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# Effect of Governance Quality on Credit Ratings of Pakistani Firms: Moderating Role of Liquidity and Innovation

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## Abstract

The present study identifies the moderating role of liquidity and innovation to determine the credit ratings of non-financial firms in Pakistan integrated with corporate governance. In Pakistan, non-financial firms are facing increasing challenges to maintain favorable credit ratings, which are essential for financial stability and financing access from external resources. Certain characteristics like weak governance practices, low innovation levels and limited liquidity often hinders the firms from achieving strong credit profits. In the previous studies, in the context of Pakistan limited evidence exists on how governance quality interacts with liquidity and innovation as the determinants of credit ratings. In the present study panel, data regression analysis is used to analyze data from 50 non-financial firms listed on the Pakistan Stock Exchange (PSX) from 2015 to 2019, based on purposive sampling technique. In the present study, credit rating serve as the dependent variable, governance quality as the independent variable, whereas liquidity and innovation as moderating variables. The findings show that governance quality has a positive effect on firms' credit ratings, while on the other hand, both liquidity and innovation improved this relationship as significant moderators. Among the control variables, only a few showed statistical significance indicating that the internal firm factors are the primary determinants of credit outcomes. It is concluded that strong governance integrated with sufficient liquidity and innovation results in improved credit ratings. The study suggests that managers should focus on improving governance structures and practices, fostering innovation and enforcing financial stability to strengthen firms' creditworthiness and long-term financial adaptability.

***Keywords***: corporate governance, credit rating, internal management, panel data

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## Introduction

Corporate governance holds a primary role in protecting shareholders' rights. The internal management tends to be concerned for the credit rating of firms, as higher ratings urge the investors to invest in the firm. Corporate governance gives the framework to monitor firm conflicts and its alignment to the interest of stakeholders. Therefore, it is necessary to maintain governance compliance to build stable networking and financial adaptation for capital, as it brings successful financial inflow, foundations for monetary execution, and monitoring risk governance.

The studies show that in developed countries governance practices are positively correlated with credit ratings. As Chen et al. (2025) analysis indicated that environmental and social governance (ESG) factors have significant effect on the ratings of European Banks, while Merilainen and Junttila (2020) showed that the liquidity is closely related to governance-driven financial discipline, which serves as an important factor for changes in rating. These findings indicate that well-structured governance systems and capital adequacy leads to creditworthiness. By contrast, evidence also suggests that governance reforms do not always assure improved ratings alone, indicating that the relationship can be varied across contexts.

However, in developing countries, the evidence shows higher variance. Governance practices in many emerging markets are often linked with controlled ownership, weak regulatory enforcement, and limited transparency standards (Ararat et al., 2021). Li and Xie (2025) explored that the improved institutional environments positively influence bond ratings in China, placing emphasis on the role of governance-like structures even outside the traditional corporate governance systems. Still, compared to developed economies, governance mechanisms in developing markets often carry less weight in credit rating assessments due to structural and institutional limitations.

In order to get credit rating, public corporations are supposed to have well-developed corporate governance rehearsals and a monetary disclosure methodology. Credit rating is thereby confined to corporate securities (obligation issuances) that specify credit quality as well as the risk of default. Czarnitzki and Kraft (2004) confirmed a positive correlation between growth and credit ratings in German companies and analyzed the link between intellectual capital and credit ratings. They found that this relationship becomes negative when innovation investment exceeds certain thresholds. In a later study, Czarnitzki and Kraft (2006) observed a negative correlation between growth and credit ratings in firms from eastern Germany. These mixed and somewhat contradictory findings motivated the current study to examine whether similar dynamics exist in Pakistani companies. A legitimate assessment of credit hazard provides foundations for the making, checking, and controlling of financial instruments in order to supervise credit hazard. Benedikt et al. (2007) examined the effect of credit risk management techniques on bank performance and found that effective credit risk management practices helped banks maintain their desired credit levels. Credit risk is the most significant type of risk faced by banks, as lending is their primary source of income. Therefore, credit risk management has a direct and substantial influence on bank profitability (Zou & Li, 2014).

