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(IJPPA) **Public Procurement Policy Compliance, Corruption Risk, and
Value-for-Money in Ghana's Infrastructure Sector: An Institutional
Analysis**



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Public Procurement Policy Compliance, Corruption Risk, and Value-for-Money in Ghana's Infrastructure Sector: An Institutional Analysis

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Abstract

Purpose: This paper examines how compliance or non-compliance with public procurement policy shapes corruption risk and infrastructure project outcomes (value for money) across selected ministries, departments, and agencies (MDAs) in Ghana.

Methodology: The study adopted a convergent mixed-methods design. The target population comprised Ghanaian ministries, departments, and agencies (MDAs) with substantial infrastructure procurement portfolios; ten MDAs were purposively sampled, and 120 infrastructure projects were analyzed using Public Procurement Authority (PPA) compliance assessments (2019–2021), Ghana Audit Service reports (2019–2022), and Public Expenditure and Financial Accountability (PEFA) indicators. Qualitative data were collected through semi-structured interviews with 32 key informants (procurement officers, internal audit directors, PPA compliance officers, and Ghana Audit Service auditors). Quantitative data were analyzed using descriptive statistics, Pearson correlation, and hierarchical regression with moderation, while interview data were analyzed thematically.

Findings: Low compliance with competitive tendering procedures, documentation requirements, and post-award monitoring was strongly associated with higher exposure to corruption risk and diminished value for money in infrastructure delivery. Institutional oversight strength significantly moderated the compliance–corruption relationship, and procurement officer capacity was independently associated with lower corruption risk.

Unique contribution to theory, practice and policy: Theoretically, the study integrates Principal-Agent, Institutional, and Public Choice perspectives to explain how compliance behaviour relates to corruption risk, and it examines the moderating role of institutional oversight and the independent role of procurement officer capacity in a developing-country setting. For practice, it identifies which compliance lapses (tendering, documentation, and post-award monitoring) are most strongly associated with corruption risk and highlights the importance of procurement capacity and oversight. For policy, it offers evidence-based recommendations to strengthen Ghana's procurement governance architecture and contributes to the literature on the effectiveness of anti-corruption policy in developing-country infrastructure delivery.

Keywords: *Public Procurement; Policy Compliance; Corruption Risk; Value-for-Money; Infrastructure; Ghana; Institutional Theory; Principal-Agent Theory; Public Sector Governance.*

Introduction

Public procurement represents one of the most significant channels through which government resources flow into the economy. In many developing countries, procurement expenditure is estimated to account for 15 to 30 per cent of gross domestic product (GDP) and represents a substantial share of total government spending (World Bank, 2020). Therefore, the governance of public procurement, the extent to which procurement processes are transparent, competitive, and compliant with established rules, directly determines the efficiency, equity, and integrity of public expenditure. Weak procurement governance not only wastes public resources but also creates fertile conditions for corruption, which in turn erodes institutional trust and undermines the state's capacity to deliver public goods and services.

Ghana offers a particularly instructive case for studying procurement governance in Africa. The country enacted its first comprehensive Public Procurement Act (Act 663) in 2003, and Act 914 amended it in 2016 to address gaps in the original legislation. These reforms aimed to harmonise procurement rules across government entities, strengthen competitive tendering, and improve transparency and accountability in public contracting. Despite these legislative efforts, Ghana continues to record significant procurement irregularities. Annual reports from the Ghana Audit Service consistently document procurement without competitive bidding, payment for incomplete or substandard infrastructure works, inflated contract sums, and post-award contract modifications that alter the scope and value of initially awarded contracts (Ghana Audit Service, 2022). More recent evidence shows the problem persists: the Auditor-General's report for the year ended 31 December 2024 recorded total financial irregularities of GH¢18.42 billion, including GH¢2.8 billion in administrative breaches involving procurement and contract irregularities (Ghana Audit Service, 2025). Ghana also scored 43 out of 100 on Transparency International's 2025 Corruption Perceptions Index, ranking 76th among 182 countries (Transparency International, 2026).

The infrastructure sector is considered particularly vulnerable to these governance failures. Roads, public buildings, water and sanitation systems, and energy infrastructure involve large contract values, complex technical specifications, and long implementation timelines, creating opportunities for abuse where oversight mechanisms are weak. The consequences are severe: cost overruns, poor-quality delivery, delayed project completion, and, in some cases, complete project abandonment. These outcomes not only misallocate scarce public resources but also deny citizens the public goods to which they are entitled.

While existing scholarship has broadly examined procurement reform and corruption in sub-Saharan Africa, empirical research directly linking procurement policy compliance behaviours to measurable corruption risk and value-for-money outcomes in Ghana's infrastructure sector remains limited. Most studies either focus on the legal and regulatory architecture of procurement reform (Osei-Tutu et al., 2010; Thai, 2018) or examine corruption in general terms without systematically linking it to specific compliance deficiencies (Ameyaw et al., 2012; Owusu-Manu et al., 2019). To the best of the authors' knowledge, these studies did not (i) measure compliance and corruption

risk using separate, observable indicators, (ii) test whether institutional oversight moderates the compliance–corruption relationship, or (iii) combine documentary indicators with practitioner accounts to explain the mechanisms involved. This paper addresses these gaps.

This study addresses the problem that, despite Acts 663 and 914, compliance with competitive tendering, documentation, and post-award monitoring requirements remains weak in Ghana's infrastructure sector. At the same time, the Auditor-General continues to report large irregularities and perceived corruption remains high. Without evidence on which compliance failures are most closely associated with corruption risk and poor value for money, and how oversight and capacity condition these associations, reform and oversight resources risk being misdirected.

Specifically, this study pursues four interconnected objectives: first, to assess the level of procurement policy compliance among selected Ghanaian ministries, departments, and agencies (MDAs) in the infrastructure sector; second, to examine the relationship between procurement policy compliance and corruption risk exposure; third, to evaluate whether institutional oversight strength moderates this relationship and how procurement officer capacity is associated with corruption risk; and fourth, to examine the relationship between corruption risk and value-for-money outcomes in infrastructure delivery. In doing so, the paper contributes to both the empirical literature on procurement governance in Ghana and the broader theoretical discourse on institutional compliance, anti-corruption policy, and principal-agent dynamics in the public sector.

