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AN EMPIRICAL ANALYSIS OF COERCIVE MEANS OF ENFORCING COMPLIANCE IN PUBLIC PROCUREMENT

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ABSTRACT. Compliance enforcement is central in issues involving co-operation and delegation of authority. In fact, many proposed mechanisms seek to enhance adherence to the contracted agreements. Generally, monitoring and sanction arrangements constitute one of the widely applied tools to ensure compliance. Notwithstanding the prevailing mixed opinions on the usefulness of such coercive measures, in public procurement, such seemingly drastic measures are also commonly applied to enhance the purchasers' adherence to the established procurement frameworks. This study investigated the effectiveness of the monitoring and sanction arrangements in enhancing procurement rule compliance in the Tanzania context. Using data generated from a cross-sectional survey conducted between December 2006 and May 2007, this study established that the effectiveness of such enforcement means in the public sector is situational contingent and has to take into account other context-specific factors, which tend to influence the outcome.

INTRODUCTION

In the public sector, compliance with the established procurement rules is one of the prominent prerequisites buyers are subjected to. Whereas laid-down procurement frameworks are intended to align procurement decision-making processes with the government's intended objectives, the implementation of

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procurement policy, however, has not been that easy. Indeed, procurement literature highlights the various challenges that tend to undermine the effective implementation of procurement in the public sector, that is, to enforce a practice that complies with the established procurement framework. On the other hand, literature is replete with works proposing remedies for enhancing such compliance. In fact, several studies suggest ways of improving the agents' compliance with the agreed contracts. The mechanisms that have gained prominence in enhancing compliance include the application of monitoring and sanction arrangements. Notably, much has been written on the usefulness of such strategies from the compliance perspective; however, what seems lacking is literature on the application of such steps in inducing purchasers in public sectors to do as required. This study focuses on the public sector of Tanzania, primarily as a case study, to provide some insights of the effectiveness of monitoring and sanction arrangements in public procurement. It investigated the effectiveness of coercive means in enforcing compliance among buyers in Tanzania's public sector, which has established procurement rules to enhance efficiency and accountability. The paper is divided into six sections, which sequentially start with an introduction, followed by sections presenting the methodology, analysis, discussion and conclusion.

LITERATURE REVIEW

Generally, the principal agent theory provides ground for the explosion of interest in the role of incentives in both firms and government agencies (Miller, 2005). Studies based on principal-agent reasoning are replete with the optimism that efficiency gains can be realized within public bureaucracies by invoking self-interest under the right incentive contract (Laffont & Martimort, 2001). Some scholars argued that even the confounding factor of asymmetric information can be overcome by the right incentives (Miller, 2005). Proponents of this approach regard the application of the right incentives as an importation of the invincible hand from the marketplace to the firm whereby each party, consulting his/her incentives, find it in his/her interest to do just what the organisation needs to boost efficiency. This is considered to diminish the need for investment in supervision and the use of sanctions. Previous research indicates that despite the perceived usefulness of the right incentive schemes to economic agents, the concept has not been

widely applied in public bureaucracies. One potential explanation offered by Miller (2005) is risk aversion. Miller (2005) claimed that a combination of risk aversion and information asymmetry makes it impossible to replace monitoring of agent behaviour with an equally efficient system of incentives based on easily observed outcomes. The other available controlling mechanism, which is regarded as a negative incentive scheme, involves the use of coercive mechanisms of monitoring and sanctions. As a matter of fact, principal-agent literature tends to defend the application of monitoring and sanction mechanisms in inducing agents' compliance. On the whole, the application of the coercive mechanisms is regarded as important in principal-agent relationships as self-interest agents treat it as a constraint in pursuing their own interests, not that of the principal.

Monitoring Activities

Being a result of asymmetric information between contractual parties where individual actions cannot be observed and hence contracted upon, moral hazard is claimed to be a source of free-riding problems, resulting in little effort on the part of the agent, as well as all the ex-post behaviours that undermine the welfare of the principal. Underscoring the importance of monitoring agents, numerous studies have confirmed the usefulness of monitoring activities in mitigating opportunistic but detrimental behaviours to enhance compliance (Eisenhardt, 1989; Rokkan & Buvik, 2003; Rokkan & Buvik, upcoming). In fact, the employment of monitoring activities, which involve the implementation of a reporting system and information transfer from agents to principals (Rokkan & Buvik 2003), expected to increase the agents' compliance as it is argued that, monitoring activities increased social pressure to agents (Rokkan & Buvik upcoming). It is also recommended that, for successful monitoring arrangements, agents need to be aware of the effectiveness of the applied observing activities. Indeed, it is sufficient to claim that the applied monitoring activities need to be frequent for them to lead to outcomes that will influence agents' behaviours.

For the many government functions which are characterised by principal-agent relationship, procurement is considered prone to weak management (Bartle & Korosec, 2003). Previous research that focused on public sector procurement also confirmed the lack of function compliance with the adopted procurement rules (Greenstein, 1993), as well as fraud, waste and mismanagement (Weisman,

1987), corruption (Bartle & Korosec, 2003) including unethical and illegal practices (Penska & Thai, 2000). These undesired outcomes are considered to be common phenomena in the procurement function. Since established procurement frameworks serve as a tool for minimising such anomalies, their occurrences do not only signify non-adherence to the procurement rules, but also an indication of weak compliance enforcement arrangements.

Similar reasoning can be applied to the challenges facing Tanzania's public sector procurement, particularly with regard to the observed state of rule compliance (Controller and Auditor General [CAG] Reports, 2000-2007; Tanzania Parliament, 2003; Public Procurement Regulatory Authority –PPRA (2007). Indeed, there are numerous examples that raise concerns about the effectiveness of monitoring activities in Tanzania's public sector procurement arrangements. These include an observed lack of adherence to the rule requirement that directs principals to inspect at least twice a year their subordinates charged with procurement and supply duties. In fact, the available evidence shows that only a few managed to comply with this requirement (Tanzania Parliament, 2003). Whereas lack of resources to enable the implementation of such a requirement might be sighted as a reason, particularly by agencies with offices in remote areas, which have persistently been blamed for lack of rule compliance (World Bank, 2003; CAG Reports, 2000-2007); the same reason does not hold for agencies with closely located principals and agents.