## Credit Rating in Pakistan

In Pakistan, governance practices remain a pressing concern. Although, Pakistan Credit Rating Agency (PACRA) and JCR-VIS explicitly include governance as a key pillar in their corporate rating methodologies (Pakistan Credit Rating Agency [PACRA], 2022), firms often struggle to meet international governance standards. Recent evidence shows that governance quality and *Shariah* governance significantly influence the ratings of Islamic banks in Pakistan (Baig et al., 2024), suggesting that governance factors do matter in local credit assessments. However, little research has explored the governance-credit rating nexus for non-financial firms in Pakistan, leaving an important gap in the literature.

In this study, credit rating is the formal rating assigned by PACRA and JCR-VIS. It serves as an indicator of a firm's creditworthiness.

## Corporate Governance

Corporate governance (CG) is shaped by the separation of ownership and control, a concept dating back to Adam Smith's *Wealth of Nations* (1776) and further developed by Meckling and Jensen (1976). It broadly refers to the systems and practices through which companies are directed and controlled (Cadbury Committee, 1992). In this study, corporate governance carries firm-level attributes identified in prior empirical works, such as board characteristics, ownership structure, and audit committee composition, which represent governance quality.

### Innovation

Innovation is considered a major driver of sustainable growth. According to the Oslo Manual, it refers to the introduction of a new or substantially improved product, process, marketing system, or organizational method into business practices. In this research, **innovation** is based on firm-level measures adopted in prior studies, such as innovation-related activities and expenditures that reflect the respective firm's capacity for renewal and growth.

### Liquidity and Corporate Governance

Liquidity represents the ease with which a firm's shares can be traded and it is often linked to good governance practices. Effective corporate governance reduces information asymmetry, thereby enhancing liquidity in capital markets. For this study, liquidity is drawn from financial ratios commonly used in empirical research, such as the current ratio and related measures, which reflect a firm's short-term financial flexibility. The current study operationalizes its nine selected variables through these proxies, following the standards of previous empirical works.

### Problem Statement

Credit rating is an important concern, both for investors and managers. Managers want to increase the firm's credit rating to attract the attention of investors. If a firm receives a lower rating grade from the rating agencies, it spoils its image and makes the investors shift to other investment opportunities. Prior examinations indicated that a higher governance quality improves credit ratings; however, governance practices of Pakistani firms are not up to the mark, which can affect the credit rating grade. Moreover, liquidity and innovation may also affect credit ratings.

### Study Contribution and Significance

This study seeks to examine how governance quality affects the credit ratings of non-financial firms in Pakistan. Moreover, it extends the literature by asserting that the governance-credit rating can be strengthened or constrained by analyzing the moderating role of liquidity and innovation. With a focus on the emerging economy of Pakistan, the present research gives insights into how governance structures and firm-level characteristics determine creditworthiness, contributing both to theory and practical implications for executives and policymakers.

## Literature Review

The theoretical framework of corporate governance is built to influence different firms' credit ratings by shaping managerial decision-making and reducing risk by default (Arora, 2020). With this concept of corporate governance, the present study considered governance quality as the main explanatory variable, measured using proxy variables such as board structure, controlled ownership, and transparency in system, that has been widely implemented in prior literature (Mili & Alaali, 2023). Thus, credit rating serves as the dependent variable with respect to external assessment of a firms' creditworthiness by credit rating agencies.

To find firm-specific dynamics, the current study integrates both liquidity and innovation as moderating variables. Liquidity is used as a measure of current and quick ratio, reflecting the firm's short term financial adaptability whereas innovation is typically measured through R&D intensity or related innovation index. These moderators are expected to improve governance credit rating as firms with optimized liquidity and innovative capacity are perceived to be more creditworthy. Aligned with prior empirical studies, the control variables, such as, firm size, age, leverage, and profitability are included to take heterogeneity in account at firm-level (Ali et al., 2025; Jeelani & Islam, 2025).

Empirical studies also support the theoretical linkages, as Mili and Alaali (2023) found that board size and female participation has enhanced bank credit ratings in the GCC region, while the ownership concentration is affected adversely. Similarly, Arora (2020) indicated that Indian firms have mitigated the default risk in response to credit ratings through significant corporate governance. In the context of Pakistan, Jeelani and Islam (2025) highlighted the moderate role of governance performance over risk management. While, Ali et al. (2025) emphasized the significance of environmental risks in sovereign rating models. Building on this literature, the present study determines that governance credit rating gives empirical discourse to non-financial firms in Pakistan, introducing liquidity and innovation as moderate factors.

