of the accounting information difficult, also it can promote earnings management where the actual performance is distorted (Binz et al., 2024).

Financial distress at the firm level increases agency problems as managers under the survival pressure are likely to manipulate earnings or risk-shift to protect personal gain, but proper governance structure can detect distress earlier and lower agency cost (Aviantara, 2023; Awais, Ellahi, & Sher, 2019; Salehi et al., 2023). A good governance mechanism enhances the supervision of the reporting process and limits manipulation of earnings resulting in more transparent and reliable financial statements (Alrawashedh et al., 2025; Yaqub, Rehman, Awais, & Shafiq, 2018). The high levels of monitoring by the governance mechanism improve information asymmetry, hence improving financial reporting quality.

Financial Reporting Quality (FRQ)

A set of comprehensive corporate systems defines the quality of financial reporting, which allows the provision of accurate financial information to reflect the performance of a business and transparency (Ozer et al., 2024). Integrity of financial reporting is the most crucial part of decision-making because all decisions depending on the financial statements, including financing, investment, the working capital management and the policy on dividends are made. The financial statements must be of integrity in order not to compromise the decision-making of the users. Numerous research studies have emphasized that the management is willing to make financial reporting to meet their interests, and it is why they are involved in the earnings manipulation activities (Hasan et al., 2022). It develops when the managers are abusing their discretion to benefit themselves in reversing the direction of the contract by the information disclosed or when they misreport transactions in their financial reports.

Economic Policy Uncertainty (EPU) and Financial Reporting Quality (FRQ)

Various works have discussed the impact of EPU on the business cycles, the risk premia, and dynamics of investments and the equities (Baker & Bloom, 2013; Bianchi et al., 2014; Bidder & Smith, 2012; Christiano et al., 2014). Besides, the effects of uncertainty in business and aggregate levels on the decision made by managers regarding investments, spending on research and development and advertisement strategies where managers are more worried about the profits have also been examined by other scholars (Bloom, 2009; Gulen & Ion, 2016; Julio & Yook, 2012). Much of the accounting and finance knowledge has examined various circumstances when earnings are manipulated to achieve management goals alongside reactions to various business occurrences (Asthana & Kalelkar, 2020). In the situation of the agency conflict where the interests of the shareholders and the managers differ as well as the information asymmetry, the earnings may be managed as a result of the agency conflict. According to Bermpei et al. (2022), the economic policy uncertainty will cause information asymmetry that then causes managers to engage in earnings management activities, which consequently will result in poor quality of financial reporting. Nagar et al. (2019) indicate that the greater is the economic policy uncertainty, the more an investor would respond in reaction to the earnings shock. High economic policy uncertainty would mean that the earnings information is quite unpredictable and investors would not pay high value to it. As stated by Jin et al., (2019), investors find it hard to trace earnings management due to the uncertainty of estimating accruals. In addition to this, Kim and Yasuda (2021) found that earnings management predisposes the managers further when the shareholders are not attentive, which substantiates their claim that earnings management is effective in distracting investors. The economic policy uncertainty makes the shareholders to be distracted and focus on the actual performance and leave the managers manage the earnings, thereby affecting the quality of the financial statements.

H1: Economic Policy Uncertainty reduce the FRQ

Inflation and Financial Reporting Quality

Inflation is described as an increase in prices of an economy. The tendency towards the continuous rise in prices is known as inflation (Ghulam, Rizwan, & Awais, 2024; Katmas & Indarningsih, 2022; Sujarminto et al., 2024). Economies with inflation are faced with a very critical state. The managers of this firm during this time can be trying to distort the reported earnings and compromise the quality of the financial reporting. The authors recorded that inflation can positively affect earnings management because rising prices will make it difficult to grasp financial realities by the masses and analysts (Viana et al., 2023). These scholars also contended that many nations are recording increased inflation due to the macroeconomic instability. Earnings management is raising significant questions among the regulators of the rich countries. This is the pressure on the preparation of financial statements when it comes to focusing on the quality of financial reporting to curb the earnings management. On the other hand, in developing countries, the poor institutional structure can enable managers to meddle in a wider scope of earnings management during high inflation, thus giving inflated reported outcomes. The hypotheses of this study assume that the quality of financial reporting decreases with an increase in inflation.

H2: There prevails inverse association between inflation and FRQ

Corporate Governance and Financial Reporting Quality

One of the features that improve the level of financial reporting is the corporate governance structure. Board size, board independence, gender diversity, board meetings, gender diversity and audit committee are made up of a strong corporate governance mechanism. Board size is the critical factors of board structure that regulators emphasize on, in the context of corporate governance. The smaller size of the board is more effective because the risk to experience coordination and communication issues is lower. Smaller boards usually have a more active and efficient directors in terms of decision-making, thus increasing their control of the management team (Daily & Dalton, 1994; Jensen, 1993). Conversely, the researcher has recommended bigger boards such as those mentioned by Hillman et al. (2009) reported to provide the organization with additional resources. As Switzer and Wang (2013) emphasized, it is more difficult to have more influence on a relatively large board by the manager. Past researches on the correlation of board size show inconclusive

findings yet recorded that board size as per governance (the bigger board) exert greater control to the firm. The agency and resource dependency theorists provide the significance of external directors as an efficient mechanism of internal control over the issue of self-interestedness of managers and restricting managerial opportunism to enhance the effectiveness of boards, as well as enhancing the quality of the financial reporting (Alzoubi., 2024; Jensen & Meckling, 1976).

The board members must bring on board a competent and experienced input in order to achieve gender diversity. The ability of board diversity to enhance effectiveness of monitoring and controlling processes is a possibility. Resource dependency theory supports the advisory approach that asserts that the corporations leverage the diversity of the board members to have access to resources like knowledge, advice, reputation and networks that could lead to greater success and sustainability of the corporations (Hillman et al., 2000). The agency theorists will argue that the duality of the CEOs can reduce the ability of the board to question the management opportunism (Eisenhardt, 1989; Jensen, 1993). It may result in an increment in the agency cost and entrenchment problems (Fama & Jensen, 1983). According to Salleh and Othman (2016), the rate of board meetings can enhance corporate governance and the rate of board meetings can be improved, as the rate of board meetings increases. Board of directors sitting frequency is also increased thus fraud reduction and financial performance improvement becomes a reality. Audit committee is an important aspect in the corporate governance as it controls the financial reporting, internal control and audit processes of a company. It promotes transparency and accountability by safeguarding integrity of the financial statements and acting within the legislature (Al-Baidhani, 2014). These factors are combined, which is mentioned by the study of Thanh et al. (2024) and helps to build strong corporate governance mechanism. The better quality of financial reporting is attained through the enhanced governance mechanism.

H3: There is direct association between Corporate Governance mechanism and FRQ

The Interaction of FRQ and Financial Distress

The company in distress can perform poorly in meeting the expectations of its shareholders in terms of earnings and this will lead to a drop in its share price and the value of the company as a whole. Cost of debt is inflated among companies that are financially disadvantaged. In that regard, the supply of debt finance becomes even more important to businesses (Li et al., 2020). According to the previous studies, financially strained firms are more likely to use earnings management to alleviate losses and maintain a cordial relationship with shareholders (Haw et al., 2005; Jiang & Wang, 2008; Li et al., 2020). Moreover, Zang (2012) noted that the managers of organizations where health is substandard are more engaged in the practice of profit manipulation. Earnings management is used as a strategic tool in the stressful environments, where management aims at achieving immediate goals (Campa, 2015). These misleading earnings practices can affect the integrity of financial reporting. The main goal of companies is to become profitable and increase the wealth; however, organizations that suffer financial strain cannot improve their profitability in the predictable future since their debt burdens are significant (Ranjbar & Amanollahi, 2018). Managers become the decision-makers in the organization and rely on the methods of manipulating earnings in order to provide the organization with a positive image. The financial distress had a negative impact on the quality of financial statements. Previous studies show that in critical times, financially strained organizations make every effort to secure their survival and tend to increase the number of earnings management practices to show good company operations and undermine the quality of financial reporting (Kurniawati & Panggabean, 2020; Li et al., 2020; Zang, 2012).

H4: Financial Distress firms reduce the FRQ

Theoretical Framework

In the followings, theoretical framework is provided which highlights the relationship between variables guided by theory and relevant literature.

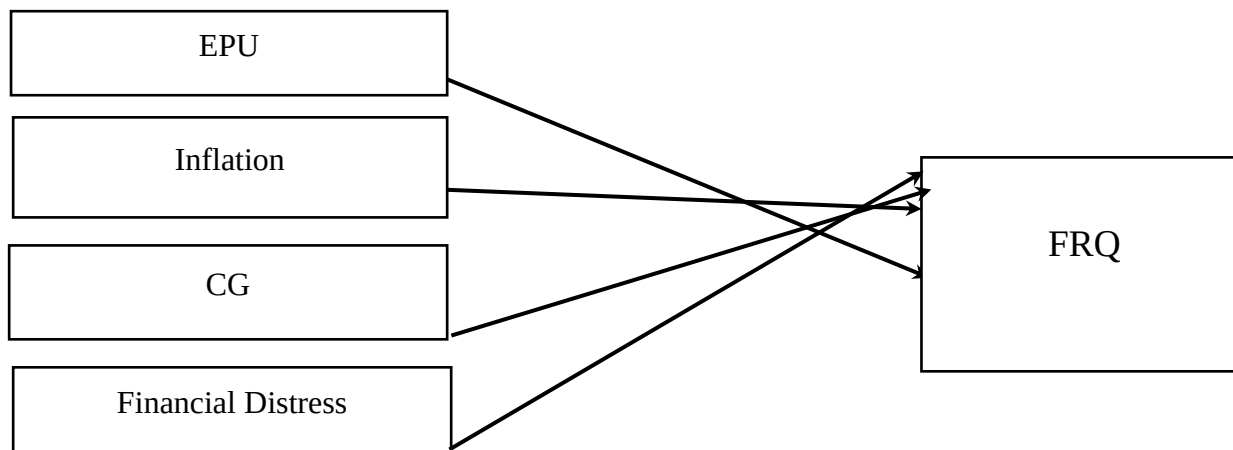


Figure 1 Study Framework

Methodology

In this research, the sample size of non-financial sector of Pakistan is being used to investigate the determinants of financial reporting quality. Masud et al. (2018) assert that inadequate shareholder protection is mostly experienced in the developing economies. Pakistan is a developing country and the literature that has been reviewed in the past has enlightened the governance and financial reporting issues in Pakistan that highlighted the necessity of exploring the issues that influence the quality of financial reporting (Shah et al., 2024). The given study has chosen the sample size of non-financial sector of Pakistan because the non-financial sector in Pakistan is a major contributing sector to the economy and its contribution to the GDP of the country is the highest (Rashid & Bilal, 2020). The data is gathered on the non-financial listed firms of Pakistan stock exchange (PSX). The 358 firms are chosen after the removal of the missing data firms. The data used in the analysis of this study has a time frame scope of 12 years, which is between the year 2013 and 2024. The research is dated back to 2013 due to certain contextual factors. The time was also chosen to study governance actions after the major reforms in corporate governance in 2012. The radical changes in the regulatory framework have enhanced the corporate governance framework and standards in Pakistan (Shakri et al., 2024). In the Companies Act of 2013, financial disclosure, auditor independence, and corporate governance were changed. SECP of Pakistan started on the process of reforming to improve financial transparency. Organizations that are non-financial are not included because their capital structures, legislation, accounting systems, disclosure standards, and governance structures differ with the ones of non-financial corporations, so that the homogeneity of the data can be maintained (Akter et al., 2024). The continuous variables (Economic policy uncertainty, Inflation, Financial Distress) were winsorized. The transformation replaces the extreme values with the closest non-extreme values without reducing the sample size and with limited impacts that the outliers have on the regression outcome (Leone et al., 2019).

M-SCORE Model

This undermines the integrity of financial quality when managers misuse financial reports and lie to stakeholders to improve profits by using accounting rules (Kateb, 2024). The alteration in the financial statements is done through earnings management. The quality of the financial statements is in question due to the nature of its earnings management. There are already a great number of methodologies that are used to identify the earnings manipulation of financial statements that undermine the financial reporting quality. The article by Jackson (2018) examined the earnings management and the implementation of the modified

Jones model to measure it. Putri and Sujana (2018) research was aimed at testing Dechow model of earnings management. As proposed by Alghamdi (2017); Kothari et al. (2005); and Le and Moore (2023) referred to the earnings management, which is explained by the discretionary model of accruals. Alhadab and Clacher (2018) utilized a Roychowdhury model, which measures the earnings management. M-Score model is a financial instrument employed in the financial sector to assess the earnings manipulation contained in the financial statements of the companies (Talab et al., 2017). M-Score model is considered to be a significant instrument of earnings management identification, and it has been applied in many studies (Holda, 2020). The new research is validating that, in the process of establishing the quality of the financial reporting, MSCORE is the most appropriate tool in the recognition of earnings management in the financial statements. To measure quality of financial reporting, we use a popular model, the Beneish M-Score (Beneish, 1999), which is used to find out the earnings and financial misreporting manipulation. M-Score is computed on eight financial ratios that indicate the distortion of financial statements in the form of days sales in receivables index, gross margin index, asset quality index, sales growth index, depreciation index, sales general and admin index, leverage index as well as total accruals to total assets. It is believed that companies whose M-score is above -2.22 are considered as potential manipulators following Beneish (1999). Firms that have M-Score lower than -2.22, on the other hand, are considered to be non-manipulators and this is a better quality of financial reporting. The non-manipulators and the manipulators firms are assigned value 1 and 0 respectively. This binary coding scheme, in turn, allows us to run the determinants of the reporting quality using the logistic regression, the higher values (FRQ = 1) are, the higher quality of financial reporting. The cut-off of -2.21 is well-tested in the available literature (Beneish et al., 2013) and is easily utilized in the studies of earnings manipulation.

$$M\text{-Score} = -4.84 + 0.920*DSRI + 0.528*GMI + 0.404*AQI + 0.892*SGI + 0.115*DEPI \\ - 0.172*SGAI + 4.679*TATA - 0.327*LVGI \dots\dots\dots (Eq 1)$$

- DSRI: (Receivables_{t-1}/Sales_{t-1}) / (Receivables_t/Sales_t)
- GMI: [(Sales_{t-1} – CGS_{t-1}) / Sales_{t-1}] / [(Sales_t – CGS_t) / Sales_t]
- AQI: [1 - (CA_t + PPE_t) / TA_t] / [1 - (CA_{t-1} + PPE_{t-1}) / TA_{t-1}]
- SGI: (Sales_t / Sales_{t-1})
- DEPI: [Dep_{t-1} / (PPE_{t-1} + Dep_{t-1})] / [Dep_t / (PPE_t + Dep_t)]
- SGAI: (SG & Admin Exp_t / Sales_t) / (SG & Admin Exp_{t-1} / Sales_{t-1})
- LVGI: [(CL + TLTD_t) / TA_t] / [(CL + TLTD_{t-1}) / TA_{t-1}]
- TATA: Δ CA - Δ Cash - (Δ CL – Δ LTD's current maturity- Δ Income-Tax payable) - Dep & Amor_t

EPU Quantification Criteria

To Measure the uncertainty of the economic policy, this study utilized a common index proposed by Baker et al. (2016), which measures the uncertainty of the economic policy, based on the frequency of coverage on the newspaper. Economic policy uncertainty index is constructed as a sum of those articles in the major newspapers that contain the key word in each of the three categories (1) economic terms (economy, economic, business), (2) policy terms (government, regulation, central bank, tax), and (3) uncertainty terms (uncertainty, unstable, risk). This is done by taking the number of articles in each newspaper and month which are economic policy related articles divided by the total number of articles published by the newspaper in the month. These series of scales are then converted to unit standard deviation and averaged out over all the newspapers to give a monthly composite index which is subsequently brought to mean of 100 over the sample period.

$$EPU\ Index_t = \frac{C_t}{T_t} \times 100 \dots\dots\dots (Eq 2)$$

Quantification Criteria for Inflation

The inflation is calculated by considering the percent variation in price index. The most required measure of inflation is consumer price index (ConPI). The average price of some products consumed by the people is determined by the Consumer Price Index (ConPI). The ConPI index has been used in recent research to determine the inflation rate of the economy.

$$\text{Inflation Rate} = \frac{(\text{ConPI } t - \text{ConPI } t-1)}{\text{ConPI } t-1} \times 100 \dots\dots\dots (\text{Eq 3})$$

Quantification Criteria for CG

Corporate governance (CG) is a general term that encompasses a lot of features that reflect the management system, processes, and aspects of culture of a company. According to the literature on corporate governance, the board size, board independence, gender diversity, CEO duality, the number of board meetings, and audit committee can be listed as the key elements of effective corporate governance (Idris et al., 2018). The mechanism of corporate governance is also computed in this analysis regarding corporate governance index (CGI) consisting of board size, audit committee, board meetings, gender diversity, board independence and CEO duality. When the size of a board of directors is larger than the minimum established by law, then such a firm has a better governance in a corporate governance index (Khan, 2022; Nguyen et al., 2024). The agency theory and resource dependence theory emphasize the importance of external directors as an essential internal control tool since they assist in controlling the managerial behavior and restraining managers acting on their own interests and priorities and minimizing the chances of opportunistic behavior. The efficacy of board members can be enhanced by ensuring that there are more non-executives directors in the board (Idris et al., 2018). According to Arun et al. (2015), the higher the number of female directors in the board, the lower the earnings manipulation. It implied that gender diversity will act as an indicator of the positive corporate governance mechanism (Abu-Afifa et al., 2024; Khan, 2022).

Lo et al. (2010) recorded that opportunistic behavior among the managers is encouraged by CEO duality. The system of governance becomes stronger when the CEO is not the chairman. Empirical evidence that is given by Salleh and Othman (2016) suggests that the number of board meetings can increase corporate governance. The board of directors meet frequently leading to reduction of cases of fraud and a better financial performance. An audit committee is a highly significant body in the corporate governance since it is mandated to take the role of overseeing not only financial reporting but internal control and auditing of a firm. This will ensure accountability and transparency by ensuring integrity of the financial statement and complying with legislation (Al-Baidhani, 2014). CG-Index is represented by an aggregate of all the components of corporate governance mechanism of the corporate governance comprising board size (BS), board independence (BI), gender diversity (GD), CEO duality (CD), board meetings (BM) and audit committee (AC) (Thanh et al., 2024).