The available literature provides opposing findings on the effectiveness of monitoring activities in enforcing compliance behaviour among agents. There are studies that indicate a negative association between monitoring activities and compliance behaviour (John, 1984; Murry & Heide, 1998; Mwakibinga, 2008). Such studies established a decrease in compliance as monitoring efforts increase. Yet, other observations indicate a positive association between the two (Rokkan & Buvik, 2003; Kulp, Randall, Brandyberry, & Potts, 2005). The explanations offered in Murry and Heide (1998) include agents' negative perception on the principals' attempts to limit their freedom in making decisions. The other presumed cause relates to the issue of trust. In this regard, the increase of monitoring efforts is perceived by agents as the decreased level of principals' trust in them, which eventually devalues their relationship. According to

Murry and Heide, such perceptions can prompt agents to retaliate through non-compliance behaviour. The other group underscores the effectiveness of monitoring activities in enforcing compliance. Rokkan and Buvik (2003), for example, found the use of monitoring and sanctions as an effective way of mitigating freeriding behaviours among supply chain members.

The current research treats contract compliance as similar to rule compliance primarily because monitoring is one of the mechanisms employed in ensuring that implementation is in accordance with the agreements. Similarly in public procurement, effective monitoring arrangements are an important mechanism that exposes the prevailing behaviours of the procurement practitioners. Indeed, the application of monitoring activities helps to expose the behaviours and actions of the parties involved, hence paving the way to enforcement of corrective actions. On the whole, such exposure induces compliance. In Tanzania, the task of monitoring procurement implementation is made through the following bodies: the National Audit Office (NAO), the Stock Verification Department (SVD), The Technical Audit Unit (TAU) and the Public Procurement Regulatory Authority (PPRA). Opinions from the NAO and the SVD are reported by the Controller and Auditor General (CAG). The technical audits conducted by TAU are then presented to the Permanent Secretary, in the Ministry of Finance and Economic Affairs for control purposes. Observations made by such bodies are useful in taking corrective measures geared towards improving the function's practice. Moreover, monitoring facilitates the application of several compliance enforcement initiatives aimed at enhancing compliance with procurement rules applicable in the sector. On the basis of this discussion the following is proposed:

H_1: There is a positive association between the implemented monitoring activities and the degree of compliance with the established procurement rules in the government sector.

Sanctions

Contract execution is a core issue in formulated agreements. A successful implementation of such agreements is facilitated by initiatives that induce contractual parties to abide by the agreed contracts. In this regard, presumptions posited by principal agent scholarship illuminate agents' incentive to shirk responsibility in

unconstrained environments. Thus, several other initiatives are recommended for principals to ensure agents behave in accordance with the agreed contracts. Such compliance enforcement mechanisms include the application of sanctions. These punitive measures are aimed at discouraging undesirable behaviours (deviations). Generally, sanctions are regarded as an effective method for weakening the probability of future recurrence of shirking behaviours (Schneider, 1974). Not surprisingly, sanctions are among mechanisms that are widely applied to enforce compliance and serve as a deterrent.

The application of sanctions as a method for modifying agents' behaviours has attracted two opposing groups. There are those who treat the rewarding system (incentives), which is also known as positive reinforcement, as a more effective alternative method to sanctions. Several works have supported the effectiveness of rewarding system in enhancing compliance (Schnieier, 1974; Skulp et al, 2005). The second group recommends the application of sanctions to enhance compliance. The studies that consider sanctions as useful in boosting procurement rule compliance include Penska and Thai (2000), Kurland (1993), Rokkan and Buvik (2009). In addition, the principal-agent scholarship also contains an array of mechanisms that help mitigate the agency problem. The various commonly cited mechanisms include issuing threats of slapping sanctions on non-compliant agents. The mixed opinion with regard to the positive or negative effects of using sanctions in compliance enforcement mechanisms notwithstanding, sanctions are widely used in public organisations. They remain an important aspect of virtually all the managers' jobs. Within the public sector, established procurement frameworks include imposition of sanctions on non-compliant practitioners. Thus, our main concern regarding the use of sanctions is how effective is the mechanism in serving the intended purpose, especially in discouraging purchasers' deviation from established procurement rules.

Numerous empirical works on compliance problems have come out with findings hinting at the effectiveness of sanctions in enhancing compliance. These studies, especially those on public procurement, have established the effectiveness of sanctions in increasing compliance. The applicable sanctions come in different forms: fines, debarments to public procurement contracts and

blacklisting. For effective compliance, some researchers have proposed immediate imposition of punitive action (Asner, 2002). In fact, Asner further emphasised the importance and ability of sanctions in discouraging improper procurement practices and, hence, increased compliance in the process.

The contention that, practitioners (such as buyers) weigh the benefits of complying with procurement rules against possible detriments (Braun, 2003) before making procurement decisions is closely linked with what Becker (1968) called the "economics of crime." Indeed, people act rationally by weighing the benefits against possible apprehension before committing crimes. If the utilities derived from the crime exceed those to accrue from compliance, then the incentive to disobey rules becomes an attractive proposition. In fact, Kurland (1993) contended that sanctions act as a deterrent only when they are perceived to constitute a real threat. Similarly, the credibility of threats depends on the effectiveness of the monitoring activities in place. In the absence of effective monitoring mechanism, not only do some agents assume to be free to pursue their private goals, but the situation can also pave the way to behavioural uncertainty and performance evaluation problems. Eventually, the situation can lead to non-compliance behaviour.