### The Agency Cost Theory

The Agency Cost Theory was introduced by Berle and Means (2005), with the emphasis on inherent conflict of interest between corporate managers and shareholders. As per prospective managers, it is implied that the strategies that maximize their own personal wealth, status, and job security, despite the non-alignment of their actions with the goal of increasing shareholders value and gains creates an "agency problem". To address these conflicts, the Agency Cost Theory highlights the active role of governance significance such as rights for decision making, implementing monitoring system, and introducing incentive structures to align managerial behavior with the objectives of shareholders. In the later contributions, Meckling and Jensen (1976). further standardized the theory by combining monitoring expenditures, bond cost, and residual loss results from partial alignment. To conclude, the theory not only explains the conflict between principals and agents but also gives a framework to interpret how governance structures can mitigate the shortcomings within the firms.

## Corporate Governance and Credit Rating

Corporate governance is now widely acknowledged as a primary determinant of credit ratings, as corporate governance influences both firm-level decision making and mitigating the default risk factor. According to previous studies, board structures, controlled ownership, and governance quality act as primary determinants in shaping creditworthiness. Mili and Alaali (2023) explored that in financial institutions operating in the GCC region, high boards and female participation enhanced credit ratings, while controlled ownership and oversized boards resulted in low ratings for non-banking institutions. Similarly, Arora (2020) indicated that corporate governance has a significant effect on credit ratings of Indian firms listed on Bombay Stock Exchange. These findings lay bare that not only the performance of a firm but the external evaluations of creditworthiness across different regions and corporate settings is also improved in this way.

These studies also highlight the importance of strengthening government involvement and corporate practices in regions such as Eastern Europe by promoting standardized and widely accepted governance rules, as well as the careful selection and implementation of effective corporate governance (McGee et al., 2012). In the prevailing economies, corporate governance remains as a significant concern in business (Yuksel, 2008).

Sound corporate governance, based on OECD principles, serves for appropriate incentives and rewards for the board and the management to take their actions and interest of shareholders into account. A wellfunctioning corporate governance framework builds credibility in both governance and the market, that results in the low cost of capital and encourages organizations to implement their resources more efficiently (OECD, 2024).

The financial exchange focuses the facilitating board individuals, as determined in the experiential investigation reviewed by Yermack (2006). Independent board individuals' effectiveness is highly heterogenous whereas markets typically anticipate in their reaction to the board. This explanation clearly indicates that board monitoring is, at its core, a costly activity. The stakeholders therefore require to draw significant attention towards ensuring satisfactory results.

*H1: Governance quality positively affects the credit rating.*

## Liquidity and Credit Rating

The liquidity of a firm is characterized as a measure of the current resources which are financially backed up by current liabilities.

The Credit Rating Committee (JCR-VIS) is chaired by the CEO, and consists of five voting and one non-voting members. The required quorum for a rating committee is at least two voting members including one advisor. Once the rating is assigned, the firm remains under continuous monitoring during which results are evaluated quarterly and annually, the significant developments are also reviewed during that time, if any. Based on the assessed ratings, the agency may hold the right to revise the rating where necessary. Similarly, the rated firms are subject to formal review that is typically conducted annually.

In Pakistan, there is a notable north-south divide. Karachi is located in the South and is the largest city, principal seaport and a financial hub. In this corporate landscape, it is also hosts the regulatory headquarters of State Bank of Pakistan. The JCR-VIS was established in collaboration with Karachi and Islamabad Stock Exchange for the benefit of support within local corporate community. In contrast, PACRA was founded in Lahore, serving as a major industrial and commercial trail contributing around 13 percent to the national economy. Therefore, companies listed on the Lahore Stock Exchange find it advantageous to work with PACRA. With the perspective of corporate governance, companies are expected to disclose information that gives unbiased and transparent view for the future prospectus. Consequently, strict adherence to this impartially affects the confidence for foreign investors, encouraging them to invest in a company's securities. Easley et al. (2008) demonstrated that the Probability of Informed Trading (PIN) model plays a significant role in understanding market behavior, showing that changes in the level of informed trading captured through the PIN factor had a meaningful impact on the performance and dynamics of the U.S. stock market from 1982 to 2002. It is to conclude that default risk tends to be higher for firms operating in liquid markets and facing steep returns when selling their assets. It is clear that such firms often lack sufficient financial capital and resources to finance their debt obligations, thereby increasing default risk.