Table 3.1: Measurement of Variables of Corporate Governance

Variable	Measurement Equation	Reference
Index 1 (BS)	Represents the composition of the board of directors. A value of 1 is assigned when the board size complies with the requirements of the corporate governance code; otherwise, 0 is assigned.	Khan, (2022)
Index 2 (BI)	Indicates the proportion of independent directors on the board. A value of 1 is assigned if the number of independent directors meets the corporate governance code requirements; otherwise, 0	Idris et al., (2018)
Index 3 (GD)	Captures the presence of female representation on the board. A value of 1 is assigned when at least one female director is present on the board; otherwise, 0.	Abu-Afifa et al., (2024)
Index 4(CD)	Reflects whether the roles of CEO and board chair are separated. A value of 1 is assigned if CEO duality does not exist; otherwise, 0 when both roles are held by the same individual.	Idris et al., (2018)
Index 5(BM)	Refers to the frequency of board meetings. A value of 1 is assigned if the number of meetings held complies with the corporate governance code; otherwise, 0.	Abu-Afifa et al., (2024)
Index 6(AC)	Indicates the existence of an internal audit committee. A value of 1 is assigned if an audit committee is established; otherwise, 0.	(Waris & Din, 2023)

Quantification Criteria for Financial Distress

The method that is applicable in the determination of the probability of a company to experience financial strain is Z-Score (Altman, 1968). The model employs various parameters in the measurement of the financial stability of a firm that consists of working capital, total assets, retained profits, earnings before interest and tax and book value of equity. It has been found that this model is very accurate with 97 percent of the non-bankrupt business and 90.9 percent of the bankrupt businesses and has garnered many positive reviews and fewer negative ones (Altman, 1968; Ntawumenyumunsi & Maringa, 2022). In this research, Altman Z-Score was used in calculating financial distress. A firm with an index value of more than 2.99 is said to lie in a non-bankrupt category and a firm with index of 1.81 to 2.99 is categorized as part of the grey region. The companies whose index is lower than 1.81 are regarded to be in a critical position and very vulnerable to bankruptcy. The following formula is Altman Z-Score;

$$\text{Z-Score} = 1.2 \times Z1 + 1.4 \times Z2 + 3.3 \times Z3 + 0.6 \times Z4 + 1.0 \times Z5 \dots \dots \dots (\text{Eq 4})$$

Table 3.2: Elements of Z-Score

Z1	WC / TA	The WC is working capital and measured by subtracting the currents liabilities from current assets while TA represents total assets
Z2	RE / TA	The RE is retained Earnings and these are part of equity which represents accumulated profits of losses over the period
Z3	EBIT / TA	EBIT is income before deducting tax expenses and interest expenses principally used for free cashflows.
Z4	MVoE / TL	THE MVoE represents Market value of Equity while TL represents total liabilities
Z5	S / TA	The S represents sales while this ratio represents the efficiency of business in utilizing the assets

To test the determinants of the level of financial reporting, a logistic regression model was used in this study. The logistic regression is appropriate as the quality of financial reporting is a dichotomous variable (1 = high quality, 0 = low quality). The model estimates chances of the quality of financial reporting to be equal to 1 in relation to independent variables rather than ordinary least squares that would yield biased and

inefficient estimates with a binary result (Hosmer et al., 2013). The empirical specification of the study is developed on the basis of the framework which is developed by the past studies which examined the determinants of the quality of the financial reporting. Specifically, the model used in this study is developed on the basis of Bermpei et al. (2022); Viana et al., (2023) with the introduction of macroeconomic variables and the firm-specific one that is typically applied in the study. Corporate governance is one of the key variables considered in this study, and the financial distress measures in Aljughairan et al. (2023) are utilized in line with Bermpei et al. (2022). The above frameworks are further expanded with the introduction of EPU and inflation in that it is not just that the quality of reporting depends on the firm-specific factors but also includes the macroeconomic factors. The study econometric model appears below:

$$P(FRQ_{it} = 1 | X) = \frac{1}{1 + e^{-z_{it}}}$$

where:

$$z_{it} = \beta_0 + \beta_1(EPU)_{it} + \beta_2(INF)_{it} + \beta_3(Corp_Gov)_{it} + \beta_4(Fin_Dis)_{it} + e_{it} \dots \dots \dots (Eq\ 5)$$

Alternatively, in log-odds form:

$$\ln\left(\frac{P(FRQ_{it}=1)}{1-P(FRQ_{it}=1)}\right) = \beta_0 + \beta_1(EPU)_{it} + \beta_2(INF)_{it} + \beta_3(Corp_Gov)_{it} + \beta_4(Fin_Dis)_{it} + e_{it} \dots \dots \dots (Eq\ 6)$$

- FRQ_{it} = Financial Reporting Quality for firm i in year t (1 = high quality, 0 = low quality)
- EPU_{it} = Economic Policy Uncertainty index
- INF_{it} = Annual inflation rate (%)
- $Corp_Gov_{it}$ = Corporate Governance Index
- Fin_Dis_{it} = Altman's Z-Score
- β_0 = constant term
- β_1 through β_4 = regression coefficients to be estimate
- E_{it} = error term

Results and Analysis

Table 4.1: Descriptive Statistics

Variables	N	Mean	SD	Min.	Max.
FRQ	4,296	0.689	0.462	0	1
EPU	4,296	112.698	50.813	61.001	190.362
INF	4,296	9.876	5.514	2.53	19.87
CORP_GOV	4,296	4.697	0.894	2	6
FIN_DIS	4,296	1.234	2.985	-4.351	4.893

The descriptive statistics of the variables used in the analysis were described in Table 4.1 as they are presented on 4,296 observations. Dependent variable, FRQ, is a binary variable that indicates that when finance reporting quality of the company is high it is coded as 1 otherwise it is coded as 0. FRQ is taking an average of 0.689 and SD of 0.462. This implied that 69 percent of the companies are recognized to have a high quality of financial reporting. The mean and standard deviation of the economic policy uncertainty are 112.698 and 50.813 respectively with a range of 61.003 to 190.362 showing that there is a lot of variability in the economic policy uncertainty over the period of observation. Standard deviation (INF) has the mean of 9.876 and standard

deviation of 5.514 with a great variance. The lowest and highest values are ranging between 2.53 and 19.87, meaning that there were significant macroeconomic fluctuations in the sample period. Corporate Governance (CORPGOV) has the mean of 4.697 and Standard deviation of 0.894; the minimum value of 2 and maximum value 6. This implied that most of the firms were practicing good governance with little variation. The FinDis is assessed using ZSCORE with an average of 1.234 and standard deviation of 2.985 with an acceptable range of [?]4.351 to 4.893. The values that depict that some firms are in sample size that are experiencing financial distress.

The descriptive statistics indicate that there is sufficient variation in all independent variables to analyze their relation to financial reporting quality. The wide range of the macroeconomic indicators allows the provision of enough heterogeneity needed to observe the influence of the economic conditions on the firm-level reporting behavior. Equally, the difference in firm-specific characteristics brings the required cross-sectional variations to determine the effects of corporate governance and financial health on the financial reporting quality. All these descriptive statistics provide a solid framework on for the multivariate analysis and give confidence to the subsequent hypothesis testing.

Table 4.2: Correlation Matrix

	FRQ	EPU	INF	CORP_GOV	FIN_DIS
FRQ	1				
EPU	-0.124**	1			
INF	-0.089***	0.567***	1		
CORP_GOV	0.156***	-0.078**	-0.046**	1	1
FIN_DIS	-0.098***	-0.235***	-0.178***	0.120***	

p < .05. ** p < .01. *** p < .001

Table 4.2 presented the coefficients of correlation between the key variables. The results show that the financial reporting quality has a negative and significant relationship with economic policy uncertainty with a correlation value of -0.124. The correlation value between the INF and financial reporting quality is -0.089. This implied that companies are more likely to indulge in earnings management and decrease the quality of financial reporting in periods of economic and price volatility. The quality of financial reporting showed a strong positive relationship with corporate governance of 0.156 indicating that firms which have strong corporate governance structures are trying to ensure a good financial reporting quality. The relationship between FRQ and FinDis is found to be -0.098 with an indication that the quality of financial reporting is low in financial distress firms. The economic policy uncertainty had a moderate positive relationship with INF with value of 0.567 which is in line with the notion that policy environment uncertainty often goes hand in hand with inflations. Economic policy uncertainty showed negative correlation with CORPGOV and FinDis with value -0.078 and -0.235 respectively. This means that in case of high degree of policy uncertainty, corporate governance scores are slightly low or vice versa; that stronger governed corporations exist in an environment with a slightly lower degree of policy uncertainty. In addition, the association of EPU and FinDis that indicates that companies go through increased financial distresses amid economic policy uncertainty. INF is having a negative correlation with CORPGOV and FinDis a value of -0.046 and -0.178 respectively. This pointed to the fact that increase in inflation regime is modestly associated with a low score on governance, but the economic implication is insignificant. Also, companies are more likely to be poor in terms of finances during high inflation rates; this falls in the concept of inflation that lowers the corporate profitability and financial stability. CORPGOV is co-relating with the value of 0.120 with FinDis, which implies that companies that have strong corporate governance systems are more likely to have optimal financial health.

The correlation matrix indicates that all of the independent variables have modest level of correlations, and no variable is showing the coefficient value which highlight the issue of multicollinearity. The correlations pattern is as expected theoretically, and supports the initial findings on the relationships suggested in the hypothesis. Based on the satisfactory results, the study moves on with the logistic regression analysis to test the hypotheses.

Table 4.3: Logistics Regression

Dependent Variable: Financial Reporting Quality

Variable	Coefficient	Std. Error	z	Prob.
EPU	-0.004	0.001	-3.75	0.000***
INF	-0.032	0.009	-3.28	0.001**
CORP_GOV	0.278	0.056	4.92	0.000***
FIN_DIS	-0.678	0.018	-3.59	0.003**
C	-0.457	0.235	-1.94	0.050*
LR chi2(4) = 234.56 Prob > chi2 0.000				

Table 4.3 revealed the regression results that examine the effect of the economic policy uncertainty, inflation (INF), corporate governance (CORPGOV) and financial distress (FinDis) on financial reporting quality. The model was statistically significant as indicated by a likelihood ratio chi-square (kh2) of 234.56 and $p = .001$ which revealed that the model had a strong fit, with the independent variables explaining a considerable amount of the likelihood of reporting quality of the financial ratings. The coefficient of economic policy uncertainty is also negative and has a statistically significant value of -0.004 and p value of 0.000. The findings that show that a rise in economic policy uncertainty decreases the chances of high financial reporting quality by 0.004. This observation implied that companies can seize the opportunity to use ambiguous policy regimes to commit opportunistic reporting. The findings are consistent with the analysis of Bermpei et al. (2022) that the economic policy uncertainty enhances information asymmetry, which subsequently forces managers to take part in the earnings management activities, which, in turn, decreases the quality of financial reporting. INF is exhibiting coefficient value -0.032 and p value of 0.001 which shows negative relationship of significant values with financial reporting quality. The findings are giving that, high inflation is lowering the chances of high financial reporting quality by 0.032. Study of Viana et al. (2023) had recorded that the higher the macroeconomic instability is oriented towards the inflation. The developed countries are able to push harder, as long as the preparation of the financial statements is concerned in terms of the market and regulating bodies being more concerned with incomes management. Quite the opposite, in emerging markets, where the management might believe freer to engage in higher earnings management in inflation periods and, consequently, to report higher results, which decreases the quality of financial reporting.

The greatest impact is observed in the case of CORPGOV that has a coefficient of 0.278 and the p value of 0.000 indicating significant association with the quality of financial reporting. These findings are pointing to the fact that corporate governance implies a probability of high financial reporting quality by 0.278. The observation proved that, increased corporate governance has a strong negative effect on earnings manipulation, thus explaining the relevance of governance in reducing unethical financial practices. Salehi et al. (2023) corporate governance is critically necessary because it safeguards the interests of stakeholders through the introduction of controls that organizations adopt to curb or reduce managerial misconducts. Baullay et al. (2017) believe that competent governance improves the level of conflict of interest reduction through the establishment of transparency, openness, and clarity in financial reporting. The findings of the results are showing that the earnings management is being mitigated in the firms where the corporate governance mechanism is strong. Therefore, a powerful corporate governance system improves the quality of financial reporting of the firms and helps the financial statement users to make effective decisions on their financial investments. The value of FinDis coefficient with the financial reporting quality is -0.678 p

value=0.003. It highlighted the fact that Fin_Dis lowers the chance of high financial reporting quality by 0.678. The negative sign of ZSCORE coefficient shows that with an increase in financial distress, the quality of financial reporting declines. That is, the more financially distressed firms are, the more likely they have lower financial reporting quality. Opportunistic behavior suggests that managers in financially troubled firms are under extreme pressure to declare positive financial performance to the stakeholders. Such pressure can either encourage earnings management, and fraudulent reporting to cover up poor performance, debt covenant testing and simply remain in the capital source. The study of Kurniawati and Panggabean (2020) indicated that financially challenged enterprises, confronting this critical period, strive to sustain their survival and are inclined to engage in increased earnings management operations to present an improved performance of the company. The results are indicating that financial distressed firms are more prone to engage in earnings management and effect the financial reporting quality of the firm.

Table 4.4: Logistic Regression Results (Odds Ratios)

Variable	Odds Ratio	Std. Error	z	Prob.
EPU	0.995	0.001	-3.75	0.000***
INF	0.968	0.009	-3.28	0.001**
CORP_GOV	1.321	0.074	4.92	0.000***
FIN_DIS	0.934	0.017	-3.59	0.003**
C	0.633	0.148	-1.95	0.050*

Note. Odds ratios are logit coefficients (e^{β}). Values < 1 indicate negative relationships; values > 1 indicate positive relationships.

Table 4.4 presents the odds ratios obtained with the help of the logistic regression analysis. The odds ratio of economic policy uncertainty stands at 0.9955 ($p = 0.000$), which means that an increase in economic policy uncertainty by one-unit increases representing a 0.45% decrease in odds of high FRQ. In the case of inflation, odds ratio, 0.9684 ($p = 0.001$), means that one-unit increases in the inflation will decrease the chances of high FRQ by 3.16%. Corporate governance presents odds ratio of 1.3218 ($p < 0.000$) that is, an improvement in governance by one unit raises chances of high FRQ by 32.18%. The odds ratio of ZSCORE is 0.9345 ($p = 0.003$) which means that a one unit rise in financial distress reduces the chances of high FRQ by 6.55%.

Table 4.5: Average Marginal Effects (AME)

Variable	dy/dx	Std. Error	z	Prob.
EPU	-0.001	0.0003	-3.67	0.000***
INF	-0.007	0.002	-3.25	0.001**
CORP_GOV	0.067	0.013	5.06	0.000***
FIN_DIS	-0.016	0.004	-3.67	0.000***

Note. Average marginal effects represent the change in probability of $FRQ = 1$ for a one-unit change in each predictor.

The average marginal effects are given in Table 4.5 and they are used to measure the difference in the probability of high FRQ with a unit change of each predictor variable. The findings indicate that the probability of high FRQ will go down by 0.11 percentage points when EPU increases by one unit. In the case of inflation, a one-percentage point increment decreases the likelihood of the high FRQ by 0.78 percentage points. With the highest marginal effect, corporate governance is found to have an improvement in one unit, which raises the likelihood of high FRQ by 6.78 percentage points. In the case of ZSCORE, the likelihood of having high FRQ reduces by 1.65 percent with a one-unit increase in the level of financial distress.

Table 4.6: Model Fitness and Specification Tests

Test	Statistic	Value	p-value	Interpretation
Likelihood Ratio Test	$\chi^2(4)$	234.56	0.000	Model with predictors fits
Pseudo R ²	-	0.088	-	8.8% improvement over null model
AIC	-	2,923.56	-	Lower is better
BIC	-	2,947.23	-	Lower is better
Hosmer-Lemeshow Test	$\chi^2(8)$	8.23	0.421	Good fit (p > 0.05)
Link Test	_hat	0.987	<.001	Model correctly specified
	_hatsq	-0.023	0.534	No specification error (p > 0.05)

The model fits well with a significant likelihood ratio chi-square (χ^2) of 234.56 and $p < 0.001$. The non-significant value of Hosmer-Lemeshow test is (χ^2) = 8.23 and $p = 0.421$ show that the model is fit. The link test verifies appropriate specification (_hatsq $p = 0.534$) and pseudo-R² values is 0.088 which indicated reasonable model adequacy and goodness of fit. AIC (2,923.56) and BIC (2, 947.23) also provided the statistics of baseline fit.

Table 4.7: Robustness Check with Probit Model

Variable	Baseline Model	Probit
EPU	-0.004	-0.002
INF	-0.032	-0.018
CORP_GOV	0.278	0.165
FIN_DIS	-0.067	-0.040
Pseudo R ²	0.088	0.087

The Probit coefficients have the identical trend in signs and significance with the logit model. Although the magnitudes vary due to the variation in the scaling of the Probit coefficients but the direction and statistical significance are in consistent with the results of baseline model.

Conclusion

This paper examined the micro and macro-economic factors of the quality of financial reporting. In this study, the economic policy uncertainty and inflation are the macro-economic variables that are taken as the foundation and the corporate governance mechanism and financial distress are micro-economic variables. The authors discuss the data in non-financial sectors in Pakistan between 2013 and 2024. The findings showed that the economic policy uncertainty had an impact on the financial reporting quality as in high economic policy uncertainty the probability of financial reporting quality declined. This observation indicates that companies can use the ambiguous policy conditions to get involved in opportunistic reporting behavior (Bermpei et al., 2022). In the same manner, inflation have also an impact on the quality of financial reporting of the firm. In the inflationary times, the company tried to turn towards the earnings management activities, companies found it hard to deal with such earning management techniques as they undermine the quality of financial reporting (Viana et al., 2023). The financial distressed companies are at a greater risk of lowering the quality of financial reporting through earnings manipulation. The financially strained

businesses, facing this difficult stage, seek to maintain their existence and are likely to resort to more earnings management activities to show a better company performance (Kurniawati & Panggabean, 2020) and lower the quality of financial reporting. The study also revealed that corporate governance mechanism is an important instrument that can be used to sustain the internal control. The corporate governance is critical because it protects the interests of the stakeholders by instituting controls that firms are engaged in to eliminate or restrain managerial malpractices. The proper administration improves the reduction of conflicts of interests by promoting openness, clarity, and transparency in the financial reporting (Baullay et al., 2017; Salehi et al., 2023).