A particular case of effectiveness of the sanction mechanism in force in Tanzania's public sector raises eye-brows. The established procurement framework (Public Procurement Act No. 21, 2004), which has legal backing, stipulates the actions to be taken against non-compliant buyers. However, there is a lack of significant evidence to demonstrate the effectiveness of such threats. In fact, the yearly reported rule violations (CAG Reports, 2000-2007; PPRA, 2007) expose the procurement rule deviant institutions (buyers). Moreover, there is a continued unsatisfactory rule compliance trend as only a few agencies receive clean audit certificates from the CAG (CAG Reports, 2000-2007). This suggests that the sanction arrangements applied in Tanzania's public sector do not constitute an enforceable threat. The Public Accounts Committee's report for the financial year that ended in June 2001, for example, shows only 38 out of 113 audited accounts that received clean audit certificates from the CAG (Tanzania Parliament, 2003). The continued trend of lack of procurement rule compliance in the public sector is also documented by the PPRA Procurement Audit (2007). PPRA shows that only five

institutions out of 20 audited institutions scored above 50 percent of the compliance criterion as per accepted procurement rules. On the other hand, the number of cases that prosecute non-compliant procurement institutions as well as individual purchasers pales before the alarming number of observed malpractices, implying that the current sanction arrangements as applied in Tanzania's public sector are toothless. On the basis of these observations, we propose the following:

H_2 There is a positive association between effective sanction arrangements and compliance with the established procurement rules in the sector

Variables Interaction Effects

The findings presented in Rokkan and Buvik (upcoming) indicate an interplay between monitoring arrangements and threat-based influences in curbing non-compliance behaviour. Indeed, monitoring tends to be effective in reducing freeriding when it is coupled with threats of punitive actions. This argument accounts for the perceived interplay between monitoring arrangements and the threats of sanction to enhance the level of practitioners' compliance in tandem with the procurement rules in place. It is, therefore, possible for practitioners to be under pressure to abide by the applicable procurement rules if they know that the principals can determine their actual degree of rule compliance. Kumar, Scheer, and Steenkamp (1998) asserted that through effective monitoring arrangements, principals can take appropriate punitive action to halt agents whose dysfunctional behaviours undermine others. It is also claimed that monitoring equips principals with the information necessary to discriminate agents who conform to their obligations from those who do not. As a result, the principals will be able to impose sanctions on non-compliant agents. These observations imply that effective monitoring and sanctions will prompt government buyers to ensure that they abide by the procurement rules in place to avoid being sanctioned by the principals. Based on such arguments we propose the following:

H_3 The association between the threat of sanctions and procurement rule compliance is significantly enforced when the level of monitoring increases.

Organization Size

The other issue concerning functional behaviours in organisations is size, especially with regard to the number of employees working in an organization. Several works in organisational science have tried to link size with performance behaviour. The work of Moffeti and McAdam (2006) examined the effects of the organisation's size on knowledge management implementation. Moffeti et al. (2003) [1] concentrated on technology and people factors in knowledge management. Such works shed light on the effect of size on the organisational functional behaviours. They both found that size (that is, the number of employees in the organization) was influential on the implementation of organisational policies. Similarly, Langbein (2000) considered size as one of the important factors, particularly when the task to be performed is complex. The work of La Porta et al. (1997) also discusses the connection between organisational size, trust and discretion. These works suggest that the increase in size tends to make managers more distant from their agents. In such circumstances, monitoring activities do not only become complex but also tend to promote uncertainty among agents about the principals' preferences. The literature offers various alternative remedies to deal with such complexities caused by increased size. One of the suggested solutions is making additional layers of management. Nevertheless, other scholars propose further empirical efforts to illuminate on this grey area.

A particular case of lack of compliance with the established procurement is presented in Kulp et al (2005). They showed the complexities in managing a multitude of employees and suppliers of the organisation. They also highlighted the challenges encountered in controlling a huge number of purchasing orders originating from different parts of the company. It was found that, the company was unable not only to control the purchasing function, but also unable to keep track of the firm's finances spent through procurement. Moreover, it was difficult for the company to monitor employees' behaviours, particularly when performing procurement tasks. The problems associated with organisational size in the private sector extend to the public sector as well. In managing complex relationships and outcomes, the management of procurement has faced increasing pressure to embrace devolution from centralised control to line agencies (Schapper et al, 2006). This is also the case

with the public sector procurement in Tanzania, where the observed differences in terms of size among public agencies are assumed to covariate with the magnitude of frequencies of procurement transactions taking place within these settings. This contention is supported by the transaction cost paradigm as presented in Williamson (1981), Douma and Schreuder (2002) regarded volume/frequency and complexity as some of the critical dimensions of the cost of a transaction in question.

The extension of size-frequency dichotomy enables the current study to compare the financial performance (in terms of expenditure) between some of the large - and small l- sized agencies in Tanzania's government sector. CAG reports for 2000 and 2001 questioned the procurement operationalisation of some of the large public institutions (i.e. with relatively large number of personnel). Such institutions include the ministries of Lands, Water and Livestock Development, Health, Regional Administration and Local Government, Tourism and Natural Resources. On the other hand, the same reports were positive on the fairness of the audited accounts for many of the relatively small-sized public institutions. Such entities include the National Electoral Commission, Teachers' Commission, Law Reform Commission, Ethics Secretariat and the Registrar of Political Parties. Though not empirically supported, the observed expenditure performance behaviour of the named agencies suggests a link between size and frequencies of financial transactions in influencing the expenditure control complexity and eventually rule compliance.

