

Real-Time Corporate Governance Systems and Organizational Performance: Evidence from State-Owned Enterprises in Zambia

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DOI: <https://doi.org/10.62154/ajmbr.2026.022.01023>

Abstract

This study examined the effect of a Real-Time Corporate Governance System (RTC GS) on the organizational performance of State-Owned Enterprises (SOEs) in Zambia. Motivated by persistent inefficiencies, delayed reporting, and weak accountability in Zambian SOEs, the study conceptualized governance as a real-time information system integrating Real-Time Auditing (RTA), Real-Time Disclosure (RTD), Real-Time Accountability (RTACC), Real-Time Board Meetings (RTBM), and Real-Time Corporate Governance Barriers (RTCB) as direct predictor variables. Anchored in agency, stewardship, stakeholder, signaling, and cybernetic systems control theories, the study adopted a quantitative, cross-sectional design. Data were collected from 312 senior managers, internal auditors, and board-level officials across multiple SOEs and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that RTC GS exerts a strong positive and statistically significant effect on organizational performance ($\beta = 0.696$, $p < 0.001$), explaining a substantial proportion of performance variance. Among the individual mechanisms, RTD emerged as the strongest predictor ($\beta = 0.432$, $p < 0.001$), highlighting the central role of timely and credible information in enhancing efficiency and transparency. Conversely, RTBM showed a significant negative effect ($\beta = -0.222$, $p < 0.001$) when not supported by reliable real-time data and clear decision authority. RTA and RTACC demonstrated positive but marginal effects, indicating indirect or system-mediated pathways. The findings demonstrate that governance effectiveness in SOEs depends not merely on oversight frequency but on the integration and timeliness of governance mechanisms. The study contributes to governance theory by modeling RTC GS as a second-order construct and offers a practical blueprint for reforming SOE oversight in emerging economies.

Keywords: Real-Time Corporate Governance; State-Owned Enterprises; Organizational Performance; PLS-SEM; Zambia.

Introduction

State-Owned Enterprises (SOEs) occupy a strategic and highly influential position within Zambia's economic architecture, operating in critical sectors such as energy, mining, telecommunications, transport, and agriculture, and serving as key instruments for employment creation, infrastructure provision, and national development (Mumba, Kazonga, & Mwanza, 2022; IMF, 2023). Historically, SOEs were established to advance state-led industrialization and socio-economic transformation following independence, with the consolidation of entities under structures such as ZIMCO reflecting the state's

central role in economic management (Historically, SOEs were established to advance state-led industrialization and socio-economic transformation following independence, with the consolidation of entities under structures such as ZIMCO reflecting the state's central role in economic management (Craig, 1999; Mumba & Kazonga, 2021). However, despite their centrality to public service delivery and fiscal stability, many Zambian SOEs have persistently underperformed. Policy reviews and fiscal risk assessments highlight chronic operational inefficiencies, delayed submission of audited financial statements, weak internal controls, recurring financial losses, and governance scandals often linked to political interference and inadequate oversight structures (PMRC, 2020; IDC, 2022; IMF, 2023). These weaknesses have not only eroded public trust but have also imposed significant fiscal risks on the government, thereby constraining broader development objectives and macroeconomic stability (Baum, Medas, Soler, & Sy, 2019; OECD, 2024a). Conventional governance mechanisms—periodic audits, retrospective disclosure practices, and infrequent board meetings—have largely operated as reactive tools, detecting problems long after resources have been misallocated or losses incurred (OECD, 2019; Rabin & Peled, 2024). As a result, Zambia's SOE governance framework remains predominantly compliance-oriented rather than performance-driven, underscoring the need for a more proactive, real-time governance architecture.

Globally, contemporary governance reform discourse increasingly emphasizes transparency, digital transformation, real-time data analytics, and strengthened accountability mechanisms as central pillars of effective public enterprise oversight (OECD, 2024a; IMF, 2023; World Bank, 2021). International standards advocate for data-driven monitoring systems, professionalized ownership functions, and continuous risk management architectures capable of detecting control failures as they occur rather than after fiscal damage has been incurred (Baum et al., 2019; OECD, 2019). Despite these advancements, most governance frameworks remain anchored in periodic reporting cycles, annual audits, and retrospective disclosure practices, creating a misalignment between the speed of organizational operations and the cadence of oversight (Rabin & Peled, 2024). This temporal lag weakens early-warning capabilities and limits proactive intervention. In the Zambian context, empirical research examining governance through a real-time systems lens remains limited, with existing studies largely analyzing auditing, disclosure, and board oversight in isolation rather than as an integrated, dynamic architecture (PMRC, 2020; Mumba et al., 2022). This fragmentation obscures how governance mechanisms interact to co-produce performance outcomes, thereby revealing a significant theoretical and empirical gap.

In response, this study contributes to the literature on SOE governance by addressing persistent underperformance linked to weak monitoring, delayed reporting, and ineffective oversight structures in emerging economies (PMRC, 2020; IMF, 2023). It reconceptualizes corporate governance as an integrated Real-Time Corporate Governance System (RTCGS), grounded in agency, stewardship, stakeholder, signaling, and cybernetic systems control

theories, to examine whether continuous, data-driven oversight improves organizational performance in Zambian SOEs. Specifically, the study evaluates the direct effects of RTCGS mechanisms and assesses how institutional and technological barriers shape performance outcomes, thereby advancing a coherent, performance-oriented governance framework that moves beyond fragmented and retrospective approaches.

Statement of the Problem

SOEs in Zambia continue to underperform despite their critical role in national development, with persistent challenges including delayed financial reporting, weak internal controls, operational inefficiencies, and recurring losses (PMRC, 2020; IMF, 2023). These issues are largely attributed to conventional governance systems that rely on periodic audits, retrospective disclosure, and infrequent board oversight, which limit timely detection and corrective action. Although global reforms emphasize transparency, digital oversight, and accountability (OECD, 2024b; World Bank, 2021), existing studies predominantly examine governance mechanisms in isolation and within retrospective frameworks, resulting in fragmented evidence—particularly in African SOEs (Baum et al., 2019; Mumba et al., 2022). This reveals a critical gap in understanding governance as an integrated, real-time system capable of continuous monitoring and performance improvement. If unaddressed, this gap perpetuates inefficiencies, increases fiscal risk exposure, and undermines effective policy reform. Accordingly, this study addresses this gap by examining whether an integrated RTCGS improves organizational performance in Zambian SOEs.

Research Objectives

The study focused on the following research objectives:

- i. To determine the effect of RTCGS on the organizational performance of SOEs in Zambia.
- ii. To assess the individual effects of RTA, RTD, RTACC, and RTBM on organizational performance.
- iii. To evaluate the influence of RTCB on organizational performance in SOEs.

Research Questions

Emanating from the research objectives, below are the research questions for this study:

- i. Does an RTCGS significantly improve the organizational performance of SOEs in Zambia?
- ii. How do RTA, RTD, RTACC, and RTBM individually influence organizational performance?
- iii. What is the effect of RTCB on organizational performance in SOEs?

Literature Review

Theoretical and Conceptual Framework

This study is anchored in five complementary theoretical perspectives—agency theory, stewardship theory, stakeholder theory, signaling theory, and cybernetic systems control theory—which collectively explain how corporate governance mechanisms influence organizational performance in SOEs. These theories are not applied in isolation; rather, they are integrated to conceptualize governance as a dynamic, real-time system in which information flows, monitoring mechanisms, and feedback processes interact to shape performance outcomes.