Three core concepts structure the analysis. Procurement policy compliance is defined as the extent to which procuring entities adhere to the rules, procedures, and documentation requirements of Acts 663 and 914. Corruption risk is the likelihood of corrupt conduct given the structural, procedural, and institutional conditions of a procurement environment, as indicated by red-flag indicators. Value-for-money is the optimal combination of cost, quality, and timeliness over a project's life. Principal-Agent Theory explains why compliance lapses create opportunities for self-interested agent behaviour, Institutional Theory explains why formal rules are applied unevenly, and Public Choice Theory explains why discretionary power invites rent-seeking. Institutional oversight strength is examined as a moderator because Principal-Agent Theory predicts that monitoring changes the expected cost of non-compliance, while procurement officer capacity is examined as an independent predictor because Institutional Theory and the practitioner literature link capacity to the quality of compliance.

The central research question is: To what extent is procurement policy compliance associated with corruption risk and value-for-money in Ghana's infrastructure sector, and how do institutional oversight and procurement officer capacity condition these associations? The study tests four hypotheses derived from the theoretical framework:

H1: Higher procurement policy compliance is associated with lower corruption risk.

H2: Institutional oversight strength moderates the relationship between procurement policy compliance and corruption risk, such that the relationship is weaker where oversight is stronger.

H3: Procurement officer capacity is independently associated with lower corruption risk.

H4: Higher corruption risk is associated with poorer value-for-money outcomes.

The remainder of the paper is organized as follows. Section 2 reviews the literature and theoretical framework; Section 3 describes the methodology; Section 4 presents the findings and discussion; Section 5 presents the conceptual framework; Section 6 compares governance profiles across the MDAs and integrates the quantitative and qualitative findings; and Section 7 concludes with policy implications, limitations, and future research.

Literature Review and Theoretical Framework

Conceptual Review

Public Procurement and Policy Compliance

Public procurement is the process by which governments and public-sector entities acquire goods, services, and works from external suppliers and contractors. In most legislative frameworks, including Ghana's Public Procurement Act, procurement is governed by principles of value for money, transparency, competition, accountability, and fairness (PPA, 2016). In this context, policy compliance refers to the extent to which procuring entities adhere to the rules, procedures, and documentation requirements set out in these legal and regulatory instruments.

Scholars have conceptualized procurement compliance along multiple dimensions. Compliance with pre-award procedures refers to adherence to competitive tendering, publishing tender notices, forming evaluation committees, and properly documenting bid evaluation processes (Akech, 2005). Award procedures include decisions on contract awards, notifying unsuccessful bidders, and adhering to approved price thresholds. Post-award compliance encompasses contract supervision, variation management, payment certification, and project closeout procedures (Thai, 2018). Each dimension presents distinct opportunities for both compliance failure and corruption.

Empirical evidence from sub-Saharan Africa consistently shows that pre-award compliance failures, particularly the abuse of restricted and single-source tendering, are the most common form of non-compliance and are most directly linked to inflated contract prices and corruption (Ameyaw et al., 2012; Osei-Tutu et al., 2010). In Ghana, the Public Procurement Authority's compliance assessments have repeatedly found that many MDAs fail to meet minimum compliance thresholds across multiple procurement categories (PPA, 2021).

Corruption Risk in Public Procurement

Corruption in public procurement takes many forms, including bribing evaluators, collusion among bidders, fraudulent documentation, conflicts of interest in award decisions, and kickbacks in contract implementation. The OECD (2016) estimates that corruption costs the global economy 10 to 30 per cent of public investment, with procurement among the highest-risk areas of public expenditure. In developing countries, where institutional oversight mechanisms are often weaker and procurement officers have limited capacity, these risks are amplified.

Corruption risk in procurement is typically conceptualized as the probability that corrupt behavior will occur given the structural, procedural, and institutional conditions prevailing in a given procurement environment (Fazekas & Kocsis, 2020). High-corruption-risk environments are typically characterized by a low number of bidders, high rates of single-source procurement, short bidding periods, contract modifications shortly after award, and weak audit coverage conditions that are documented consistently in Ghana's infrastructure procurement landscape (Ghana Audit Service, 2022).

Recent scholarship has moved beyond qualitative assessments of corruption risk to develop quantitative indicators derived from procurement data. Fazekas and Kocsis (2020) developed a composite corruption risk index using procurement red flags such as single-bidder competition, non-publication of contract awards, and awards to politically connected firms, and applied it across multiple country contexts. This methodological approach informs how the present study operationalizes corruption risk.

Value-for-Money in Infrastructure Delivery

Value-for-money (VfM) in public procurement refers to the optimal combination of quality, cost, and risk over the whole lifecycle of a project or service (HM Treasury, 2013). In infrastructure delivery, VfM is operationally assessed through indicators such as cost efficiency (actual versus estimated project cost), quality of delivery (compliance with technical specifications), timeliness (actual versus planned completion dates), and benefit realization (the extent to which completed infrastructure generates its intended public benefits).

Research in Ghana and comparable contexts has consistently found that procurement non-compliance and corruption significantly diminish VfM outcomes. Owusu-Manu et al. (2019) found that contract price inflation attributable to corrupt procurement practices added an average of 23 percent to infrastructure project costs in Ghana. Ameyaw et al. (2012) similarly documented that procurement irregularities were the single strongest predictor of project cost overruns and quality deficiencies in Ghanaian road construction. These findings underscore the direct material consequences of procurement governance failures for public infrastructure delivery.

Theoretical Framework

This study draws on three complementary theoretical perspectives to explain the relationship between procurement policy compliance, corruption risk, and value-for-money outcomes.

Principal-Agent Theory

Principal-Agent Theory (PAT), originally developed in the economics literature by Jensen and Meckling (1976) and extended to the public sector by Moe (1984), provides the foundational framework for understanding the compliance–corruption nexus in public procurement. The theory posits that principals (the state, the legislature, and citizens) delegate authority and resources to agents (procurement officers and contracting entities) to act on their behalf. Where information asymmetries exist between principals and agents, agents may engage in self-interested behavior

that diverges from the principal's interests, a phenomenon known as moral hazard. In the procurement context, moral hazard manifests as non-compliance with competitive tendering rules, manipulation of evaluation processes, and corrupt side-dealing with contractors.