This research will assist auditors, investors, regulators, and researchers with determination of the factors that influence quality of financial reporting. Businesses can improve the accessibility of accounting data to the masses and shareholders in enabling them to make productive decisions. This study hypothesized that when the economic policy is uncertain, it is the inflation and financial distress that makes the companies to concentrate on their financial statement to decrease the earnings management and preserve the quality of financial statements. Additionally, the companies should allow robust corporate governance system to reduce the management of earnings and enhance transparency and credibility of financial reports. In spite of the contribution, this research has its limitations. Though the study made attempts to include the right determinants of financial reporting quality, yet all the determinants could not cover in the study. Future research can involve other factors. The research is just restricted to the non-financial sector and it did not cover the financial sector since it had different capital structures, legislations, accounting systems, disclosure standards and governance structures. To improve the body of knowledge in future research, this study recommends the induction of the audit quality that can reduce the earnings management practices and further improve the quality of the financial statements. Besides, The risk factors can also involve the expansion of the research. It is also possible that the cross-country analysis can be performed to determine the impact of these components on the quality of financial reporting in other economies.

References

- Abu Afifa, M., Saleh, I., Al-shoura, A., & Vo Van, H. (2024). Nexus among board characteristics, earnings management and dividend payout: Evidence from an emerging market. *International Journal of Emerging Markets*, 19(1), 106-133.
- Ahmad, G., Subhan, M., Hayat, F., & Al-Faryan, M. A. S. (2023). Unravelling the truth: A bibliometric analysis of earnings management practices. *Cogent Business & Management*, 10(1), 2194088.
- Akter, A., Yusoff, W. F. W., & Abdul-Hamid, M. A. (2024). The moderating role of board diversity on the relationship between ownership structure and real earnings management. *Asian Journal of Accounting Research*, 9(2), 98-115.
- Al-Baidhani, A. M. (2014). The role of audit committee in corporate governance: descriptive study. *SSRN Electronic Journal*, 5(11), 250-260.
- Alhadab, M., & Clacher, I. (2018). The impact of audit quality on real and accrual earnings management around IPOs. *The British Accounting Review*, 50(4), 442-461.
- Aljughaiman, A. A., Nguyen, T. H., Trinh, V. Q., & Du, A. (2023). The Covid-19 outbreak, corporate financial distress and earnings management. *International review of financial analysis*, 88, 102675.
- Alrawashedh, N. H., Zureigat, B. N., Rawashdeh, B. S., Zraqat, O., & Hussien, L. F. (2025). Does corporate governance affect earnings management? Evidence from an emerging market. *Heritage and Sustainable Development*, 7(1), 167-178.
- Alzoubi, E. S. S. (2014). Board characteristics and financial reporting quality: Evidence from Jordan. *Corporate Ownership & Control*, 11(3), 8-29.
- Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The journal of finance*, 23(4), 589-609.
- Altman, E. I., Iwanicz-Drozowska, M., Laitinen, E. K., & Suvas, A. (2017). Financial distress prediction in an international context: A review and empirical analysis of Altman's Z-score model. *Journal of International Financial Management & Accounting*, 28(2), 131-171.

- Arun, T. G., Almahrog, Y. E., & Ali Aribi, Z. (2015). Female directors and earnings management: Evidence from UK companies. *International Review of Financial Analysis*, 39, 137–146.
- Asthana, S., & Kalelkar, R. (2020). Impact of economic policy uncertainty on disclosure and pricing of earnings news. *Review of Quantitative Finance and Accounting*, 55, 1481-1512.
- Aviantara, R. (2023). Scoring the financial distress and the financial statement fraud of Garuda Indonesia with «DDCC» as the financial solutions. *Journal of Modelling in Management*, 18(1), 1-16.
- Awais, M., Ellahi, N., & Sher, A. (2019). Effects of Remittances on Financial Development: A Time Series Analysis for Pakistan. *Global Regional Review*, 4(4), 381-387.
- Baker, S. R., & Bloom, N. (2013). Does uncertainty reduce growth? Using disasters as natural experiments (No. w19475). *National Bureau of Economic Research*. <https://doi.org/10.3386/w19475>
- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, 131(4), 1593-1636.
- Beneish, M. D. (1999). The detection of earnings manipulation. *Financial Analysts Journal*, 55(5), 24-36.
- Beneish, M. D., Lee, C. M. C., & Nichols, D. C. (2013). Earnings manipulation and expected returns. *Financial Analysts Journal*, 69(2), 57-82.
- Bermpei, T., Kalyvas, A. N., Neri, L., & Russo, A. (2022). Does economic policy uncertainty matter for financial reporting quality? Evidence from the United States. *Review of Quantitative Finance and Accounting*, 58(2), 795-845.
- Bianchi, F., Ilut, C. L., & Schneider, M. (2018). Uncertainty shocks, asset supply and pricing over the business cycle. *The Review of Economic Studies*, 85(2), 810-854.
- Bidder, R. M., & Smith, M. E. (2012). Robust animal spirits. *Journal of Monetary Economics*, 59(8), 738-750.
- Binz, O., Graham, J., & Kubic, M. (2024). Does Inflation Affect Earnings Relevance? A Century-Long Analysis (No. w32364). *National Bureau of Economic Research*.
- Bloom, N. (2009). The impact of uncertainty shocks. *Econometrica*, 77(3), 623-685.
- Buallay, A., Hamdan, A., & Zureigat, Q. (2017). Corporate governance and firm performance: Evidence from Saudi Arabia. *Australasian Accounting, Business and Finance Journal*, 11(1), 78-98.
- Campa, D. (2015). The impact of SME's pre-bankruptcy financial distress on earnings management tools. *International Review of Financial Analysis*, 42, 222-234.
- Christiano, L. J., Motto, R., & Rostagno, M. (2014). Risk shocks. *American Economic Review*, 104(1), 27-65.
- Daily, C. M., & Dalton, D. R. (1994). Bankruptcy and corporate governance: The impact of board composition and structure. *Academy of Management Journal*, 37(6), 1603-1617.
- Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, 14(1), 57–74.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, 26(2), 301–325.
- Ghulam, S., Rizwan, M., & Awais, M. (2024). Operational Efficiency based Investment strategies and Equity Returns: Evidence from Emerging Economy. *Bahria University Journal of Management & Technology*, 7(1).
- Gulen, H., & Ion, M. (2016). Policy uncertainty and corporate investment. *The Review of Financial Studies*, 29(3), 523-564.
- Habbash, M., & Alghamdi, S. (2017). Audit quality and earnings management in less developed economies: the case of Saudi Arabia. *Journal of Management & Governance*, 21(2), 351-373.
- Hasan, M. T., Hossain, M. K., Rekabder, M. S., Molla, M. S., & Ashif, A. S. M. (2022). IFRS adoption and real earnings management in Bangladesh: The role of board characteristics. *Cogent Business & Management*, 9(1), 2094587.
- Haw, I. M., Qi, D., Wu, D., & Wu, W. (2005). Market consequences of earnings management in response to security regulations in China. *Contemporary Accounting Research*, 22(1), 95-140.
- He, F., Ma, Y., & Zhang, X. (2020). How does economic policy uncertainty affect corporate Innovation? Evidence from China listed companies. *International Review of Economics & Finance*, 67, 225-239.

- Hillman, A. J., Cannella, J. A. A., & Paetzold, R. L. (2000). The resource dependence role of corporate directors: Strategic adaption of board composition in response to environmental change. *Journal of Management Studies*, 37(2), 235–255.
- Hillman, A. J., Withers, M. C., & Collins, B. J. (2009). Resource dependence theory: A review. *Journal of Management*, 35(6), 1404–1427.
- Hołda, A. (2020). Using the Beneish M-score model: Evidence from non-financial companies listed on the Warsaw stock exchange. *Investment Management & Financial Innovations*, 17(4), 389.
- Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). Applied logistic regression. John Wiley & Sons.
- Idris, M., Siam, Y. A., & Nassar, M. (2018). Board independence, earnings management and the moderating effect of family ownership in Jordan. *Management & Marketing*, 13(2), 985-994.
- Isma, N. N., Sutrisno, T., & Rahman, A. F. (2023). The impact of inflation on firm value moderated by earnings quality in Indonesia. *International Journal of Research in Business & Social Science*, 12(5).
- Jackson, A. B. (2018). Discretionary accruals: Earnings management... or not? *Abacus*, 54(2), 136-153.
- Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, 48(3), 831–880.
- Jenson, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Jiang, G., & Wang, H. (2008). Should earnings thresholds be used as delisting criteria in stock market? *Journal of Accounting and Public Policy*, 27(5), 409-419.
- Jin, X., Chen, Z., & Yang, X. (2019). Economic policy uncertainty and stock price crash risk. *Accounting & Finance*, 58(5), 1291-1318.
- Julio, B., & Yook, Y. (2012). Political uncertainty and corporate investment cycles. *The Journal of Finance*, 67(1), 45-83.
- Kateb, I. (2024). The bridge to quality financial reporting: Audit committees' mediating role in IFRS implementation for emerging markets. *Journal of Corporate Accounting & Finance*, 35(1), 250-268.
- Katmas, E., & Indarningsih, N. A. (2022). The effect of BI interest rate, exchange rate, and inflation on the Indonesian sharia stock index (ISSI). *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 5(2), 768-782.
- Khan, A. (2022). Ownership structure, board characteristics and dividend policy: Evidence from Turkey. *Corporate Governance: The international journal of business in society*, 22(2), 340-363.
- Kim, H., & Yasuda, Y. (2021). Economic policy uncertainty and earnings management: Evidence from Japan. *Journal of Financial Stability*, 56, 100925.
- Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), 163–197.
- Kurniawan, F., Amanati, H. T., Nugroho, A. H. L., & Pusparini, N. O. (2024). Effects of policy and economic uncertainty on investment activities and corporate financial reporting: A study of developing countries in Asia-Pacific. *Asian Review of Accounting*, 32(3), 373-393.
- Kurniawati, A., & Panggabean, R. R. (2020). Firm size, financial distress, audit quality, and earnings management of banking companies. *Advances in Social Science, Education and Humanities Research*, 436, 413-417.
- Le, B., & Moore, P. H. (2023). The impact of audit quality on earnings management and cost of equity capital: Evidence from a developing market. *Journal of Financial Reporting and Accounting*, 21(3), 695-728.
- Lee, H., & Jeong, S. W. T. (2024). Economic policy uncertainty, audit quality, and earnings manipulation. *Asia-Pacific Journal of Accounting & Economics*, 31(2), 269-299.
- Leone, A. J., Minutti-Meza, M., & Wasley, C. E. (2019). Influential observations and inference in accounting research. *The Accounting Review*, 94(6), 337-364.
- Li, Y., Li, X., Xiang, E., & Djajadikerta, H. G. (2020). Financial distress, internal control, and earnings management: Evidence from China. *Journal of Contemporary Accounting & Economics*, 16(3), 100210.

- Lo, A. W. Y., Wong, R. M. K., & Firth, M. (2010). Can corporate governance deter management from manipulating earnings? Evidence from related-party sales transactions in China. *Journal of Corporate Finance*, 16(2), 225–235.
- Ma, H., & Hao, D. (2022). Economic policy uncertainty, financial development, and financial constraints: Evidence from China. *International Review of Economics & Finance*, 79, 368–386.
- Mandeya, S. M. T., & Ho, S. Y. (2021). Inflation, inflation uncertainty and the economic growth nexus: An impact study of South Africa. *MethodsX*, 8, 101501.
- Masud, M. A. K., Nurunnabi, M., & Bae, S. M. (2018). The effects of corporate governance on environmental sustainability reporting: Empirical evidence from South Asian countries. *Asian Journal of Sustainability and Social Responsibility*, 3(1), 1–26.
- Mitsuda, S., Jakob, K., & Snyder, A. (2024). The impact of inflation on corporate accounting choices. Available at SSRN 4758834.
- Mos, C. (2024). Economic policy uncertainty, financial reporting quality, and accounting enforcement: International evidence. *Finance, Accounting and Business Analysis*, 6(2), 159–179.
- Nagar, V., Schoenfeld, J., & Wellman, L. (2019). The effect of economic policy uncertainty on investor information asymmetry and management disclosures. *Journal of Accounting and Economics*, 67(1), 36–57.
- Nguyen, Q., Kim, M. H., & Ali, S. (2024). Corporate governance and earnings management: Evidence from Vietnamese listed firms. *International Review of Economics & Finance*, 89, 775–801.
- Ntawumenyumunsi, A., & Maringa, E. (2022). Application of Edward Altman Z score model on measuring financial distress of commercial banks listed on Rwanda Stock Exchange (2015–2019). *The Strategic Journal of Business & Change Management*, 9(1), 130–146.
- Nugraha, N. M., Ramadhanti, A. A., & Amaliawati, L. (2021). Inflation, leverage, and company size and their effect on profitability. *Journal of Applied Accounting and Taxation*, 6(1), 63–70.
- Ozer, G., Aktaş, N., & Çam, İ. (2024). Corporate environmental, social, and governance activities and financial reporting quality: An international investigation. *Borsa Istanbul Review*, 24(3), 549–560.
- Putri, Y. K. W., & Sujana, I. K. (2018). The influence of bid-ask spread and leverage on earnings management with good corporate governance as moderating variable. *International Research Journal of Management, IT and Social Sciences*, 5(3), 8–21.
- Ranjbar, S., & Amanollahi, G. (2018). The effect of financial distress on earnings management and unpredicted net earnings in companies listed on Tehran Stock Exchange. *Management Science Letters*, 8(9), 933–938.
- Rashid, H. A., & Bilal, A. R. (2020). Role of Capital structure in financial performance of non-financial sector firms: Evidence from Pakistan Stock Exchange. *Global Economics Review*, 5(2), 1–16.
- Rigamonti, A. P., Greco, G., Pierotti, M., & Capocchi, A. (2024). Macroeconomic uncertainty and earnings management: evidence from commodity firms. *Review of Quantitative Finance and Accounting*, 62(4), 1615–1649.
- Salehi, M., Ammar Ajel, R., & Zimon, G. (2023). The relationship between corporate governance and financial reporting transparency. *Journal of Financial Reporting and Accounting*, 21(5), 1049–1072.
- Salleh, S. M., & Othman, R. (2016). Board of director's attributes as deterrence to corporate fraud. *Procedia Economics and Finance*, 35, 82–91.
- Sassi, N., & Damak-Ayadi, S. (2023). IFRS for SMEs adoption, corporate governance, and quality of financial statements: Evidence from Dominican Republic and El Salvador. *Journal of Accounting in Emerging Economies*, 13(5), 922–946.
- Scholten, B., & Kang, F. C. (2013). Corporate social responsibility and earnings management: Evidence from Asian economies. *Corporate social responsibility and environmental management*, 20(2), 95–112.
- Sehgal, S., Mishra, R. K., Deisting, F., & Vashisht, R. (2021). On the determinants and prediction of corporate financial distress in India. *Managerial Finance*, 47(10), 1428–1447.

- Shah, S. F., Mehmood, S., Khan, M. A., & Popp, J. (2024). Earnings management opportunistic or efficient in Pakistan? The role of corporate governance practices. *Cogent Business & Management*, 11(1), 2398716.
- Shakri, I. H., Yong, J., & Xiang, E. (2024). Corporate governance and firm performance: Evidence from political instability, political ideology, and corporate governance reforms in Pakistan. *Economics & Politics*, 36(3), 1633-1663.
- Sidhu, A. and Katoch, R. (2019), "Bankruptcy prediction using Altman Z-Score model and data envelopment analysis model: A case of public listed realty sector companies in India", *International Journal of Advanced Science and Technology*, 28(13)399-411.
- Sujarminto, A., Pratiwi, S. I., & Noviyanti, E. (2024). The impact of earnings management, working capital, financial distress, and inflation on financial performance of consumer non-cyclicals sector companies (focus: food and beverage) listed In IDX from 2020 to 2022. *International Journal of Business, Humanities, Education and Social Sciences (IJBHES)*, 6(1), 16-28.
- Susanto, A., & Widyaswati, R. (2019). The effect of earnings management on company's performance with audit quality and company's size as moderating variables. *Telaah Bisnis*, 18(2), 97-106.
- Switzer, L. N., & Wang, J. (2013). Default risk estimation, bank credit risk, and corporate governance. *Financial Markets, Institutions & Instruments*, 22(2), 91–112.
- Talab, H. R., Flayyih, H. H., & Ali, S. I. (2017). Role of Beneish M-score model in detecting of earnings management practices: Empirical study in listed banks of Iraqi stock exchange. *International Journal of Applied Business and Economic Research*, 15(2), 287-302.
- Thanh, B. A., Sang, N. M., & Khuong, N. V. (2024). Corporate governance mechanism and firm value: evidence from an emerging economy. *Cogent Business & Management*, 11(1), 2364844.
- Viana Jr, D. B. C., Lourenço, I., Black, E. L., & Martins, O. S. (2023). Macroeconomic instability, institutions, and earnings management: An analysis in developed and emerging market countries. *Journal of International Accounting, Auditing and Taxation*, 51, 100544.
- Waris, M., & Haji Din, B. (2023). Impact of corporate governance and ownership concentrations on timelines of financial reporting in Pakistan. *Cogent Business & Management*, 10(1), 2164995.
- Yaqub, A., Rehman, F., Awais, M., & Shafiq, M. (2018). The Impact of Financial Constraints, Dividend Policy and Capital Structure on Share Price Volatility. *Foundation University Journal of Business & Economics*, 3(2), 15-27.
- Yung, K., & Root, A. (2019). Policy uncertainty and earnings management: International evidence. *Journal of business research*, 100, 255-267.
- Yusran, I. N. (2023). Determinants of the quality of financial reports. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 8(3), 11.
- Zamri, N., Fatzel, F. H. M., Abdullah, W. R. W., & Omar, N. (2022). Financial distress and earnings management: Evidence from malaysia before and during the covid-19 pandemic. *Journal of Academic Research in Business and Social Sciences*, 12(11), 85-103.
- Zang, A. Y. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review*, 87(2), 675-703.