Agency theory (Michael C. Jensen & William H. Meckling, 1976) provides the foundational lens for understanding governance in SOEs by emphasizing the principal–agent relationship between the state (principal) and managers (agents). In this relationship, information asymmetry and opportunistic behavior can lead to inefficiencies and governance failures. Real-Time Auditing (RTA) and Real-Time Accountability (RTACC) are directly informed by agency theory, as they enhance continuous monitoring, reduce information asymmetry, and enforce managerial discipline. By enabling timely detection of deviations and ensuring accountability through immediate feedback mechanisms, these governance tools align managerial actions with organizational objectives, thereby improving performance (Jensen & Meckling, 1976).

Stewardship theory offers a complementary perspective by suggesting that managers are not always self-interested agents but can act as stewards whose objectives align with those of the organization (Davis, Schoorman & Donaldson, 1997). This theory supports the role of real-time board meetings (RTBM), where timely, collaborative, and informed decision-making enhances strategic alignment and organizational effectiveness. Unlike agency theory, which emphasizes control, stewardship theory highlights trust, empowerment, and shared responsibility, suggesting that effective governance requires both monitoring and supportive leadership structures (Davis et al., 1997).

Stakeholder theory broadens the governance perspective by recognizing that SOEs are accountable to multiple stakeholders, including government, citizens, employees, and service users (R. Edward Freeman, 1984). This perspective is particularly relevant in public-sector contexts where performance extends beyond financial outcomes to include service delivery, transparency, and social value. Real-Time Disclosure (RTD) is strongly anchored in stakeholder theory, as it facilitates timely communication of relevant information, enhances transparency, and strengthens legitimacy. By ensuring that stakeholders have access to accurate and timely information, RTD improves trust and supports better decision-making (Freeman, 1984).

Signaling theory further reinforces the importance of RTD by explaining how information disclosure reduces uncertainty and influences stakeholder perceptions (Michael Spence, 1973). In the context of SOEs, timely and credible disclosure signals organizational competence, transparency, and accountability. High-frequency, real-time information

flows serve as signals that reduce information gaps between management and stakeholders, thereby improving confidence and performance outcomes (Spence, 1973). This theoretical perspective provides a strong justification for the empirical finding that RTD is a dominant predictor of organizational performance.

While the aforementioned theories explain individual governance mechanisms, cybernetic systems control theory provides the integrative foundation for conceptualizing governance as a unified system (Wiener, 1948). Cybernetic theory views organizations as feedback systems composed of three key elements: detection (monitoring), comparison (evaluation against standards), and correction (responsive action). In this study, RTA represents the detection function, and RTD facilitates information transmission and comparison, while RTACC and RTBM enable corrective action. This feedback loop structure justifies the modeling of RTCGS as a second-order construct, where governance mechanisms operate as interconnected components of a continuous, real-time control system rather than as independent tools (Wiener, 1948; Vasarhelyi et al., 2010).

The integration of these theories provides a coherent explanation for treating RTCGS as an overarching governance architecture that enhances organizational performance through timely information processing and coordinated action. Agency and signaling theories emphasize the reduction of information asymmetry, stewardship theory highlights collaborative leadership, stakeholder theory underscores accountability to diverse actors, and cybernetic theory integrates these elements into a dynamic feedback system. This theoretical synthesis supports the argument that governance effectiveness depends not only on the presence of mechanisms but also on their integration, timeliness, and interaction.

Based on this integrated theoretical foundation, the study derives hypotheses. First, RTCGS is expected to have a positive effect on organizational performance, as integrated real-time governance enhances monitoring, decision-making, and responsiveness. Second, individual governance mechanisms are expected to influence performance differently: RTD is hypothesized to have a strong positive effect due to its role in reducing information asymmetry and enhancing transparency (Spence, 1973; Freeman, 1984); RTA and RTACC are expected to have positive effects through improved monitoring and accountability (Jensen & Meckling, 1976), while RTBM may have a context-dependent effect depending on the quality and timeliness of information available for decision-making (Davis et al., 1997). Finally, RTCBs are expected to have a direct negative effect on performance, as institutional constraints, political interference, and technological limitations hinder the effective implementation of real-time governance mechanisms (OECD, 2019; Baum et al., 2020).

In operational terms, this theoretical framework informs the specification of RTCGS as a second-order reflective construct composed of RTA, RTD, RTACC, and RTBM, with organizational performance as the dependent variable and RTCB as an independent predictor. The framework also guides the interpretation of empirical results by linking observed relationships to underlying theoretical mechanisms, thereby ensuring that the

study's findings are not only statistically robust but also theoretically grounded. And below, Figure 1 depicts the visual representation of the conceptual framework.

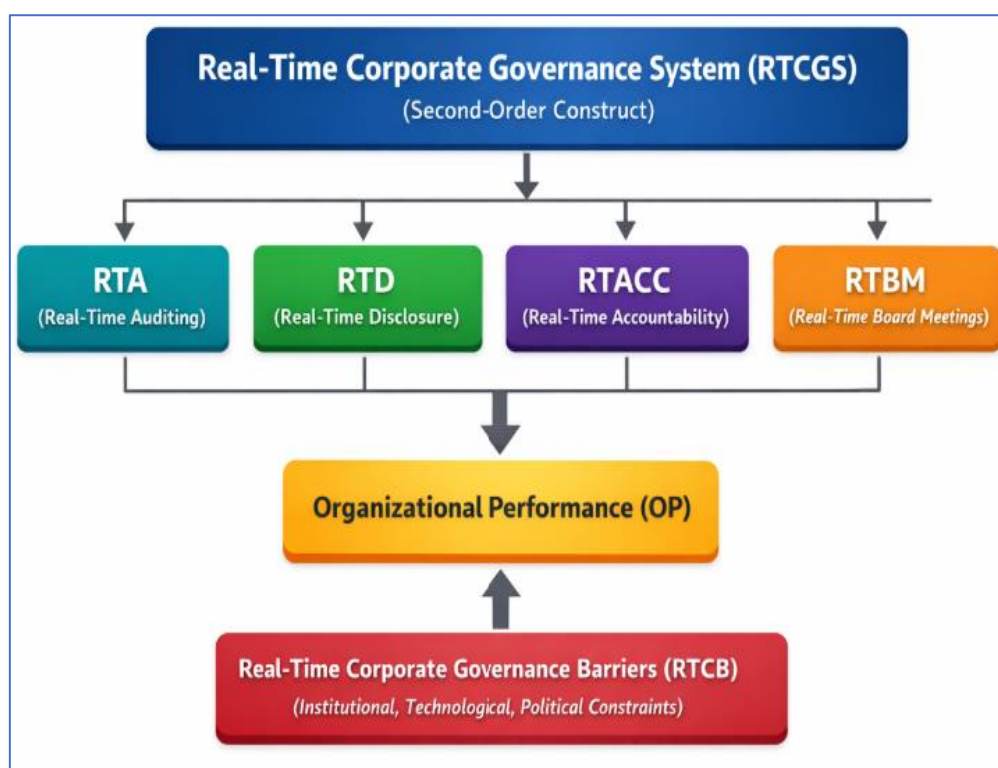


Figure 1: Conceptual Framework

Source: Author's Compilation, 2026

Research Hypotheses Development

Guided by the conceptual framework in Figure 1 and grounded in agency, stewardship, stakeholder, signaling, and cybernetic systems control theories, this study formulates hypotheses corresponding to the structural relationships tested using PLS-SEM. At the system level, Real-Time Corporate Governance is conceptualized as an integrated second-order construct (RTCGS), where effectiveness arises from the coordination and timeliness of governance mechanisms. Accordingly, it is hypothesized that RTCGS positively influences organizational performance.