PAT predicts that compliance and corruption risk are fundamentally functions of monitoring intensity and incentive structures. Where oversight is weak, evidenced by infrequent audits, understaffed procurement oversight bodies, and limited whistleblower protection, agents face lower expected costs of non-compliant behavior. They are therefore more likely to engage in it (Klitgaard, 1988). Conversely, strengthening principal oversight through regular audits, public disclosure of procurement data, and robust sanctions regimes reduces the agent's latitude for non-compliant conduct.

Institutional Theory

Institutional Theory, as articulated by North (1990) and elaborated in the public administration literature by DiMaggio and Powell (1983), provides a complementary lens for understanding why procurement compliance varies across organizational contexts. Institutions the formal rules, informal norms, and enforcement mechanisms that structure human interaction shape the incentives and constraints facing procurement actors. Where formal procurement rules are clear, consistently enforced, and backed by credible sanctions, compliance is more likely. Where formal rules are ambiguous, inconsistently applied, or undermined by informal norms of corruption and gift-giving, non-compliance becomes institutionalized.

In the Ghanaian context, institutional analysis reveals a significant gap between the formal procurement rules established by Acts 663 and 914 and the informal norms that govern actual procurement practice in many MDAs (Osei-Tutu et al., 2010). Political interference in procurement decisions, neopatrimonial pressure to award contracts to politically connected firms, and a culture of impunity for procurement violations collectively constitute an informal institutional environment that undermines formal compliance. Institutional Theory therefore directs analytical attention to the enforcement credibility and organizational culture dimensions of procurement governance.

Public Choice Theory

Public Choice Theory (Buchanan & Tullock, 1962; Niskanen, 1971) extends neoclassical economics' rational self-interest assumption to government officials and bureaucrats. Applied to procurement governance, it predicts that procurement officers will engage in rent-seeking behavior, using their discretionary authority over procurement decisions to extract personal benefits to the extent that the institutional environment permits. Public Choice Theory is particularly relevant to understanding the supply-side dynamics of procurement corruption: it highlights the structural conditions of monopoly authority, information asymmetries, and discretionary power that create opportunities for rent extraction.

Together, these three theoretical frameworks generate a coherent set of propositions: procurement policy compliance is inversely related to corruption risk; institutional oversight moderates the compliance–corruption relationship; and procurement officer capacity is independently associated with compliance quality and corruption risk. These propositions underpin hypotheses H1 to H4, set out in Section 1 and tested in the empirical analysis.

Empirical Review and Research Gap

Empirical research on procurement governance in Africa has grown substantially over the past two decades, but remains unevenly distributed across country contexts and analytical foci. Studies from East Africa, particularly Kenya, Uganda, and Tanzania, have documented the relationship between procurement reform and corruption outcomes, generally finding that regulatory reforms reduce corruption risk but are insufficient without corresponding investments in enforcement capacity (Basheka, 2009; Gelderman et al., 2006). Studies from South Africa have examined the relationship between preferential procurement policies and value for money, with mixed findings (Bolton, 2006).

In the West African and specifically Ghanaian context, existing studies have focused primarily on three themes: the legal and regulatory architecture of procurement reform (Osei-Tutu et al., 2010; Ameyaw & Chan, 2016); the determinants of corruption in construction procurement (Owusu-Manu et al., 2019; Ameyaw et al., 2012); and the capacity constraints facing procurement entities (PPA, 2021). Notably absent from this literature is a study that directly and empirically links specific procurement compliance behaviors to corruption risk indicators and infrastructure project outcomes, while controlling for moderating institutional and capacity factors.

This gap matters not only for academic completeness but also for policy relevance. Without understanding which specific compliance failures most strongly predict corruption risk and poor VfM, procurement reform efforts risk misallocating scarce oversight resources. The present study addresses this gap directly through an institutional analysis that maps compliance behaviors to measurable governance outcomes in Ghana's infrastructure sector.

3. Research Methodology

3.1 Research Philosophy and Approach

This study adopted a pragmatist research philosophy, which prioritizes research designs that best address the research questions rather than adhering strictly to either the positivist or interpretivist tradition (Creswell & Creswell, 2018). Consistent with this orientation, the study employed a convergent mixed-methods design, integrating quantitative analysis of procurement and audit data with qualitative insights from key informant interviews. The mixed-methods approach was appropriate because the research questions required both statistical testing of compliance–outcome relationships (quantitative) and contextual explanation of the institutional mechanisms that drive those relationships (qualitative) (Tashakkori & Teddlie, 2010).

3.2 Research Context, Target Population, and Sampling

The target population comprised the Ghanaian ministries, departments, and agencies (MDAs) with infrastructure procurement portfolios that were subject to Public Procurement Authority (PPA) compliance assessment, together with the officials directly responsible for procuring and overseeing infrastructure projects in those entities (procurement officers, internal auditors, PPA compliance officers, and Ghana Audit Service auditors).

The study focused on ten ministries, departments, and agencies (MDAs) in Ghana responsible for significant infrastructure expenditure, including the Ministry of Roads and Highways, the Ministry of Works and Housing, the Ghana Highway Authority, and the Ghana Education Trust Fund (GETFund), among others. These entities were selected through purposive sampling based on three criteria: (1) a substantial infrastructure procurement portfolio (minimum annual procurement budget of GHS 50 million); (2) availability of PPA compliance assessment data for at least three consecutive years (2019–2021); and (3) documented infrastructure project records in Ghana Audit Service reports. The quantitative sample comprised 120 infrastructure projects across the ten MDAs. The unit of analysis for the descriptive and comparative results (Tables 1 and 3) was the MDA, whereas the unit of analysis for the regression models (Table 2) was the infrastructure project, with entity-level measures (PPA compliance scores, PEFA oversight indicators, and capacity indicators) assigned to each project according to its MDA.

For the qualitative component, the study conducted key informant interviews with 32 participants, comprising senior procurement officers ($n = 12$), internal audit directors ($n = 8$), Public Procurement Authority compliance officers ($n = 6$), and Ghana Audit Service infrastructure auditors ($n = 6$). Participants were selected using purposive and snowball sampling to ensure informants had direct experience with the procurement processes, compliance challenges, and oversight mechanisms relevant to the study. Purposive selection based on data availability limits generalizability and may introduce selection bias, a limitation discussed in Section 7.3. The interviews were conducted in 2023, after the period covered by the documentary data (2019–2022), and therefore largely captured informants' retrospective accounts of that period.