Other Factors

Several other factors are associated with the agents' compliance behaviour. Tyler (1990) [2] argued that compliance with laid down laws is largely influenced by the extent to which individuals accord legitimacy to the enforcement agencies. According to Tyler (1990), legitimacy is a normative assessment by individuals or corporate entities on the appropriateness or rightfulness of the enforcement agencies to restrict their behaviour. Sutinen and Kuperan (1999) identified morality, legitimacy and social influence in addition to conventional costs and revenues associated with illegitimate behaviour as factors that lead to the compliance behaviour of actors. Furthermore, research in psychology links compliance with both internal capacities of an individual and the external influences of the environment (Sutinen & Kuperan, 1999). It is evident that the factors

behind non-compliance are multifaceted factors. Other factors linked to procurement rule compliance behaviour include procurement training, procurement rule knowledge, external influence and goal conflict (Mwakibinga, 2008).

METHODOLOGY

Measurements

Compliance with procurement rules (COMP) is the only dependent variable influenced by several other variables. When measuring compliance, several measures are available for the task. Compliance can be measured through a dichotomous variable, that is, either does one comply or fail to do so. It can also be measured through the measurement of probability of compliance (Hunt, et. al., 1987). Both methods, however, have weaknesses. The former method does not capture the degree of compliance (Gelderman, et. al., 2006). Probability measurement, on the other hand, fails to distinguish between actual compliance and an estimate of the probability of future compliance (Hunt, et. al., 1987). The third type of measurement entails measuring the percentage of compliance or non-compliance. Under this method, the score for every subject will be summed using two criteria, that is, the percentages of both the compliant and non-compliant agencies calculated to arrive at the rule compliance variable (Rokkan & Buvik, 2003). Reliance on the respondent's memory can sometimes be unreliable and, secondly, the respondents can possibly hesitate honestly stating their rule compliance status. To gauge the overall meaning and implication of the construct, the measuring approach proposed by Gelderman et al (2006) to measure procurement rule compliance was adopted in this study. A multiple-item scale that reflects the dimensions of the procurement rule compliance construct was developed for the study. The final employed scale after Confirmatory Factor Analysis (CFA) consisted of five extracted items (out of the six) that required the respondents to indicate the extent to which they agreed with the statements on compliance with the procurement rules. Moreover, the assessment of the construct's Goodness of Fit (GOF) was conducted for the COMP variable. The resultant GOF indices are presented in Table 1.

Table 1
(COMP) Indicators

Item Description	Factor Loadings
Timeliness of deliveries of procured goods, works and services	0.670
Timeliness of recording of deliveries	0.590
Use of imprests in procurement	0.560
Damaged/lost goods	0.550
Unauthorised procurement	0.430
χ^2 (5) =8.44, p=0.133; CFI=0.98; GFI=0.98; RMSEA=0.070; NFI =0.94	

Both transaction costs and related theories indicate that monitoring activities serve as control mechanisms, which suppress agent opportunism (Heide et. al., 2007), and thus, help to increase the agents' compliance with the agreed contracts. In fact, monitoring programmes is an integral part of many organisations' strategies seeking to ensure that values created can be claimed by the principal (Ghosh & John, 1999). Moreover, monitoring is an important component of the implementation process. Research from both political economy and traditional implementation literature has been deployed in developing monitoring measures. On the whole, the conceptual meaning of monitoring generated from the studies presented was utilised to construct the latent variable for the current study. In this case, monitoring construct reflects the principal's ability to observe the behaviours of procurement practitioners in the public sector. To measure the effectiveness of the monitoring activities in force in the government sector of Tanzania, this study adapted a measuring approach similar to the construct applied by Rokkan and Buvik (2003). However, due to limited relevance of such a study to the current work and context, the measuring instrument was modified to suit the local environment of Tanzania. Table 2 shows the indicators from the Confirmatory Factor Analysis along with the corresponding construct's Goodness of Fit indices.

Several studies have been conducted on punishment, a synonym for sanction. Despite conventional wisdom to the effect that punishment should be avoided (Butterfield et al, 2005), it remains an important administrative tool for virtually all the managers. Though

TABLE 2
CFA Results for Monitoring Activities (MONIT) Indicators

Item Description	Factor Loadings
Frequent inspections to verify timeliness of receipts recording	0.710
Frequent inspections to verify adherence to the rules	0.700
Frequent inspections to see if proper storage methods are in place	0.700
Frequent inspections to see if deliveries are done on time	0.640
$\chi^2(2) = 2.12$, $p = 0.346$; CFI= 1.00; GFI = 0.99; RMSEA = 0.021; NFI = 0.99	

punishment is considered unpleasant, it is regarded as a necessary part of the managerial role and instrumental in influencing desired outcomes (Butterfield et al. 2005). Generally, punishment is the presentation of an aversive event.

Traditionally, organisational punishment has been studied in terms of correcting or modifying subordinates' undesirable behaviours (Baron, 1988). It has been argued that, the threat of sanction will reduce the likelihood that the individual will engage in undesirable behaviour only when the sanctions that act as deterrents are perceived as constituting real threats (Kurland, 1993). This contention emphasises the sanctions' credibility in effective enforcement of compliance. In fact, recent research has confirmed the effectiveness of the threat of sanction in lowering agents' undesirable behaviours. Works by Rokkan and Buvik as 2003 and in 2009, for example, show the effectiveness of sanctions in reducing free-riding behaviour. Similarly, Kumar, Scheer, and Steenkamp (1998) considered sanctions as helpful means in increasing agents' compliance and discouraging undesirable behaviours. The operationalisation of the sanction variable has embraced the meaning of the variable for this study. Sanctions involve threats and other arrangements made by the government to chastise non-compliant actors in public procurement. In this sense, sanctions are intended to enforce compliance with the established procurement rules. Thus, the approach used in Butterfield et al. (2005) was

adapted to measure the sanction variable in the context of Tanzania. Naturally, the instrument was modified by extending the three-item scale to seven. Such an adaptation was geared towards measuring complete traits of the compliance concept in the public sector perspectives as it relates to Tanzania. The conduction of CFA led to the extraction of four items that were also subjected to the Goodness of Fit Assessment (See Table 3 below).