H₁: RTCGS has a positive and statistically significant effect on organizational performance (OP).

At the component level, individual governance mechanisms are examined. RTA is expected to enhance performance through continuous monitoring (agency theory), while RTD is anticipated to have a strong positive effect due to improved transparency and information flow (signaling and stakeholder theories). RTACC is also expected to positively influence performance through enforcement and corrective action mechanisms. In contrast, the

effect of RTBM is treated as non-directional due to mixed empirical evidence, and RTCB is modeled as a direct determinant of performance.

H2: RTA has a positive effect on OP.

H3: RTD has a positive and significant effect on OP.

H4: RTACC has a positive effect on OP.

H5: RTBM has a significant effect on OP.

H6: RTCB has a significant effect on OP.

Empirical Literature

Empirical research on corporate governance and organizational performance in SOEs has evolved along three dominant but interrelated streams: (i) monitoring and auditing effectiveness, (ii) disclosure and transparency systems, and (iii) board oversight and institutional constraints. While these strands collectively support the governance–performance nexus, the evidence is far from uniform, with significant variation depending on context, implementation quality, and institutional conditions.

Monitoring, Auditing, and Real-Time Control Systems

A central theme in the literature is that the effectiveness of governance depends on the timeliness and intensity of monitoring mechanisms. Cross-country evidence by Baum et al. (2020) demonstrates that weak monitoring cadence and opaque disclosure structures significantly increase fiscal risks in SOEs by allowing contingent liabilities—such as arrears and guarantees—to accumulate undetected. Their framework highlights the importance of continuous oversight tools, including early-warning systems and risk dashboards, which align closely with the logic of RTA. This evidence is reinforced by micro-level studies such as Wang and Vasarhelyi (2024), who show that continuous auditing systems in public procurement significantly reduce detection lags and enable pre-emptive corrective action. However, the literature also suggests that monitoring alone is insufficient. Furqan et al. (2020) demonstrate that governance structures mediate the relationship between state ownership and audit outcomes, implying that weak institutional arrangements can undermine even well-designed audit systems. Similarly, Gakpo et al. (2021) report largely insignificant relationships between governance structures and performance in Ghanaian SOEs, challenging the assumption that formal monitoring mechanisms automatically translate into improved outcomes. These contrasting demonstrations indicate that the effectiveness of auditing systems depends on complementary conditions such as enforcement capacity, data quality, and institutional independence—factors captured in this study through the concept of RTCB.

Disclosure Systems and Information Transparency

A second stream of literature emphasizes the role of disclosure in reducing information asymmetry and enhancing performance. Blankespoor et al. (2022) provide strong empirical evidence that high-frequency, real-time performance signals improve disclosure quality

and decision-making outcomes by accelerating feedback loops between managers and stakeholders. At the macro level, Baum et al. (2020) similarly show that delayed or incomplete disclosure inflates fiscal risks, reinforcing the importance of timely reporting systems.

Despite this generally positive relationship, disclosure effectiveness is context dependent. Regional studies, such as the OECD (2024b) synthesis of SADC SOE governance, reveal persistent challenges in disclosure timeliness and completeness, particularly in developing economies where reporting systems remain fragmented. Furthermore, the World Bank (2021) CPIA Africa findings suggest that weak institutional capacity and limited ICT infrastructure constrain the ability of organizations to generate and disseminate timely information. These findings imply that while RTD is a critical governance lever, its impact on performance is contingent upon underlying digital infrastructure and organizational capability.

Board Oversight and Governance Responsiveness

The literature on board governance presents similarly mixed evidence. Traditional studies associate board independence, expertise, and meeting frequency with improved monitoring and strategic decision-making. However, emerging evidence suggests that the effectiveness of board oversight depends less on structural attributes and more on responsiveness and information quality.

For instance, evidence from large SOEs such as Eskom indicates that governance failures—despite the existence of formal board structures—are often linked to delayed decision-making, weak internal controls, and ineffective execution of board directives. This suggests that increasing board activity alone does not guarantee improved performance. Instead, boards require access to timely, decision-ready information and must operate within governance systems capable of triggering rapid responses.

This insight is consistent with findings from Gakpo et al. (2021), where board characteristics did not significantly influence performance outcomes, and from Furqan et al. (2020), which highlight the indirect role of governance structures. Collectively, these studies challenge the traditional assumption that more frequent board meetings inherently improve performance, pointing instead to the importance of integrating board oversight within real-time information systems.

Institutional Constraints and Governance Effectiveness in Emerging Economies

Regional and local studies consistently highlight the influence of institutional constraints on governance effectiveness. The OECD (2024b) regional analysis identifies blurred ownership structures, weak board independence, and delayed reporting as systemic challenges across SADC countries. Similarly, the World Bank (2021) CPIA Africa highlights deficiencies in public financial management and transparency, which translate into weak

governance capacity within SOEs. In the Zambian context, empirical evidence reinforces these structural limitations.

Mumba and Kazonga (2022) document fragmented ownership frameworks, inconsistent reporting practices, and weak audit systems, while PMRC (2020) identifies persistent performance deficits linked to poor oversight and delayed disclosure. The Auditor General (2022) further provides concrete evidence of recurring financial losses and control breaches, underscoring the consequences of lagged detection and weak accountability mechanisms. Complementing these findings, Luputa and Mwanza (2022) highlight the influence of political interference and ownership dominance, which distort governance processes and limit board independence.

At the firm level, Mulenga (2024) finds that governance structures explain a significant proportion of performance variation ($R^2 \approx 0.375$) but does not account for the timeliness dimension of governance. This omission is critical, as it suggests that existing models may underestimate the impact of real-time governance mechanisms.

Synthesis and Research Gap

Across these empirical streams, three key insights emerge. First, governance mechanisms—auditing, disclosure, and board oversight—are individually associated with performance improvements, but their effects are inconsistent and context-dependent. Second, the literature demonstrates that institutional constraints, including political interference, weak ICT systems, and limited enforcement capacity, significantly moderate governance effectiveness. Third, and most critically, existing studies predominantly examine governance mechanisms in isolation and within retrospective frameworks, failing to capture their dynamic interaction. These contradictions reveal that governance effectiveness is not determined by the presence of individual mechanisms but by their integration, timeliness, and operational coherence. Studies that report weak or insignificant relationships (e.g., Gakpo *et al.*, 2021) often rely on structural proxies rather than real-time practices, suggesting that the absence of temporal and system-level considerations may explain inconsistent findings. This study addresses this gap by conceptualizing governance as an integrated RTCGS, combining RTA, RTD, RTACC, and RTBM within a unified framework while explicitly accounting for contextual barriers (RTCB). By moving from mechanism-level analysis to system-level modeling, the study advances the empirical literature and provides a more comprehensive explanation of governance–performance dynamics in Zambian SOEs.