3.3 Data Collection

Quantitative data were drawn from three primary sources: (1) PPA Entity Compliance Assessment reports (2019–2021), which provide scores across multiple procurement compliance dimensions for each MDA; (2) Ghana Audit Service Annual Reports and Infrastructure Audit Reports (2019–2022), which document procurement irregularities, the value of irregularities, and infrastructure project outcome indicators; and (3) the Public Expenditure and Financial Accountability (PEFA) assessment database, which provides institutional-level indicators of oversight strength and public financial management capacity (PEFA Secretariat, 2021).

Qualitative data were collected through semi-structured interviews conducted between January and April 2023. Interview guides explored participants' perceptions and experiences of compliance challenges, oversight effectiveness, capacity constraints, and corruption risk dynamics in their

respective entities. All interviews were audio-recorded with participant consent and transcribed verbatim for analysis.

3.4 Operationalization of Variables

Procurement policy compliance was operationalized as a composite score derived from PPA compliance assessment data, encompassing four sub-dimensions: (i) competitive tendering compliance (the proportion of contracts awarded through open competitive bidding); (ii) documentation compliance (completeness and accuracy of procurement records); (iii) approval threshold compliance (adherence to approval authority limits); and (iv) post-award monitoring compliance (regularity and quality of contract supervision).

Corruption risk was operationalized using a composite index adapted from Fazekas and Kocsis (2020), incorporating four red-flag indicators derived from audit and procurement data: (i) single-bidder contract rate; (ii) rate of non-competitive procurement; (iii) frequency of post-award contract modifications; and (iv) value of procurement irregularities as a proportion of total procurement expenditure. Full scoring detail for both composite measures is provided in Appendices A and B. Equal weights were applied in both composite measures because no empirical basis existed for assigning differential weights. Because the competitive-tendering sub-dimension of the compliance score and the non-competitive procurement rate in the corruption risk index are conceptually related, we interpret the strength of their association cautiously (Section 7.3).

Value-for-money outcomes were operationalized through three project-level indicators drawn from Ghana Audit Service infrastructure reports: (i) cost efficiency ratio (actual versus estimated project cost); (ii) quality compliance score (the extent to which completed works meet technical specifications); and (iii) completion rate (the proportion of projects completed within the approved timeline and budget).

Institutional oversight strength was operationalized using PEFA indicators for internal audit effectiveness, external audit follow-up rates, and legislative scrutiny of audit reports. Procurement officer capacity was operationalized using PPA training certification rates and professional qualification levels reported in entity assessment records.

3.5 Data Analysis

Quantitative data were analyzed using descriptive statistics, Pearson correlation analysis, and hierarchical multiple regression to examine the direct and moderated relationships between procurement compliance, corruption risk, and VfM outcomes. Moderation analysis followed Hayes's (2018) recommended procedures, with institutional oversight strength entered as a moderating variable (through its interaction with compliance) in the third step of the regression hierarchy and procurement officer capacity entered as an additional predictor in the fourth step. Because projects were nested within ten MDAs and the predictors were measured at the entity

level, observations were not independent; the regression results are therefore interpreted as associations, and their standard errors should be treated with caution (Section 7.3).

Qualitative data were analyzed using thematic analysis following Braun and Clarke's (2006) six-phase approach. Themes were developed inductively from interview data and subsequently mapped onto the theoretical framework to interpret and contextualize the quantitative findings. Member checking was conducted with six participants to verify the credibility and accuracy of the identified themes. The two strands were integrated at the interpretation stage: quantitative results and qualitative themes were compared hypothesis by hypothesis in a joint display (Table 4, Section 6), and divergences were treated as findings requiring explanation.

4. Findings and Discussion

4.1 Level of Procurement Policy Compliance Among Selected MDAs

Descriptive analysis of PPA compliance assessment data across the ten selected MDAs for 2019–2021 revealed persistently low compliance levels: the sample-level composite score fell from 61.3 in 2019 to 52.8 in 2021 (Table 1), and the 2021 entity-level composite scores ranged from 42.3 to 67.8 out of 100 (Table 3), below the PPA minimum compliance threshold of 70 in every MDA. Competitive tendering compliance recorded the lowest sub-dimension scores, with an average of only 48.6 per cent of contracts awarded through open competitive bidding well below the legislative requirement that all contracts above the applicable procurement threshold be competitively tendered. Documentation compliance was marginally higher, averaging 61.2 per cent. Competitive tendering compliance fell the most over the three years (from 53.2 per cent in 2019 to 42.8 per cent in 2021), followed by post-award monitoring compliance (from 58.4 per cent to 49.7 per cent).

Table 1: Mean Procurement Compliance Scores by Sub-Dimension (2019–2021)

Compliance Dimension	2019	2020	2021	Mean
Competitive Tendering Compliance (%)	53.2	49.8	42.8	48.6
Documentation Compliance (%)	64.1	62.4	57.1	61.2
Approval Threshold Compliance (%)	69.3	65.7	61.4	65.5
Post-Award Monitoring Compliance (%)	58.4	53.1	49.7	53.7
Composite Compliance Score	61.3	57.8	52.8	57.3

Source: PPA Entity Compliance Assessment Reports (2019–2021); authors' compilation.

These findings align with PPA (2021), which found that fewer than 30 per cent of assessed entities met the minimum compliance threshold in the 2020 assessment cycle. The declining trend across all dimensions over the three years is particularly concerning, as it suggests that compliance is not improving despite successive rounds of regulatory reform and capacity-building intervention. Qualitative findings from key informant interviews offer important contextual explanations for

these patterns, identifying three primary drivers of non-compliance: political pressure to award contracts to preferred bidders without competitive tendering; capacity constraints that limit the ability of procurement units to complete documentation and monitoring requirements; and a perceived low risk of sanctions for non-compliance given weak enforcement by the PPA and the Ghana Audit Service.

"The pressure to use restricted tendering or sole-source awarding for politically connected contractors is immense. It comes from the ministry's highest levels. Even when we know it violates the Act, the personal risk of refusing outweighs the institutional risk of complying."

— Senior procurement officer, infrastructure MDA

This testimony is consistent with the predictions of Principal-Agent Theory regarding moral hazard under weak oversight, and with Public Choice Theory's account of self-interested bureaucratic behaviour under neopatrimonial institutional pressure.

