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Impact of Corporate Governance and Corporate Social Responsibility on Credit and Liquidity Risk: Evidence from Brics

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ABSTRACT

This study examines whether Corporate Governance (CG) mechanisms and Corporate Social Responsibility (CSR) practices influence credit risk (CR) and liquidity risk (LR) among publicly listed non-financial firms in the BRICS economies (Brazil, Russia, India, China, and South Africa). Using a longitudinal panel of 500 firms from 2014–2024, the study integrates CG, CSR, and macroeconomic factors to assess their impact on financial risk. The results show that board size, board independence, board meeting frequency, and CSR activities do not significantly reduce either credit or liquidity risk, indicating a limited effectiveness of formal governance and sustainability structures in emerging markets. These findings challenge the universal applicability of agency and stakeholder theories, suggesting that institutional weaknesses such as weak enforcement, political influence, and low-quality disclosure reduce the effectiveness of CG and CSR mechanisms. Among control variables, inflation strongly predicts liquidity risk, while profitability provides only limited protection

against solvency pressures. Overall, the study provides new evidence that CG and CSR, in their current institutional form, do not significantly mitigate credit and liquidity risk in BRICS firms.
Keywords: Corporate Governance, Corporate Social Responsibility, Credit Risk, Liquidity Risk, BRICS Economies

INTRODUCTION

In recent decades, the global liquidity and credit system has experienced profound structural changes driven by liberalization, digital innovation, increased international capital mobility, and shifting regulatory paradigms. Amidst these changes, credit risk the potential for borrower default and liquidity risk the inability to meet short-term obligations have become two of the most pivotal indicators of liquidity and credit stability, particularly in emerging markets like the BRICS nations (Brazil, Russia, India, China, and South Africa) (Saliba et al., 2023; Pinto et al., 2025).

The BRICS economies, known for their fast-paced growth and strategic significance in global trade and investment, are uniquely exposed to external shocks and internal governance volatility. These characteristics heighten the importance of robust frameworks to manage liquidity and credit risk. Researchers have found that ineffective risk management in these economies is often exacerbated by institutional weaknesses, regulatory fragmentation, and political uncertainty, all of which amplify systemic vulnerabilities (Akhter & Hassan, 2024; Athari et al., 2023).

In response to such systemic risks, firms have increasingly turned to Corporate Governance (CG) and Corporate Social Responsibility (CSR) as strategic levers to foster long-term resilience. Corporate governance mechanisms including board independence, audit committee effectiveness, and disclosure transparency have been shown to reduce information asymmetry, align managerial incentives with shareholder interests, and lower the likelihood of credit deterioration and liquidity constraints (Aguilera & Haxhi, 2019; AlHares, 2025).

Simultaneously, CSR practices through environmental sustainability, stakeholder engagement, and ethical conduct enhance reputational capital and investor confidence. Studies have revealed a negative correlation between CSR engagement and credit risk, especially among BRICS liquidity and credit institutions, as CSR fosters trust and improves access to capital markets (Akhter & Hassan, 2024; Fandella et al., 2023). Furthermore, CSR commitment often translates into lower cost of capital and greater liquidity and credit flexibility, which enhances liquidity buffers (Farooq et al., 2025; Bilivogui & Iqbal, 2025).

Despite a growing body of research from developed economies, empirical evidence on CG and CSR's role in liquidity and credit risk mitigation within BRICS nations remains sparse and fragmented. Governance frameworks in these countries vary widely due to differences in legal traditions, investor protection levels, enforcement intensity, and state ownership. For example, state ownership in China or political influence in Russia may dilute the effectiveness of standard governance

norms (Lattemann, 2014; Zhao, 2016). Consequently, findings from OECD economies may not be directly transferable to the BRICS context.

Recent empirical research has attempted to fill this gap. For instance, Saliba, Farmanesh, and Athari (2023) demonstrate how country-level governance and banking regulations in BRICS countries affect non-performing loan ratios, a key proxy for credit risk. Pinto et al. (2025) further highlight that national governance quality plays a significant role in determining sovereign credit ratings, which in turn shape firm-level credit costs and investment behaviours.

Additionally, research by Akhter and Hassan (2024) confirms that CSR mediates the relationship between CG and firm performance in BRICS firms, suggesting an integrated effect of responsible practices on liquidity and credit outcomes. Similarly, AlHares (2025) finds that CSR significantly mitigates credit risk in emerging market banks by improving ethical standards and liquidity planning.

The BRICS: An Overview

The BRICS group is comprised of Brazil, Russia, India, China, and South Africa a coalition of emerging economies that have increasingly become central to the global economic landscape. This block of nations has profoundly shaped global trade, investment, and political governance. The term "BRIC" was first used in 2001 by economist Jim O'Neill to describe the combined economic potential of Brazil, Russia, India, and China as rapidly growing economies that could drive global growth in the 21st century (O'Neill, 2001). In 2010, South Africa joined the group, turning "BRIC" into "BRICS," further enhancing the group's importance with an African nation and solidifying its multiplicity of continental representation (Cohen & Saldanha, 2014).

BRICS and Corporate Responsibility:

The BRICS countries (comprising of Brazil, Russia, India, China and South Africa) account for approximately 30% of the world's Gross Domestic Product (GDP) and 50% of the world's economic growth (Oliyide et al., 2024). By 2022, the GDP of the countries forming BRICS was expected to exceed $29.9 trillion, representing about 33.8% of the global GDP. The BRICS economies in the last few decades have experienced tremendous economic growth and development and have become integral players in the global market. These countries not only have a significant contribution to the world production but also have a significant volume of trade, geographical size and human population size, hence making them a major part of the world economy (Larionova and Shelepov, 2022). During the global liquidity and credit crisis of 2008, the BRICS nations represented 15% of the global GDP (Huang et al., 2021). Similarly, these countries played a large role in the worldwide economic recovery, showing how important they are in the process of liquidity and credit stabilization.

As the economies under BRICS continue to grow they have emerged as key drivers of global trade and investment. These nations are expected to be major players in global economic output in the coming decades. According to Arora and Kaur (2019), by 2050, the real GDP growth rate is expected to outstrip the growth rate in the G7 countries and position BRICS countries as important players in world

commerce and finance. This increasing economic stature has made the BRICS liquidity and credit markets more and more attractive to foreign investors, who are keen to tap into the growing investment opportunities. The potential of the liquidity and credit market in the BRICS countries is significant with growing integration into the global investment landscape (Xianfang & Chen, 2024).