*H2: Liquidity positively affects the credit rating.*

## Innovation and Credit Rating

The non-financial firms such as banks, generally maintain adaptable arrangements within the organizational structure (Kroszner & Strahan, 2001; La Porta et al., 2006). Such flexibility reduces risk commitment, limits the investment failures, short-term speculative behavior, and promotes the focus on research and development (R&D). Accordingly, the R&D plays a driven role in the business growth, and is more likely to be recognized by non-financial firms. The collaborative relationships and integrations between firms and their owners promote investment intensive environments in R&D (Jaffe, 1986). Although R&D investment enhances well-managed absorptive capacity and the ability to ensure new knowledge (Cohen & Levinthal, 1990), the firm owners also invest in R&D intensive firms strategically while allocating resources more effectively to bring more innovative outcomes.

Large firms often support small ventures by serving as incentives for innovation. When these ventures succeed, they integrate them into their own operations and strengthen the internal R&D capability. It is evident by Tribo et al. (2007) in support of these arguments showing that non-financial firms have a positive influence on R&D investment. To conclude, overall non-financial firms play a vital role in fostering innovation through strategic collaboration, low risk and commitment to long-term R&D initiatives.

*H3: Innovation positively affects the credit rating.*

## Moderating Role of Liquidity between Governance Quality and Credit Rating

Previous studies showed the link between corporate governance and market liquidity. Coffee (1991) focused on how highly liquid market showed that large number of shareholders tend to sell their shares instead of engaging in governance improvements, however, Maug (1998) argued that liquidity encourages investor involvement without affecting share price. It is supported by empirical evidence showing that higher stock liquidity is coupled with increased interest of shareholders, as this also influences R&D decisions and improved governance rather low investment (Heling et al., 2019; Norli et al., 2015)More liquidity also enables boards to be aligned with managerial incentives that have an impact on performance-based pay out and motivates CEOs to enhance information transparency (Feng & Yan, 2019). The research on U.S. firms gives the perspective of a strong positive relationship between good governance and liquidity of stock while enhancing market responses to the new chain (Chung et al., 2010; Lee et al., 2016). Additionally, cross-country evidence shows that nations having common law systems show more corporate governance and stronger liquid markets than nations under civil war law systems (Chung et al., 2010).

*H4: Liquidity moderates the relationship between governance quality and credit rating.*

## Moderating Role of Innovation between Governance Quality and Credit Rating

A firm's objective and competitiveness in the market are marked as key measures of organizational performance (Rehman et al., 2019). It is a necessary indicator for investors, shareholders, stakeholders, and overall financial economic development (Jan et al., 2022). The corporate governance (CG) framework gives a framework to enhance organizational wealth. In developing countries, an effective governance framework serves as an important component of organizational success by reducing the probability of financial risks and managerial conflicts (Gompers et al., 2003). Over the past two decades researchers have drawn significant attention to the relationship between corporate governance and organizational performance. According to the previous studies, corporate governance influences performance by the results that vary between developed and developing countries despite applying similar theories and structures (Arora & Sharma, 2016). Therefore, the relationship between CG and organizational performance remains essential but inconclusive leading to further investigation (Mardnly et al., 2018).

According to Menguc and Auh (2006), innovation leads to an organization's role to implement ideas that deviate from conventional business practices. However, a study shows innovative culture as a moderating variable that brings a challenging, creative, risk-taking, and results-driven environment, that gives a sight in improving organizational performance (Quy, 2017).

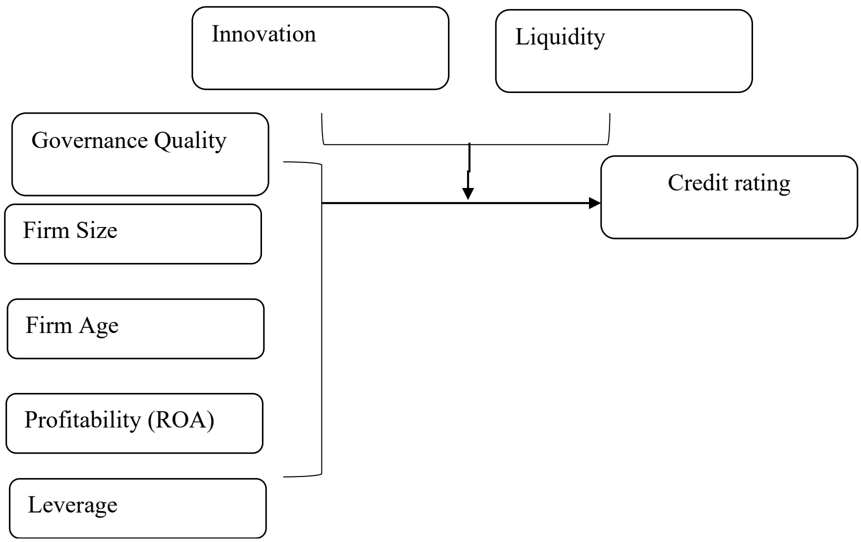
*H5: Innovation moderates the relationship between governance quality and credit rating.*