4.2 Compliance, Corruption Risk, and Value-for-Money

Pearson correlation analysis showed a strong, statistically significant negative relationship between the composite procurement compliance score and the corruption risk index ($r = -0.74$, $p < 0.001$), indicating that lower compliance was associated with higher corruption risk. At the sub-dimension level, competitive tendering compliance exhibited the strongest inverse correlation with corruption risk ($r = -0.81$, $p < 0.001$), followed by post-award monitoring compliance ($r = -0.67$, $p < 0.001$). These findings were consistent with the theoretical predictions of PAT and Institutional Theory: the sub-dimensions that most directly constrain discretionary authority, competitive tendering and contract supervision, were those most strongly associated with corruption risk when compliance was low. Because competitive tendering compliance and the non-competitive procurement component of the corruption risk index are conceptually related, interpret the strength of this association with caution.

Hierarchical multiple regression results (Table 2) confirmed that procurement compliance significantly predicted corruption risk ($\beta = -0.61$, $p < 0.001$) after controlling for entity size, procurement volume, and sector type. The introduction of institutional oversight strength as a moderating variable in Step 3 of the regression hierarchy yielded a significant interaction effect ($\beta = 0.34$, $p < 0.01$), indicating that the compliance–corruption relationship was weaker in entities with stronger institutional oversight; that is, the association between compliance failure and corruption risk was attenuated where oversight was strong. This finding is consistent with the theoretical proposition, derived from PAT, that monitoring intensity moderates the compliance–corruption nexus.

Table 2: Hierarchical Regression Results — Procurement Compliance and Corruption Risk Index

Variable	Step 1 β	Step 2 β	Step 3 β	Step 4 β
Entity Size (log procurement volume)	0.12	0.10	0.09	0.08
Sector Type (Infrastructure vs Other)	0.21*	0.18*	0.17*	0.16*
Procurement Compliance Score	—	-0.61***	-0.59***	-0.57***
Institutional Oversight Strength	—	—	-0.28**	-0.26**
Compliance $\times$ Oversight Interaction	—	—	0.34**	0.31**
Procurement Officer Capacity	—	—	—	-0.22**
R^2	0.11	0.46	0.61	0.67
ΔR^2	—	0.35***	0.15**	0.06**

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. $N = 120$ infrastructure projects across 10 MDAs. Projects are nested within MDAs, and the compliance, oversight, and capacity measures are entity-level; standard errors may therefore be understated, and coefficients should be interpreted as associations rather than causal effects.

With respect to value-for-money, regression analysis showed that corruption risk was a significant negative predictor of all three VfM indicators: cost efficiency ratio ($\beta = -0.58$, $p < 0.001$), quality compliance score ($\beta = -0.49$, $p < 0.001$), and completion rate ($\beta = -0.53$, $p < 0.001$). Projects procured through competitive tendering exhibited significantly better VfM outcomes than those procured through restricted or sole-source methods, with cost efficiency ratios averaging 1.18 (an 18 per cent cost overrun) compared with 1.47 (a 47 per cent cost overrun) for non-competitively tendered projects. These findings are consistent with the argument that procurement non-compliance, and the corruption risk associated with it, is linked to higher costs and weaker quality and timeliness in infrastructure project outcomes. Because a formal mediation test was not conducted, corruption risk is treated here as a correlate of, rather than a demonstrated mediator between, compliance and value-for-money.

4.3 The Role of Institutional Oversight and Procurement Officer Capacity

The moderation analysis confirmed that institutional oversight strength significantly moderated the relationship between compliance and corruption risk. MDAs with higher oversight scores, characterized by active internal audit functions, timely responses to Ghana Audit Service findings, and regular PPA monitoring visits, showed an attenuated relationship between low compliance and corruption risk, suggesting that strong oversight may partly offset the corruption risk associated with compliance deficiencies, possibly by detecting and sanctioning corrupt conduct earlier. This finding aligns with PAT's predictions and suggests that investing in oversight capacity may reduce corruption risk even when full compliance is not achieved.

Procurement officer capacity also emerged as a significant independent predictor of corruption risk ($\beta = -0.22$, $p < 0.01$), with higher capacity associated with lower corruption risk after accounting for compliance and oversight. Qualitative interviews elaborated on the mechanisms involved: better-trained procurement officers are more familiar with legal requirements, more

confident in resisting political pressure to deviate from procedures, and more likely to maintain complete documentation, which deters corrupt behaviour by creating an audit trail. These findings point to the complementary roles of training and oversight as dual pillars of effective procurement governance.

Institutional Theory's predictions are also supported by the qualitative findings. Entities that treated compliance with procurement rules as a genuine professional and institutional norm, rather than a bureaucratic formality, showed higher compliance scores and lower corruption risk indices. Where informal norms of political interference and gift-giving were normalized, formal compliance tended to be cosmetic, with documentation created post-hoc to disguise non-compliant procurement decisions. Institutional theory research (Meyer & Rowan, 1977) documents this decoupling between formal compliance and substantive behaviour, and we observe it here in the Ghanaian procurement context.

4.4 Thematic Findings from Key Informant Interviews

While the quantitative analysis establishes the statistical relationships between procurement compliance, corruption risk, and value-for-money outcomes, the qualitative component of the study provides essential explanatory depth, revealing the institutional mechanisms, actor motivations, and organizational cultures that generate and sustain the compliance failures documented in the quantitative data. Thematic analysis of the 32 key informant interviews produced five overarching themes, each enriching and contextualizing a distinct aspect of the quantitative findings.

Theme 1: Political Interference as the Primary Driver of Non-Compliant Procurement

The most pervasive theme across all interview cohorts was political interference in shaping procurement decisions. Twenty-six of the thirty-two participants identified direct or indirect political pressure as a significant or primary cause of non-compliance with competitive tendering requirements. This interference operated through multiple channels: explicit instructions from political appointees to award contracts to specified firms without competitive bidding; informal pressure through intermediaries and party structures; and threats of reassignment or dismissal against procurement officers who refused to comply with non-compliant directives.

"When the directive comes from the minister's office, it is not framed as an instruction to break the law. It is framed as a matter of urgency, as the minister's preference, or as a prior commitment to a reliable contractor. But everyone knows what it means. The paperwork is created afterwards to make it look compliant."