Does Consumer Regret Have an Impact on Negative WOM? The Role of Brand Hate and Brand Loyalty

Imran Sarmad (Corresponding author)

Department of Management Sciences, Virtual University of Pakistan
Pakistan

imran.sarmad@vu.edu.pk

Rizwan Ali

Lahore Business School, The Lahore University, Pakistan

rizwan.ali1@lbs.uol.edu.pk

Saad Bin Zaighum

saad.zaighum@vu.edu.pk

Department of Management Sciences, Virtual University of Pakistan
Pakistan

Syed Hassan Bukhari

Department of Management Sciences, Virtual University of Pakistan

syed.hassan@vu.edu.pk

&

Sajida Hafeez

Lahore Business School, University of Lahore, Lahore, Pakistan

hafeezsajida@gmail.com

Abstract

This study examines the relationship between consumer internal negative emotions and their external negative emotions, brand loyalty, and negative word-of-mouth. We look at how brand hate that consumer experience while selecting a mobile network provider is affected by consumer regret. Using the suggested model, the influence of brand loyalty and brand hate on negative word-of-mouth is also investigated. 361 users of a mobile network provider in Pakistan participated in our online poll. We used structural equation modeling to examine the data. The findings demonstrate that brand hate, an outwardly unpleasant feeling, is positively influenced by consumer regret, a negative inside emotion. Brand loyalty and negative WOM are both favorably and adversely impacted by consumer regret. The findings also showed that although brand hate had a favorable impact on consumers spread of negative information, brand loyalty does not affect negative word-of-mouth.

Keywords: Consumer regret, Brand loyalty, Brand hate, NWOM, Telecom industry

Introduction

With every transaction, a consumer is exposed to new insights and provided with exciting new experiences (Lee, Kim, & Choo, 2025). Every experience and piece of information matters when advising the buyer on later purchases (Sharma, Starčević, & Saha, 2024). The examination of consumer behavior takes into account both the choice that was chosen and the alternative that was not chosen. Following a purchase, buyers may go through a variety of decision-making phases, including contentment, discontent, regret, hate, and brand avoidance (Khatoon & Rehman, 2025). These problems are the ones that have an impact on how consumers feel about the product.

Regret is a common reaction to choices on whether to buy a product or service. A comparison between a current situation and one that may have created a sense of regret (Shih & Schau, 2011). After making a purchase, consumers may regret it for a variety of reasons, including regret over the alternative passed up, regret over not thinking things through well, and regret over thinking things through thoroughly (Lee & Cotte, 2009). According to Wu and Wang (2017), even consumers' unfavorable perceptions of the brands they utilize are a result of regret. Furthermore, as per Tsiros and Mittal (2000), previous studies demonstrate that regret

has a detrimental impact on consumer satisfaction. Additionally, it fosters unhappiness and lowers a brand's or product's intention to be repurchased (Cui & Niu, 2017).

Moreover, consumers often form unfavorable ties with brands rather than favorable ones (Cui & Niu, 2017). Carroll and Ahuvia (2006) contend that in addition to very good sensations, consumers may also have strongly unfavorable feelings toward a brand, which might lead to brand hate. A decrease in loyalty to the brand may also result from regret (Bui, Krishen, & Bates, 2011), and it can even cause a consumer to share unfavorable WOM. Consumers that are upset with a brand are likely to propagate additional negative WOM (Wu & Wang, 2017).

By exploring how negative internal emotions might affect negative external emotions and produce negative WOM, this study will add to the literature on consumer-based branding. Although there has been a growing interest in consumer research on negative emotions (Zhang, Ouyang, Zhang, & Zhou, 2025), the relationship between internal negative emotions such as regret and external negative emotions such as brand hate is still an under-researched field (Khatoon & Rehman, 2025). This is even though regret is an internal negative emotion (Shi, Cui, & Fitzsimmons, 2025). Examining these relationships is crucial because internal negative emotions may manifest externally as brand hate, which is a negative feeling that can be harmful to the companies (Weitzl, Hutzinger, & Wagner, 2024).

Wen-Hai, Yuan, Liu, and Fang (2019) stated that consumers' retaliatory actions are directly influenced by their negative feelings. This research investigates the influence of regret on brand hate, the most intense negative emotion that can be experienced towards a brand. It is interested in the influence of consumer negative feelings on negative word-of-mouth and retaliatory behavior. Marketing professionals may avoid brand hate before it manifests by understanding what causes it.

According to Kucuk and Kucuk (2019), brand hate has both corporate and consumer-related antecedents. This research aimed to examine consumer regret as a potential cause of brand hate. Managers of brands might benefit from looking at the possibility that consumer regret is a major antecedent of brand hate in their quest to comprehend the grounds for brand hate that are connected to consumers. Limited research has also been done on the emotional causes of brand hate, such as consumer regret (Zhang & Laroche, 2020). Because of this, the emphasis of our study was on the consequences of consumer regret.

The study on consumer regret and brand hate for service businesses is limited. Consumer brand selections in the mobile telecommunications sector have not been properly investigated with regard to these relationships. Therefore, by measuring the influence of consumer regret on brand hate, brand loyalty, and negative word-of-mouth as far as mobile network provider consumers' choices are concerned, this study aims at offering telecom businesses' managers suggestions and recommendations.

The choice of the mobile telecommunications sector in Pakistan is particularly relevant due to the highly competitive nature of the industry, with multiple providers (e.g., Jazz, Zong, Telenor, Ufone) offering nearly identical services at comparable prices. This saturation leads to low switching costs and frequent brand switching, making it a prime context for studying post-purchase emotions such as regret and brand hate. Furthermore, telecom services are integral to consumers' daily lives, and dissatisfaction with such essential services can provoke stronger emotional reactions than other categories. Pakistan has a high mobile penetration, a mixed service consistency with variation, so the study of these emotional and behavioral consequences offers practical and timely learning to service managers with a goal of better customer retention and reduced reputational loss in negative word-of-mouth.

Literature Review

Consumer Regret

One drawback identified in the post-purchase analysis is buyer's regret (Boujbel & d'Astous, 2015). It may be summed up by saying that it is a negative emotion that individuals have when they contemplate that if they had chosen a different choice, they would have been in a better circumstance. In this sense, regret is an unpleasant feeling that results from contrasting "what can be" with "what is." After making a purchasing

choice, regret often follows when one compares the results of the intended and obtained products (Awais, Thaker, Raza, Usman, Mohsin, & Bhatti, 2021; Lee & Cotte, 2009).

According to earlier research comparing the chosen and undecided alternatives may have an impact on consumer behavior (Awais, Saghir, & Nasir, 2023; Inman, Dyer, & Jia, 1997; Taylor, 1997). According to Taylor (1997), a person's decision is likely to be influenced by his or her expectations of the rejected options, particularly if those expectations weren't realized by the final option. When a rejected option is seen as being more yielding, the consumer feels regret (Boles & Messick, 1995). Consumers may also feel regret if they believe that, despite the success of the brand they picked, choosing the rival brand would have been a better choice (Tsiros & Mittal, 2000).

Regret is often categorized as a negative feeling in previous research that analyzes consumer emotions as either good or negative (Jang, Kang, & Huan, 2025). Consumer regret, however, is seen as an inwardly negative feeling in this research. Regret often results from consumers making poor judgments (Harrison-Walker, 2019), and the fact that it entails self-blame and inaction proves that there is an underlying emotion (Wen-Hai et al., 2019).

Brand Hate

Love is the most significant emotion., with hate coming in second, studies are increasingly concentrating on theoretical justifications for unfavorable emotions and their connections to brands (Fehr & Russell, 1984). While some academics see hate as a straightforward emotion, most view it as a complex and confused sensation. Hate is described by Plutchik (1991) as disgust and rage.

Brand hate is the strongest negative emotional response to a brand (Bryson, Atwal, & Hultén, 2013). A more intense emotional response that consumers have towards a brand than brand dislike is brand hate (Joshi & Yadav, 2021). When people are dissatisfied with a brand, they may express strong negative sentiments. Therefore, quitting a brand because of very unpleasant emotions like hate or fury may be a sign of brand animosity. Brand hate is a very negative psychological situation that acts negatively, and makes consumers experience horrible and painful experiences at both an individual and a social level, which lead to differences (Kucuk & Kucuk, 2016).

According to Kucuk (2008), when a brand fails and creates discontent, consumers are more prone to have negative feelings toward it. Consumers that are dissatisfied with a brand exhibit negative feelings, and perhaps even hate (Kucuk, 2018). According to Fetscherin (2019) consumers who dislike a brand try switching brands and even become eager to do damage to the brand. Since brand hate is an outward manifestation of negative sentiments and is associated with derogatory actions against a brand, we classify it as an outwardly negative emotion. Additionally, according to Zhang and Laroche (2020), research on brand hate often concentrate on psychological literature and neglects consumer-brand interactions. So, from the standpoint of consumer-based branding, we investigate brand hating.

Negative Word of Mouth

Word of mouth (WOM) is the term used to describe unofficial consumer recommendations. Initially, it was described as a noncommercial method of face-to-face consumer interaction with the product or service by Arndt (1967), who was the first person to explain it. According to Vázquez-Casielles, Suárez-Álvarez, and del Río-Lanza (2013), another definition of word-of-mouth (WOM) is any spoken and personal communication that the recipient does not perceive as being commercial about a company, service, or product regardless of whether the communication is favorable or unfavorable. Before buying a product or service, buyers gain by hearing what other consumers have to say about it (Awais, Zulfiqar, Saghir, Sohail, & Rana, 2022; Duhan, Johnson, Wilcox, & Harrell, 1997). The need to obtain a variety of different types of information is the fundamental driver behind this habit (Goldsmith & Horowitz, 2006). In addition to this, before making a purchase decision, people seek information that would put them at rest (Pitta & Fowler, 2005). Reviews, critiques, and recommendations of a product or service, positive or otherwise, influence other individuals who utilize or plan to utilize the subject product or service.

WOM may be positive, negative, or neutral (Yang, 2013). Positive word of mouth encourages consumers to choose their products, whereas negative word of mouth discourages this behavior (East, Hammond, & Lomax, 2008). While analyzing the reasons for negative WOM, business-related aspects were often taken into consideration. The degree of consumer unhappiness, consumer views of the company's response to consumer complaints, and consumer displeasure over unresolved issues were listed as factors that influence consumers to spread negative WOM (Bovee, Thill, Dovel, & Wood, 1995). Nonetheless, we do think that one of the consumer-related elements that result in negative WOM is consumer regret.

Brand Loyalty

The degree of consumer loyalty that can be attributed to a commitment to a particular brand is the essence of the term "brand loyalty" (Aaker, 1991). A strong commitment to repeatedly buy a certain product or service is one example of brand loyalty (Nakamori, Newell, & Han, 2022). Moreover, it refers to a consumer's desire to keep their connection with a brand going strong over time (Palmatier, Dant, Grewal, & Evans, 2006). The choice to continue purchasing a particular brand comes from within the company. On the other hand, it is not the same as a repurchase habit. Brand loyalty is more than just purchasing the same product again and over again; it also refers to the consumer's strong and favorable opinion toward the brand, as opposed to purchasing the same product out of habit (Solomon, Russell-Bennett, & Previte, 2012). Marketers respect devoted consumers because they are dependable providers of value and have a significant capacity to propagate favorable word-of-mouth among other consumers (Giovanis & Athanasopoulou, 2018).

Hypotheses Development

Consumer regret occurs when the chosen choice is contrasted to one that was rejected due to ambiguity or a lack of knowledge (Shih & Schau, 2011). Brand-switching behavior is most closely associated with regret (Popp & Woratschek, 2017). Several research also shows that regret lowers brand loyalty and consumer happiness (Bui et al., 2011; Davvetas & Diamantopoulos, 2017). Recent research further demonstrates how consumer regret might adversely impact repurchase intentions by motivating a desire to transfer brands (Sarwar, Awang, Habib, Nasir, & Hussain, 2022). The H1 hypothesis is formed based on this research.

H1: *There is a negative relationship between consumer regret and brand loyalty.*

One of the significant behavioral effects of regret is negative mouthing (NWOM) (Wu & Wang, 2017). Taylor (1997) contends that consumers' contentment may be impacted by the alternatives they do not choose. According to Inman et al. (1997), consumers are less satisfied when they sense regret. Post-purchase regret is linked to unfavorable word-of-mouth, according to earlier research (Castro, Lacap, Garbosa, Jimenez, & Mallari, 2022). Previous research revealed a strong association between consumer complaint behavior and regret due to under- or over-consideration (Tzeng & Shiu, 2019). Consumers communicate their regret via negative WOM as a consequence (Le & Ho, 2020). These results led us to make the following hypothesis;

H2: *There is a positive relationship between consumer regret and negative WOM.*

Brand hate was thought to have its roots in people's negative prior encounters with brands (Zarantonello, Romani, Grappi, & Bagozzi, 2016). Numerous research has shown a connection between consumer unhappiness and brand hate (Hegner, Fetscherin, & Van Delzen, 2017). Consumer regret has a favorable impact on the behavior of seeking retribution (Wen-Hai et al., 2019). However, the research neglects to address the impact of consumer regret on brand hate. Consumer regret is another sadness-related precursor of hate that has received little attention in brand-hatred research (Farhat, Zouari, & Khemakhem, 2025). According to recent research Zhang and Laroche (2020), sad-related causes of brand hate, such as feelings of sorrow, regret, guilt, humiliation, and disappointment, are what cause negative WOM. Therefore, in this research, we looked at how consumer regret, a sadness-related inner feeling, affected brand hate, an external emotion. The study presented above leads to the following suggestion:

H3: *There is a positive relationship between consumer regret and brand hate.*

The degree of consumer satisfaction determines whether consumers have a good or negative opinion of a product or brand. One of the elements that contribute to negative WOM is the amount of consumer discontent,

which is inversely correlated with brand loyalty (Verhage, Yavas, Green, & Borak, 1990). Negative word-of-mouth is often caused by unsatisfied consumers and a failure to address their issues (M. Williams & Buttle, 2014). Previous research demonstrated that one of the primary causes of negative WOM is consumer discontent (Arruda Filho & Barcelos, 2021). The research presented above leads to the formulation of the following hypothesis:

H4: *There is a negative relationship between brand loyalty and negative WOM.*

According to Kucuk and Kucuk (2016), consumers' negative experiences have a greater impact on their opinions than their good ones. In this aspect, brand animosity has several negative effects on brands. Public complaints and brand switching are two different sorts of brand hate, according to Fetscherin (2019). Additionally, according to Zhang and Laroche (2020), hate of a particular brand may lead to anti-brand conduct as well as other detrimental effects. Recent research demonstrates that brand hate may even trigger retaliation desires (Bayarassou, Becheur, & Valette-Florence, 2020).

Whining is also a behavior affected by brand hate (Fetscherin, 2019). The consequences of brand hate are brand rejection, brand retribution, and negative word-of-mouth according to Hegner et al. (2017). Many previous studies have held that brand hate leads to negative word-of-mouth (WOM) (Hegner et al., 2017; Zarantonello et al., 2016). Pinto and Brandão (2021) found out that brand hate and negative word-of-mouth (WOM) are highly correlated. Recent research further demonstrates that the major effects of brand hate are poor WOM and complaint behaviors (Zhang & Laroche, 2020). The research presented above informs the development of following hypothesis:

H5: *There is a positive relationship between brand hate and negative WOM.*

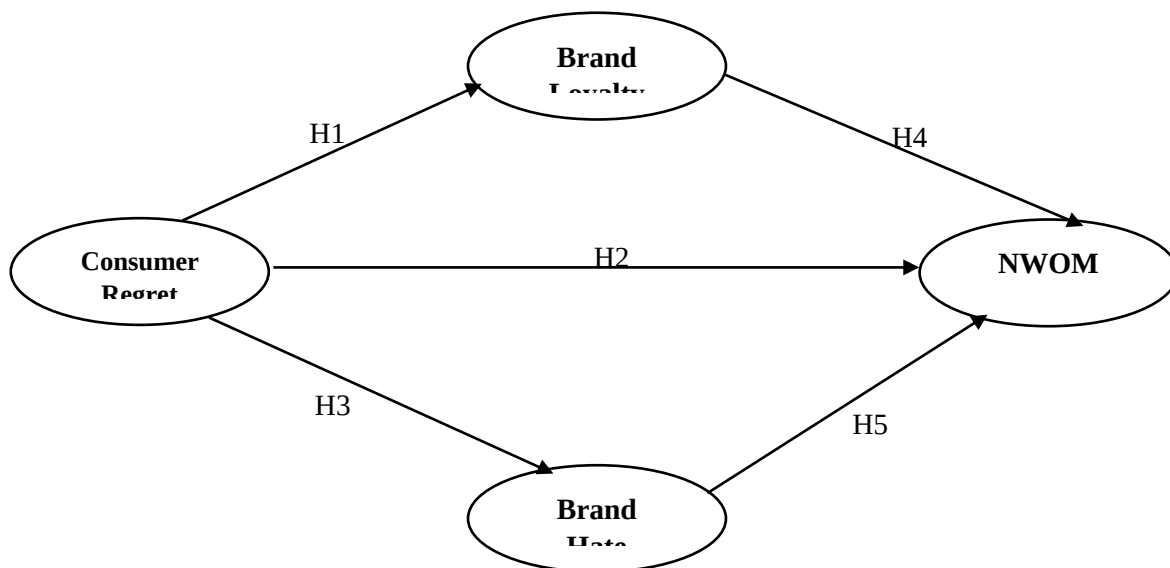


Fig 1. Conceptual Farmwork

Materials and Methods

This research explores the relationship between consumers' internal negative emotions and their external negative emotions like negative word-of-mouth and brand hate. In this research, the effects of brand loyalty, brand hate, and negative word-of-mouth are explored together with the effects of consumer regret on these variables. In Figure 1, the conceptual framework is shown.