TABLE 3
CFA Results for Sanctions Arrangements (SANC) Indicators

Item Description	Factor Loadings
Penalties provide fear of violation of procurement rules	0.670
Stipulated sanctions are known by all employees	0.590
Consideration of the outcomes of non compliance	0.490
Credibility of sanction	0.370
χ^2 ( ) = 0.084, p = 0.96; CFI= 1.00; GFI = 1.00; RMSEA = 0.00; NFI=1.00	

The remaining factors which include size, procurement training, rule knowledge, external influence, goal conflict were treated as control variables. Tables 4 –7 show the measuring variables as well as their corresponding Goodness of Fit Indices.

TABLE 4
CFA Results for Procurement Training (TRAIN) Indicators

Item Description	Factor Loadings
Participation in training enhancing Procurement ethics	0.970
Clarity of procurement rules	0.760
Participation in training enhancing Procurement knowledge	0.490
χ^2 (1) =6.05, p =; 0.014; CFI= 0.93; GFI = 0.97; RMSEA = 0.19; NFI = 0.93	

TABLE 5
CFA Results for Procurement Rule Knowledge (KNOW) Indicators

Item Description	Factor Loadings
Rule familiarity as criterion for employment in PMUs	0.84
Adequacy of procurement rules familiarity	0.720
Appropriate qualifications as criteria for employment in PMUs	0.500
$\chi^2(1) = 0.039$, p =0.84; CFI= 1.00; GFI = 1.00; RMSEA = 0.00; NFI = 1.00	

TABLE 6
CFA Results for Goal Conflict (GOALC) Indicators

Item Description	Factor Loadings
Level of commitment to organisational specific goals	0.670
Level of conflict of organisational objectives	0.640
Level of conflict between organisational goals and procurement rule objectives	0.640
$\chi^2(1) = 1.46$, p = 0.227; CFI= 0.99; GFI = 0.99; RMSEA = 0.057; NFI= 0.98	

TABLE 7
CFA Results for External Influence (EXTINFL) Indicators

Item Description	Factor Loadings
Impact of external influence on adherence to procurement rules	0.550
Effects of procurement done by other staff outside PMUs	0.550
Impact of decisions of other staff on procurement behaviour	0.400
$\chi^2(1) = 0.68$, p =0.410; CFI= 1.00; GFI = 1.00; RMSEA = 0.00; NFI= 0.97	

Data Collection

Primary data from the respondents was collected using a cross-sectional survey conducted in the public sector of Tanzania. The randomly selected sample was comprised of 230 elements representing procurement management units [3]. Before the commencement of the survey both focus group discussion (FGD) meeting and pre-testing of the measuring instrument were held. In both exercises, the procurement practitioners were involved to enable the assessment to have face validity. Such pre-field deployment research tasks allowed for the study's questionnaire to be improved by either rewording or deletion of the items found to be ambiguous during the pilot phase. The pilot study, which involved 20 procurement practitioners, facilitated the improvement of the research instruments as well as the determination of the reliability of the scale items. Response from the final survey involved 142 fully-completed questionnaires, 35 incomplete questionnaires and 53 unreturned questionnaires.

Analysis

Before data validation, the study conducted a descriptive statistics analysis to reveal characteristics and properties of the collected data (Davis, 2004). The results from conducted normality tests indicated no serious violation of the normality assumptions. Purification of measures followed the procedure proposed by Dunn, Seaker, and Waller (1994). The aim of purification measures was to enhance for construct reliability and validity (Mwakibinga, 2008). The detailed tests and results for the purification methods resulted in the final constructs based on the application of the structural equation modelling (SEM) technique through linear structural relations (LISREL). SEM is particularly valuable in inferential data analysis and hypothesis testing, whereby the pattern of inter-relationships among the study constructs are specified a priori and grounded in established theory (Hoe, 2008). Generally, the application of SEM techniques in analytical procedures involves many issues. These issues concern various overall fit indices and selection of the appropriate approach. The fit indices that were applied by this study are Chi Square (χ^2), Goodness of Fit Index (GFI), Root Mean Square of Approximation (RMSEA), Comparative Fit Index (CFI) and Normed Fit Index (NFI). The assessed fit indices indicate that the model is within the acceptable range.

TABLE 8
Correlation Matrix

FACTOR	KNOW	TRAIN	MONIT	SANC	GOALC	EXTINF	COMP
KNOW	1,00						
TRAIN	0,42	1,00					
MONIT	0,37	0,27	1,00				
SANC	0,29	-0,24	0,38	1,00			
GOALC	-0,05	-0,04	-0,04	-0,10	1,00		
EXTINF	0,03	-0,01	0,11	0,10	0,20	1,00	
COMP	0,34	0,07	0,44	0,22	-0,13	-0,20	1,00

Model Fit Indices

Chi square $\chi^2 = 175.73$, df = 164 ($p = 0.12746$)

RMSEA = 0.023

CFI = 0.97

GFI = 0.90

NFI = 0.86

Determining the reliability of constructs involved measuring the composite reliability (PC) for latent variables. As for the assessment of the discriminant validity, it was done through the verification of an average variance extracted (AVE) method. Furthermore, the assessment of the discriminant validity for individual constructs was determined using the extracted AVE percentages of constructs in relation with the squared correlation (standardised) estimates among constructs.