## Conceptual Framework

Following is the conceptual model of the current research.

**Figure 1**

*Effect of Governance Quality on Credit Ratings of Pakistani Firms: Moderating Role of Liquidity and Innovation*




## Methodology

The section explains the research methodology, including the definitions of study variables, population and sampling, data collection, and research model.

The study integrates the variables including explanatory variables as independent, dependent, moderating, and control variables. Governance quality is the primary variable in this research. A firm's credit rating is another main variable. However, innovation and liquidity are used as directing factors. Whereas, the control variables include firm size, firm age, profit, leverage, and loss.

The credit rating is used to serve as the primary dependent variable. In previous studies it has been used as numerical score to evaluate and compare the credit ratings of organizations (Alali et al., 2012; Ashbaugh-Skaife et al., 2006). These findings estimated the credit rating of firms by assigning numeric scores to distinctive rating grades.

However, in the present study, governance quality is used as an independent variable. The corporate governance index has been used to assess the quality of corporate governance (Alali et al., 2012). In this study, a corporate governance index will be constructed to measure governance quality. The index will consist of various provisions related to corporate governance, with each item assigned a score of either 0 or 1. The total score of the index will reflect the overall quality of corporate governance.

This study uses two moderating variables including innovation and liquidity. In quantitative manner innovation is measured by dividing research and development (R&D) expenses by total sales, following the approach used by Al-Najjar and Elgammal (2013). Liquidity, on the other hand, is assessed using the firm's liquidity ratio.

The current investigation utilizes a diverse range of control variables including firm size, age, leverage, profit, and loss. The detail of present study factors are given below in Table 1.

**Table 1**

*Study Variables and their Measurement*

| Variables | Measurement | Source |
|---|---|---|
| Credit Rating | Measured by assigning the numeric score to different rating grades | Ashbaugh-Skaife et al. (2006) |
| Governance Quality | Measured by constructing the governance index consisting different governance provisions | Alali et al. (2012). |

| Variables | Measurement | Source |
|---|---|---|
| Innovation | Measured by dividing the research and development expenses to the total sales | Al-Najjar and Elgammal (2013) |
| Liquidity | Measured by the liquidity ratio (Liquid assets to current liabilities). | Akenga (2017) |
| Firm Size | Natural Log of the firm's total assets | Ashbaugh-Skaife et al. (2006) |
| Firm Age | Age of the firm in years | Alali et al. (2012) |
| Profitability (ROA) | Total income / Total assets | Ashbaugh-Skaife et al. (2006) |
| Leverage | Total debt to total assets ratio | Alali et al. (2012) |
| Loss | Dummy variable is equal to 1 if the firm is on the loss (net income will be in negative) and zero else. | Altin et al. (2016) |

### Population and Sampling

This investigation utilizes the informational index of Pakistani non-financial firms. There are an excess of 250 non-financial firms working in the country. For conducting this research, a sample of 50 non-monetary firms was selected using simple random sampling. These firms are listed at Pakistan Stock Exchange (PSX). This sample was deemed sufficient to carry out the current examination. The study covers the time span of 5 years from 2015 to 2019.

### Data Collection

This examination utilizes auxiliary information ordered from different sources. The information of credit rating was accumulated from the Pakistani credit rating agencies PACRA and JCR-VIS. These two agencies provide the rating grades of different firms. The information with respect to the governance record, innovation, liquidity, and control variables was gathered from the yearly reports of the chosen firms.

### Model Specification

The current research uses panel data regression model for analysis. Since the dependent variable of this study is ordinal (rating is oral), therefore, the following panel regression model is used for analysis. Following equations are used to check the moderating effect.