With their increasing role in the world economy, the challenges faced by the BRICS countries are unique. One of the important challenges faced by the companies in these countries is to deal with liquidity and credit risks such as credit risk and liquidity risk. Corporate governance (CG) and corporate social responsibility (CSR) are two mechanisms that are critical to firms to mitigate these risks. Effective corporate governance is important in cases of reducing credit risk, especially in emerging markets such as BRICS, where firms tend to have problems with transparency, quality of management and liquidity and credit stability. According to Saeed et al. (2018) the adoption of good corporate governance practices can help to mitigate credit risk by dealing with problems of asymmetric information and ensuring that management acts in the best interests of shareholders (Taqi, Mohsin, and Khan, 2022; Uddin, Hussain, and Ali, 2025). This is particularly important in emerging markets where poorer governance structures may result in poor decision making and excessive risk taking leading to more defaults and credit losses.

Many studies have been conducted on the link between CSR and liquidity and credit performance, with some noting that CSR initiatives can result in better liquidity and credit performance through the increased customer attraction, increased customer loyalty and reduction of the risks of negative social/environmental impacts (Waddock & Graves, 1997). Additionally, CSR has been found to exert a positive effect on liquidity risk. Firms who have good CSR practices may be better placed to weather liquidity and credit volatility, as well as less likely to encounter sudden liquidity crises, as they attract more stable, long-term investment (Eccles et al., 2014). In this regard, CSR serves as a buffer against liquidity and credit instability giving firms a competitive edge in managing liquidity risk particularly in uncertain economic conditions.

Liquidity is a key factor in any liquidity and credit market because it denotes the ease with which assets can be bought or sold without price movements. In the case of publicly traded companies, high liquidity is generally viewed as an advantage, since it enables owners to readily sell their shares if they must gain access to money. Liquidity also helps to ensure that the corrective action of transient mispricings in the market are taken care of and market prices remain stable. According to Berglund (2020), good corporate governance helps ensure that the interests of shareholders are protected and they reduce chances for mismanagement or liquidity and credit misappropriation. By protecting the interests of shareholders, corporate governance minimises the discount on the share price which might occur on the basis of the fear of mismanagement, and thereby improves liquidity in the market.

As the BRICS nations continue to develop their liquidity and credit markets and corporate sectors, it has become important to understand the relation between

corporate governance and CSR and liquidity and credit risks such as credit and liquidity risk. The process of ongoing development of governance structures and CSR practice in BRICS countries presents an opportunity to examine the role that these mechanisms play in reducing liquidity and credit risks, attracting investment, and improving the stability of firms in these fast-growing economies. This study intends to explore the effect of corporate governance and CSR on the credit and liquidity risks within the context of BRICS countries, which would ultimately add to the expanding literature on risk management in emerging economies as well as provide practical insights for firms and policy makers.

Research Objectives

The objectives of this study are as follows:

- To assess the impact of Corporate Governance (CG) on Credit Risk in BRICS economies.
- To investigate the impact of Corporate Social Responsibility (CSR) on Credit Risk in BRICS economies.
- To analyze the impact of Corporate Governance (CG) on Liquidity Risk in BRICS economies.
- To explore the impact of Corporate Social Responsibility (CSR) on Liquidity Risk in BRICS economies.

Research questions

- What is the impact of Corporate Governance (CG) on Credit Risk in BRICS economies?
- What is the impact of Corporate Social Responsibility (CSR) on Credit Risk in BRICS economies?
- What is the impact of Corporate Governance (CG) on Liquidity Risk in BRICS economies?
- What is the impact of Corporate Social Responsibility (CSR) on Liquidity Risk in BRICS economies?

LITERATURE REVIEW

The literature review gives an in-depth analysis of the current researches and theoretical knowledge concerning corporate governance corporate social responsibility (CSR) and liquidity and credit risk. It will examine the interaction of governance mechanisms and the CSR practices in affecting the exposure of firms to credit and liquidity risks. The chapter is supposed to provide a good ground on the relationship between internal corporate structures, social involvement, and liquidity and credit well-being besides find loopholes that explain the need to conduct the current study (Fanta, Kemal, and Waka, 2020; Bhagat and Bolton, 2019).

Corporate governance is one of the determinants of corporate performance and managing risks, which has been well known. Well-established governance mechanisms create accountability, transparency, and good decisions, which in combination reduce the risk of liquidity and credit distress (Pathan and Faff, 2021; Alam and Khan, 2025). In some studies, it is stressed that these attributes of

governance as board size, board independence, and board meeting frequency are instrumental factors that determine the liquidity and credit stability of firms (Al-Janadi, Rahman, and Omar, 2021; Arora and Sharma, 2020). Simultaneously, the idea of corporate social responsibility has become the prominent focus of sustainable business practice and can be seen as the commitment of the firms to ethical behavior, community well-being, and environmental responsibility (Goss and Roberts, 2021; Cornett, Erhemjamts, and Tehranian, 2022). Collectively, the constructions are perceived to influence the overall risk profile of firms because they affect the internal management behavior and the perceptions of external stakeholders (Nguyen and Tran, 2023; Arooj, Iqbal, and Khan, 2025).

The accumulating evidence indicates that ineffective governance processes and a lack of proper CSR practices may expose companies to increased liquidity and credit risks, such as credit and liquidity issues (Jo and Harjoto, 2019; Aurangzeb et al., 2024). On the other hand, socially responsible and governed companies usually have a higher level of investor trust, easier access to credit, and higher liquidity status (Altunbas, Thornton, and Yazici, 2021; Batten and Vo, 2020). The concept of governance and the CSR inclusion into the risk management strategies has thus become a core theme in modern finance books (Tahir and Razali, 2021; Bhutto, Uddin, and Hussain, 2025).

Discussing the relevant literature, this chapter outlines theories that were critical in explaining the relationship between governance, CSR, and liquidity and credit risk, namely, the agency theory, stakeholder theory, and the resource-based view (Freeman, 1984; Jensen and Meckling, 1976; Barney, 1991). It further generalizes empirical evidence of various industries and localities to give a balanced picture on how the firm-level attributes and macro economic circumstance influence such associations. Lastly, the review finds the gaps in existing research and areas that need to be investigated further, which are the basis of the current study conceptual framework (Shehzad, Khan, and Khan, 2024; Sheikh, Akhtar, Hussain, 2022).

Other than governance, CSR programs have become a popular non-liquidity and credit buffer to the liquidity and credit risk of firms. A seminal research carried out by Dhaliwal et al. (2011) revealed that the firms that started standalone reporting of CSR, there was a drastic decline in the cost of capital and credit spreads. These gains were explained by the fact that investor perception had improved and information asymmetry was less as stipulated by the Signaling Theory and the Legitimacy Theory.