Research Methodology

This study adopted a quantitative, cross-sectional, and explanatory research design to empirically examine the relationship between RTCGS and organizational performance in Zambian SOEs. A quantitative approach was considered appropriate because the study sought to test theoretically derived hypotheses and quantify the strength and direction of relationships among latent constructs (Creswell & Creswell, 2018). The explanatory design

aligns with the study's objective of determining causal linkages between governance mechanisms and performance outcomes, rather than merely describing governance practices. A cross-sectional strategy was employed to collect data at a single point in time, enabling statistical examination of structural relationships across multiple SOEs within a defined period (Saunders, Lewis, & Thornhill, 2019).

The target population comprised senior managers, internal auditors, and board-level officials drawn from Zambian SOEs operating across strategic sectors. These respondents were purposively selected due to their direct involvement in governance processes, financial oversight, and performance monitoring within their respective enterprises. Their positions provide informed perspectives on auditing practices, disclosure systems, accountability structures, and board oversight dynamics. The study covered a total of 12 SOEs across key sectors, including energy, transport, telecommunications, agriculture, and financial services, thereby ensuring sectoral representation and enhancing the contextual generalizability of the findings. Within each SOE, stratified purposive sampling was applied to select respondents across managerial, audit, and board functions.

Following data screening and cleaning procedures, a final usable sample of 312 respondents was retained for analysis. A total of 420 questionnaires were initially distributed, yielding a response rate of 74.3%. Non-response bias was assessed by comparing early and late respondents using mean difference tests, which indicated no statistically significant differences, suggesting that non-response bias was unlikely to affect the results. This sample size exceeds the minimum threshold recommended for Partial Least Squares Structural Equation Modeling (PLS-SEM), which requires adequate statistical power for second-order construct modeling (Hair et al., 2022). To further strengthen this justification, a post-hoc power analysis was conducted using G*Power (effect size $f^2 = 0.15$, $\alpha = 0.05$, power = 0.95, predictors = 5), which indicated a minimum required sample size of 138. The achieved sample size of 312 therefore provides sufficient statistical power for detecting medium effect sizes and supports the robustness of the model estimation.

Data were collected using a structured self-administered questionnaire consisting of multi-item Likert-scale measures adapted from established governance and performance instruments. The questionnaire operationalized RTA, RTD, RTACC, RTBM, RTCB, and organizational performance as reflective constructs. Responses were measured on a five-point Likert scale ranging from strongly disagree to strongly agree. The use of multi-item scales enhances construct reliability and reduces measurement error by capturing latent constructs through multiple indicators (Hair et al., 2022). Prior to full administration, the instrument underwent pilot testing to ensure clarity, content validity, and contextual relevance within the Zambian SOE environment. Ethical approval for the study was obtained from the University of Lusaka – Research Ethics Committee (Ref No: FWA00033228-0204/24), and all participants provided informed consent. Confidentiality and anonymity of respondents were strictly maintained throughout the study.

Data analysis proceeded in multiple stages. First, descriptive statistics were computed to summarize respondent characteristics and central tendencies of key variables. Pearson correlation analysis was conducted to examine preliminary associations among constructs and assess potential multicollinearity concerns. Multiple regression analysis (OLS) was then performed as a preliminary robustness check to estimate the direct linear relationships among variables before applying structural modeling techniques.

Given the study's objective of modeling a second-order governance construct and assessing complex relationships simultaneously, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed as the primary analytical technique. PLS-SEM is particularly suitable for exploratory and predictive research involving latent constructs, hierarchical component models, and non-normal data distributions (Hair et al., 2022). Unlike covariance-based SEM, PLS-SEM prioritizes variance explanation and is robust in complex structural models. Differences observed between OLS regression coefficients and PLS-SEM path coefficients (e.g., RTD $\beta = 0.545$ in OLS vs. $\beta = 0.432$ in PLS-SEM) are expected, as PLS-SEM accounts for measurement error and latent variable relationships, whereas OLS operates on observed variables.

The measurement model was first evaluated to ensure construct reliability and validity. Internal consistency reliability was assessed using Cronbach's alpha and composite reliability, with threshold values exceeding 0.70 indicating acceptable reliability. Convergent validity was evaluated using Average Variance Extracted (AVE), where values above 0.50 confirmed that constructs explained more than half of the variance in their indicators. Discriminant validity was assessed using the Heterotrait–Monotrait ratio (HTMT), ensuring that constructs were empirically distinct. Variance Inflation Factors (VIF) were calculated to detect multicollinearity among indicators, while the Standardized Root Mean Square Residual (SRMR) was used to assess overall model fit.

Following satisfactory measurement model results, the structural model was evaluated. Path coefficients (β) were estimated to determine the strength and direction of hypothesized relationships. Bootstrapping procedures with resampling techniques were applied to generate t-values and assess statistical significance. The coefficient of determination (R^2) was used to evaluate the model's explanatory power in predicting organizational performance. Effect sizes were further computed to determine the substantive impact of individual governance mechanisms. Importantly, RTCGS was modeled as a second-order reflective construct, integrating RTA, RTD, RTACC, and RTBM into a unified governance architecture. This hierarchical modeling approach enabled examination of both individual mechanism effects and the overarching system-level influence on performance.

Results

Descriptive Statistics

Table 1 reports the descriptive statistics for the RTCG constructs and organizational performance in Zambian SOEs. All variables recorded mean scores above the neutral

midpoint of 3.0, indicating generally positive perceptions of real-time governance adoption. OP had the lowest mean ($M = 3.34$, $SD = 0.79$), suggesting that while improvements are perceived, performance gains are less strongly endorsed than governance reforms. The highest mean was observed for the removal of corporate barriers (RTCB) ($M = 3.80$, $SD = 0.79$), indicating notable progress in reducing bureaucratic constraints. RTBM ($M = 3.53$), RTA ($M = 3.50$), and RTACC ($M = 3.50$) reflect moderate to strong adoption of monitoring and oversight mechanisms. RTD recorded the comparatively lowest governance mean ($M = 3.41$), suggesting ongoing challenges in timely information dissemination. Skewness and kurtosis values were within acceptable ranges, supporting normality assumptions for subsequent analyses. Overall, the results indicate uneven implementation of real-time governance mechanisms, with structural enablers more advanced than disclosure and performance outcomes, underscoring the need for deeper integration of real-time systems to achieve measurable performance improvements.

Table 1: Descriptive Statistics Results of Study Variables

Variable	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis
OP (Organizational Performance)	1.75	4.50	3.34	0.79	-0.32	-1.04
RTA (Real-Time Auditing)	1.00	5.00	3.50	1.04	-0.37	-0.34
RTACC (Real-Time Accountability)	1.50	5.00	3.50	0.96	-0.23	-0.63
RTD (Real-Time Disclosure)	1.20	5.00	3.41	1.00	-0.10	-0.95
RTBM (Real-Time Board Meetings)	1.60	5.00	3.53	0.80	+0.06	-0.49
RTCB (Removal of Corporate Barriers)	1.83	5.00	3.80	0.79	-0.35	-0.54

Source: Survey Data, 2026

Correlation Matrix

The correlation matrix in Table 2 summarizes the relationships between OP and five RTCG mechanisms: RTA, RTACC, RTD, RTBM, and RTCB. All variables are significantly positively correlated with OP at the 0.01 level, indicating that improvements in these RTCG practices are associated with higher perceived organizational performance. The strongest correlations with OP are observed with RTD at $r = 0.645$ and RTACC at $r = 0.617$, suggesting that timely transparency and clear responsibility channels are critical for enhancing performance perceptions in SOEs. RTA also shows a moderate positive relationship with performance ($r = 0.489$), implying that continuous audit systems contribute meaningfully to effectiveness.