*Ratingit =α0 + β1GQIndxit + β2Innovation it + + β3CGIndxit * Innovation it +B4FSIZEit + β5FAGEit + β6LEVit + β7ROAit + β8Lossit* + $v_{it} + \varepsilon_{it}$ (1)

*Ratingit =α0 + β1GQIndxit + + β2Liquidityit + B3CGIndxit * Liquidityit+ β4FSIZEit+ β5FAGEit +β6LEVit + β7ROAit + β8Lossit* +$v_{it} + \varepsilon_{it}$ (2)

Here, *GQ Indxit* indicates the governance index and *Innovation* indicates the firm's innovation. Liquidity indicates the firm's liquidity ratio. FSIZE indicates the firm size, while FAGE indicates the firm age. LEV indicates the leverage and ROA indicates the return on assets. Loss indicates the loss to the firm in a particular year.

## Results

The main focus of this section is to interpret the results of the panel data regression, descriptive statistics, and correlation tests applied through various models used in the study for data evaluation.

### Descriptive Statistics

Descriptive statistics are used to explain and summarize the undertaken characteristics of large sample data set.

**Table 2**
*Descriptive Statistics*

| | Mean | Min | Max | Std. Dev. |
|---|---|---|---|---|
| Credit rating | 3.196 | 1.000 | 5.000 | 0.769 |
| CG Quality | 11.00 | 9.000 | 15.00 | 1.484 |
| Liquidity | 5.431 | 0.100 | 9.999 | 2.901 |
| Innovation | 6.188 | 0.156 | 30.88 | 3.590 |
| FSIZE | 3.641 | 1.003 | 7.870 | 1.581 |
| FAGE | 35.80 | 9.000 | 50.00 | 4.140 |
| ROA | 2.468 | 0.601 | 7.403 | 1.856 |
| Leverage | 2.559 | 1.140 | 8.27 | 1.120 |

Table 2 represents the descriptive statistics for all the dependent and independent variables, such as mean, minimum, maximum, and standard deviation. This descriptive statistical analysis is conducted to determine the overall impact of each independent variable such as innovation, liquidity, firm size, firm age, leverage, profit, and loss on the dependent variables, such as credit rating. However, liquidity and innovation are used as moderate variables. This study undertook the panel data consisting of 50 non-financial firms observed over a period from 2015-2019.

## Correlations Analysis

Table 3 presents the correlation coefficients between all independent and dependent variables where the highest correlation is between credit rating and liquidity, with a coefficient value of 0.702.

**Table 3**
*Correlation Analysis*

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| (1) Credit rating | 1.000 | | | | | | | |
| (2) CG Quality | 0.671* | 1.000 | | | | | | |
| (3) Liquidity | 0.702* | 0.840* | 1.000 | | | | | |
| (4) Innovation | 0.502* | 0.563* | 0.561* | 1.000 | | | | |
| (5) FSIZE | 0.100 | 0.050 | 0.065 | 0.048 | 1.000 | | | |
| (6) FAGE | -0.112 | -0.105 | -0.107 | -0.095 | -0.11 | 1.000 | | |
| (7) ROA | 0.392* | 0.173* | 0.214* | 0.282* | -0.09 | -0.05 | 1.000 | |
| (8) Leverage | -0.093 | -0.022 | -0.031 | -0.027 | -0.11 | 0.010 | 0.089 | 1.000 |

***Note.*** * Indicates the level of significance at 5%

The results show that liquidity has the strongest association with credit rating, indicating a positive relationship between the independent and dependent variables, as presented in Table 3. The second strongest relationship is between innovation and credit rating (0.502), followed by profitability and credit rating (0.392), and finally firm size and credit rating (0.100).

Overall, all independent variables showed a positive relationship with the dependent variable, and the control variables also show positive associations with credit rating. The correlation matrix further confirms that there is no high correlation among any two control variables or among any two independent variables, indicating the absence of multicollinearity.

## Regression Analysis

Table 4 indicates the impact of corporate governance on credit ratings and the moderating role of liquidity.