Corporate Governance and Liquidity and credit Risk:

Corporate governance is the key aspect of firm stability and performance as it gives the framework in which corporate goals are established, met, and tracked. Good governance practices are used to reconcile the interests of the managers with those of the shareholders, thus mitigating the agency problems and eliminating the risk of facing liquidity and credit risks like credit risks and liquidity risks (Jensen and Meckling, 1976 and Bhagat and Bolton, 2019; Shah et al., 2025). It is stated that well-

organized boards increase accountability and managerial control resulting in reduced risk management and the chance of liquidity and credit distress (Fanta, Kemal, and Waka, 2020; Haq and Khan, 2024).

The instalment of corporate governance is regarded as the board of directors. Research indicates that the board size, independence, and frequency of meetings have a strong impact on liquidity and credit stability. In particular, Pathan and Faff (2021) discovered that larger and more autonomous boards are in a better position to manage risk exposure, as they offer an array of expertise and make the executive decisions better monitored. In the same way, Al-Janadi, Rahman and Omar (2021) have shown that regular board meetings facilitate prompt decision-making and sensitivity to market volatility, hence credit and liquidity risks are minimized (Imran, Khan, and Zaidi, 2024; Iqbal, Shah, and Abid, 2025).

Overall, the sources highlight that proper corporate governance plays a critical role in dealing with liquidity and credit risks by improving monitoring, accountability, and strategic decision making. Although the particular governance characteristics of risk can vary in conditions, the general agreement is that effective systems of governance give rise to liquidity and credit stability and resiliency. This fact will establish a ground on which the study of the relationship between governance structures and CSR involvement and liquidity and credit risk can be conducted.

Liquidity and CG

Liquidity has been seen as a superior attribute of the publicly traded entities. With more liquidity, a shareholder is able to sell shares easily when he requires a fast cash. There is also increased competition among traders which helps to correct any transient mispricing promptly and therefore produce more accurate price observations. Similarly, open companies should have good corporate governance to ensure that the interest of shareholders is never compromised. This leads to the fact that a smaller amount of share price discount is associated with the concern on the part of investors that the management would steal value off the business, and spend it against shareholders.

There are two literature issues concerning emerging markets that are pertinent to our inquiry. First, previous research has concentrated on the credit risk which the increased market poses to the businesses due to increased leverage. Due to the low interest rates in these markets, the non-liquidity and credit companies often borrow funds across the borders. This exposes them to greater liquidity and credit risk and earns them susceptible to earnings shocks that might lead to liquidity and credit crisis (Beltran and Collins et al., 2018; Kanwal and Tasleem, 2025). This predisposes domestic liquidity and credit systems to corporate misery since they are more exposed to global forces, particularly when the economy is on downward trend (Avdjiev et al., 2014; Shabbir et al., 2021). Decreased profitability in emerging markets can become in effect shocks that make the local markets more volatile (Chui et al., 2016; Turner, 2014).

Researchers found an increase in corporate leverage in those emerging markets

after the Great Liquidity and credit Crisis (GFC). Although a few indicators of the balance sheet slightly decreased after the GFC, the leverage generally rose relative to the Asian liquidity and credit crisis (Alfaro et al., 2019; Kiyani et al., 2023; Khan and Khan, 2020). The reasons behind this trend were a cyclical activity of the world market and the yield hunt, where U.S. quantitative easing considerably influenced the liquidity and credit situation of emerging markets (Tillmann, 2016). The largest contribution to the rise in leverage and debt issuance was made by global factors, whereas the contribution of firm-specific factors was smaller (IMF stainability Report, 2015). Breitenfellner (2012) pointed out that the liquidity and credit variables at the global level were critical before and throughout the crisis, and these factors affected the aggregate CDS spreads. With the collapse of Lehman Brothers, the increase in the risks of corporate default in the United States resulted in the further raising of the spreads on the emerging market corporate bonds (Zinna, 2014); exchange rates, foreign reserves, and equity prices in the U.S. taper tantrum caused them to move together (Eichengreen and Gupta, 2014).

Credit & Liquidity Risk and Corporate Social Responsibility

Spicer (1978) examined the connection between “CSR” and risk, concluding that businesses can boost profitability and reduce both total and systemic risk by effectively managing and minimizing pollution outputs. This approach also positively influences their price-to-earnings (Price / Earnings) ratio.

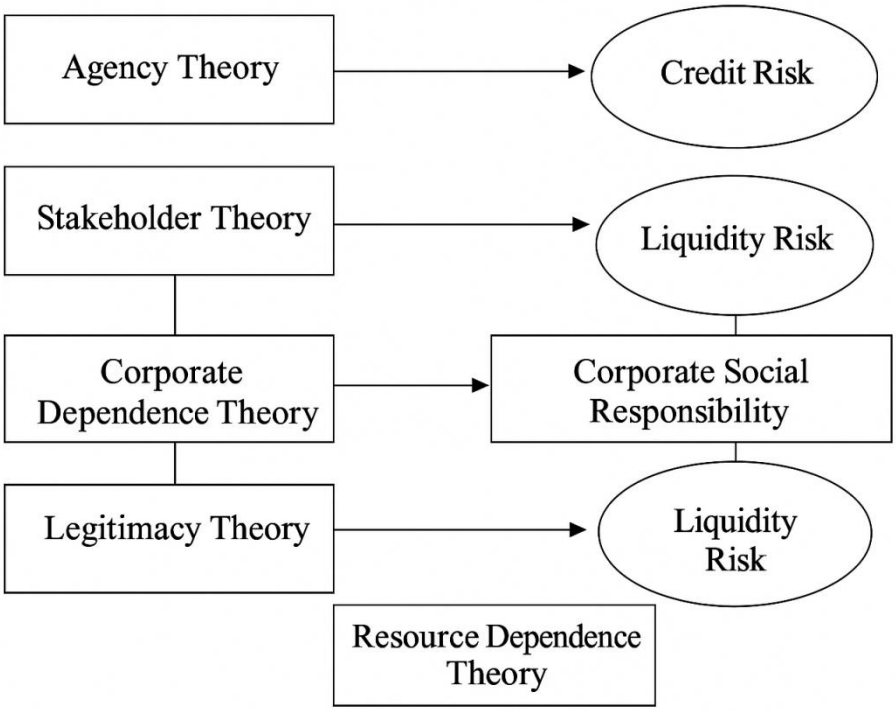
According to Chang et al. (2013), businesses with strong “CSR” strategies were far less likely to experience short-term and long-term default. Their research showed a substantial and unfavorable correlation between the forward default probability of a company and its CSR score. In a similar vein, Goss (2009) found that, even after controlling for other well-known variables, CSR actions continued to be a reliable indicator of liquidity and credit trouble. According to Goss's research, the probability of takeovers or defaults was 11% lower for companies with high Kullback-Leibler Divergence (KLD) scores, which are frequently associated with "excellent" organizations, and 11% higher for those with lower scores.