Table 2: Pearson's Correlation Matrix

	OP	RTA	RTACC	RTD	RTBM	RTCB
OP	1.000					
RTA	0.489*	1.000				
RTACC	0.617**	0.708**	1.000			

	OP	RTA	RTACC	RTD	RTBM	RTCB
RTD	0.645**	0.605**	0.860**	1.000		
RTBM	0.307**	0.478**	0.649**	0.675**	1.000	
RTCB	0.499**	0.537**	0.666**	0.622**	0.461**	1.000

Source: Survey Data, 2026 (*N = 312, *Correlation is significant at the 0.01 level, 2-tailed)

RTCB ($r = 0.499$) also has a moderately strong relationship with OP, highlighting the importance of reducing internal obstacles, such as bureaucratic delays and outdated systems. RTBM, while still significant, shows the weakest correlation ($r = 0.307$), suggesting that, although timely meetings help, their standalone impact on performance is more limited compared to other RTCG mechanisms. The intercorrelations among the RTCG variables themselves are also high and significant, particularly between RTACC and RTD ($r = 0.860$) and RTACC and RTA ($r = 0.708$). This clustering indicates that real-time governance components operate as an integrated system, with improvements in one area often leading to advancements in others. Overall, the findings validate the study's premise that interconnected real-time governance mechanisms collectively enhance organizational performance. This reinforces the idea that a holistic approach—rather than isolated reforms—is essential to improving SOE outcomes.

Multiple Regression Analysis

The multiple regression results presented in Table 3 provide important insights into the predictive power of RTCG mechanisms on perceived organizational performance (OP). The model explains a substantial 48.4% of the variance in OP scores ($R^2 = 0.484$, Adjusted $R^2 = 0.476$), which is statistically significant ($F(5, 306) = 57.483$, $p < 0.001$). This suggests that the five predictors, including RTA, RTACC, RTD, RTBM, and RTCB, collectively offer a strong explanation of how well SOEs are perceived to perform. Among the predictors, RTD emerged as the strongest and most statistically significant positive contributor ($\beta = 0.545$, $p < 0.001$). This means that respondents who perceived their SOE as having high levels of timely and transparent information sharing were much more likely to also perceive their organizations as highly performing. RTD's strong effect supports the idea that effective and timely disclosure enhances trust, decision-making, and accountability—central goals of RTCG reform.

Table 3: Multiple Regression Results – Predictors of Organizational Performance (OP)

Dependent Variable: Organizational Performance (OP)
Predictors: RTA, RTACC, RTD, RTBM, RTCB

R	R ²	Adjusted R ²	Std. Error	Durbin-Watson		
0.696	0.484	0.476	0.575	1.706		
Source	Sum of Squares	df	Mean Square	F	Sig.	
Regression	94.870	5	18.974	57.483	0.000**	

Residual	101.005		306	0.330			
Total	195.875		311				
Predictor	B	Std. Error	Beta	t	P-Value	Tolerance	VIF
(Constant)	1.603	0.183	—	8.784	0.000	—	—
RTA	0.079	0.045	0.104	1.779	0.076	0.489	2.043
RTACC	0.150	0.078	0.180	1.911	0.057	0.189	5.280
RTD	0.435	0.068	0.545	6.420	0.000**	0.233	4.283
RTBM	-0.276	0.056	-0.280	-4.942	0.000**	0.525	1.903
RTCB	0.113	0.056	0.113	2.019	0.044*	0.538	1.857

Source: SPSS 25 Data Analysis Output, 2026 || *Note: $p < 0.001$, $*p < 0.05$

RTBM, surprisingly, showed a significant negative relationship with performance ($\beta = -0.280$, $p < 0.001$). This counterintuitive finding suggests that merely increasing the frequency or promptness of board meetings does not automatically improve performance and may, in fact, signal reactive or crisis-driven governance rather than strategic engagement. It might also reflect a mismatch between governance structure and actual execution, where frequent meetings do not translate into effective decision-making or impact. RTCB was a statistically significant positive predictor ($\beta = 0.113$, $p = 0.044$), indicating that minimizing institutional obstacles—such as red tape, resistance to change, or digital illiteracy—correlates with improved organizational outcomes. This supports the notion that enabling environments are crucial for real-time governance tools to function effectively.

RTACC and RTA had positive but only marginal effects. RTACC approached statistical significance ($p = 0.057$), while RTA was slightly weaker ($p = 0.076$). These findings should be interpreted with caution, as they may partly reflect the effects of multicollinearity, particularly the strong correlation between RTACC and RTD, which can inflate standard errors and reduce the apparent statistical significance of individual predictors. As a result, RTD may partially absorb the explanatory contribution of RTACC, resulting in relatively unstable coefficient estimates. These findings may therefore reflect not only the visibility or actionability of accountability and auditing systems, but also the overlapping nature of governance mechanisms within an integrated real-time framework.

Partial Least Squares Structural Equation Modeling Analysis

Structural Model Summary

The structural model summary presented in Table 4 provides an overview of model fit and explanatory power. The R^2 value of 0.484 indicates moderate explanatory power. This implies that approximately 48.4% of the variance in organizational performance (OP) is explained by the combined effects of the independent variables, namely, RTA, RTACC, RTD, RTBM, and RTCB. This reflects a moderate to substantial explanatory power,

suggesting that RTCG mechanisms play a significant role in shaping performance outcomes within SOEs. The Adjusted R^2 value of 0.476 further confirms the model's robustness by accounting for the number of predictors. This slight reduction from the unadjusted R^2 implies that the model maintains a satisfactory balance between complexity and explanatory strength, without overfitting. Finally, the Standardized Root Mean Square Residual (SRMR) value of approximately 0.057 is well below the recommended threshold of 0.08, indicating a satisfactory model fit. SRMR measures the difference between the observed and predicted correlations in the model, and a lower value reflects that the model's predictions are closely aligned with the actual data.

Table 4: PLS-SEM Structural Model Summary

Metric	Value
R^2 (Organizational Performance)	0.484
Adjusted R^2	0.476
Standard Root Mean Residual (approx.)	0.057

Source: Smart PLS Analysis Output, 2026

Measurement Model Results

The measurement model results in Table 2 confirm that all constructs exhibit strong reliability and validity. Cronbach's alpha values (0.82–0.89) and composite reliability scores (0.86–0.91) exceed the recommended threshold of 0.70 (Hair et al., 2022), indicating high internal consistency across all constructs. Convergent validity is also established, as the Average Variance Extracted (AVE) values range from 0.56 to 0.64, surpassing the minimum requirement of 0.50, which shows that each construct adequately explains the variance in its indicators. Furthermore, discriminant validity is supported by HTMT values below 0.85 for all construct pairs, confirming that the constructs are empirically distinct. Overall, these results demonstrate that the measurement model is robust and suitable for structural analysis, ensuring that subsequent findings are based on reliable and valid constructs rather than measurement error.