Statistical Estimation

This study employed a regression model that took the following form:

$$Y= \beta_0 + \beta_1X_1 + \beta_2X_2 + ...+ \beta nXn + \varepsilon$$

Where:
Y = Dependent Variable
β_0= Constant (intercept)

$\beta_1, \beta_2, \beta_n$ = Beta coefficients (slopes) for independent variables X1, X2, Xn, respectively
X_1, X_2, X_n= Independent variables
ε = Standard error term

TABLE 9
Discriminant Validity for the COMP Model: Squared Inter- Construct Correlation (R^2) Matrix and Variance Extracted Estimates (AVE) and Composite Reliability (PC)

Factor	KNOW	TRAIN	MONIT	SANC	GOALC	EXTINF	COMP
KNOW	1,00						
TRAIN	0,17	1,00					
MONIT	0,13	0,07	1,00				
SANC	0,08	0,06	0,14	1,00			
GOALC	0,00	0,00	0,00	0,01	1,00		
EXTINF	0,00	0,00	0,01	0,01	0,04	1,00	
COMP	0,12	0,01	0,19	0,05	0,02	0,04	1,00
AVE (PV)			**0,50**	**0,30**			**0,32**
PC			**0,74**	**0,61**			**0,70**

The study included all the variables in the regression model using an OLS estimation technique. The final model looks as follows:

$$COMP = \beta_0 + \beta_1 MONIT + \beta_2 SANC + \beta_3 SIZE + \beta_4 MONIT * SANC + \beta_5 TRAIN + \beta_6 KNOW + \beta_7 EXTINFL + \beta_8 GOLC + \beta_9 MONIT * EXTINFL + \beta_{10} MONIT * GOALC + \acute{\varepsilon}$$

The model comprises an interaction effects derived as:

$$\frac{\delta COMP}{\delta MONIT} = \beta_3 + \beta_8 SANC + \beta_9 GOALC + \beta_{10} EXTINFL$$

$$\frac{\delta COMP}{\delta SANC} = \beta_4 + \beta_8 MONIT$$

Dependent Variable: COMP = Compliance with the established procurement rules

Independent Variables:
MONIT = Monitoring activities;
SANC = Sanction

Control Variables:

SIZE = Number of employees work within the organization
TRAIN = Procurement Training
KNOW = Procurement Rule Knowledge
EXTINFL = External Influence
GOALC = Goal Conflict
MONEXT = MONIT * EXTINFL
MONGOALC = MONIT* GOALC

Interaction Effects:

MONSANC = MONIT * SANC.

RESULTS

Due to the presence of a moderating variable and the corresponding interaction effects, a three-step Hierarchical Multiple Regression technique was utilised. The first step involved the inclusion of the study's control variables in the model. This step was aimed at evaluating the model's ability to predict after controlling a number of additional variables. In the second step, the independent variables were entered into the model as a block. This step evaluated the ability of the independent variables to explain some of the remaining variance in the dependent construct. The last step took on board the interaction terms. The results are presented hereunder:

Results from Model 1 evaluated the COMP model's ability to predict the presence of the control variables. In this case, KNOW, TRAIN, EXTINFL, GOALC, MONEXT, MONGOALC and SIZE were the variables of interest. With R^2 = .342, the control variables were influential in the COMP Model's ability to predict. Two of the control variables (GOLC and SIZE) were not statistically significant, but the remaining constructs were statistically significant as Table 10 illustrates.

The inclusion of the independent constructs and the interaction effect were influential in the prediction abilities of Model 2 and Model 3, respectively. The results from the inclusion of the block of independent variables as shown in Table 11 account for an increase in R^2 to .354, meaning that, with the presence of independent variables controlled by SIZE, the Procurement Rule Compliance (COMP) Model was able to predict 35.4% of the variance.

TABLE 10
(Coefficients) Control Variables: Model 1

	Un-standardised Coefficients		Standardised Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	19.122	1.913		9.997	.000***
TRAIN[a]	.116	.056	.161	2.067	.041**
KNOW[a]	.237	.073	.265	3.255	.001***
GOALC[a]	.409	.353	.542	1.159	.248***
EXTINFL[a]	-1.044	.249	-1.075	-4.187	.000***
MONEXT[a]	.035	.010	1.108	3.571	.000***
MONGOALC[a]	-.020	.014	-.686	-1.405	.162
SIZE[a]	-.024	.158	-.011	-.152	.879
R^2= .342; Change R^2=.342; R^2_{Adj} = .308					

Notes: [a] Control Variables, * Significant at p < .10, ** Significant at p < .05, *** Significant at p < .01

Synonymously, independent variables explained 35.4% of the variance of dependent variable procurement rule compliance (COMP) (See Table 11).

TABLE 11
Coefficients (Control Variables and Main Independent Constructs): Model 2

Model	Un-standardised Coefficients		Standardised Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	12.811	4.722		2.713	.008***
TRAIN[a]	.126	.057	.175	2.233	.027**
KNOW[a]	.213	.074	.239	2.872	.005***
GOALC[a]	.659	.396	.872	1.665	.098
EXTINFL[a]	-.836	.293	-.861	-2.857	.005***
MONEXT[a]	.026	.012	.812	2.148	.034**
MONGOALC[a]	-.030	.016	-1.033	-1.882	.062*
SIZE[a]	.008	.162	.004	.051	.959
MONIT	.248	.193	.297	1.283	.202

TABLE 11 (Continued)

Model	Un-standardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
SANC	.038	.056	.053	.682	.496
R^2= .354; Change R^2= .354; R^2_{Adj} = .310					

Notes: [a] Control Variables, * Significant at p < .10, ** Significant at p < .05, *** Significant at p < .01.