— Senior procurement officer, infrastructure MDA

This account illustrates what institutional theorists describe as decoupling, the separation of formal compliance documents from actual procurement practice, and reflects the broader neopatrimonial dynamic in which political relationships override legal obligations (Meyer & Rowan, 1977; North, 1990).

Internal audit directors corroborated these accounts, noting that many of the procurement irregularities they detect involve documentation created retrospectively to justify decisions already made, rather than to guide decisions prospectively. This post-hoc documentation pattern is a key mechanism for concealing corrupt procurement behind a veneer of formal compliance, and it explains the gap between compliance scores based on document availability and the substantive compliance behaviours captured by corruption risk indicators.

PPA compliance officers interviewed acknowledged this challenge directly, noting that the documentary compliance metric captured in their entity assessment scores does not necessarily reflect substantive procedural compliance. This finding has direct methodological implications: studies that rely solely on compliance documentation scores as a proxy for actual procurement behaviour risk systematically underestimating non-compliance and overestimating the effectiveness of documentation-based compliance interventions.

Theme 2: Capacity Constraints and Their Interaction with Compliance Behaviour

The second major theme concerned the role of procurement officers' capacity, technical knowledge, professional confidence, and workload management capability in shaping compliance behaviour. Participants consistently distinguished between two distinct types of non-compliance: wilful non-compliance driven by corrupt intent or political pressure, and inadvertent non-compliance resulting from inadequate knowledge of procurement rules or insufficient staffing to complete required procedures correctly and on time.

Procurement officers in smaller MDAs and district-level agencies were more likely to report inadvertent non-compliance, citing limited access to professional training, high staff turnover, and the absence of dedicated procurement units as structural factors that made full compliance procedurally difficult even in the absence of corrupt intent. Several participants in this group described using restricted tendering not to favour a particular contractor but because timeline pressures imposed by budget release schedules and project implementation deadlines left insufficient time for the minimum advertising periods required under open competitive bidding.

"The law says advertise for twenty-one days. But by the time the budget is released and the authority to commence procurement is granted, we have six weeks to award the contract and start work before the fiscal year closes. If we follow the full open bidding process, we will miss the implementation deadline and lose the funding. So we use restricted tendering, not because we want to, but because the system forces us to."

— Procurement officer, fifteen years' experience, district roads authority

This account highlights a systemic misalignment between procurement legal requirements and budgetary calendar constraints that generates structural non-compliance independently of individual intent or institutional corruption. It suggests that procurement reform strategies focused

exclusively on legal enforcement and sanctions will be insufficient unless they also address the operational context in which procurement decisions are made.

PPA compliance officers and Ghana Audit Service auditors confirmed that this kind of inadvertent non-compliance was common and distinguishable from wilful non-compliance by the pattern of irregularities it produced: restricted tendering without documentation of emergency justification, rather than the inflated prices and post-award contract modifications more characteristic of corrupt procurement. This distinction has important implications for how the PPA should differentiate its enforcement responses, directing sanctions towards wilful non-compliance while offering technical assistance and procedural relief to capacity-constrained entities.

Theme 3: The Deterrence Deficit and Enforcement Credibility

A third dominant theme concerned the perceived credibility, or lack thereof, of sanctions for procurement non-compliance. Across all participant groups, there was broad consensus that the current enforcement environment provides insufficient deterrence against non-compliant behavior. Procurement officers reported widespread awareness that the probability of being sanctioned for procurement violations was low, and that even when the Ghana Audit Service or the PPA detected irregularities, the consequences were typically limited to administrative queries and management letters rather than financial recovery, prosecution, or professional sanction.

The documentary record substantially supports this perception. Analysis of Ghana Audit Service reports over the period 2019–2022 revealed that fewer than 12 per cent of documented procurement irregularities resulted in financial recovery, and fewer than 3 per cent led to prosecution or formal disciplinary proceedings against responsible officials. Without credible, consistently applied sanctions, rational actors operating under the conditions described by Public Choice Theory have limited institutional incentive to comply, especially when political pressure or personal financial incentives favour non-compliance.

"We write the report. The ministry gives a management response. Parliament debates it sometimes. And then the next year we find the same irregularities in the same entity. The cycle repeats because nothing actually happens to the people responsible. There is no fear of consequences, so there is no change in behaviour."

— Senior auditor, Ghana Audit Service

This observation reflects a fundamental failure of what institutional economists term enforcement credibility: the degree to which formal rules are backed by sanctions that rational actors take seriously (North, 1990; Klitgaard, 1988). The implication for procurement reform is that legal and procedural reforms, without corresponding investment in enforcement capacity and the political will to apply sanctions, are unlikely to produce sustainable improvements in compliance behaviour.

Theme 4: GHANEPS Implementation — Promise and Persistent Gaps

A fourth theme, prominent in interviews with both procurement officers and oversight officials, concerned the Ghana Electronic Procurement System (GHANEPS), introduced in 2018 as a digital platform for managing public procurement processes. GHANEPS was designed to enhance transparency, improve competition, and generate a real-time audit trail of procurement decisions. Participants offered nuanced, and often contradictory, assessments of its implementation progress and impact.

Among PPA officials and oversight bodies, GHANEPS was regarded as a significant institutional advancement that had meaningfully increased the visibility of procurement activities and enabled more targeted compliance monitoring. Several oversight officials noted that GHANEPS made it substantially harder to conceal certain categories of non-compliance, particularly failure to advertise tender notices and awarding contracts above threshold without competitive bidding, because these processes now generated digital records accessible to the PPA in real time.

Procurement officers at MDA level, however, offered a more qualified assessment. Many reported that GHANEPS adoption remained incomplete, with a significant proportion of procurement activity, particularly at the sub-national level and in smaller entities, still conducted through manual, paper-based processes not captured on the platform. Others noted that the system's user interface was technically demanding, that connectivity constraints in some locations made reliable system access difficult, and that training for procurement officers on GHANEPS functionality had been inconsistent. These gaps mean that GHANEPS's potential as a real-time anti-corruption tool remains partially unrealised, and that the compliance visibility gains it offers are concentrated among larger, better-resourced entities that are, paradoxically, already more likely to maintain higher compliance standards.

These findings point to the need for a differentiated GHANEPS rollout strategy that prioritises mandatory adoption and targeted technical support for smaller, lower-capacity entities where compliance risks are highest, rather than concentrating system development and training resources on entities already performing relatively well on compliance metrics.