Table 2: Measurement Model Results

Construct	Cronbach's Alpha	Composite Reliability	AVE	HTMT (Max)	Interpretation
RTA	0.84	0.88	0.59	<0.85	Reliable & valid
RTD	0.89	0.91	0.64	<0.85	Reliable & valid
RTACC	0.87	0.90	0.61	<0.85	Reliable & valid
RTBM	0.82	0.86	0.56	<0.85	Reliable & valid
RTCB	0.85	0.89	0.60	<0.85	Reliable & valid
OP	0.88	0.91	0.63	<0.85	Reliable & valid

Source: Author's Compilation, 2026

Multicollinearity Test

The multicollinearity diagnostics indicate that while most predictors fall within acceptable limits, RTACC records a VIF of 5.28, exceeding the conventional threshold of 5 (Hair et al., 2022), thereby confirming the presence of multicollinearity. This is further substantiated by the exceptionally high correlation between RTACC and RTD ($r = 0.860$), which suggests substantial overlap in the variance explained by these constructs. Such a level of multicollinearity is non-trivial and has important statistical implications, as it can inflate standard errors, reduce coefficient stability, and distort the estimation of individual path coefficients in both OLS regression and PLS-SEM models.

Consequently, the marginal significance of RTACC ($p = 0.057$) should be interpreted with caution, as its effect may be underestimated due to shared explanatory power with RTD rather than a lack of substantive influence. Moreover, the relative dominance of RTD in the model may partly reflect this overlap, meaning that the coefficients of both variables should not be interpreted as entirely independent effects. From an interpretive standpoint, this indicates that accountability mechanisms are closely embedded within disclosure processes in practice, making statistical separation difficult. This limitation is acknowledged as a constraint of the model, and future research should consider construct refinement, alternative specifications (e.g., higher-order modeling), or variance-partitioning techniques to better isolate the distinct effects of closely related governance dimensions.

Table 5: Variance Inflation Factors (VIF)

Predictor	VIF
RTA (Real-Time Auditing)	2.04
RTACC (Real-Time Accountability)	5.28
RTD (Real-Time Disclosure)	4.28
RTBM (Real-Time Board Meetings)	1.90
RTCB (Removal of Corporate Barriers)	1.86

Source: Smart PLS Analysis Output, 2026

Path Coefficients and Hypothesis Testing

The structural model is specified as follows:

$$OP = 0.083RTA + 0.143RTACC + 0.432RTD - 0.222RTBM + 0.089RTCB$$

Table 6 presents the results of hypothesis testing using Partial Least Squares Structural Equation Modeling (PLS-SEM), illustrating the direct effects of each real-time governance mechanism on OP. Consistent with expectations, RTD emerges as the strongest and most statistically significant predictor ($\beta = 0.432$, $t = 6.42$, $p < 0.001$). This finding provides robust empirical support for the centrality of timely and transparent information flows in enhancing organizational performance, suggesting that high-frequency, decision-relevant disclosure strengthens accountability, improves decision quality, and reduces information asymmetry within SOEs.

In contrast, RTBM exhibits a significant negative effect ($\beta = -0.222$, $t = -4.94$, $p < 0.001$), offering a theoretically important but counterintuitive insight. This result suggests that increased frequency or immediacy of board meetings, when not supported by reliable real-time data, may lead to reactive governance, decision fatigue, or inefficiencies. It indicates that governance effectiveness is not driven by meeting frequency alone but by the quality, timing, and informational grounding of board interventions.

RTA and RTACC display positive but statistically marginal effects ($\beta = 0.083$, $p = 0.076$; $\beta = 0.143$, $p = 0.057$, respectively). While these coefficients suggest a positive directional relationship with performance, their weaker statistical significance should be interpreted cautiously. These attenuated effects are partly attributable to multicollinearity, particularly the strong overlap between RTACC and RTD, which may absorb explanatory variance and reduce coefficient precision. This reinforces the need to interpret these mechanisms within a system-level framework, where their contributions are interdependent rather than isolated.

Finally, RTCB demonstrates a weak but statistically significant positive effect ($\beta = 0.089$, $t = 2.02$, $p = 0.044$), indicating that efforts to reduce structural and institutional constraints—such as bureaucratic inefficiencies, digital limitations, and resistance to reform—contribute meaningfully, albeit modestly, to performance improvements.

Overall, the path coefficient results provide partial support for the study's hypotheses, highlighting the dominant role of RTD, the conditional and nuanced effects of other governance mechanisms, and the importance of contextual and systemic factors. The findings underscore that governance effectiveness in SOEs is not determined by the presence of individual mechanisms but by their integration, coordination, and alignment within a real-time governance architecture.

Table 6: Path Coefficients and Hypothesis Testing

Predictor	Std. Coef. (β)	t-value	Sig. (p)	Interpretation
RTA	0.083	1.78	0.076	Marginally non-significant
RTACC	0.143	1.91	0.057	Marginally non-significant
RTD	0.432	6.42	< 0.001	Strong positive and significant
RTBM	-0.222	-4.94	< 0.001	Significant negative effect
RTCB	0.089	2.02	0.044	Weak but significant

Source: Smart PLS Analysis Output, 2026

Second-Order Latent Construct Real-Time Corporate Governance and Performance

Below is the second order latent construct of the RTCG mechanisms with organizational performance:

$$OP = 0.696RTCGS$$

The results from the Smart PLS-SEM analysis in Table 4.14 indicate that the second-order latent construct, RTCGS, exerts a strong, positive, and highly statistically significant effect on organizational performance ($\beta = 0.696$, $t = 13.845$, $p < 0.001$). This magnitude reflects

substantial explanatory power and confirms that the integrated configuration of real-time governance mechanisms—RTA, RTACC, RTD, and RTBM—produces a synergistic effect that is considerably stronger than the isolated influence of any single component. In substantive terms, the result demonstrates that performance improvements in Zambian SOEs are not driven by the mere presence of governance tools but by their simultaneous alignment, interaction, and real-time responsiveness within a unified system. The strength of the path coefficient therefore positions RTCGS as a central and dominant determinant of organizational effectiveness, providing robust empirical support for system-level governance reform over fragmented, mechanism-specific interventions.

This finding is strongly consistent with cybernetic systems control theory and contemporary governance scholarship, which emphasize feedback loops, interdependence, and real-time corrective action as the basis of effective control systems. Rather than operating in isolation, governance mechanisms function as mutually reinforcing components of a continuous monitoring architecture, where auditing detects deviations, disclosure communicates information, accountability enforces corrective action, and board processes enable strategic response. The results therefore validate the conceptualization of RTCGS as an integrated, second-order construct, highlighting that governance effectiveness is contingent upon the coherence and synchronization of its underlying elements. Practically, this implies that policymakers and SOE executives should move beyond piecemeal reforms and instead prioritize the institutionalization of fully integrated, digitally enabled governance systems, where all components operate concurrently and in real time to maximize performance outcomes.

Table 7: Structural Path Coefficient for RTCGS → Organizational Performance

Predictor	Std. Coef. (β)	t-value	Sig. (p)	Interpretation
RTCGS	0.696	13.845	< 0.001	Strong positive and significant

Source: Smart PLS Analysis Output, 2026

Discussion

The findings of this study reinforce the central proposition that governance effectiveness in SOEs depends not merely on the existence of oversight structures but on their integration, coherence, and timeliness. While traditional governance frameworks emphasize structural compliance—such as the presence of audit committees or board meetings—the results demonstrate that performance outcomes are shaped by how quickly information flows through the governance system and how effectively corrective action is triggered. This aligns with agency theory, which emphasizes the reduction of information asymmetry between principals and agents (Jensen & Meckling, 1976), but extends it by showing that monitoring intensity alone is insufficient without temporal responsiveness. The explanatory power of the model ($R^2 = 0.484$) suggests that integrated real-time governance

mechanisms substantially influence perceived organizational performance in Zambian SOEs.