Measures

The Lee and Cotte (2009) research is used as the basis for the instrument of consumer regret. The research by Johnson, Herrmann, and Huber (2006) served as the basis for measuring brand loyalty items. We adopted Hegner et al. (2017) hate and negative WOM items. The initial (18 items) brand hate scale was too extensive and inappropriate for the context of mobile network use. To determine the most relevant version of the scale,

So, we conducted a pilot test and a validity check with two branding researchers. Utilizing the original brand hate scale's short form (6 items), which provides superior model fits, we assessed brand hate as a single construct (Hegner et al., 2017). To fit the findings within the context of mobile network use, many things were changed. A 5-point Likert scale is used to measure each construct (APPENDIX).

Checking Common Method Bias

To lessen the typical technique bias, we took various steps both before and after the data collection (CMB). First, we made a selection of the scales based on their validity and reliability. We avoided using leading questions and technical jargon to make the survey items clearer and easier to comprehend. When respondents are unwilling to engage in the survey, a common method bias also manifests (Williams, Hartman, & Cavazotte, 2010). We explained to the participants that their answers would only be utilized for research and that their names would be kept confidential to maximize voluntary participation.

We checked the data after it was gathered to see whether CMB was present. Harman's single-factor methodology, according to MacKenzie and Podsakoff (2012), is insufficient to identify CMB since accurate measurements are not taken. Using more sophisticated techniques as an alternative to Harman's single-factor test is advised by Malhotra, Kim, and Patil (2006). As a direct consequence of this, we put the model through its paces by using the common latent factor (CLF) approach. To carry out CLF, a latent component was included in the measurement model that was used in AMOS. Separate calculations of standardized factor loadings with CLF and without CLF were made. The assessment of the CMB's results is shown in Table 1. The difference between the estimate values with and without the CLF was discovered to be less than 0.2, confirming that the CMB in this investigation is not significant (Serrano Archimi, Reynaud, Yasin, & Bhatti, 2018).

Table 1: Standardized Regression Weights

Standardized Regression weights	Estimate with CLF	Estimate with no CLF	Diff
B_L4 ← Brand Loyalty	0.862	0.921	0.059
B_L3 ← Brand Loyalty	0.922	0.925	0.003
B_L2 ← Brand Loyalty	0.897	0.901	0.004
B_L1 ← Brand Loyalty	0.828	0.831	0.003
N_WOM4 ← Negative Word of Mouth	0.621	0.773	0.152
N_WOM3 ← Negative Word of Mouth	0.603	0.801	0.198
N_WOM2 ← Negative Word of Mouth	0.636	0.798	0.162
N_WOM1 ← Negative Word of Mouth	0.658	0.838	0.18
B_H4 ← Brand Hate	0.773	0.89	0.117
B_H3 ← Brand Hate	0.763	0.867	0.104
B_H2 ← Brand Hate	0.53	0.662	0.132
B_H1 ← Brand Hate	0.734	0.859	0.125
B_H5 ← Brand Hate	0.738	0.858	0.12
B_H6 ← Brand Hate	0.736	0.839	0.103
CR11 ← Consumer Regret	0.725	0.813	0.088
CR10 ← Consumer Regret	0.845	0.924	0.079
CR9 ← Consumer Regret	0.765	0.871	0.106
CR8 ← Consumer Regret	0.391	0.421	0.03
CR7 ← Consumer Regret	0.414	0.561	0.147
CR6 ← Consumer Regret	0.366	0.451	0.085
CR5 ← Consumer Regret	0.371	0.444	0.073
CR4 ← Consumer Regret	0.374	0.451	0.077
CR3 ← Consumer Regret	0.371	0.497	0.126
CR2 ← Consumer Regret	0.35	0.514	0.164
CR1 ← Consumer Regret	0.321	0.516	0.195

Data Collection and Sampling

With the use of an online poll, we gathered data over two months. Participants in the research were required to be Pakistani citizens who were representatives of Generation Y and who used mobile networks. We made the questionnaire available to everyone online, and we requested the respondents to react via email and social media. We included a short description of the study's objectives and a statement that the information would only be used for research.

The study also emphasized the essence of the replies being precise and complete. The questionnaire did not have questions that defined the identity of the respondents. This enabled the members to feel more relaxed and not affected by any possible guidelines. In the process of undertaking the study, we did not target a specific region of Pakistan. The respondents chosen randomly in the survey were the respondents in every part. Demographic profiles of the respondents in Table 2 indicate that respondents have diverse backgrounds. As well, the respondents gave their genuine answers without partiality. All these prove that our sample is a fair representation of the target population.

To be ethical in our study, we followed some of the major principles provided in the literature. Respondents were fully willing and did not provide any personally identifiable information to participate in the survey. Belmont Report (1979) states that, voluntary participation is an ethical principle in conducting research involving human subjects, and is a display of respect to autonomy. It is important that the researcher does not coerce the participants and that their consent is free. Moreover, the research was conducted under the following conditions; privacy and anonymity of subjects. On the one hand, according to Saunders, Kitzinger, and Kitzinger (2015), anonymity measures people against possible risks and promotes ethical rigor in qualitative and quantitative research. The study clearly indicated in our survey tool that any information obtained would be confidential and that it would be used in academics only and did not compromise the informed consent (Babbie, 2020). These processes do not contradict the existing academic principles and ethical standards in conducting social research studies, thus making sure that the research was carried out in an ethical manner.

The online questionnaire is made up of three different parts that were built with the help of Google Forms. The first section asked the demographic composition of the respondents. In the second segment of the questionnaire, the respondents were asked regarding the provider of mobile network they used. Then they provided the rest of the questions keeping in mind their selected brand of the mobile network. The measurements of brand loyalty, brand hate, and consumer regret are included in the second section. Statements concerning negative WOM are included in the questionnaire's third section.

Before drafting the final questionnaire and getting started on the collection of data, we carried out a test study on a smaller number of people as a pilot to ensure that the process for gathering the data worked as we had anticipated it to. This allowed us to make sure that the definitive questionnaire would accurately reflect the results of the test study. In the pilot research, we looked at how simple the respondents found the things to be to understand. We changed the questions that needed clarification and created the questionnaire's final design. Table 2 lists the respondents' demographic information.

Table 2 shows that 53.7% of the respondents were male. Most of the respondents are between the ages of 20 and 30, then those between the ages of 31 and 40. With 23.8% percent holding master's degrees and 39.3 percent holding bachelor's degrees, the respondents are overwhelmingly educated.

Table 2: Demographic Characteristic (N = 361)

		Frequency	Percent
Gender	Female	167	46.3
	Male	194	53.7
Age	20-30	165	45.7
	31-40	97	26.9
	41-50	52	14.4
	51-60	29	8
	Above 60	18	5
Marital Status	Married	198	54.8
	Single	163	45.2
Education	Bachelor	142	39.3
	M.Phil.	43	11.9
	Master's	86	23.8
	Matric a	62	17.2
	Ph.D	28	7.8
Mobile Network	Jazz	110	30.5
	Telenor	73	20.2
	Ufone	91	25.2
	Warid	3	0.8
	Zong	84	23.3

Data Analysis and Results

The structural equation modeling (SEM) technique was put to use to validate the proposed model. We utilized the structural equation modeling software AMOS to carry out this investigation.

Measurement Model

To conduct an assessment of the measurement model, the evaluation of reliability, convergent validity, and discriminant validity are used. To determine whether or not the model is accurate, confirmatory factor analyses (also known as CFA) were performed on each scale. The convergent validity was examined by taking the average variance extracted (AVE) and the composite reliability (CR) and comparing them. Testing for the correlation between latent variables and square roots of the AVE values was performed to ascertain the discriminant validity of the model. From the CFA results, degree of goodness-of-fit could be obtained within the ranges specified (Table 3).

Table 3: Fit Index

Absolute fit Indices	Scores	Cut-off Values
X ² /df	0.265	<5.0
CFI	0.923	≥0.90
NFI	0.912	≥0.90
RMSEA	0.054	<0.08

Table 4 provides the CFA findings, AVE, and CR values. The results of the CFA demonstrated that each scale consisted of a single factor, proved that the constructs were substantially loaded onto the scale that corresponded to them, and demonstrated that the scales (latent variables) were meaningfully explained by the scale items (observed variables). To demonstrate convergent validity, the AVE value must be equivalent to or

more than 0.50, the CR alpha coefficient must be 0.70 or higher, and the factor load (standardized values) of each item must be greater than 0.50 according to Fornell and Larcker (1981). Table 4 demonstrates that all three requirements are satisfied, proving that the research has convergent validity.

Table 4: Measurement model - Reliability and Convergent validity

Constructs	Item Code	Factor Loading	Cronbach's Alpha	CR	AVE
Consumer Regret	CR11	0.721	0.772	0.942	0.701
	CR10	0.714			
	CR9	0.814			
	CR8	0.816			
	CR7	0.817			
	CR6	0.811			
	CR5	0.829			
	CR4	0.821			
	CR3	0.775			
	CR2	0.789			
	CR1	0.732			
Brand Hate	B_H4	0.89	0.832	0.931	0.693
	B_H3	0.867			
	B_H2	0.762			
	B_H1	0.859			
	B_H5	0.858			
	B_H6	0.839			
Brand Loyalty	B_L4	0.858	0.88	0.932	0.774
	B_L3	0.925			
	B_L2	0.901			
	B_L1	0.831			
Negative Word of Mouth	N_WOM4	0.773	0.818	0.890	0.669
	N_WOM3	0.821			
	N_WOM2	0.838			
	N_WOM1	0.838			

Table 5: Square Root of AVE and Descriptive statistics

Construct	Mean	S. D	1	2	3	4	Square Root of AVE
1. Consumer Regret	2.44	0.83	1				0.84
2. Brand Hate	2.15	0.88	0.617**	1			0.83
3. Brand Loyalty	3.17	1.04	-0.512*	0.215*	1		0.88
4. Negative Word of Mouth	2.51	0.92	0.481**	.537**	-0.345	1	0.82

** p < 0.01, *p < 0.05

Table 5 displays the evaluation of discriminant validity. The square roots of both the AVE values must be bigger than that of the correlations between both latent variables to achieve discriminant validity (Fornell & Larcker, 1981). All the latent variables have square roots of AVE values that are higher than the correlation coefficients between them, as seen in Table 5.

Hypothesis Testing

SEM was utilized to assess the study's assumptions. We performed structural equation analysis after the measurement model's conditions had been met. The modifications recommended by the AMOS software were made to give the measurement model its final shape. Presenting the structural model in Figure 2.

The 5000 resampling option and a bootstrap method with a 95% confidence interval were used to investigate the effects. In Table 6, statistically significant effects are listed.

Table 6: Structural path coefficients

Relationship	β	<i>t</i> -value	<i>p</i> -value	LLCI	ULCI
Consumer Regret → Brand Loyalty	-0.37**	8.407	0.00	0.11	0.31
Consumer Regret → Brand Hate	0.65**	14.83	0.00	0.54	0.75
Consumer Regret → Negative WOM	0.86*	13.84	0.00	0.87	0.98
Brand Loyalty → Negative WOM	-0.04	0.926	0.45	-0.66	1.61
Brand Hate → Negative WOM	0.56**	12.06	0.00	0.45	0.66

(*N* = 361), **p* < 0.05, ***p* < 0.01

Using the modifications, the program suggested to improve the goodness of fit values, we constructed covariance between both the error terms of the B_H1 and B_H2 factors of the brand hate scale. It is advised to correlate error terms to improve model fit (Byrne, Shavelson, & Muthén, 1989). In the literature, it is allowed to change the items that assess the same concept in error terms (Hermida, 2015). Both of these factors convey the consumers' strong sentiments about the brand they dislike. The high correlation between these two variables' error terms makes sense. Establishing covariance between both the error terms among these two variables was necessary in order to do further testing on the model.

When evaluating the correlation coefficients, a normalized value of less than 0.10 denotes a "smaller" influence, between 0.10 and 0.30, a "typical or medium" effect, and more than 0.50, a "bigger" effect (Kline, 2015). The findings demonstrate that consumer regret has a considerable negative impact on brand loyalty ($\beta = -0.37$; *p* < 0.01). Consumer regret is positively and somewhat significantly influenced by negative word of mouth ($\beta = 0.86$; *p* < 0.05). Consumer regret is positively and significantly influenced by brand hate ($\beta = 0.65$; *p* < 0.01). The findings also demonstrate that brand loyalty does not significantly affect negative WOM ($\beta = -0.04$; *p* > 0.05). Though, brand hate is positively and significantly impacted by negative WOM ($\beta = 0.56$; *p* < 0.01).

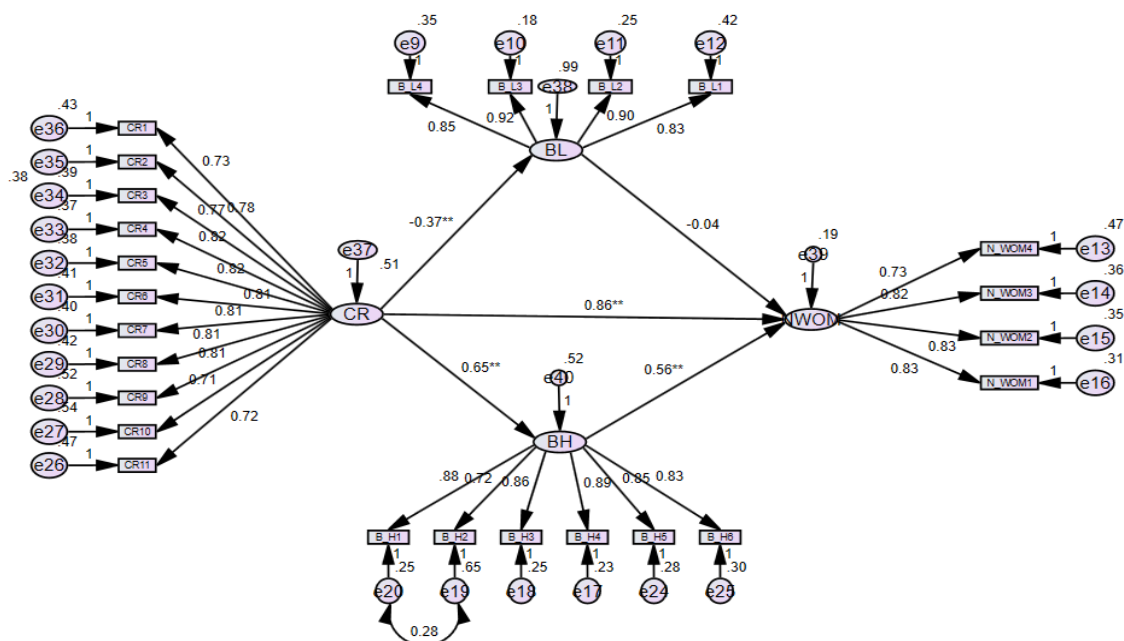


Fig. 2 Structural Model

Discussion

This research adds to the literature regarding consumer regret by confirming a model that investigates the interrelations between consumers' internally felt and externally manifested negative emotions and negative word-of-mouth. The research looks at how regret affects brand loyalty, brand hate, and negative word-of-mouth. Each research hypothesis is looked at. Except for H4, all of the hypotheses are supported. According to the findings, brand hate, unfavorable word-of-mouth, and brand loyalty are all strongly influenced by consumer regret. The findings also demonstrate that negative WOM is strongly positively impacted by both internal and external emotions.

Our findings support earlier studies on the impact of regret on consumer satisfaction. We discovered that brand loyalty is adversely impacted by consumer regret. This result supports the findings of prior research by Bui et al. (2011), which contends that regret reduces consumer happiness and brand loyalty by raising the desire to move brands. The results of much other research similarly indicated a favorable correlation between brand-switching activity and consumer regret (Davvetas & Diamantopoulos, 2017).

This study lends credence to earlier research on the impact of consumer satisfaction on unfavorable word-of-mouth (WOM). The impact of regret on consumers' complaint intentions was shown to be significantly influenced by consumer satisfaction level (Tsiros & Mittal, 2000). Additionally, Tzeng and Shiu (2019) contend that unless consumers have a profound sense of regret, they are reluctant to complain to other parties. Our findings support prior research by showing that the association between consumer regret and unfavorable WOM is mediated by brand hate and brand loyalty. It means that the effects that consumer regret has on negative word-of-mouth could be enhanced or reduced based on the level of consumer happiness (Zhao, Noman, & Abedin, 2025).

The findings also provide weight to earlier research on the link between brand hate and unfavorable word-of-mouth. During this study, we found that NWOM has a strong correlation with brand hate, which is the strongest negative feeling towards a brand. Our results indicate that brand hating leads to bad WOM being shared with the consumers. It has been already demonstrated by several studies that brand haters and detractors of their products are positively correlated (Hegner et al., 2017). Brand hate was found to have one of the most critical outcomes in the form of NWOM (Kurtoğlu, Özbölük, & Altın, 2025). Also, recent studies have found that brand hating will result in negative WOM and complaint behaviour (Zhang & Laroche, 2020).

This study contributes to the previous research because it examines the relationship between an internal negative emotion (regret) and external negative emotion (brand hate) and negative WOM. The recent study by Wen-Hai et al. (2019) examined the effect that both internal and external sources of negativity have on negative word-of-mouth. They established that regret positively impacts negative WOM and desire to revenge whereas anger did not but boosted desire to revenge. Our research adds to this body of knowledge by showing that consumer regret positively influences brand hate which is an almost identical correlate of negative WOM. Consequently, more negative WOM could be caused by both internal and external feelings.

Theoretical Implications

This study contributes to the existing body of knowledge about the root causes of NWOM. We expand earlier research that primarily concentrates on consumers' negative emotions, such as rage, from a theoretical standpoint (Harrison-Walker, 2019). Our research looks at brand animosity as a potent precursor of unfavorable word-of-mouth. This study contributes new details to the existing body of past research, which mostly focuses on brand hate causes associated to rage. We focused on consumer regret, which is connected to grounds for brand hate that are tied to grief. Zhang and Laroche (2020) assert that emotions such as dissatisfaction, regret, and humiliation play a crucial role in cultivating brand hate. However, brand-hating literature has not taken into account consumer regret. We anticipate that our work will help direct more studies in this field in the future.