**Table 4**

*Effect of Corporate Governance Quality on Credit Rating*

| Credit rating | Coef. | Robust *SE* | *t*-value | *p*-value |
|---|---|---|---|---|
| CG Quality | 0.264 | 0.074 | 3.57 | 0.000 |
| Liquidity | 0.747 | 0.229 | 3.26 | 0.000 |
| CG Quality * Liquidity | 0.015 | 0.008 | 1.97 | 0.040 |
| FSIZE | 0.052 | 0.051 | 1.03 | 0.300 |
| FAGE | -0.005 | 0.004 | -1.07 | 0.280 |
| ROA | 0.160 | 0.027 | 5.92 | 0.000 |
| Leverage | -0.112 | 0.069 | -1.63 | 0.100 |
| Constant | 0.023 | 0.080 | 0.287 | 0.157 |
| Wald test | 105.5 | | | |
| Akaike crit. (AIC) | 388.9 | Prob | .000 | |

***Note.*** *** $p<.01$. ** $p<.05$. * $p<.1$.

In this table all the variables have significant *p*-value except firm size and firm age.

**Table 5**

*Impact of Corporate Governance Quality on Credit Rating and the Moderating Role of Innovation*

| Credit rating | Coef. | Robust *SE* | *t*-value | *p*-value |
|---|---|---|---|---|
| CG Quality | 0.339 | 0.045 | 7.53 | 0.000 |
| Innovation | 0.090 | 0.044 | 2.04 | 0.023 |
| CG Quality * Innovation | 0.003 | 0.001 | 4.42 | 0.000 |
| FSIZE | 0.046 | 0.049 | 0.92 | 0.357 |
| FAGE | -0.004 | 0.004 | -0.91 | 0.365 |
| ROA | 0.009 | 0.024 | 0.36 | 0.716 |
| Leverage | 0.121 | 0.055 | 2.20 | 0.028 |
| Constant | 0.019 | 0.069 | 0.27 | 0.456 |
| Wald test | 122.8 | | | |
| Akaike crit. (AIC) | 406.6 | Prob | 0.000 | |

***Note.*** *** $p<.01$. ** $p<.05$. * $p<.1$.

Table 5 shows that all variables show a significant moderating effect (*p*-value < 0.05) except for firm size, firm age, and profitability.

Tables 4 and 5 further indicate the effects of all independent variables on the dependent variable; credit rating. The analysis also incorporates five control variables: firm size, firm age, leverage, profit, and loss.

## Conclusion and Recommendation

The study examined the role of innovation and liquidity for credit rating in the presence of quality corporate governance. The present study contributes to an important aspect of firms in Pakistan, particularly non-financial firms. The study holds a substantial relevance and insights for both investors and managers of non-financial firms in Pakistan. It concluded that the strongest relationship between the independent variable liquidity and the dependent variable credit rating is consistent with prior research, particularly Bhojraj and Sengupta (2003).

However, the study concludes that for non-financial firms, liquidity has a positive and significant effect on their credit ratings. Whereas, liquidity directly influences credit ratings, improving firms' creditworthiness, similarly, innovation holds a positive effect, reducing the probability of default risk and thereby enhancing credit ratings.

### Limitations and Recommendations

The findings showed that governance quality, liquidity, and innovation play an important role in shaping creditworthiness. Still, several limitations must be acknowledged.

Firstly, the analysis was restricted to a sample of 50 non-financial firms listed with PACRA over a five-year period (2015-2019). The limited timeframe and sample size may not fully capture long-term dynamics or sectoral variations. Future studies may expand the dataset by including a larger number of firms, or incorporating financial institutions along with nonfinancial ones for a broader comparison.

Secondly, the study undertook a limited set of explanatory variables where governance quality, liquidity, and innovation were shown to significantly be associated with credit ratings, incorporating other firm-level and macroeconomic factors, such as market competition, regulatory frameworks, and ownership structures, may further enhance the analysis. Additional variables and proxies may be tested.

Thirdly, the scope of this study was kept confined to Pakistan. Although this provides important insights for an emerging market, the results may not be general to other countries with different institutional settings. Future research could apply a cross-country or cross-cultural approach to examine whether these relationships hold in different contexts.

Finally, the findings suggest practical implications for managers and policymakers with the perspectives of financial adaptability. Non-financial firms can strengthen their credit ratings by improving governance practices, structures, and enhancing their liquidity and innovation capacity. Policymakers, in turn, should encourage standardized governance frameworks and innovation-friendly policies to improve firms' access to credit markets.

**Author Contribution**

**Shabbir Hussain:** conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, supervision, validation, visualization, writing – original draft, writing – review & editing. **Rabia Bukhari:** conceptualization, data curation, investigation, writing – original draft, writing – review & editing

**Conflict of Interest**

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

**Data Availability Statement**

Data supporting the findings of this study will be made available by the corresponding author upon request.

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