In their study, Bassen et al. (2006) investigated the relationship between “Corporate Social Responsibility” and Firm performance in the utilities industry”. They discovered that although CSR lowers business risk, it has no direct impact on liquidity and credit performance. Their subsequent study (2008) came to the conclusion that companies with robust CSR processes are less vulnerable to risk than those without, putting the latter in needless jeopardy.

Theoretical Framework:

The theoretical framework diagram integrates multiple theories to explain the causal pathway through which corporate governance and corporate social responsibility (CSR) influence credit risk and liquidity risk. Rooted in Agency Theory, the framework highlights the role of governance mechanisms such as board independence and board meetings in minimizing managerial opportunism and enhancing accountability. Stakeholder Theory and Legitimacy Theory underscore the importance of CSR as a strategic response to societal and stakeholder

expectations, positioning CSR as a tool for reputational risk mitigation. Simultaneously, Signaling Theory and Information Asymmetry Theory explain how CSR and governance disclosures serve as credible signals of liquidity and credit stability, thereby reducing risk perceptions among external investors and creditors. Risk Management Theory provides the overarching lens, showing how governance and CSR collectively operate as enterprise-level risk mitigation mechanisms. Through this multi-theoretical lens, the framework offers a robust foundation to empirically investigate how governance and CSR practices reduce exposure to credit and liquidity risks in firms, particularly within emerging market contexts.



Hypotheses development

Corporate Governance and Credit Risk

Corporate governance is widely recognized as a foundational mechanism for managing firm-level liquidity and credit risk, particularly credit risk. Key governance attributes such as board independence, board size, and the frequency of board meetings enhance a firm's ability to monitor management behavior, enforce internal controls, and ensure accurate liquidity and credit reporting. These mechanisms reduce agency problems and improve the firm's transparency and accountability, which in turn lowers the probability of default or liquidity and credit misstatement.

Empirical studies provide strong support for this view. For instance, Aebi, Sabato, and Schmid (2012) demonstrated that banks with more direct board involvement in risk oversight experienced lower default probabilities during the liquidity and credit crisis. Similarly, Mehmood et al. (2019) found that larger, more independent boards with frequent meetings were associated with lower credit risk among non-liquidity and credit firms, due to more effective risk governance and monitoring structures.

Based on this theoretical and empirical foundation, the following hypothesis is proposed:

H1: Corporate governance has a significant negative effect on credit risk.

Improved governance structures are expected to reduce credit risk by enhancing oversight, transparency, and internal accountability mechanisms.

Corporate Social Responsibility and Credit Risk

Corporate social responsibility (CSR) initiatives have increasingly been recognized as influential factors in shaping a firm's credit profile. By fostering stakeholder trust, enhancing transparency, and improving reputational capital, CSR efforts can mitigate perceptions of default risk among lenders and investors. Firms with well-established CSR programs are often viewed as more ethically grounded, forward-looking, and liquidity and creditly disciplined, which contributes to a more favorable risk assessment by creditors.

Empirical studies support this relationship. Dhaliwal et al. (2011) found that firms initiating standalone CSR reports experienced a lower cost of capital and narrower credit spreads, driven by enhanced investor confidence and reduced information asymmetry. Similarly, Javeed and Lefen (2019) demonstrated that CSR engagement in Chinese manufacturing firms positively influenced liquidity and credit sustainability, indirectly reducing credit risk by improving stakeholder relations and operational efficiency.

These findings suggest that CSR can act as a non-liquidity and credit signal of creditworthiness, complementing traditional risk assessment metrics. Accordingly, the following hypothesis is proposed:

H2: Corporate social responsibility has a significant negative effect on credit risk

Higher CSR engagement is expected to reduce credit risk by signaling ethical conduct, long-term orientation, and stakeholder alignment.

Corporate Governance and Liquidity Risk

Corporate governance contributes to the management of liquidity risk by supporting sound forecasting practices, disciplined liquidity and credit operations, and effective oversight of cash flow activities. Governance structures that include independent board members and regular board meetings are more likely to provide consistent monitoring of a firm's liquidity position and ensure appropriate responses to potential short-term funding challenges.

Empirical research supports this relationship. For instance, Chou, Chung, and Yin (2013) found that companies with more frequent board meetings demonstrated stronger internal controls and experienced lower volatility in liquidity and credit outcomes, including liquidity management. These findings suggest that governance mechanisms play a role in reducing exposure to liquidity-related stress.

Based on this evidence, the following hypothesis is proposed:

H3: Corporate governance has a significant negative effect on liquidity risk.

Firms with effective governance structures are expected to face lower liquidity risk due to improved liquidity and credit monitoring and oversight.

Corporate Social Responsibility and Liquidity Risk

Corporate social responsibility (CSR) can serve as a mitigating factor against liquidity risk by enhancing a firm's reputation and strengthening relationships with key stakeholders. Through socially responsible practices, firms often build trust with investors, customers, and liquidity and credit institutions, which can translate into more stable access to funding sources, especially during periods of economic or market stress.

Research supports this relationship. Lins, Servaes, and Tamayo (2017) found that firms with strong social capital, reflected in high CSR performance, experienced better stock returns and financing conditions during the 2008 liquidity and credit crisis. Similarly, El Ghoul et al. (2011) showed that firms with higher environmental, social, and governance (ESG) scores benefited from lower costs of capital, suggesting that CSR engagement improves liquidity positions by enhancing firm credibility in capital markets.

Based on these findings, the following hypothesis is proposed:

H4: Corporate social responsibility has a significant negative effect on liquidity risk.

Firms that engage in CSR practices are expected to experience lower liquidity risk due to improved stakeholder confidence and greater access to capital.

Control Variables :

Firm Size (FS)

Larger firms typically have more access to liquidity and credit markets, diversified operations, and better liquidity management systems, which may reduce both credit and liquidity risks.

H5: Firm size has a significant negative effect on credit risk.

H6: Firm size has a significant negative effect on liquidity risk.