By studying the relationship between an internal negative feeling (regret) and an external negative emotion (brand hate) as well as negative WOM, this study adds to the body of prior research. A recent study conducted by Wen-Hai et al. (2019) investigated the influence that both internal and external sources of negativity have

on negative word-of-mouth. They found that regret has a positive effect on negative WOM and the desire for revenge, while anger has no effect on negative WOM but elevates the desire for revenge. Our study contributes to this pool of knowledge by demonstrating that consumer regret has a positive effect on brand hate, which is a close correlate of negative WOM. As a result, a greater negative WOM might result from both internal and external emotions.

Practical Implications

This study has some recommendations for brand managers in the real world. Our study model has shown that negative WOM is mostly explained by consumer regret and brand hate. Consumers might experience brand regret as well as brand hate, which brand managers should try to reduce. According to Davvetas and Diamantopoulos (2017), brand loyalty and brand-recommendation behavior are fostered through consumer-brand identification, which might lessen the detrimental effects of regret on consumer pleasure. Understanding consumers' strong sentiments towards businesses might help marketers respond and stop these reactions (Zarantonello et al., 2016).

This research offers various tips for controlling consumers' poor experiences with marketers. Brand hate, one of the negative sentiments about brands, is a stronger negative sensation than disliking a specific brand. Consumers now can quickly share unfavorable WOM through social media. Making websites promote brand hate may have an impact on consumers' purchase choices by harming the brand's reputation (Kucuk, 2008). Therefore, businesses should look into the causes of consumers' unfavorable perceptions of their brands and take the appropriate measures to stop them.

Additionally, this study will help marketers understand how regret and brand hate may contribute to the spread of unfavorable WOM. Before making a purchase they afterward regretted, a consumer who is committed to a brand will not spread rumors about it. The regret of consumers, however, readily results in negative WOM when their internal negative feelings, such as brand hate, manifest externally. Consumer regret fuels their urge to spread this hate. As a result, it has a negative WOM. Therefore, internal feelings like regret have significant ramifications for brand managers attempting to build rapport with consumers who have had unfavorable brand experiences.

In this respect, businesses must pay particular attention to their consumer service division, which has first contact with consumers. As a strategy to control the consumer-brand interaction it will be essential to constantly analyze the consumer comments in all the avenues where businesses interact with consumers. Consumer complaints posted online, particularly on the social media, should be addressed with sharpness. Observing the negative experience and giving the consumers a remedy could help in enhancing the reputation of the brand. Dealing with consumer complaints might even generate good word-of-mouth for the business.

Managers may be able to forecast outcomes more accurately by measuring negative internal feelings like consumer regret. Even while corporations seldom see regret as an internal feeling, emerging technologies will be useful in monitoring. Consumers may simply express their unfavorable opinions on social media nowadays. They may tweet about their regret as it isn't yet manifesting as a negative feeling. Before unhappy consumers generate poor word-of-mouth, businesses should try to reach out to them. It is essential to implement proactive consumer support, which involves alerting consumers before they call consumer care rather than waiting for them to do so.

Identifying brand hate early on is essential for creating positive interactions with consumers (Kucuk, 2021). Consumers in today's world anticipate receiving timely and high-quality service. In addition to this, they anticipate firms to respond to all forms of contact promptly. The consumers get irate the longer it takes to solve their problems. Therefore, it is now essential to find a rapid solution to the issue. Telecommunication industries ought to adopt the interactive forms of communication such as phone support, text chat, and live mobile conversations so that they can quickly address consumer challenges.

New strategies are required to address customer concerns in the digital age. Therefore, companies should update their complaint management processes using contemporary technology. AI-based solutions facilitate the anticipation of future complaints and the resolution of potential problems before they materialize. Telecom

companies can also use big data analytics. They should set up exact metrics for gauging customer satisfaction and keep a methodical log of this information. AI-powered chatbots may also offer personalized assistance. These systems employ machine learning to understand each customer's objectives and deliver a personalized experience.

Remorse and bad past experiences may be eliminated with strong brand recognition (Davvetas & Diamantopoulos, 2017). Recent research by Kucuk (2021), indicates that identification mismatch is the antecedent of brand hate. He argues that identity mismatch causes more long-term harm to brands than product or service failures. Furthermore, negative attitudes toward a brand may arise from disidentification with it (Ruppel & Einweller, 2021). Therefore, in order to establish brand identification, companies should focus on building solid customer relationships.

Limitations and Future Research

There are a number of limitations to this study that should be noted. First, the sample size was small ($n = 361$) and restricted to consumers in a particular Pakistani regional context. Because of this, the results might not apply to larger populations. To improve the validity and reliability of the findings, future research should aim to duplicate this study with bigger and more varied samples. Second, we only looked at customer preferences for mobile network providers. The findings cannot be applied to other product categories or service sectors due to this limited scope. To test the strength of the suggested relationships, future research should look at brand hatred in a range of industries, including food, clothing, and digital platforms. Third, despite recent increases in academic interest, brand hate is still an understudied topic. By analyzing unfavorable consumer-brand relationships, this study adds to the body of literature; however, more comprehensive and multifaceted research is required to fully comprehend the causes and effects of brand hatred. Additionally, this study only looked at the attitudes of Pakistani consumers. Future cross-cultural research could offer comparative insights and aid in generalizing findings across various cultural contexts because cultural values have a significant impact on consumer behavior. Apart from these constraints, future studies should think about adding new variables to improve the existing model. For instance, variables such as brand betrayal, brand forgiveness, and consumer resilience could provide deeper understanding of emotional recovery mechanisms following negative brand experiences. Additionally, social media engagement and electronic word-of-mouth (eWOM) could be explored as mediators or moderators to understand how brand hate spreads and intensifies in online environments. The inclusion of personality traits, such as consumer animosity or need for uniqueness, could help identify psychological predispositions toward brand hate. Lastly, longitudinal studies could be employed in future research to examine how consumer-brand relationships evolve over time and how hate might dissipate, persist, or transform under varying circumstances.

References

- Aaker, D. A. (2009). *Managing brand equity*. Simon and Schuster.
- Arndt, J. (1967). Role of product-related conversations in the diffusion of a new product. *Journal of Marketing Research*, 4(3), 291-295.
- Arruda Filho, E. J. M., & Barcelos, A. D. A. (2021). Negative online word-of-mouth: Consumers' retaliation in the digital world. *Journal of Global Marketing*, 34(1), 19-37.
- Awais, M., Saghir, R., & Nasir, M. I. (2023). PROMINENT ANTECEDENTS OF HERDING AND THEIR ROLE IN FINANCIAL MARKET ABNORMALITIES. *Journal of Global Business & Technology*, 19(2).
- Awais, M., Thaker, M. A. B. M. T., Raza, A., Usman, U., Mohsin, M., & Bhatti, O. K. (2021). The process of risk management: sketching the providers of Islamic micro-finance. *International Journal*, 77(11/1).
- Awais, M., Zulfiqar, B., Saghir, R., Sohail, A., & Rana, A. U. R. (2022). Psychological Indicator (s) in Stock Activities considering SDGs: The Wealth Maximization Criteria of Investors and Growth of Economy. *NICE Research Journal*, 47-60.
- Bayarassou, O., Becheur, I., & Valette-Florence, P. (2021). "Fight or flight": coping responses to brand hate. *Journal of Product & Brand Management*, 30(3), 492-511.

- Boles, T. L., & Messick, D. M. (1995). A reverse outcome bias: The influence of multiple reference points on the evaluation of outcomes and decisions. *Organizational Behavior and Human Decision Processes*, 61(3), 262-275.
- Babbie, E. R. (2020). *The practice of social research* (15th ed.). Cengage Learning.
- Boujbel, L., & d'Astous, A. (2015). Exploring the feelings and thoughts that accompany the experience of consumption desires. *Psychology & Marketing*, 32(2), 219-231.
- Bovee, C. L., Thill, J. V., Dovel, G. P., & Wood, M. B. (1995). *Advertising Excellence* McGraw-Hill. New York, NY.
- Bryson, D., Atwal, G., & Hultén, P. (2013). Towards the conceptualisation of the antecedents of extreme negative affect towards luxury brands. *Qualitative Market Research: An International Journal*, 16(4), 393-405.
- Bui, M., Krishen, A. S., & Bates, K. (2011). Modeling regret effects on consumer post-purchase decisions. *European Journal of Marketing*, 45(6), 1068-1090.
- Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: the issue of partial measurement invariance. *Psychological bulletin*, 105(3), 456.
- Carroll, B. A., & Ahuvia, A. C. (2006). Some antecedents and outcomes of brand love. *Marketing letters*, 17, 79-89.
- Castro, S., Lacap, J. P., Garbosa, T. M., Jimenez, E., & Mallari, S. F. (2022). Philippine television network companies' corporate social responsibility engagements and electronic word-of-mouth: the intervening role of consumer-company identification. *Journal of Asia-Pacific Business*, 23(1), 24-45.
- Cui, Y., & Niu, J. (2017). Influence of regret on dissatisfaction and repurchase intention after purchasing fashion goods. *Economic Management*, 6(1), 32-38.
- Davvetas, V., & Diamantopoulos, A. (2017). "Regretting your brand-self?" The moderating role of consumer-brand identification on consumer responses to purchase regret. *Journal of Business Research*, 80, 218-227.
- Duhan, D. F., Johnson, S. D., Wilcox, J. B., & Harrell, G. D. (1997). Influences on consumer use of word-of-mouth recommendation sources. *Journal of the academy of marketing science*, 25(4), 283-295.
- East, R., Hammond, K., & Lomax, W. (2008). Measuring the impact of positive and negative word of mouth on brand purchase probability. *International journal of research in marketing*, 25(3), 215-224.
- Farhat, Z., Zouari, A., & Khemakhem, R. (2025). Investigating Brand Hate Towards Smartphone Brands: *Tunisian Consumer Perspectives*. *Corporate Reputation Review*. doi:10.1057/s41299-025-00222-9
- Fehr, B., & Russell, J. A. (1984). Concept of emotion viewed from a prototype perspective. *Journal of experimental psychology: General*, 113(3), 464.
- Fetscherin, M. (2019). The five types of brand hate: How they affect consumer behavior. *Journal of Business Research*, 101, 116-127.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50.
- Giovanis, A. N., & Athanasopoulou, P. (2018). Consumer-brand relationships and brand loyalty in technology-mediated services. *Journal of Retailing and Consumer Services*, 40, 287-294.
- Goldsmith, R. E., & Horowitz, D. (2006). Measuring motivations for online opinion seeking. *Journal of interactive advertising*, 6(2), 2-14.
- Harrison-Walker, L. J. (2019). The effect of consumer emotions on outcome behaviors following service failure. *Journal of Services Marketing*, 33(3), 285-302.
- Hegner, S. M., Fetscherin, M., & Van Delzen, M. (2017). Determinants and outcomes of brand hate. *Journal of Product & Brand Management*, 26(1), 13-25.
- Hermida, R. (2015). The problem of allowing correlated errors in structural equation modeling: concerns and considerations. *Computational Methods in Social Sciences*, 3(1), 5-17.
- Inman, J. J., Dyer, J. S., & Jia, J. (1997). A generalized utility model of disappointment and regret effects on post-choice valuation. *Marketing Science*, 16(2), 97-111.

- Jang, J., Kang, J., & Huan, C. (2025). A committed brand facing moral dilemma crises: the role of inferred goodwill and self-brand connection in consumer regret. *Journal of Product & Brand Management*, 34(3), 347-363. doi:10.1108/JPBm-09-2023-4704
- Johnson, M. D., Herrmann, A., & Huber, F. (2006). The evolution of loyalty intentions. *Journal of marketing*, 70(2), 122-132.
- Joshi, R., & Yadav, R. (2021). Captivating brand hate using contemporary metrics: a structural equation modelling approach. *Vision*, 25(4), 439-447.
- Khatoon, S., & Rehman, V. (2025). Losing and grieving: an approach toward understanding the consequences of brand grief and typology of grieving consumers. *Marketing Intelligence & Planning*, 43(3), 653-678. doi:10.1108/MIP-06-2023-0252
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.
- Kucuk, S. U. (2008). Negative double jeopardy: the role of anti-brand sites on the internet. *Journal of Brand Management*, 15(3), 209-222.
- Kucuk, S. U. (2016). Legality of brand hate. In *Brand hate: Navigating consumer negativity in the digital world* (pp. 93-124). Cham: Springer International Publishing.
- Kucuk, S. U. (2018). Macro-level antecedents of consumer brand hate. *Journal of Consumer Marketing*, 35(5), 555-564.
- Kucuk, S. U., & Kucuk, S. U. (2019). Consequences of brand hate. *Brand Hate: Navigating Consumer Negativity in the Digital World*, 87-101.
- Kurtoğlu, R., Özbölük, T., & Altın, B. (2025). When brand cynicism turns into brand hate: the mediating role of brand hate on the relationship between brand cynicism and negative WOM. *Journal of Brand Management*, 32(1), 65-78. doi:10.1057/s41262-024-00368-7
- Lee, H. K., Kim, W. B., & Choo, H. J. (2025). Consumers' engagement in online shopping platform: influences on self-concept and subjective well-being within the platform. *Asia Pacific Journal of Marketing and Logistics, ahead-of-print (ahead-of-print)*. doi:10.1108/APJML-10-2024-1411
- Le, A. N. H., & Ho, H. X. (2020). The behavioral consequences of regret, anger, and frustration in service settings. *Journal of Global Marketing*, 33(2), 84-102.
- Lee, S. H., & Cotte, J. (2009). Post-purchase consumer regret: Conceptualization and development of the PPCR scale. *ACR North American Advances* 33(1), 456-462.
- MacKenzie, S. B., & Podsakoff, P. M. (2012). Common method bias in marketing: Causes, mechanisms, and procedural remedies. *Journal of retailing*, 88(4), 542-555.
- Malhotra, N. K., Kim, S. S., & Patil, A. (2006). Common method variance in IS research: A comparison of alternative approaches and a reanalysis of past research. *Management science*, 52(12), 1865-1883.
- Nakamori, T., Newell, S. J., & Han, B. T. (2022). Factors Influencing Consumer Loyalty: A Study of Japanese Retail Stores. *Journal of Asia-Pacific Business*, 23(1), 73-88.
- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research*. U.S. Department of Health, Education, and Welfare. <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html>
- Palmatier, R. W., Dant, R. P., Grewal, D., & Evans, K. R. (2006). Factors influencing the effectiveness of relationship marketing: A meta-analysis. *Journal of marketing*, 70(4), 136-153.
- Pinto, O., & Brandão, A. (2021). Antecedents and consequences of brand hate: empirical evidence from the telecommunication industry. *European Journal of Management Business Economics*, 30(1), 18-35.
- Pitta, D. A., & Fowler, D. (2005). Online consumer communities and their value to new product developers. *Journal of Product Brand Management*, 14(5), 283-291.
- Plutchik, R. (1991). *The emotions*: University Press of America.
- Popp, B., & Woratschek, H. (2017). Consumer-brand identification revisited: An integrative framework of brand identification, consumer satisfaction, and price image and their role for brand loyalty and word of mouth. *Journal of Brand Management*, 24, 250-270.
- Resnik, D. B. (2018). *The ethics of research with human subjects: Protecting people, advancing science, promoting trust*. Springer.