Similarly, the addition of an interaction term in Model 3 has been influential with R^2. In fact, the resultant R^2 = 0.374 was well above R2 = 0.354 (in Model 2). This statistic signified the contribution of the interaction effect to determining the prediction ability of COMP Model (See Table 12 for details)

TABLE 12
Coefficients (Control Variables, Main Independent Constructs and Interaction Effect): Model 3

Model	Un-standardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	9,069	5,009		1,811	,073*
TRAIN[a]	,141	,056	,196	2,507	,013**
KNOW [a]	,202	,073	,226	2,747	,007***
GOALC [a]	,591	,393	,782	1,506	,135
EXTINFL[a]	-1,176	,333	-1,211	-3,529	,001***
MONEXT[a]	,039	,014	1,240	2,898	,004***
MONGOALC[a]	-,027	,016	-,950	-1,745	,083*
SIZE[a]	-,033	,161	-,015	-,204	,839
MONIT	,405	,206	,485	1,967	,051*
SANC	,669	,312	,940	2,142	,034**
MONSANC	-,025	,012	-1,132	-2,052	,042**
R2 =. 374, R^2 adj =. 327; F (10, 131) = 7.841, Sig. = .000					

Notes: [a] Control Variables; * Significant at p < .10; ** Significant at p < .05, *** Significant at p < .01.

The outcome of further examination has been graphically presented in Figure 1, focusing on the effects of interaction terms through the COMP's partial derivative with respect to a moderating variable. The derivative of the COMP with respect to Monitoring Activities (MONIT) took the following form:

$$\frac{\delta \text{ COMP}}{\delta \text{ MONIT}} = \beta_3 - \beta_8 (\text{SANC}) - \beta_9 (\text{GOALC}) + \beta_{10} (\text{EXTINFL})$$

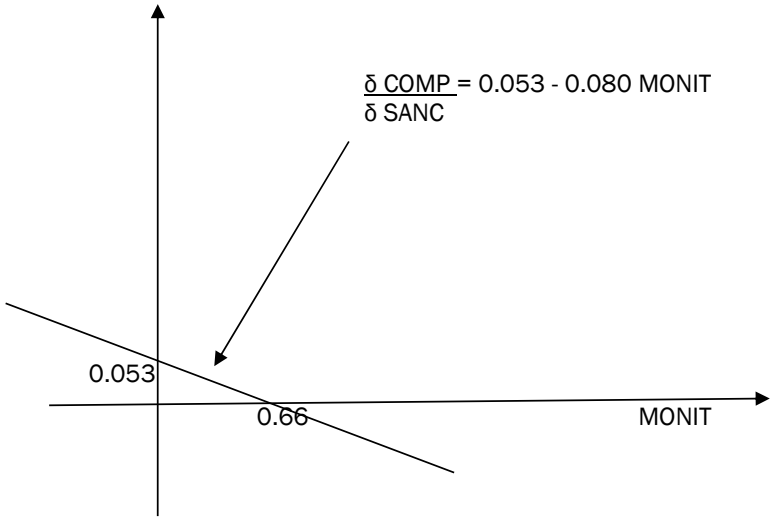
$$\frac{\delta \text{ COMP}}{\delta \text{ MONIT}} = 0.209 - 0.080 (\text{SANC}) - 0.066(\text{GOALC}) + 0.094 (\text{EXT})$$

The interaction effect of sanctions and monitoring activities (SANC*MONIT) on procurement rule compliance (COMP) is finally derived as:

$$\frac{\delta \text{ COMP}}{\delta \text{ SANC}} = \beta_4 + \beta_8 (\text{MONIT})$$

$$\frac{\delta \text{ COMP}}{\delta \text{ SANC}} = 0.053 - 0.080 \text{ MONIT}$$

FIGURE 1
Moderated Association between Sanctions (SANC) and (COMP)



The graph shows the relationship between sanctions (SANC) and compliance with procurement rules (COMP) presented as δCOMP/ δSANC, which was weakened as the Monitoring activities (MONIT) increased. Reading from Table 1, we observed the following corresponding statistics to account for this relationship ($b = -0.025$, $t = -2.052$, $p < 0.05$). These results are in line with the negative sign of beta coefficient for MONIT * SANC, which represented the direction of the relationship between sanctions (SANC) and rule compliance (COMP) as monitoring activities (MONIT) increased. The relationship is significant at $p< 0.05$. Similarly, the effects of the individually-associated independent variables (MONIT and SANC) on the study's dependent variable (COMP) were checked. The results shown in Table 1 indicate that monitoring activities (MONIT) have a positive association with procurement rule compliance (COMP). Statistically, the relationship is summarised as $b = 0.405$, $t = 1.967$, $p < 0.10$. With the statistical significance at $p < 0.05$, Table 7 shows sanctions (SANC) have a positive association with COMP. The variables' relationship bears the following statistical summary: $b = 0.669$, $t = 2.142$, $p < 0.05$.

Findings

Hypothesis 1

The findings of the study support the hypothesis. Statistically, there is a significant positive relationship between MONIT and COMP is in line with the hypothesis. The statistical relationship between the variables is summarised as: $b = 0.405$, $t = 1.967$, $p < 0.10$

Hypothesis 2

There is a positive relationship between Sanctions (SANC) and Procurement rule compliance (COMP) in the public sector. The statistics supports the hypothesis. The findings in this regard are also statistically significant. The relationship between the variables is statistically summarised as: $b = 0.669$, $t = 2.142$, $p < 0.05$.

Hypothesis 3

The statistical results indicate a negative association between sanctions and procurement rule compliance when the level of monitoring activities increases. The findings, however, do not support the proposition presented earlier. With statistics $b = -0.025$, $t = -2.052$, $p < 0.05$, the results of this study show a statistically

significant negative association between sanctions and procurement rule compliance when monitoring efforts (MONIT) increase (Table 13).

Comment [KVT1]: Should Table 13 be here?

TABLE 13
Summarised Results of Hypotheses' Tests

Hypotheses	Hypothesised Significance Level*	Effect on COMP	Findings
H1	+	+	p< 0.10
H2	+	+	p< 0.05
H3	+	+	p< 0.05

Note: * One-tailed test.