Profitability

Firms with higher profitability are better positioned to meet short-term obligations and repay debt, leading to lower liquidity and credit risk exposure.

H7: Profitability has a significant negative effect on credit risk.

H8: Profitability has a significant negative effect on liquidity risk.

Inflation Rate

High inflation erodes real asset value and purchasing power, potentially increasing both credit and liquidity risks, especially in emerging markets.

H9: Inflation rate has a significant positive effect on credit risk.

H10: Inflation rate has a significant positive effect on liquidity risk.

Interest Rate

Higher interest rates increase the cost of borrowing, which may deteriorate credit quality and reduce firms' ability to meet liquidity needs.

H11: Interest rate has a significant positive effect on credit risk.

H12: Interest rate has a significant positive effect on liquidity risk.

Trade Openness (TRO)

Trade openness can influence firm exposure to foreign markets, exchange rate

fluctuations, and capital inflow risks, thereby affecting liquidity and credit stability.
H13: Trade openness has a significant effect on credit risk.
H14: Trade openness has a significant effect on liquidity risk.

DATA & METHODOLOGY

Population and Sample

The target population for this study includes publicly listed non-liquidity and credit firms operating in BRICS countries Brazil, Russia, India, China, and South Africa over an eleven-year period from 2014 to 2024. A stratified proportional sampling technique was utilized to give a balanced sample across countries with geographical dispersion in various economic and regulatory environments. The sample size includes 500 firms, selected as 100 firms from each country to retain both geographical balance and economic diversity within the sample. The liquidity and credit reporting has been consistent throughout the entire study period, 2014–2024, and thus allows for the construction of a balanced panel dataset. Firms operating in the liquidity and credit industries such as banks, insurance companies, and liquidity and credit holding institutions will be excluded to maintain data comparability in terms of accounting standards and risk profiles.

Variables and Measurement

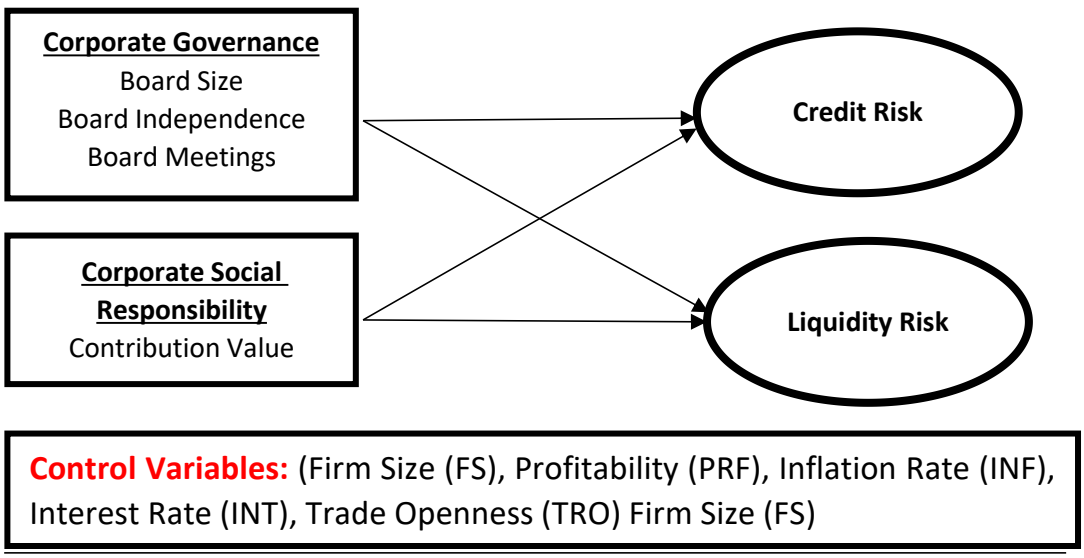
Table 3.1: Detail of variables and their abbreviations

	Variables Used	Abbreviations	Measurements	References
Dependent Variable	Credit Risk	CR	ROA + ETA / standard deviation of ROA	Nguyen (2019)
	Liquidity Risk	LR	Current Assets / Current Liabilities	Compustat
Independent Variable	Corporate Social Responsibility (CSR)	Contributions Value	Earnings per Share + (Tax Revenue + Salaries of Workers + Interest on Loans + Public Welfare Expense - Social Cost)/Equity	Feng et al. (2018); Javeed and Lefen (2019)
	Corporate Governance	Board Size (BSZ)	Number of Board Members	Mehmood et al. (2019): Dhir et al. (2020)
		Board Independence (BIN)	Proportion of Independent Directors to Total Directors	Aebi et al. (2012); Sarkar and Sarkar (2018)
		Board	Number of board	Chou et al.

	Meetings (BMT)	meetings held in one year	(2013)
Control Variables	Firm Size (FS)	Natural log of total assets	Williams (2016)
	Profitability (PRF)	Net income to total assets	Haris et al. (2019)
	Inflation Rate (INF)	Percentage (%) change in Consumer Price Index (CPI)	Yüksel et al. (2018), Ashraf et al. (2017)
	Interest Rate (INT)	Interest On Deposits	Yüksel et al. (2018)
	Trade Openness (TRO)	Sum of Exports and Imports of a country/GDP Variables	Ashraf et al. (2017)

Note: This table presents the study variables details with references

3.8 Conceptual Framework



Model Specification

Model 1: Effect of Corporate Governance on Credit Risk

The first model examines the impact of corporate governance on firms' credit risk, while controlling for firm size, profitability, inflation, interest rate, and trade openness.

$$CR_{i,j,t} = \alpha + \beta_1 CG_{i,j,t} + \beta_2 FS_{i,j,t} + \beta_3 PRF_{i,j,t} + \beta_4 INF_{j,t} + \beta_5 INT_{j,t} + \beta_6 TRO_{j,t} + \varepsilon_{i,j,t}$$

Model 2: Effect of CSR on Credit Risk

The second model investigates how corporate social responsibility affects firms' credit risk, controlling for the same firm-level and country-level variables.

$$CR_{i,j,t} = \alpha + \beta_1 CSR_{i,j,t} + \beta_2 FS_{i,j,t} + \beta_3 PRF_{i,j,t} + \beta_4 INF_{j,t} + \beta_5 INT_{j,t} + \beta_6 TRO_{j,t} + \varepsilon_{i,j,t}$$

Model 3: Effect of Corporate Governance on Liquidity Risk

The third model analyses the relationship between corporate governance and firms' liquidity risk, again controlling for firm size, profitability, inflation, interest rate, and trade openness.