- Sarwar, M. A., Awang, Z., Habib, M. D., Nasir, J., & Hussain, M. (2022). Why did I buy this? Purchase regret and repeat purchase intentions: A model and empirical application. *Journal of Public Affairs*, 22(1), e2357.
- Saunders, B., Kitzinger, J., & Kitzinger, C. (2015). Anonymising interview data: Challenges and compromise in practice. *Qualitative Research*, 15(5), 616–632. <https://doi.org/10.1177/1468794114550439>
- Serrano Archimi, C., Reynaud, E., Yasin, H. M., & Bhatti, Z. A. (2018). How perceived corporate social responsibility affects employee cynicism: The mediating role of organizational trust. *Journal of business ethics*, 151, 907-921.
- Shi, L. H., Cui, A. P., & Fitzsimmons, S. (2025). From purchase to regret: deterring counterfeit consumption through moral emotions and multicultural identity. *International Marketing Review*, 42 (1), 149-174. doi:10.1108/IMR-02-2024-0055
- Shih, E., & Schau, H. J. (2011). To justify or not to justify: the role of anticipated regret on consumers' decisions to upgrade technological innovations. *Journal of Retailing*, 87(2), 242-251.
- Sharma, A. P., Starčević, S., & Saha, R. (2024). Determinants of customer buying behaviour in omnichannel retailing: a systematic literature review and future research directions. *Journal of Service Theory and Practice*, 34(6), 822-863. doi:10.1108/JSTP-07-2023-0213
- Solomon, M., Russell-Bennett, R., & Previte, J. (2012). Consumer behaviour: Pearson Higher Education AU.
- Taylor, K. (1997). A regret theory approach to assessing consumer satisfaction. *Marketing letters*, 8, 229-238.
- Tsiros, M., & Mittal, V. (2000). Regret: A model of its antecedents and consequences in consumer decision making. *Journal of consumer Research*, 26(4), 401-417.
- Tzeng, S. Y., & Shiu, J. Y. (2019). Regret type matters: risk Hate and complaining in a multidimensional post-purchase regret framework. *Asia Pacific Journal of Marketing and Logistics*, 31(5), 1466-1485.
- Vázquez-Casielles, R., Suárez-Álvarez, L., & del Río-Lanza, A. B. (2013). The word of mouth dynamic: How positive (and negative) WOM drives purchase probability: An analysis of interpersonal and non-interpersonal factors. *Journal of Advertising Research*, 53(1), 43-60.
- Verhage, B. J., Yavas, U., Green, R. T., & Borak, E. (1990). The perceived risk-brand loyalty relationship: An international perspective. *Journal of Global Marketing*, 3(3), 7-22.
- Weitzl, W. J., Hutzinger, C., & Wagner, U. (2024). I am ashamed of my brand-self! Consumer-brand identification as a moderator of emotional reactions following symbol-laden brand failures. *Journal of Product & Brand Management*, 33(1), 1-13. doi:10.1108/JPBM-02-2022-3853
- Wen-Hai, C., Yuan, C. Y., Liu, M. T., & Fang, J. F. (2019). The effects of outward and inward negative emotions on consumers' desire for revenge and negative word of mouth. *Online Information Review*, 43(5), 818-841.
- Williams, L. J., Hartman, N., & Cavazotte, F. (2010). Method variance and marker variables: A review and comprehensive CFA marker technique. *Organizational research methods*, 13(3), 477-514.
- Williams, & Buttle, F. (2014). Managing negative word-of-mouth: an exploratory study. *Journal of marketing management*, 30(13-14), 1423-1447.
- Wu, R., & Wang, C. L. (2017). The asymmetric impact of other-blame regret versus self-blame regret on negative word of mouth: Empirical evidence from China. *European Journal of Marketing*, 51(11/12), 1799-1816.
- Yang, H. (2013). Market mavens in social media: Examining young Chinese consumers' viral marketing attitude, eWOM motive, and behavior. *Journal of Asia-Pacific Business*, 14(2), 154-178.
- Zarantonello, L., Romani, S., Grappi, S., & Bagozzi, R. (2016). Brand hate. *Journal of Product Brand Management*, 25(1), 11-25.
- Zhang, C., & Laroche, M. (2020). Brand hate: a multidimensional construct. *Journal of Product Brand Management*, 30(3), 392-414.
- Zhang, F., Ouyang, L., Zhang, Y., & Zhou, X. (2025). Navigating the nuances of negative WOM strategic crisis responses and emotional mediation in corporate communications. *Current Psychology*, 44(2), 1189-1205. doi:10.1007/s12144-024-07153-4

Zhao, C., Noman, A. H. M., & Abedin, M. Z. (2025). Service failure and negative Word-of-Mouth in Chinese retail banking: a moderated-mediation approach. *International Journal of Bank Marketing*, 43(1), 82-105. doi:10.1108/IJBM-02-2023-0107

Appendix

Construct Items

Consumer Regret

I regret the product choice that I made

If I was back in time, I would choose something different to buy

I should have chosen something else than the one I bought

I now realize how much my other choices were

With more effort, I feel that I could have made a better decision

I feel that I did not put enough consideration into buying the product

I regret not putting enough thought into my decision

With more information, I feel that I could have made a better decision

I feel that too much time was invested in getting this product

I think I put too much thought in the buying process

I wasted too much time in making my decision

Brand Loyalty

I will definitely buy the same brand next time

If I need to change the MNO brand I use, I will buy the same brand again

I recommend this brand to others

If I could buy any brand free of charge, I would still buy the same

Brand Hate

I hate brand X

Brand X is awful

I am totally angry about brand X

I am disgusted by brand X

I do not tolerate brand X and its company

The world would be a better place without brand X

NWOM

I spread negative word of mouth about brand

I denigrated the brand to my friends

When my friends were looking for a similar service, I told them not to buy from brand X

I try to influence a lot of people in not purchasing this brand

Fintech-Based Financial Inclusion and Risk-Taking Behaviour of Financial Institutions: Evidence from South Asia

Sobia Parveen

MS (Finance) Scholar

City University of Science and Information Technology, Peshawar, Pakistan

sobiayousafzai17@gmail.com

Dr. Muhammad Asif

Associate Professor

Bahria University Business School, Karachi Campus, Pakistan

drasifbaloch78@gmail.com

&

Arshad Khan

MS (Finance) Scholar

City University of Science and Information Technology, Peshawar, Pakistan

arshadkhanafri59@gmail.com

Abstract

Fintech innovations enhance the financial system's stability and mitigate key stakeholders' risk propensity. However, a requirement persists for additional empirical evidence to validate the significant impact of fintech-based financial inclusion (FinFI) on the risk-taking tendencies of financial institutions (FIs) active in South Asian nations and the considerable differences in the relationship between fintech-based financial inclusion and the risk-taking behavior of financial institutions among the different countries in South Asia. While extensive research regarding fintech, financial inclusion, and financial institutions exists in various regions worldwide, there is a notable scarcity of studies focusing on South Asian countries such as Pakistan, India, Bangladesh, Nepal, and Sri Lanka. This study aims to bridge this gap by investigating fintech-based financial inclusion and the risk-taking behavior of financial institutions in South Asian countries over twelve years spanning from 2011 to 2022. The data collection process employed the convenience sampling method. However, other countries like Bhutan, Afghanistan, and Maldives are not included in the study population due to a lack of data. Additionally, we have utilized datasets from reputable sources, including the World Development Indicators, Global Financial Development, and Global Financial Inclusion databases for quantitative data collection. Panel data analysis is a statistical methodology used to examine and analyze the dataset of multiple entities observed over several periods. We evaluated the FinFI and analyzed its impact on mitigating risk-taking behavior among financial institutions. The reliability of our results has been confirmed through a comprehensive series of rigorous tests for robustness. The results of the analysis have proved that Fintech-based financial inclusion significantly impacts the risk-taking behavior of financial institutions regarding debit card ownership and debit card usage but insignificantly impacts with reference to mobile money accounts in South Asia. Moreover, the analysis proved that fintech-based financial inclusion positively impacts the risk-taking behavior of financial institutions, and there are significant differences in the relationship between fintech-based financial inclusion and the risk-taking behavior of financial institutions among the different countries in South Asia.

Introduction

Financial inclusion aims to facilitate access to formal economic systems at reasonable costs for unbanked, marginalized, and impoverished individuals (Munyegera & Matsumoto, 2016; World Bank, 2015). Evidence suggests that financial inclusion significantly reduces poverty and inequality. Therefore, financial inclusion is essential to economic advancement and substantially contributes to sustainable economic development inclusion boosts the capacity for savings, encourages investment, refines consumption habits, and raises the quality of life (Çelebi et al., 2010, Levine, 1997, Levine, 2005; World Bank, 2015).

FinTech refers to businesses or agents merging financial services with modern, sophisticated technologies (Navaretti et al., 2017). Financial institutions act as a mediator, collect surplus funds from depositors and provide

to those seeking financial support, and generate significant interest income during the procedure (Ghosh, 2015; Khan et al., 2020). The 2016 PWC report indicates that 59% of financial institutions are engaged with FinTech operations (Alt et al., 2018). In Southeast Asia, FinTech accounted for US\$345 million, representing 11% of the overall venture capital, as reported in 2016 by TechCrunch. Factors like a substantial unbanked population and burgeoning economies have also made these regions attractive to new market entrants (Saba et al., 2019). The rate of FinTech evolution varies significantly between developed and emerging economies.

In nations like the UK, USA, and Europe, FinTech has enhanced financial methods of conducting transactions, including automated trading based on algorithms, aiding managers in constructing more robust compliance systems for risk management, and refining digital payment systems for both local and international transactions (Arner et al., 2015). Conversely, in developing countries, the uptake of FinTech has been gradual despite the presence of development and enlargement prospects within the online economy (Ramanathan et al., 2020).

Fintech-based financial inclusion (FFI) has encountered formidable opponents despite a number of groundbreaking findings. At the national level, FFI mandates that nations build expensive technological infrastructure to guarantee an even distribution of financial inclusion (Barik & Sharma, 2019). Uneven infrastructure development encourages the "size" theory, according to which larger banks benefit most from fintech-based financial inclusion technology-arbitrage since they have greater liquidity and higher levels of technological investment (Bertay et al., 2013). Countries with higher-quality institutions are expected to invest more in fintech-based financial inclusion to achieve a higher level of financial stability (Ahamed & Mallick, 2019).

FinTech is increasingly regarded as a critical catalyst for financial inclusion. Mobile financial services are identified as the FinTech segment most likely to integrate those underserved by traditional banking into the regulated financial system, thus fostering more equitable economic development (Arner et al., 2020; Demirgüç-Kunt & Levine, 2018). Financial technology's ascent has markedly transformed the finance sector, altering banks' approaches to risk management. Fintech introduces innovative instruments and technologies that enhance financial institutions' abilities to evaluate and control risk, along with novel business models that diverge from conventional risk-taking strategies (Sajid et al., 2023a). FinTech often functions under the guidance of external entities, like banks or certified organizations, which builds a trust bond between the user and the provider (Nambiar & Lu, 2005; Wu & Zhang, 2017). Users' confidence and propensity for risk-taking may be affected by personal attributes such as education level, gender, and income (Alafeef et al., 2011). Trust involves a range of aspects, encompassing social, administrative, economic, and technical elements (Dirks & Ferrin, 2001; Ganzaroli et al., 1999). Partnerships between FinTech companies and financial service firms facilitate simple, flexible, and typically low-hazard frameworks for both sides to capitalize on each other's capabilities. Established financial entities, on their part, can utilize the innovations and technological advances introduced by FinTech startups while containing potential dangers as outlined in the collaboration contract. On the other hand, technology companies benefit from the financial support of established firms and potentially tap into their existing customer relationships and brands. At the same time, such collaborations offer significant prospects for both financial services and FinTech companies to recognize obstacles and cooperate in improving their services, thereby augmenting each other's strong points (Kelly et al., 2017). New specialized entrants and innovative business models have eroded the traditional barriers to entry in the banking sector, obscuring the boundaries between business and technology (Li et al., 2021).

Nevertheless, there is a limited amount of research conducted on the financial inclusivity facilitated by fintech and the risk appetite of financial institutions, which plays a crucial role in mediating the flow of financial resources and has a first-order impact on economic growth and development. This scarcity of information can be attributed to the unavailability of data about financial institutions and the innovative nature of fintech solutions being introduced to financial institutions. The research gap of the thesis is to inquire whether there is an increase or decrease in the risk-taking behaviour of financial institutions with the integration of fintech-based products and services in South Asia.

This research examined the questions of whether fintech-based financial inclusion could positively impact the risk-taking behavior of financial institutions in South Asia and there is significance of differences in the relationship between fintech-based financial inclusion and the risk-taking behavior of financial institutions among the different countries in South Asia.

There is a dearth of investigation on financial inclusion facilitated by fintech and the risk-taking actions of financial institutions in the region of South Asia. In South Asia large number of people are unbanked and underserved and have lack of access to formal financial services. However, less attention has been paid to fintech-based financial inclusion, notably among financial institutions. Possibly, this can be attributed to the unavailability of data concerning financial institutions and the innovative nature of fintech solutions being introduced to financial institutions.

Problem Statement

The integration of fintech-based products and services in South Asia is slow, and the opportunities for improvement and growth in the digital economy of South Asia are present (Jahanshahi et al., 2020). In financial institutions especially, it has received little attention, and the same for Pakistan. This could be due to limited data on financial institutions and the introduction of fintech solutions are slow, which are novel in financial institutions. The research investigates the usage of fintech goods and services to improve bank operational efficiency by cutting transaction costs and adopting the risk-taking behaviour of financial institutions and it also analyzes the risk-taking behaviour of financial institutions grows or decreases by adopting fintech solutions (Sajid et al., 2023b).

Literature Review

Financial inclusion refers to delivering accessible and reliable financial services to underserved and low-income populations. Furthermore, it encompasses insurance products, credit facilities, improved access to financial services, the availability and utilization of bank accounts, payment methods, investments, and savings options (Kpodar & Andrianaivo, 2011).

Fintech involves employing mobile devices, computers, and digital technologies to manage financial services, thereby transforming the operations of financial organizations. Technological advancements have reduced reliance on traditional financial institutions (Chanson et al., 2018; Chuen & Teo, 2015; Lee & Shin, 2018; Noreen et al., 2022a).

Fintech increases banking risks, jeopardizing customer protection and the financial sector's efficiency and stability. While fintech diminishes transaction costs and augments banking efficiency, it also introduces several risks, including technological, systemic, and operational hazards (Elia et al., 2023). Deng and team investigated the impact of financial technology on the risk-taking tendencies of banks, examining data from 155 smaller and medium-sized banking institutions and deducing that the progression of financial technology diminishes these tendencies (Deng et al., 2021). Effective diversification can benefit banks, especially when the diversified activities are less risky and more profitable. Ahamed, discovered that a rise in non-interest income boosts risk-adjusted earnings in Indian banking institutions and favourably affects their risk behaviours (Ahamed, 2017).

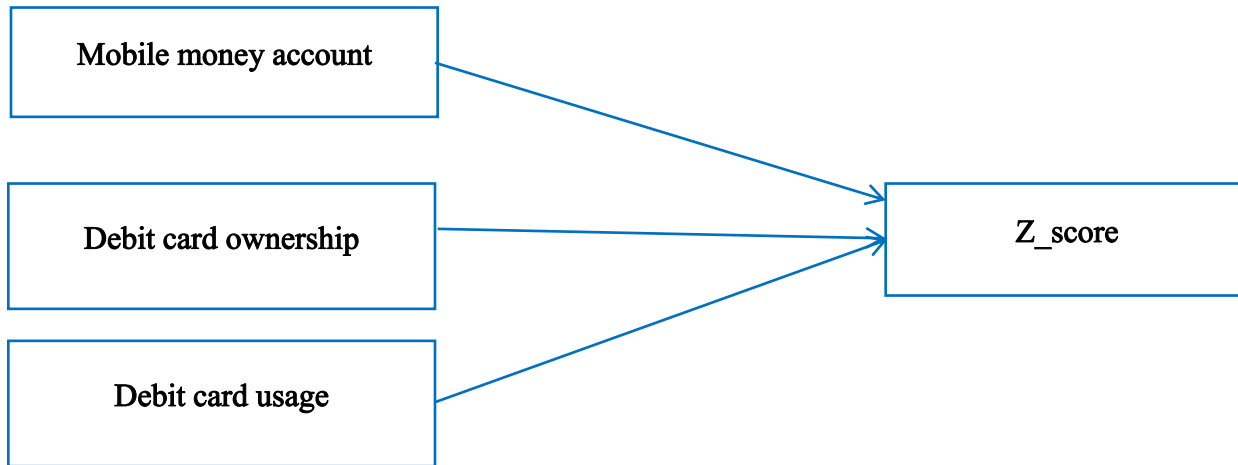
The relationship between financial technology services and risk-taking behaviours in banks has been a focus of study (Deng et al., 2021; Hu et al., 2022). Fintech's development notably diminishes risk-taking behaviors in commercial banks. Larger banks, with their superior financial infrastructure and risk mitigation capabilities, demonstrate a more pronounced effect in risk reduction through fintech adoption. Concurrently, the study of Liao explored Internet finance's impact on commercial bank risk-taking, finding a positive and significant correlation (Liao, 2018).

The hypotheses of the research based on that fintech based financial inclusion has positive impact on risk taking behaviour of financial institutions in South Asia and there is a significant difference in the relationship between fintech-based financial inclusion and the risk-taking behavior of financial institutions among the different countries in South Asia.

Conceptual framework

Independent variables

Dependent variable



Theoretical framework

In their study, Senyo et al., 2020 integrated the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) with the prospect theory to examine the factors that precede financial inclusion via mobile money services. Their findings indicate that perceived risk has a detrimental impact on mobile money services, whereas increasing trust in mobile money services encourages the adoption of fintech innovations (Banna et al., 2022). The Technology Acceptance Model (TAM) elucidates the reason behind people's acceptance, especially amid the Covid-19 pandemic (Le, 2021). The Covid-19 crisis has amplified the opportunities for collaboration between banks and fintech firms. To be competitive, financial institutions constantly adapt and use digital products. In this era of technological advancements, banks actively engage in the integration of fintech products by allocating a portion of their capital towards investments in fintech startups. They also establish partnerships to leverage the platforms offered by fintech companies (Sajid et al., 2023).

Variables Measurement

S.No	Variables	Definition	Measurement	References	Data Source
1	Mobile money account	Mobile money accounts refer to digital financial accounts that can be accessed through mobile devices, enabling users to engage in a range of financial activities such as transfers, payments, and other financial services. These services are facilitated either by mobile network operators or financial institutions.	Percentage of transactions through mobile money account.	(Suri & Jack, 2016)	Global Financial Inclusion

2	Debit card ownership		Ownership of a debit card pertains to the possession of a payment card issued by a financial institution, which is connected to a bank account and facilitates electronic transactions, cash withdrawals, and various other financial operations for individuals or entities.	The percentage of individuals possess debit card within a specific population.	(Greene & Shy, 2022)	Global Financial Inclusion
3	Debit card usage		A debit card is a payment card that deducts funds directly from the checking account.	The percentage of individuals uses debit card within a specific population.	(Swarnalaks hmi & Krishna, 2023)	Global Financial Inclusion
4	Z-Score	Return on Assets	The phrase return on assets (ROA) denotes a financial metric illustrating a company's profitability concerning its overall asset base.	$ROA = \frac{Net\ Income}{Total\ Assets} \times 100$	(Charumathi, 2012)	World Development Indicator, Global Financial development
		Capital to Assets Ratio	The capital-to-asset ratio calculates a company's assets and capital to determine whether there is enough capital to cover the assets, expressed as a percentage.	The bank capital is divided by the risk-weighted assets.	(Charumathi, 2012)	World Development Indicator

Research Methodology

The philosophy of the research believes that there are single realities that can be measured; therefore, it mostly relies on a quantitative method to measure that fact. The current study is looking forward to testing the proposed hypothesis; hence, it is consistent with positivism philosophy. The focus demographic for this research encompasses individuals who use fintech-based financial inclusion services within financial institutions of South Asian countries.

The study's sample comprises fintech users from five South Asian countries: Pakistan, India, Bangladesh, Nepal, and Sri Lanka. Additionally, the data collection process employed the convenience sampling method. However, other countries like Bhutan, Afghanistan, and Maldives are not included in the study population due to a lack of data.

This study offers a thorough analysis and synthesis of information and data spanning the most recent twelve-year period, 2011-2022, thereby providing a comprehensive understanding of the subject matter under investigation.