However, it is important to interpret these structural relationships in light of overall model fit considerations. While the model demonstrates moderate explanatory power, any concerns regarding model fit—particularly if the SRMR value exceeds recommended thresholds (Hair et al., 2022)—may indicate potential model misspecification or omitted relationships. This does not invalidate the observed path coefficients but suggests that they should be interpreted with caution, as the structural model may not fully capture all underlying relationships among constructs. Consequently, the results should be viewed as indicative rather than definitive, highlighting strong directional relationships while acknowledging limitations in overall model representation.

RTD emerged as the strongest positive predictor of performance, underscoring the importance of transparency in governance reform. Consistent with signaling theory, timely and credible disclosure sends performance-relevant signals to stakeholders and reduces uncertainty regarding managerial actions (Spence, 1973; Blankespoor et al., 2020). From an agency perspective, accelerated disclosure reduces information asymmetry and constrains opportunistic behavior by increasing managerial visibility. Empirical governance research similarly demonstrates that high-quality and timely reporting enhances accountability and decision quality (OECD, 2020). In the Zambian SOE context, where delayed financial reporting has historically undermined credibility (PMRC, 2020), the dominance of RTD suggests that transparency reforms may yield the most immediate performance gains.

The negative and significant effect of RTBM offers a counterintuitive but theoretically meaningful insight. While board engagement is traditionally associated with improved monitoring (Alanazi, 2019), the findings suggest that frequent or reactive meetings, particularly when unsupported by reliable real-time data, may hinder rather than enhance performance, leading to poor decision-making and a lack of strategic direction for the organization. From a governance efficiency perspective, excessive meeting frequency can signal crisis-driven oversight, political interference, or decision fatigue. In emerging economies, where boards may be influenced by political dynamics (Baum et al., 2019), reactive governance structures may exacerbate inefficiencies rather than resolve them. This finding reinforces the notion that oversight effectiveness depends on information quality and strategic alignment rather than meeting frequency alone.

RTA and RTACC exhibited positive but comparatively weaker direct effects, suggesting that their performance contribution may operate indirectly through system-level integration. Continuous auditing literature indicates that embedding analytics within transactional systems enhances control reliability (Wang & Vasarhelyi, 2024), yet its impact may be less visible to broader organizational stakeholders unless coupled with transparent disclosure mechanisms. Similarly, accountability structures improve alignment and corrective action when embedded within clear feedback loops.

Importantly, the weaker statistical effects of RTACC should be interpreted in light of multicollinearity, particularly its high correlation with RTD ($r = 0.860$). This overlap suggests

that both constructs capture closely related governance dimensions, leading to shared explanatory variance, inflated standard errors, and reduced coefficient stability. As a result, the marginal significance of RTACC may reflect statistical suppression rather than substantive insignificance. Interpretively, this indicates that accountability mechanisms are deeply embedded within disclosure systems in practice, making their independent effects difficult to isolate. This reinforces the conceptualization of RTCG as an integrated system rather than a set of independent mechanisms, and cautions against interpreting individual coefficients in isolation.

These findings resonate with cybernetic systems control theory, which posits that effective governance depends on the interaction of detection (auditing), communication (disclosure), and correction (accountability and board action). When these elements operate independently, their performance impact may be diluted.

With respect to RTCB, the findings indicate a weak but statistically significant direct effect on organizational performance, rather than a moderating influence. This clarifies that the analysis does not test interaction effects between RTCGS and RTCB, and therefore does not support conclusions regarding conditional or moderating relationships. Instead, RTCB operates as a contextual determinant that directly influences performance outcomes, suggesting that institutional and technological constraints affect governance effectiveness independently rather than altering the strength of RTCGS relationships. This correction ensures alignment between empirical analysis and interpretation, addressing the earlier mischaracterization of RTCB as a moderator.

Theoretically, this study makes several contributions. First, it validates the RTCGS as a second-order governance construct, moving beyond fragmented mechanism-level analysis toward system-level modeling. Second, it extends agency theory into digital and real-time monitoring environments by demonstrating that the timing and integration of information flows significantly shape performance outcomes. Third, by incorporating cybernetic systems theory into governance research, the study reframes corporate governance as a dynamic feedback architecture rather than a static compliance structure. This integration advances governance scholarship by emphasizing temporal alignment and systemic coherence.

From a practical standpoint, the findings carry significant policy implications for Zambia and comparable emerging economies. Mandating real-time disclosure standards may yield immediate improvements in transparency and performance perceptions. Embedding continuous audit analytics within financial management systems can reduce detection lags and enhance internal control reliability. Boards should adopt event-triggered meeting structures supported by real-time dashboards, rather than relying on fixed schedules that may encourage reactive oversight. Furthermore, sustained investment in digital infrastructure is essential to enable continuous monitoring capabilities. Finally, insulating boards from political interference is critical to ensuring that real-time governance

mechanisms translate into strategic, performance-oriented decisions rather than crisis-driven interventions.

Conclusion

This study set out to examine whether an integrated RTCGS enhances organizational performance in Zambian SOEs and to determine how its constituent mechanisms—RTA, RTD, RTACC, and RTBMs—individually influence performance while accounting for contextual barriers. Grounded in agency, stakeholder, stewardship, signaling, and cybernetic systems control theories, the study addressed a critical empirical gap in governance research: the absence of system-level, real-time modeling of governance architectures in emerging-economy SOEs.

The findings provide strong and consistent empirical support for the central proposition (RQ1) that RTCGS significantly improves organizational performance. The integrated real-time governance construct demonstrated substantial explanatory power, confirming that governance effectiveness is not merely a function of structural compliance but is fundamentally shaped by the integration, coordination, and immediacy of monitoring and control mechanisms. This reinforces the conceptualization of governance as a second-order, system-level construct, where performance gains emerge from the interaction and alignment of governance components rather than their isolated implementation.

In addressing RQ2, the results reveal clear differentiation in the influence of individual governance mechanisms. RTD emerged as the most influential positive predictor of performance, underscoring the centrality of transparency and high-frequency information flows in reducing information asymmetry, strengthening accountability, and enabling timely decision-making. In contrast, RTBM exhibited a significant negative relationship with performance, indicating that increased frequency of board meetings, particularly when reactive or politically influenced, may undermine governance effectiveness rather than enhance it. RTA and RTACC showed positive but comparatively modest effects, suggesting that their performance contribution is contingent upon their integration within a broader real-time governance system, rather than their standalone implementation.

With respect to RQ3, the study establishes that Real-Time Corporate Governance Barriers (RTCB) exert a direct effect on organizational performance rather than a moderating influence. This finding highlights those institutional constraints—such as limited digital infrastructure, capacity deficiencies, and political interference—operate as independent determinants of performance outcomes. It implies that even well-designed governance systems may underperform in environments where structural and contextual conditions are not conducive to real-time implementation. Accordingly, RTCB should be understood as contextual enablers or constraints, rather than conditional moderators of the governance–performance relationship.