$$LR_{i,j,t} = \alpha + \beta_1 CG_{i,j,t} + \beta_2 FS_{i,j,t} + \beta_3 PRF_{i,j,t} + \beta_4 INF_{j,t} + \beta_5 INT_{j,t} + \beta_6 TRO_{j,t} + \varepsilon_{i,j,t}$$

Model 4: Effect of CSR on Liquidity Risk

The fourth model evaluates the effect of corporate social responsibility on firms' liquidity risk, controlling for the same set of firm-level and macroeconomic variables.

$$LR_{i,j,t} = \alpha + \beta_1 CSR_{i,j,t} + \beta_2 FS_{i,j,t} + \beta_3 PRF_{i,j,t} + \beta_4 INF_{j,t} + \beta_5 INT_{j,t} + \beta_6 TRO_{j,t} + \varepsilon_{i,j,t}$$

RESULTS:

Descriptive Statistics

Table 1: Descriptive Statistic results

	mean	median	std	min	max
CR	1.248	1.02	71.004	-670.078	3410.777
LR	2.789	2.69	0.569	1.999	4
BSZ	9.999	9	2.236	7	13
BIN	2.518	2	0.685	1	4
BMT	4.667	5	1.594	1	7
CSR	169.627	12	5165.797	-276496	222356.5
FS	14.576	14.376	2.566	4.234	24.063
PRF	5.002	4.91	15.2	-305.08	256.04
INF	8.99	9.03	0.494	0.218	15.534
INT	33.585	33.832	2.729	-9.329	41.714
TRO	27.089	26.954	1.744	14.015	65.18

Note = Descriptive statistics results of 500 non-liquidity and credit firms from BRICS countries

In general, the descriptive findings indicate high heterogeneity in governance, CSR involvement and liquidity and credit risk exposures of firms and countries. The existence of the extreme values of parameters, like credit risk, profitability, and CSR, indicates that the application of strong estimative methods, including the use of fixed effects and diagnostic tests (e.g., heteroscedasticity and multicollinearity tests), is needed to be able to draw causal conclusions. These results also indicate the significance of the adjustment of the firm-specific variables and macroeconomic variables in the future panel regression analysis.

Correlation Analysis

The Pearson correlation matrix provides insight into the linear relationships among the dependent, independent, and control variables in the study. This step is critical for identifying potential multicollinearity issues that could distort regression estimates.

Table 2: Correlation Matrix

	CR	LR	BSZ	BIN	BMT	CSR	FS	PRF	INF	INT	TRO
CR	1	-0.028	-0.01	0.001	0.007	0	-0.001	-0.016	0	0	0
LR	-0.028	1	-0.001	0.003	0	-0.006	0.001	-0.022	-0.021	-0.034	0.028
BSZ	-0.01	-0.001	1	0.786	-0.004	0.036	0.893	0.011	0.086	0.053	-0.039
BIN	0.001	0.003	0.786	1	0.008	0.029	0.715	-0.007	0.055	0.034	-0.025
BMT	0.007	0	-0.004	0.008	1	0.019	0.012	0.003	-0.007	-0.007	0.004
CSR	0	-0.006	0.036	0.029	0.019	1	0.028	0.02	0.003	0.003	-0.002
FS	-0.001	0.001	0.893	0.715	0.012	0.028	1	0.026	0.085	0.061	-0.054
PRF	-0.016	-0.022	0.011	-0.007	0.003	0.02	0.026	1	0.016	0.017	-0.009
INF	0	-0.021	0.086	0.055	-0.007	0.003	0.085	0.016	1	0.76	-0.538
INT	0	-0.03	0.053	0.034	-0.007	0.003	0.061	0.017	0.76	1	-0.847
TRO	0	0.028	-0.039	-0.025	0.004	-0.002	-0.054	-0.009	-0.538	-0.847	1

Note: This table presents the results of the Correlation analysis results for 500 non-liquidity and credit BRICS countries firms.

*

Multicollinearity Assessment

While most correlations are modest, the high correlations between BSZ, BIN, and FS suggest potential multicollinearity risks when these variables are included

simultaneously in a regression model. As a precaution, Variance Inflation Factor (VIF) tests should be conducted before finalizing the regression models to ensure that the standard errors are not inflated due to multicollinearity.

Table 3: VIF Analysis

Variable	VIF
BSZ (Board Size)	6.37
BIN (Board Independence)	2.63
BMT (Board Meetings)	1.00
CSR	1.00
FS (Firm Size)	4.98
PRF (Profitability)	1.00
INF (Inflation Rate)	2.63
INT (Interest Rate)	6.59
TRO (Trade Openness)	3.91

Note: This table presents the results of VIF analysis for 500 non-liquidity and credit BRICS countries firms.

Based on this data, VIF values obtained with the help of BSZ and INT 6.37 and 6.59, respectively, exceed the conservative 5 indicating the existence of modest multicollinearity. This can also signify the possibility of a relation between the organization of governance and the macroeconomic aspects. The VIF of the FS variable also is below the threshold and is near the threshold (4.98), which means that it may be correlated with BSZ, as such large corporations typically maintain large boards to address the growing demands in terms of oversight and reporting (Dhir et al., 2020).

VIF of all another variable (CSR) and BMT, PRF, macroeconomic indicators (INF and TRO) have a value lower than 4. In this regard, the variables are not highly collinear with others and can be modeled separately as part of the regression model.

Comprehensively, these findings indicate that there is not much reason to panic over the condition of multicollinearity in this data. Caution must, however, be exercised when considering coefficients that are associated with BSZ, INT, and FS since they are bound to be partially confounded through economic and institutional interconnection mechanisms. Owing to this reason, a primary regression analysis must be augmented by some diagnostic tests, which could be the use of a pair-wise correlation matrix or condition tests, and tests of robustness to confirm some instability of coefficients.

Table 4: Hausman Test for CR

Test Statistic	Degrees of Freedom	p-Value	Decision	Model Preferred
$\chi^2 = 3.81$	8	0.8740	Fail to reject H_0	Random Effects

Note: This table presents the Hausman test result of 500 non-liquidity and credit BRICS countries firms.

The results of the Hausman test yielded a chi-square statistic of 3.81 with 8 degrees of freedom and a p-value of 0.8740. Since the p-value is well above the conventional 0.05 threshold, the null hypothesis could not be rejected. This implies that the differences in coefficient estimates between the FE and RE models are not statistically significant and that the assumptions underlying the RE model are acceptable in this context.