Theme 5: Contractor-Side Dynamics and Collusive Tendering

The fifth theme concerned the supply-side dynamics of procurement corruption, specifically, the role of contractors in initiating, sustaining, and institutionalizing corrupt procurement relationships. While the governance literature more commonly studies demand-side corruption, in which public officials solicit bribes from contractors, participants in this study described a more complex, bidirectional corruption dynamic in which contractors actively cultivated political and official relationships to secure procurement advantage.

Procurement officers described receiving regular hospitality, gifts, and informal payments from contractors seeking inclusion on restricted tender lists, advance notice of upcoming tender specifications, or contract variations after the initial award. Several participants noted that long-

term relationships between specific contractors and procurement entities had become so institutionalized that competitive tendering in the relevant categories had effectively ceased to function as a market mechanism, with the same firms consistently winning contracts regardless of the formal procurement method used.

Ghana Audit Service auditors independently corroborated these accounts by analyzing contract award patterns, noting concentrated awards in which a small number of firms received a disproportionate share of contracts within specific MDAs over multiple years. This concentration, a standard red-flag indicator in the corruption risk literature (Fazekas & Kocsis, 2020), aligns with the collusion and relationship-based procurement dynamics described by interview participants and reflects a significant market competition failure with direct consequences for value-for-money outcomes.

Collectively, these five qualitative themes provide a rich institutional portrait of Ghana's procurement governance challenges that both corroborates and extends the quantitative findings. They reveal that procurement non-compliance is not a simple function of rule ignorance or individual venality, but is embedded in a complex web of political pressure, institutional incentive structures, capacity constraints, enforcement deficits, and contractor-side dynamics that requires a correspondingly multi-dimensional reform response.

5. Conceptual Framework

Figure 1 presents the study's integrated conceptual framework, which synthesizes the three theoretical perspectives Principal-Agent Theory, Institutional Theory, and Public Choice Theory into a unified explanatory model of the relationships between procurement policy compliance, corruption risk, and value-for-money outcomes in Ghana's infrastructure sector. The framework illustrates both the direct relationships tested in the quantitative analysis and the moderating pathway for oversight, together with the contextual pathways identified in the qualitative findings.

Figure 1: Integrated Conceptual Framework — Procurement Governance, Corruption Risk, and Value-for-Money

Independent Variables	Moderating Variables	Dependent Variables
Procurement Policy Compliance: • Competitive tendering compliance • Documentation compliance • Approval threshold compliance • Post-award monitoring compliance	Institutional Oversight Strength (internal audit effectiveness, external audit follow-up, legislative scrutiny) Procurement Officer Capacity (certification, training coverage, experience) Political Interference Intensity (qualitative construct)	Corruption Risk Index: • Single-bidder rate • Non-competitive procurement rate • Post-award modification rate • Irregularity value ratio Value-for-Money: • Cost efficiency ratio • Quality compliance • Completion rate
Theoretical basis: Principal-Agent Theory; Public Choice Theory	Theoretical basis: Institutional Theory; Principal-Agent Theory	Theoretical basis: Principal-Agent Theory; Institutional Theory

Source: Authors' conceptual development (2023).

The framework positions procurement policy compliance as the primary independent variable, comprising four measurable sub-dimensions that capture distinct phases of the procurement cycle: pre-award competitive tendering, documentation integrity, approval authority adherence, and post-award contract supervision. These sub-dimensions are derived from the PPA's compliance assessment architecture and align with the theoretical dimensions of compliance identified in the Principal-Agent and Institutional Theory literatures.

The framework incorporates three conditioning variables identified through the theoretical analysis: only institutional oversight strength was tested as a moderator, procurement officer capacity was tested as an independent predictor, and political interference intensity was examined qualitatively. Institutional oversight strength captures the degree to which external and internal monitoring mechanisms constrain agent behaviour and enforce accountability. Procurement officer capacity reflects the technical and professional resources available to procurement actors for implementing compliance. Political interference intensity, operationalized qualitatively in this study, captures the degree to which informal political pressure distorts formal procurement decision-making, a dimension that Institutional Theory identifies as a critical determinant of the gap between formal rules and substantive compliance behavior.

The framework generates two primary clusters of dependent variables. The corruption risk index captures the probability and extent of corrupt conduct in procurement processes, operationalized through observable red-flag indicators. Value-for-money outcomes capture the ultimate public interest consequences of procurement governance quality, measured at the project level through

cost efficiency, quality, and timeliness indicators. The framework thus proposes a pathway from procurement governance inputs (compliance) to public sector outputs (VfM) through corruption risk; this pathway is hypothesized rather than formally tested because no mediation analysis was conducted and the cross-sectional data do not permit causal inference.

6. Comparative Analysis: Procurement Governance Profiles Across Selected MDAs

To supplement the aggregate quantitative findings, Table 3 presents a comparative governance profile of the ten selected MDAs, classifying each according to its composite compliance score, corruption risk index, value-for-money performance, and institutional oversight rating for the 2021 assessment year. This comparative presentation reveals important heterogeneity across the sample that is obscured by aggregate statistics and that has practical significance for targeted reform prioritization.

Table 3: Comparative Procurement Governance Profiles — Selected MDAs (2021)

MDA (Anonymised)	Compliance Score /100	Corruption Risk Index	VfM Score /100	Oversight Rating	Profile
MDA-A (Roads Authority)	42.3	High (0.78)	51.2	Weak	High Risk
MDA-B (Works & Housing)	48.7	High (0.71)	55.8	Weak	High Risk
MDA-C (Education Fund)	54.1	Moderate (0.58)	62.4	Moderate	Moderate Risk
MDA-D (Health Facilities)	56.9	Moderate (0.54)	64.1	Moderate	Moderate Risk
MDA-E (Water Authority)	59.3	Moderate (0.49)	67.3	Moderate	Moderate Risk
MDA-F (Transport Ministry)	61.4	Moderate (0.45)	69.8	Strong	Managed Risk
MDA-G (Energy Commission)	63.8	Low-Mod (0.38)	72.1	Strong	Managed Risk
MDA-H (Urban Roads Dept.)	65.2	Low-Mod (0.34)	74.6	Strong	Lower Risk
MDA-I (Ports Authority)	66.7	Low (0.29)	77.2	Strong	Lower Risk
MDA-J (Railway Dev. Auth.)	67.8	Low (0.24)	79.5	Strong	Lower Risk
Sample Mean	58.6	0.48	67.4	—	—

Note: Compliance scores from PPA (2021); Corruption Risk Index adapted from Fazekas & Kocsis (2020); VfM scores from Ghana Audit Service infrastructure assessments (2021–2022); oversight ratings from PEFA Secretariat (2021). MDA names anonymized. The sample mean is the unweighted mean of the ten MDA scores shown.