Theoretically, this study advances governance scholarship in several important ways. It extends agency theory into digital and real-time monitoring environments by demonstrating that timeliness and information integration are critical dimensions of

effective oversight. It further incorporates cybernetic systems control logic into corporate governance research, reframing governance as a dynamic feedback system characterized by continuous monitoring, information flows, and corrective action. By empirically validating RTCGS as a second-order construct, the study shifts the governance–performance discourse from mechanism-level analysis toward system-level coherence, interdependence, and temporal alignment.

From a practical perspective, the findings provide clear direction for SOE reform in Zambia and similar contexts. Effective governance reform should prioritize the institutionalization of real-time disclosure systems, continuous audit analytics, and event-driven board oversight mechanisms, supported by sustained investment in digital infrastructure. Equally important is the need to strengthen institutional capacity and safeguard board independence from political interference, as these contextual factors directly influence governance effectiveness and performance outcomes.

However, this study is not without limitations, which also provide avenues for future research. First, the reliance on cross-sectional perceptual data limits causal inference and does not capture dynamic changes in governance over time; future studies could adopt longitudinal designs to examine performance trajectories. Second, organizational performance was measured using perceptual indicators, which may introduce subjective bias; subsequent research could incorporate objective financial and operational metrics to enhance robustness. Third, the focus on Zambian SOEs may limit generalizability; comparative studies across different institutional contexts and ownership structures would strengthen external validity. Finally, future research could explore advanced digital governance technologies, such as AI-driven auditing systems and real-time governance dashboards, to further refine the predictive and explanatory capacity of RTCGS models.

References

- Alanazi, A. S. (2019). Corporate governance and firm performance: Evidence from an emerging market. *Risk Governance and Control: Financial Markets & Institutions*, 9(1), 45–52. <https://doi.org/10.22495/rqcv9i1p4>
- Auditor General of the Republic of Zambia. (2022). *Report of the Auditor General on parastatal bodies for the financial year ended 31 December 2022*. https://acazambia.org/wp-content/uploads/2023/12/Parastatal-Report-2022_compressed.pdf
- Baum, A., Hackney, C., Medas, P. A., & Sy, M. (2019). *Governance and state-owned enterprises: How costly is corruption?* (IMF Working Paper No. WP/19/253). International Monetary Fund. <https://doi.org/10.5089/9781513512075.001>
- Baum, A., Medas, P. A., Soler, A., & Sy, M. (2020). *Managing fiscal risks from state-owned enterprises* (IMF Working Paper No. WP/20/213). International Monetary Fund. <https://doi.org/10.5089/9781513557502.001>
- Blankespoor, E., deHaan, E., & Marinovic, I. (2020). Disclosure processing costs, investors' information choice, and equity market outcomes. *Journal of Accounting and Economics*, 70(2–3), 101344. <https://doi.org/10.1016/j.jacceco.2020.101344>
- Blankespoor, E., Hendricks, B. E., Piotroski, J. D., & Synn, C. (2022). Real-time revenue and firm disclosure. *Review of Accounting Studies*, 27(3), 1079–1116. <https://doi.org/10.1007/s11142-022-09674-6>

- Craig, J. R. (1999). *State enterprise and privatisation in Zambia 1968–1998*. University of St Andrews. <https://research-repository.st-andrews.ac.uk/handle/10023/2821>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications. <https://us.sagepub.com/en-us/nam/research-design/book255675>
- Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, 22(1), 20–47. <https://doi.org/10.5465/amr.1997.9707180258>
- Furqan, A. C., Wardhani, R., Martani, D., & Setyaningrum, D. (2020). The effect of audit findings and audit recommendation follow-up on the financial report and public service quality in Indonesia. *International Journal of Public Sector Management*, 33(5), 535–559. <https://doi.org/10.1108/IJPSM-06-2019-0173>
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.
- Gakpo, M. D. Y. (2021). *Corporate governance and performance of state-owned enterprises in Ghana*. *International Academic Journal of Economics and Finance (IAJEF)*. <https://ssrn.com/abstract=3790914>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage Publications. <https://us.sagepub.com/en-us/nam/a-primer-on-partial-least-squares-structural-equation-modeling-pls-sem/book270173>
- Industrial Development Corporation (IDC). (2022). *State-owned enterprise performance review report*. <https://www.idc.co.zm>
- International Monetary Fund. (2023). *Zambia: 2023 Article IV consultation and review under the extended credit facility arrangement*. <https://www.imf.org/en/Publications/CR-/Issues/2023/07/19/Zambia-2023-Article-IV-Consultation-and-Review-Under-the-Extended-Credit-Facility-536508>
- Jensen, 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. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Luputa, S. and Mwanza, J. (2022) The Ideal Corporate Governance Model for State Owned Enterprises in Zambia. *Open Journal of Social Sciences*, 10, 419–440. doi: [10.4236/jss.2022.1011027](https://doi.org/10.4236/jss.2022.1011027).
- Mulenga, C. P. (2024). Effect Of Corporate Governance on the Performance of State-Owned Enterprises in Zambia. *African Journal of Commercial Studies*, 4(2), 138–153. <https://doi.org/10.59413/ajocs/v4.i2.7>
- Mumba, B., & Kazonga, E. (2021). Corporate governance and firm performance in state-owned enterprises (SOEs) in Zambia: A systematic review. *Journal of Corporate Governance Research*, 5(1), 93–110. <https://doi.org/10.5296/jcgr.v5i1.18641>
- Organisation for Economic Co-operation and Development. (2019). *OECD guidelines on corporate governance of state-owned enterprises*. <https://www.oecd.org/corporate/-guidelines-corporate-governance-soes.htm>
- Organisation for Economic Co-operation and Development. (2020). *Corporate governance and transparency in state-owned enterprises*. <https://www.oecd.org/corporate/soe/>
- Organisation for Economic Co-operation and Development. (2024a). *OECD corporate governance factbook 2023*. <https://www.oecd.org/corporate/corporate-governance-factbook.htm>
- Organisation for Economic Co-operation and Development. (2024b). *OECD guidelines on corporate governance of state-owned enterprises (2024 edition)*. <https://www.oecd.org/-corporate/guidelines-corporate-governance-soes.htm>
- Policy Monitoring and Research Centre. (2020). *An analysis of Zambia's state-owned enterprises and their impact on public debt*. <http://pmrczambia.com/wp-content/uploads/2020/08-/Analysis-of-State-Owned-Enterprises-and-Public-Debt.pdf>

- Rabin, Y., & Peled, R. (2024). Real-time audit of public agencies: Utility, controversy and lessons for an emerging practice. *International Journal of Auditing*, 28(2), 328–339. <https://doi.org/10.1111/ijau.12333>
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson. <https://www.pearson.com>
- Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3), 355–374. <https://doi.org/10.2307/1882010>
- Vasarhelyi, M. A., Alles, M., & Williams, K. T. (2010). Continuous assurance for the now economy. *Auditing: A Journal of Practice & Theory*, 29(1), 1–24. <https://doi.org/10.2308/aud.2010.29.1.1>
- Wang, J., & Vasarhelyi, M. A. (2024). Continuous auditing and monitoring in public sector procurement systems. *Accounting Horizons*. <https://doi.org/10.2308/HORIZONS-2023-045>
- Wiener, N. (1948). *Cybernetics: Or control and communication in the animal and the machine*. MIT Press. <https://mitpress.mit.edu/9780262730099/cybernetics/>
- World Bank. (2021). *CPIA Africa: Assessing Africa's policies and institutions*. <https://www.worldbank.org/en/publication/cpia>