Given this outcome, the study adopts the Random Effects model for analyzing the relationship between corporate governance (CG), corporate social responsibility (CSR), and credit risk (CR) in BRICS non-liquidity and credit firms. The RE model offers greater efficiency and retains time-invariant firm-level variables, which are essential for understanding the broader institutional and policy-level influences across firms and countries.

Regression Results of Credit Risk

Table 5: Random Effects Regression Results – Credit Risk

Variable	Coefficient	Std. Error	z-value	p-value
BSZ	-1.845	1.201	-1.54	0.124
BIN	2.480	2.258	1.10	0.272
BMT	0.150	0.635	0.24	0.813
CSR	0.000004	0.000186	0.02	0.981
FS	0.964	0.959	1.01	0.314
PRF	-0.058	0.067	-0.87	0.383
INF	0.185	3.303	0.06	0.955
INT	0.011	0.952	0.01	0.991
TRO	0.045	1.165	0.04	0.969

Note: This table presents the regression results of Credit Risk

The model results indicate no statistically significant relationship between any of the explanatory variables and credit risk. The Wald Chi-square statistic (3.44) and corresponding p-value (0.944) suggest that the model, as a whole, lacks explanatory power. The overall R-squared is also very low (0.0009), meaning less than 0.1% of the variation in credit risk is explained by the selected variables.

Among the corporate governance variables:

- Board size (BSZ) shows a negative coefficient (-1.845), suggesting that firms with larger boards may experience slightly reduced credit risk, possibly due to improved monitoring. However, the effect is not statistically significant (p = 0.124).
- Board independence (BIN) and board meetings (BMT) show positive but insignificant coefficients, indicating no measurable impact on credit risk in this context.

The coefficient for CSR is extremely close to zero and statistically insignificant (p = 0.981), suggesting that the level of corporate social responsibility activities reported by firms has no material effect on their credit risk in the BRICS context.

As for control variables:

- Firm size (FS) shows a modest positive relationship with credit risk (coef = 0.964), but is also not significant (p = 0.314).

• Profitability (PRF) is negatively associated with credit risk, aligning with theory, but the result is again insignificant (p = 0.383).

• All macroeconomic variables (INF, INT, TRO) exhibit negligible effects with very high p-values, reflecting minimal influence on firm-level credit risk in this model.

These findings suggest that in emerging economies, firm-specific governance and CSR efforts may not independently mitigate credit risk, possibly due to overriding factors such as institutional weaknesses, external economic volatility, or variations in enforcement mechanisms.

Fixed Effects Model with Robust Errors for CR

Table 6: Fixed Effects Regression Results (Robust SE) – Credit Risk

Variable	Coefficient	Robust Std. Error	t-Statistic	p-Value
Board Size (BSZ)	-0.603	3.035	-0.20	0.842
Board Independence (BIN)	2.896	1.755	1.65	0.099
Board Meetings (BMT)	-0.192	0.885	-0.22	0.829
CSR	-0.00001	0.000035	-0.30	0.762
Firm Size (FS)	1.190	6.010	0.20	0.843
Profitability (PRF)	-0.0099	0.099	-0.10	0.920
Inflation (INF)	0.0786	0.088	0.89	0.372
Interest Rate (INT)	0.0869	0.139	0.63	0.531
Trade Openness (TRO)	0.0168	0.043	0.39	0.699

Note: This table presents the Robust standard errors clustered at firm level (500 firms).

The overall model fit remained low (R^2 within = 0.0004), and none of the coefficients were statistically significant at the 5% level. The variable Board Independence (BIN) approached marginal significance (p = 0.099), suggesting a weak but positive association with credit risk, which is contrary to some expectations in the literature. This could indicate that more independent boards might not be effectively mitigating credit risk in BRICS firms potentially due to symbolic rather than substantive board independence (Sarkar & Sarkar, 2018).

All other governance variables (board size, board meetings) and CSR displayed statistically insignificant effects. These results are consistent with Feng et al. (2018) and Javeed and Lefen (2019), who found that governance and CSR practices in emerging economies often lack the enforcement mechanisms or strategic integration needed to influence liquidity and credit risk outcomes directly.

Control variables, including firm size, profitability, and macroeconomic indicators (inflation, interest rate, and trade openness), also showed no significant impact. This finding aligns with Frecautan and Ivashkovskaya (2024), who argue that in emerging markets, macro-liquidity and credit instability and institutional weakness may dilute the predictive power of firm-level liquidity and credit characteristics.

The use of robust errors strengthens confidence in the inference that governance and CSR practices, as measured in this study, are not strongly associated

with credit risk at the firm level. These findings reinforce the importance of institutional context when applying governance-based risk theories in emerging economies (La Porta et al., 2000).

Regression Results of Liquidity Risk

Table 7: Random Effects Regression Results – Liquidity Risk

Variable	Coefficient	Std. Error	z-value	p-value
BSZ	-0.0045	0.0094	-0.49	0.627
BIN	0.0084	0.0181	0.47	0.641
BMT	0.0010	0.0050	0.20	0.840
CSR	-0.0000005	0.0000015	-0.33	0.745
FS	0.0027	0.0074	0.37	0.714
PRF	-0.0008	0.0005	-1.57	0.117
INF	0.0217	0.0262	0.83	0.406
INT	-0.0118	0.0075	-1.57	0.116
TRO	-0.0035	0.0092	-0.38	0.705

Note: This table presents *Random Effects Regression Results for Liquidity Risk.*

Table 8: Hausman Test Result – Liquidity Risk Model

Test Statistic	Degrees of Freedom	p-Value	Decision	Model Preferred
$\chi^2 = 6.20$	8	0.6252	Fail to reject H_0	Random Effects

Note: This table presents Hausman Test Result – Liquidity Risk Model Results for Liquidity Risk.

The random effects model was selected based on the Hausman test, which yielded a chi-square value of 6.20 with a p-value of 0.6252, indicating no significant difference between the FE and RE estimators. Hence, RE is preferred due to greater efficiency.

Overall, the model demonstrates low explanatory power, with an overall R-squared of 0.0018 and an insignificant Wald chi-square (p = 0.489). This suggests that the included variables jointly explain very little variation in liquidity risk.

None of the corporate governance variables showed significant influence:

- Board size (BSZ) had a small, negative, and statistically insignificant effect (p = 0.627).
- Board independence (BIN) and board meetings (BMT) were also insignificant, showing no measurable impact on firms' short-term liquidity position.
- CSR, though included as a major independent variable, had a negligible coefficient (-0.0000005) and was not statistically significant (p = 0.745), indicating minimal relationship with liquidity risk.