Table 3 reveals three distinct governance profile clusters within the sample. The first cluster, comprising MDA-A and MDA-B, is characterized by the lowest compliance scores (below 50), the highest corruption risk indices (above 0.70), the weakest VfM scores (below 58), and weak institutional oversight ratings. These entities represent the highest-priority targets for intensive PPA enforcement intervention, compliance remediation support, and special audit attention from the Ghana Audit Service.

The second cluster MDA-C through MDA-F occupies a middle ground of moderate compliance, moderate-to-managed corruption risk, and mid-range VfM performance. These entities have largely adequate documentation practices but exhibit persistent weaknesses in compliance with competitive tendering and in post-award monitoring. The transition from moderate to strong oversight ratings within this cluster (MDA-F has a strong oversight rating despite only moderate compliance scores) is consistent with the moderating effect identified in the regression analysis: stronger oversight appears to offset some of the corruption risk associated with compliance deficiencies, although with ten MDAs this pattern is illustrative rather than conclusive.

The third cluster, MDA-G through MDA-J, shows that meaningfully higher compliance is achievable in the Ghanaian public sector, with composite scores approaching, though still below, the PPA minimum threshold of 70, lower corruption risk profiles, and better VfM outcomes. Importantly, all entities in this cluster have strong oversight ratings, suggesting that higher compliance and robust external monitoring are associated with the most favourable outcomes in the current institutional environment. These entities offer potential models for peer learning and reform replication across the broader MDA population.

Table 4 integrates the quantitative and qualitative strands hypothesis by hypothesis, showing where the two sources converge and where they diverge.

Table 4: Joint Display of Quantitative and Qualitative Findings by Hypothesis

Hypothesis / Issue	Quantitative evidence	Qualitative evidence	Integration
H1: Compliance and corruption risk	$r = -0.74$ (composite); $\beta = -0.61$, $p < 0.001$, after controls	Themes 1, 3, and 5: political interference, weak sanctions, and collusive tendering	Convergent: interviews explain the mechanisms behind the negative association
H2: Oversight as moderator	Interaction $\beta = 0.34$, $p < 0.01$; relationship weaker where oversight is stronger	Theme 3 (deterrence deficit) and Theme 4 (GHANEPS visibility gains concentrated in larger entities)	Convergent, with a caveat: oversight appears to work through detection and credible sanctions, which interviewees described as inconsistent
H3: Capacity	$\beta = -0.22$, $p < 0.01$ (independent predictor of corruption risk)	Theme 2: inadvertent versus wilful non-compliance; timeline pressures in smaller MDAs	Partly divergent: capacity addresses inadvertent non-compliance but not politically driven non-compliance
H4: Corruption risk and VfM	$\beta = -0.58$, -0.49 , and -0.53 for cost efficiency, quality, and completion	Theme 5: concentrated contract awards and relationship-based tendering weaken competition	Convergent: the competition failure described by informants is consistent with poorer VfM
Measurement of compliance	Scores based largely on documentation and entity-assessment data	Themes 1 and 3: post-hoc documentation conceals non-compliant decisions	Divergent: documentary compliance scores may overstate substantive compliance

Source: Authors' analysis (2023).

Conclusion and Recommendations

Conclusion

This study examined how public procurement policy compliance relates to corruption risk and value-for-money in Ghana's infrastructure sector, drawing on Principal-Agent, Institutional, and Public Choice theories and a convergent mixed-methods design. Compliance among the selected MDAs remained below the PPA threshold and declined across all sub-dimensions between 2019 and 2021, with competitive tendering and post-award monitoring weakest. Lower compliance was strongly associated with higher corruption risk, particularly for competitive tendering; stronger institutional oversight was associated with a weaker compliance–corruption relationship; and higher corruption risk was associated with poorer cost efficiency, quality, and completion outcomes. The study contributes an integrated institutional framework and evidence linking specific compliance sub-dimensions to corruption risk and project outcomes. Given the cross-sectional design and small purposive sample, the findings are associations rather than causal effects.

Recommendations

The findings point to five policy priorities. First, the PPA should prioritise enforcement of competitive tendering requirements, backed by meaningful sanctions such as suspension of procurement authority and financial surcharges. Second, the Ghana Audit Service should expand infrastructure-specific audits and shorten the 18 to 36 month delay between irregularities and audit findings, using GHANEPS data for risk-based targeting. Third, procurement officer capacity should be strengthened through CIPS-aligned certification and structured mentorship, complementing rather than substituting for oversight. Fourth, the legal framework should require timely publication of all infrastructure contract awards on GHANEPS and disclosure of the beneficial ownership of contracting firms. Fifth, the PPA and the Audit Service should adopt a risk-tiered strategy combining intensive enforcement for high-risk MDAs, technical assistance for capacity-constrained entities, and peer learning with lower-risk MDAs.

This study has several limitations that warrant acknowledgement. The purposively selected sample of ten MDAs, while relevant and data-rich, limits the generalisability of the quantitative findings. Future studies should seek to expand coverage to include district assemblies and state-owned enterprises, where procurement governance challenges may be more severe. Reliance on PPA compliance scores as the primary measure of compliance is also a potential limitation, as these scores are based on self-reported entity data and may underestimate the true extent of non-compliance — a concern the qualitative findings themselves substantiate through the documented practice of post-hoc documentation. Further limitations concern the design and measurement. Future research should investigate the specific mechanisms through which political interference enters procurement decision-making in Ghana, potentially through network analysis of contract award patterns and firm ownership data. Longitudinal research designs that track the same entities over longer time periods would allow stronger causal inference about the direction of the compliance–corruption relationship. Comparative studies across West African countries with

different procurement governance architectures would further enrich the regional evidence base and provide stronger grounds for policy learning.

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