DISCUSSION AND IMPLICATIONS

Linking the studies' empirical results with the theoretical assumptions provides the basis for arguments on the validity of the frameworks on the phenomenon in question. In our case, we developed the theoretical model for procurement rules compliance based on experiences in Tanzania. Using principal-agent as the main theory, the hypotheses were tested for empirical authentication. Two of the hypotheses were supported, but one was not.

Principal-agent scholarship further conforms to the findings pertaining to the two hypotheses posed by the current study. Similar to theoretical predictions, monitoring effectiveness in increasing compliance is supported. This too is supported by the available literature as already existing studies support the usefulness of monitoring activities in reducing deviations (Buvik & Rokkan, 2003; Bartle & Korosec, 2003). Other interested findings relate to the earlier predicted positive relationship between sanctions and procurement rule compliance. This study used the work of various authors in support of its prediction (for example, Rokkan & Buvik, 2003; Kurland, 1993) and those opposed to it (such as Kulp et al., 2005), those that do not see the usefulness of sanctions to enhance compliance. The statistical results from this study's regression model indicate a significant support for the proposition. Indeed, the presence of different views on the usefulness of sanctions (negative incentive) and reward (positive incentive) indicate the existing

theoretical paucity. This calls for more empirical investigations to help explain the phenomena at hand.

General findings from many studies such as Moffeti & McAdam (2006); Langbein (2000) and Moffeti (2003) acknowledged the effect of size on an organisation's performance. Other works found a relationship between increased volumes of purchasing transactions with number of staff in a given organisation (for example, Kulp et al., 2005). Increased transactions' magnitudes tend to complicate the performance of the purchasing function. This is in line with transaction cost economics which regard frequency or volume as critical dimensions of transaction cost(s) (Williamson, 1975; Douma & Schreuder, 2003). Similarly, there are empirical findings that are connected with the complexities encountered in controlling a multitude of procurement transactions caused by increased organisational size. Nevertheless, the findings from this study are not consistent with this line of thinking. Instead, this study found no influence of an organisation's size on procurement rule compliance. Such inconsistencies suggest the significance of further investigations into the issue to pave the way for new theoretical guidance. Other statistical results related to the control variables indicate that, with the exception of Goal Conflict (GOALC), the remaining variables are significantly influential when it comes to procurement rule compliance. Such statistical findings suggest there is a possibility of additional factors—besides those considered in this study—affecting rule compliance in public procurement.

Other theoretical implications are observed from the regression analysis results for the interaction effect in the rule compliance model. Results from the analysed influence of the interaction effect do not support the hypothesis. This study found that when monitoring activities increase, the relationship between sanctions and procurement rule compliance is weakened. From the principal-agent theoretical perspective, monitoring and sanctions measures are considered effective in increasing compliance (Rokkan & Buvik, 2003; Eisenhardt, 1989). This study's findings do not concur with this line of argument. Instead, they support the opposite view, which dismiss the usefulness of simultaneous application of sanctions and monitoring activities in increasing the compliance of agents (Perror, 1986; John, 1984; Murry & Heide, 1998). The proponents of this opposing view see increased monitoring and sanction measures as

signs of distrust among agents. Indeed, in some societies, particularly those inclined with personality, effective monitoring is not only taken as a sign of distrust but is also associated with the level of respect accorded to the monitored party. In such situations, monitoring and sanctions are considered humiliating, hence detrimental to the intended goal of enforcing compliance.

The purpose of this study was to uncover the factors behind lack of compliance with the established procurement rules in public sectors, using Tanzania as a case study. As an extension for practical purposes, the empirical findings of this work might be useful to practitioners in the private sector as well. On the whole, the study has established the importance of adhering to regulatory frameworks for policy implementation successes. However, it is noted that translating policy statements into practice is not that easy (Schapper, Veiga, Malta & Gilbert, 2006). A good example is the implementation of the public procurement policy in Tanzania, which is the focus of the current research. This can be seen from various reported findings of practice behaviour for public procurement.

As performance evaluation criteria for public sector procurement involve an array of measurement indices, compliance with the established procurement frameworks is one of the important criteria available for the task. Precisely, the knowledge of factors influencing procurement compliance behaviour is of paramount importance for practitioners. Perhaps such knowledge provides grounds for not only formulating practical rules, but also for effective implementation of the very directives. This development will help to enhance compliance, an important vehicle for pursuing policy objectives.

Regression results from analyses have highlighted a number of issues pertinent to effective rule compliance in public sector procurement. The results from this study show that there are several relevant issues relating to compliance in public procurement that public managers have to take into account. For instance, results on the effectiveness of sanctions and monitoring arrangements in boosting compliance provide an important clue to public managers. From such findings, it can be noted that sanctions and monitoring activities are generally useful mechanisms in increasing compliance. However, depending on the situation, this may not be always the case. Results, for example, show that in situations with increasing monitoring, increasing sanctions will lower procurement rule

compliance. One of the already stated reasons has to do with the practitioners' resistance to perceived distrust by their principals (Murry & Heide, 1998). This is a useful hint to public managers, particularly when the sanctions are (or are not) effective in increasing procurement rule compliance.

CONCLUSION

General results from the hypotheses' testing indicate that the study's predictions are supported statistically. With the exception of one hypothesis involving the interaction the effects of monitoring activities and sanction, the hypotheses involving independent main variables of monitoring activities and sanctions have both been supported. Generally, the results observed in this study entail no change(s) of the original form of the model but instead add a caution on the simultaneous use of monitoring and sanctions in enhancing procurement rule compliance in the government sector. On the other hand, the mixed empirical findings of the interaction effect between monitoring and sanction on rule compliance reflect a need for further systematic investigations into the phenomenon.

NOTES

1. Cited in Moffeti and McAdam (2006).
2. Cited in Sutinen and Kuperan (1999).
3. Population involved 700 Procurement Management Units.

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