Among control variables:

- Profitability (PRF) and interest rate (INT) had negative signs, suggesting a potential link with reduced liquidity risk, but neither reached statistical significance.
- Inflation (INF) showed a positive coefficient (0.0217), possibly indicating rising costs strain liquidity, but again this was not significant (p = 0.406).
- Firm size and trade openness also showed no meaningful effect.

Conclusion:

The findings suggest that, within the BRICS context, corporate governance and CSR practices do not significantly impact liquidity risk in a measurable way. The results may reflect institutional challenges in emerging economies, or that other unobserved factors are more important in explaining variations in liquidity management among firms. Future research could benefit from more granular CSR metrics or alternative governance quality indicators to uncover latent effects.

Fixed Effects Regression with Robust Errors – Liquidity Risk

Table 9: Fixed Effects Regression Results (Robust SE) – Liquidity Risk

Variable	Coefficient	Robust Std. Error	t-Statistic	p-Value
Board Size (BSZ)	-0.0012	0.0155	-0.08	0.936
Board Independence (BIN)	0.0133	0.0188	0.71	0.480
Board Meetings (BMT)	0.0061	0.0061	1.01	0.315
CSR	-0.0000003	0.0000005	-0.60	0.550
Firm Size (FS)	0.0044	0.0150	0.29	0.770
Profitability (PRF)	-0.0009	0.0005	-1.82	0.070
Inflation (INF)	0.0578	0.0129	4.48	0.000
Interest Rate (INT)	-0.0021	0.0113	-0.18	0.856
Trade Openness (TRO)	-0.0063	0.0209	-0.30	0.764

Note: This table presents Fixed Effects Regression Results (Robust SE) for Liquidity Risk of 500 non liquidity and credit firms from BRICS countries

Among the control variables, profitability (PRF) showed a marginally significant negative effect ($p = 0.070$), suggesting that more profitable firms may face slightly lower liquidity risk, possibly due to better cash management (Booth et al., 2001). Notably, inflation (INF) demonstrated a highly significant positive relationship with liquidity risk ($p < 0.001$), implying that macroeconomic instability significantly increases firms' liquidity exposure a result echoed by Yüksel et al. (2018) and Ashraf et al. (2017).

Other controls, including firm size, interest rates, and trade openness, remained statistically insignificant, suggesting that these factors do not strongly influence liquidity risk in the BRICS non-liquidity and credit sector during the study period.

These results underscore that macroeconomic factors, particularly inflation, may be more influential in shaping liquidity risk than firm-level governance mechanisms in emerging markets (Frecautan & Ivashkovskaya, 2024). The absence of serial correlation and the use of robust standard errors increase the reliability of these inferences.

DISCUSSION AND CONCLUSION

According to the regression analysis, the corporate governance indicators, i.e., board size (BSZ), board independence (BIN), and board meeting frequency (BMT) have no statistically significant impact on credit or liquidity risk in BRICS setting.

Although the degree of board independence demonstrated a positive correlation with credit risk of significance ($p = 0.099$), which is in line with the observations of the agency theory, which assumes that an increased degree of independence corresponds to more efficient monitoring and a decrease in risk exposure (Fama and Jensen, 1983).

This is in line with Sarkar and Sarkar (2018), who found that formality of the existence of governance structures in most of emerging economies does not always mean that it is functional. Chou et al. (2013) and Dhir et al. (2020) go further to state that board structures in many BRICS countries are also symbolic, and carry no power and responsibility. This conclusion was recently supported by Nosrati et al. (2025) in the case of the Iranian banks, as they demonstrated that governance structures were mixed because of the institutional weaknesses and a lack of empowerment of the boards.

Emerging evidence is also pointing to the fact that, even though codes of governance might be on paper, there is poor enforcement. Mehmood, Arayssi and El Ghoul (2023) discovered that even with the improvements in regulation, the independence of boards did not have a similar impact on credit spreads in South Asian and MENA markets. In the same way, Chen et al. (2024) demonstrated that the effect of governance structures on the risk outcome is often watered down by institutional voids and political links in China.

There was also no statistically significant relationship between the CSR variables and the credit risk or the liquidity risk. Although the result might seem counterintuitive based on the claim of the stakeholder theory (Freeman, 1984), it goes in line with the new findings on emerging markets. Feng, Wang and Huang (2018) noted that the Chinese firms CSR initiatives were mainly strategic as opposed to compliance-related. In the same way, Javeed and Lefen (2019) found out that CSR enhances the reputation of firms but fails to bring direct economic risk reduction in Pakistan and India.

One of the possible reasons is the quality and authenticity of CSR disclosures. According to Zhang, Liu, and Zhou (2024), low-quality CSR reporting frequently does not lead to a decrease in information asymmetry, which is a restriction on its ability to play the role of risk-reducing signals. As Uyar, Kilic, and Kuzey (2023) discovered, rather than being an active tool of risk management, CSR is perceived by many firms based in BRICS as a reactive tool.

Inflation was also one of the control variables and showed a statistically significant positive relationship with the liquidity risk ($p < 0.001$) which is a sign that macroeconomic fluctuations increase the short-term solvency problem. This observation is in line with Ashraf et al. (2017) and Yuksel et al. (2018), who established that inflation uncertainty undermines the capacity of firms to control the operational costs and liquidity reserves.

The significance of profitability (PRF) in alleviating liquidity risk was marginal ($p = 0.070$) which supports Booth et al. (2001) and Mousa and Hassan (2023) that claim more profitable firms have stronger internal reserves and that they are better

able to overcome liquidity shocks. The other macroeconomic factors included, interest rate and openness to trade, were not significant when it comes to risk measures, which is consistent with Alda and Silviani (2025), as they concluded that such factors mainly affect liquidity and credit companies, not non-liquidity and credit corporations.

These findings question the applicability of agency and stakeholder theories to BRICS economies in general. The sparseness of the relations between CG/CSR and liquidity and credit risk implies that the issue of institutional setting is of critical importance. Along this line, La Porta et al. (2000) have always noted that emerging markets have ineffective investor protections, inefficient judicial systems and opaque governance structures all of which undermine the effectiveness of governance reforms.

To policy makers and regulators the findings highlight the need of capacity to enforce. The regulators should make sure that the codes of governance and CSR guidelines are not voluntary and symbolic. The liquidity and credit vulnerability is lower with the more stringent enforcement of the governance and sustainability standards as demonstrated by Florio and Leoni (2017) and Lai et al. (2017).

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