Data collection method

As our study encompasses variables related to financial institutions, we sourced this data from the World Development Indicators (WDI) and Global Financial Development database. To calculate the risk-taking behaviours of financial institutions, the present study will use the Z_ score as a proxy, which is a conventional method to calculate risk-taking behaviour. The following formula can be used to calculate it:

$$Z_score = \frac{ROA_{it} + CTA_{it}}{\sigma(ROA)_{it}}$$

Where, ROA_{it} presents return on assets, CTA_{it} presents the capital to assets ratio.

The variables employed to measure fintech-based financial inclusion encompass mobile money account, debit card ownership, and debit card usage.

Data Analysis Technique

The outcome of the Hausman test indicates that the random effect model is suitable for analysis. The p-value associated with the cross-section random effect which is more than 0.05 shows that the random effect model is suitable rather than fixed effect model. Descriptive analysis is used to investigate the how positively fintech-based financial inclusion impact the risk-taking behaviour of financial institutions in South Asia and what are the significance of differences among the different countries in South Asia.

Results & Findings

Results

Fintech-based financial inclusion and risk-taking behaviour of financial institution cross-section random effect

Table 1: Cross-section random effect

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.416347	3	0.3318

The outcome of the Hausman test indicates that the random effect model is suitable for analysis. This determination stems from the observation that the p-value associated with the cross-section random effect is 0.3318, surpassing the significance level of 0.05.

Fintech-based financial inclusion and risk-taking behaviour of financial institution relationship between independent and dependent variables

Table 2: Relationship between independent and dependent variables.

Dependent Variable: Z_SCORE

Method: Panel Least Squares

Date: 02/14/24 Time: 16:49

Sample (adjusted): 2011Q1 2022Q1

Periods included: 45

Cross-sections included: 5

Total panel (balanced) observations: 225

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MMA	-0.002564	0.001421	-1.804106	0.0726
DCO	0.730368	0.334581	2.182933	0.0146
DCU	-0.226322	0.092563	-2.44506	0.0073
C	26.90295	3.002665	8.959689	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.693487	Mean dependent var	28.07647
Adjusted R-squared	0.683600	S.D. dependent var	13.81051
S.E. of regression	7.768340	Akaike info criterion	6.972898
Sum squared resid	13095.32	Schwarz criterion	7.094360
Log likelihood	-776.4511	Hannan-Quinn criter.	7.021921
F-statistic	70.13771	Durbin-Watson stat	2.157560
Prob(F-statistic)	0.000000		

The study examines the relationship between variables, focusing on Mobile Money Account (MMA) and Debit Card Ownership (DCO). The probability coefficients are found to be insignificant, indicating MMA's inability to determine Z-score. Debit Card Ownership and Debit Card Usage significantly impact Z-score. The model's performance is 69.3% fit according to R-squared and 68.3% fit according to Adjusted R-square, but negative autocorrelation in the dataset highlights its limitations.

Table 3: Comparison between independent and dependent variables between five countries of South Asia

Country	Debit card ownership	Debit card usage	Mobile money account	Z_Score
INDIA	1.436	0.308	639.015	18.224
NEPAL	8.325	3.839	228.410	42.383
PAKISTAN	0.338	0.476	228.419	18.555
SRILANKA	4.578	1.832	385.793	41.761
BANGLADESH	2.967	2.703	447.331	19.459

The panel data reveals the financial inclusion of South Asian countries in terms of debit card ownership, usage, mobile money account balances, and risk-taking behavior. Nepal has the highest debit card ownership rate (8.325), followed by Pakistan (0.338). Mobile money accounts are growing, with Bangladesh and India showing

the highest mean values (639.015). Nepal has the highest risk-taking behavior (42.383), followed by Sri Lanka (41.761). Bangladesh, India, and Pakistan have the lowest Z_Scores (19.4459, 18.224, 18.555).4.1.4 The influence of fintech-driven financial inclusion on the taking behaviour of financial institutions regarding the comparison between independent variables and dependent variables.

Fintech-based financial inclusion and risk-taking behaviour of financial institution with reference to descriptive statics of the independent variables with dependent variables of Bangladesh

Table 4: Descriptive statics of the independent variables with dependent variables of Bangladesh.

	<i>Debit card ownership</i>	<i>Debit card usage</i>	<i>Mobile money account</i>	<i>Z_Score</i>
Mean	2.967	2.703	447.331	19.459
Standard Error	0.101	0.018	44.694	0.504
Median	2.941	2.728	438.839	18.463
Standard Deviation	0.679	0.119	299.817	3.379
Mean Deviation	4.370	22.714	1.492	5.759

Bangladesh's debit card ownership rate is moderate, indicating a growing acceptance of debit cards as a preferred financial transaction mode. The mean usage rate is high, with a mean deviation of 22.714, indicating diverse usage patterns. The mean mobile money account balances are notable, with a mean deviation of 447.331. The Z_Score, representing financial risk-taking behavior, is moderate, with a mean Z_Score of approximately 19.459. The distribution of Z_Scores is slightly left-skewed, with a median value of 18.463, suggesting some institutions exhibit lower risk-taking behavior. The moderate variability in risk-taking behavior across financial institutions is also evident, with an average deviation of 5.759. These findings highlight the diversity in risk profiles among financial institutions in Bangladesh, indicating variations in their approaches to managing financial risks.

Fintech-based financial inclusion and risk-taking behaviour of financial institution concerning descriptive statics of the independent variables with dependent variables of Sri Lanka

Table 5: Descriptive statics of the independent variables with dependent variables of Sri Lanka.

	<i>Debit card ownership</i>	<i>Debit card usage</i>	<i>Mobile money account</i>	<i>Z_Score</i>
Mean	4.578	1.832	385.793	41.761
Standard Error	0.096	0.105	47.824	2.215
Median	4.622	1.684	328.896	35.241
Standard Deviation	0.645	0.702	320.815	14.862
Mean Deviation	7.097	2.608	1.203	2.810

Sri Lanka has a high level of debit card adoption, with a mean ownership of approximately 4.578. The majority of individuals possess a debit card, slightly higher than the mean. Debit card usage is moderate, with a mean usage of 1.832. Mobile financial services adoption is moderate, with a mean mobile money account balance of 385.793. The mean Z_Score of financial institutions in Sri Lanka is 41.761, indicating a high level of risk-taking. The mean Z_Score is slightly left-skewed, with moderate variability across institutions. The mean deviation of 2.810 highlights variability in risk profiles among these institutions.

Fintech-based financial inclusion and risk-taking behaviour of financial institution with reference to descriptive statics of the independent variables with dependent variables of Pakistan

Table 6: Descriptive statics of the independent variables with dependent variables of Pakistan.

	<i>Debit card ownership</i>	<i>Debit card usage</i>	<i>Mobile money account</i>	<i>Z_Score</i>
Mean	0.338	0.476	228.419	18.555
Standard Error	0.009	0.032	26.642	0.498
Median	0.313	0.469	215.119	17.475
Standard Deviation	0.058	0.217	178.723	3.342
Mean Deviation	5.817	2.200	1.278	5.551

Pakistan's population has limited adoption of debit cards, with a low mean ownership of 0.338. The majority do not own a debit card, with a median value of 0.313. Debit card usage is moderate, with a mean usage of 0.476. Mobile money account balances are moderate, with a mean balance of 228.419. The risk-taking behavior of financial institutions in Pakistan is moderate, with a mean Z_Score of 18.555. The mean Z_Score is slightly left-skewed, with a median Z_Score of 17.475. Moderate variability in risk profiles among financial institutions is evident, with a mean deviation of 5.551.

Fintech-based financial inclusion and risk-taking behaviour of financial institution with reference to descriptive statics of the independent variables with dependent variables of Nepal

Table 7: Descriptive statics of the independent variables with dependent variables of Nepal.

	<i>Debit card ownership</i>	<i>Debit card usage</i>	<i>Mobile money account</i>	<i>Z_Score</i>
Mean	8.325	3.839	228.410	42.383
Standard Error	0.228	0.375	22.651	1.115
Median	8.220	3.212	227.572	42.319
Standard Deviation	1.530	2.518	151.950	7.482
Mean Deviation	5.443	1.524	1.503	5.664

Nepal has a high mean debit card ownership rate of 8.325, with a moderate standard deviation of 1.530. The majority of individuals own a debit card, slightly lower than the mean, but there is variability in ownership levels across the population. Debit card usage is significant, with a mean usage of 3.839. Mobile financial services are

moderately adopted, with a mean mobile money account balance of 228.410. The risk-taking behavior of financial institutions in Nepal is high, with a mean Z_Score of 42.383, indicating a high level of risk-taking. However, the mean deviation of 5.664 indicates variability in risk profiles among financial institutions in Nepal.

Fintech-based financial inclusion and risk-taking behaviour of financial institution with reference to descriptive statics of the independent variables with dependent variables of India

Table 8: Descriptive statics of the independent variables with dependent variables of India.

	<i>Debit card</i>		<i>Mobile money</i>	<i>Z_Score</i>
	<i>ownership</i>	<i>Debit card usage</i>	<i>account</i>	
Mean	1.436	0.308	639.015	18.224
Standard Error	0.059	0.008	105.885	0.248
Median	1.395	0.325	332.729	17.297
Standard Deviation	0.397	0.054	710.295	1.663
Mean Deviation	3.618	5.751	0.900	10.958

India has a low mean debit card ownership of 1.436, indicating limited adoption of debit cards among the population. The majority do not own a debit card, with a median value of 1.395. The mean usage of debit cards is 0.308, with a moderate standard deviation of 0.397. The mean mobile money account balance is 639.015, indicating significant adoption. However, there is uncertainty in estimating the mean, with a left-skewed distribution of account balances and a substantial standard deviation of 710.295. The mean Z_Score of financial institutions in India is 18.224, indicating moderate risk-taking, with a slightly left-skewed distribution and a moderate standard deviation of 10.958.

Discussion

The findings indicate that Mobile Money Account (MMA) does not significantly influence the Z_score, while Debit Card Ownership (DCO) and Debit Card Usage (DCU) exhibit significant effects on the Z_score. It indicates that those countries which show an increase in debit card ownership and usage have a more favourable Z_score, showing higher risk-taking behaviour between financial institutions. Similar results were documented in the studies of Banna et al. (2022); Rahman et al. (2018) which used the same proxies, ran the Hausman test, and the random effect model which showed the same results. The same results documented in the previous study of Bokpin (2016) which used the same test but the findings are significantly influenced risk-taking positively and it has a fixed effect model. According to findings, there is a positive correlation between fintech-based financial inclusion efforts and heightened taking part in formal financial services. The hypothesis based on Fintech based financial inclusion has a positive impact on the risk-taking behaviour of financial institutions in South Asia is supported by data analysis, but the impact of this is different from country to country, which suggests the need for strategies which tackle the particular challenges and take advantage of opportunities for the enhancement of financial inclusion while controlling the risk associated with it proficiently. Our results contradict the findings of Danisman and Tarazi (2020) which show that more digital payments reduce the bank's risk.

There is a variation in results across South Asian countries. According to data analysis of Nepal, debit card ownership and usage rates are particularly high, which shows the high adoption of financial services. On the contrary, Pakistan and India display low debit card ownership and usage levels, which indicates difficulties in accessing financial institutions' services. Sri Lanka exhibits significant progress in fintech-based financial inclusion. On the other hand, Bangladesh exhibits a high level of mobile money accounts, which indicates the progress in fintech-based financial inclusion. With respect to risk taking behaviour, relatively high Z_scores of Nepal and Sri Lanka indicates higher propensity for taking risk among financial institutions. Contrarily, Bangladesh, Pakistan and India display moderate Z_score which indicates a lower propensity for risk taking among financial institutions. The results contradict the previous studies Ahamed & Mallick, 2019, Banna, 2020,

where same variables mobile money account is used and Z_score is used a proxy and showed more stability, and less risk-taking. Overall, it suggests that some countries have made good progress in fintech-based financial inclusion, but other countries still need to work on it and adopt it. The differences highlight the customized financial policies needed and actions to improve the penetration of banking and financial services, especially in lower adoption areas. The variation in risk-taking behaviour of financial institutions among different countries in South Asia highlights the significance of regulatory oversight and financial education in promoting a more comprehensive and steady financial environment in South Asia. In conclusion, the random effect model and descriptive analysis shed light on factors affecting financial stability and give valuable perspectives for policymakers and financial institutions in South Asia.

Conclusion

In results, Sri Lanka and Nepal showed high mean of Z_score , which indicates a greater willingness to take risks in financial institutions. India, Bangladesh, and Pakistan show moderate to lower mean values of Z_score , indicating the old-fashioned approach to risk-taking. This emphasizes the part of Fintech that takes risks for financial institutions by making easier access to new markets, increasing operational efficiency, and improving the practices of risk management. There is a notable variation in the matrices of financial inclusion and risk-taking behaviour of financial institutions across the selected countries.

The effect of Fintech on the risk-taking behaviour of financial institutions is different in each country and depends on contextual factors like regulatory environment, maturity of the market, and preferences of the consumers. The findings depict the importance of Financial technology in operating financial inclusion and giving shape to the risk-taking behaviour of financial institutions in South Asia.

Constraints and Suggestions

It is a fact that there is a lack of research in every field, and over time, new knowledge and research have started to succeed in solving those deficiencies. The research is based on three independent variables, the reason behind which is the limited and non-availability of data. In the future, other researchers can conduct research on other variables to check the impact of those variables. Policymakers and financial regulators can benefit from it by encouraging the adoption of fintech, increasing financial inclusion, and encouraging a favourable environment for sustainable risk-taking in South Asia. Moreover, the observed differences among countries highlight the need for tailored approaches that account for local dynamics and challenges, thereby maximizing the potential benefits of fintech while mitigating associated risks.

References

- Abbas, F., Ali, S., Yousaf, I., & Wong, W.-K. (2021). Dynamics of funding liquidity and risk-taking: Evidence from commercial banks. *Journal of Risk and Financial Management*, 14(6), 281.
- Abramova, S., & Böhme, R. (2016). Perceived benefit and risk as multidimensional determinants of bitcoin use: A quantitative exploratory study.
- Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of Economic Perspectives*, 24(3), 207–232.
- Alafeef, M., Singh, D., & Ahmad, K. (2011). Influence of demographic factors on the adoption level of mobile banking applications in Jordan. *Research Journal of Applied Sciences*, 6(6), 373–377.
- Alexander, A. J., Shi, L., & Solomon, B. (2017). *How fintech is reaching the poor in Africa and Asia*.
- Banna, H., Mia, M. A., Nourani, M., & Yarovaya, L. (2022). Fintech-based financial inclusion and risk-taking of microfinance institutions (MFIs): Evidence from Sub-Saharan Africa. *Finance Research Letters*, 45, 102149.
- Barra, C., & Zotti, R. (2020). Market power and stability of financial institutions: evidence from the Italian banking sector. *Journal of Financial Regulation and Compliance*, 28(2), 235–265.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2006). Bank concentration, competition, and crises: First results. *Journal of Banking and Finance*, 30(5), 1581–1603. <https://doi.org/10.1016/j.jbankfin.2005.05.010>
- Bendarzsevszkij, A., Eszterhai, V., Gere, L., Klemensits, P., & Polyák, E. (2021). World Economic Forum 2017. *International Journal of Research in Engineering, Science and Management*, 4(2).

- Demirgüç-Kunt, A., & Klapper, L. (2013). Measuring financial inclusion: Explaining variation in use of financial services across and within countries. *Brookings Papers on Economic Activity*, 2013(1), 279–340.
- Dewatripont, M., & Tirole, J. (1994). *The prudential regulation of banks* (Vol. 6). MIT press
- Gatev, E., & Strahan, P. E. (2006). Banks' advantage in hedging liquidity risk: Theory and evidence from the commercial paper market. *The Journal of Finance*, 61(2), 867–892.
- Ghosh, A. (2015). Banking-industry specific and regional economic determinants of non-performing loans: Evidence from US states. *Journal of Financial Stability*, 20, 93–104.
- Gosavi, A. (2018). Can Mobile Money Help Firms Mitigate the Problem of Access to Finance in Eastern sub-Saharan Africa? *Journal of African Business*, 19(3), 343–360. <https://doi.org/10.1080/15228916.2017.1396791>
- Li, Y., Spigt, R., & Swinkels, L. (2017). The impact of FinTech start-ups on incumbent retail banks' share prices. *Financial Innovation*, 3(1), 1–16.
- Rahman, B., Ahmed, O., & Shakil, S. (2021). Fintech in Bangladesh: ecosystem, opportunities and challenges. *International Journal of Business and Technopreneurship*, 11(1), 73–90.
- Upadhyay, P., & Jahanyan, S. (2016). Analyzing user perspective on the factors affecting use intention of mobile based transfer payment. *Internet Research*, 26(1), 38–56.
- Van Baal, S. (2014). Should retailers harmonize marketing variables across their distribution channels? An investigation of cross-channel effects in multi-channel retailing. *Journal of Retailing and Consumer Services*, 21(6), 1038–1046.
- Yang, S., Lu, Y., & Chau, P. Y. K. (2013). Why do consumers adopt online channel? An empirical investigation of two channel extension mechanisms. *Decision Support Systems*, 54(2), 858–869.
- Yuan, S., Shen, X., Zhao, Y., Liu, H., Yan, Z., Liu, R., & Chen, M. (2022, September). MCIC: multimodal conversational intent classification for E-commerce customer service. In *CCF International Conference on Natural Language Processing and Chinese Computing* (pp. 749-761). Cham: Springer International Publishing.
- Zavolokina, L., Dolata, M., & Schwabe, G. (2017). FinTech transformation: How IT-enabled innovations shape the financial sector. *Enterprise Applications, Markets and Services in the Finance Industry: 8th International Workshop, FinanceCom 2016, Frankfurt, Germany, December 8, 2016, Revised Papers 8*, 75–88.
- Zhao, W. Y., & Deng, N. (2020). Examining the channel choice of experience-oriented customers in omni-channel retailing. *International Journal of Information Systems in the Service Sector*, 12(1), 16–27. <https://doi.org/10.4018/IJISSS.2020010102>
- Zhou, K. (2014). The effect of income diversification on bank risk: evidence from China. *Emerging Markets Finance and Trade*, 50(sup3), 201–213.



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