"Determinants influencing fraud prevention in e-procurement: Empirical evidence from Indonesia"

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NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
33	0	6

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DETERMINANTS INFLUENCING FRAUD PREVENTION IN E-PROCUREMENT: EMPIRICAL EVIDENCE FROM INDONESIA

Abstract

Electronic procurement of government products and services strives to promote good governance by enhancing internal control and fraud prevention. This study aims to assess how e-procurement and internal control can prevent fraud in purchasing goods and services in Indonesia. Participants in the regional work units (SKPD) in Riau's procurement of goods and services make up the study's population. The sample included 85 respondents with the requirements for a position relating to the successful procurement of goods and services from December 2021 to December 2022. The paper used a purposeful sampling technique. This study employed a quantitative method and SmartPLS 3.0 to evaluate the data. The results concluded that the implementation of e-procurement ($\beta = 0.231$; $p < 0.05$) and internal control ($\beta = 0.231$; $p < 0.05$) have a substantial impact on fraud prevention during the procurement of goods and services. By absorbing the capital expenditure budget and limiting fraud, it is envisaged that the Indonesian government may maximize its fraud prevention. It is desired that persons involved in procuring products and services constantly broaden their understanding of and perspectives on procurement, particularly those on other crucial aspects of procurement.

Keywords	e-procurement, internal control, fraud prevention, stewardship theory, regulation
JEL Classification	G32, M41, M48

INTRODUCTION

The level of the relationship between the government and those who need to be served, protected, and guided by it is the country's level of good governance. This is especially true for regions and nations like Indonesia, with large populations and geographic areas with high levels of fragmentation. According to Bauw (2016), good governance is managing all facets of a government's social, economic, and political life for the benefit of society while involving all stakeholders and adhering to the principles of equality, equity, efficiency, transparency, and accountability.

There are numerous openings for committing fraud, both in the planning phase, implementation, and finalization of the purchase of goods or services. This verifies information from the Indonesian Corruption Watch (ICW) from semester one of 2020 that suggested that public money leaks were caused by fraud in the acquisition of goods and services. These included 47 cases of embezzlement, 33 cases due to markups, 9 cases of exercise of authority, and 8 cases caused by misuse of the budget. Thus, based on the 169 cases recorded, 146 cases caused losses to state finances (Kompas, 2020).

It is necessary to have solutions for these problems, preventing and reducing fraudulent actions through electronic procurement, which

is implemented by procurement policy agencies, to address the issues that arise in procurement using conventional methods as used in the past. The government uses an electronic system and integrated procurement to reduce the likelihood of fraud. This is possible because e-procurement uses an auction mechanism, which makes the process more visible and encourages sensible bidding.

1. LITERATURE REVIEW AND HYPOTHESES

Agency theory is contrasted with stewardship theory. Stewardship theory offers a non-economic foundation to describe relationships in contrast to agency theory, which stresses control and conflict (Sundaramurthy & Lewis, 2016). According to stewardship theory, directors serve as stewards and will not prioritize furthering their personal financial interests as agency theory claims. Instead, they will be willing to act in their companies' best interests and will do so in certain ways, resulting in collective/organizational utility as opposed to personal gain. Directors must meet their own needs while working toward corporate goals (Kluvers & Tippett, 2011).

In accordance with the stewardship theory, local government officials have been appointed and are presumed to work with motivation and dedication. If every human being is required to maintain his actions and behavior, this is what necessitates the government to act according to related provisions (Nosihana & Rizal, 2016). Because the government must be accountable to all stakeholders for all government activities to give the public a positive impression of the government, this theory pertains to the electronic procurement of goods and services without corrupt practices.

According to Kalubanga et al. (2013), fraud is an unlawful behavior characterized by a lie, concealment, or breach of trust. The action is connected to the use of violence or threats. In order to prevent the loss of a service or payment processes, parties, companies, or services commit fraud. Hermerén (2014) defines fraud using "name, shame, and blame" tactics. However, it may be appropriate when dealing with scientific misconduct, but ineffective and may even have the opposite impact when trying to reduce inadvertent mistakes. Fraud typically happens due to incentives to defraud and encouragement to reap the rewards of generally recognized possibilities. In order to de-

fine the process of transparency and reduce fraud in it, which can result in losses to the state, the adoption of e-procurement is an auction process carried out effectively, efficiently, transparently, and accountably (Akbar, 2019).

Peraturan Presiden (PP) No. 54 of 2010 on public procurement of goods and services was added to PP No. 35 of 2011 and subsequently amended to PP No. 70 of 2012. The president's directive is then said to refer to operations in ministries or regional work organizations that go from planning needs to finishing all acquisition-related tasks, such as the procurement of products or services.

In many organizations worldwide, whether in the public or private sectors, e-procurement is still expanding as a foundation for competitive bidding and best practices. According to the rules and under the authority of the Supreme Court Supervisory Board and the Supreme Audit Agency, e-procurement is overseen (Hartati et al., 2020). There are four stages to e-procurement implementation, known as the process of digitizing government by implementing an internet system (Kademaunga & Phiri, 2019). These stages are disclosure, registration and distribution, electronic bidding, and advanced support services.

One factor that influences the prevention of fraud in acquiring products and services is the usage of e-procurement. Susantya et al. (2022) claim that individuals involved in government procurement of goods and services and the committee responsible for such procurement pay attention to and consider essential factors when implementing e-procurement. The applicable laws and regulations do not cover these elements. E-procurement considerably influences fraud prevention, according to Setiani et al. (2017). The same phenomenon is demonstrated by Kademaunga and Phiri (2019), who offer empirical proof that the procurement process contributes to reducing goods and services fraud. This is further corroborated by Wicaksono et al. (2017), who found that e-procurement audits

have an indirect impact on the amount of money spent by the government and efforts to prevent fraud in the purchase of goods and services.

According to Ilham et al. (2017), using e-procurement has significantly reduced fraud in purchasing products and services. According to Udoyono (2012), e-procurement can be a guide for eliminating corruption, collusion, and nepotism. Additionally, according to Rustiarini et al. (2019), e-procurement deployment significantly lowers fraud. This underlines how crucial it is to implement e-procurement to defend against fraud when purchasing products and services.

The firm must work hard and adopt the proper approach to reduce fraud, given the significant possibility of it occurring throughout the procurement process. A plan to stop or at least manage fraud is called a fraud prevention strategy. By setting up circumstances that can steer organizational settings in the direction of fraud prevention, this tactic relates to how to exert control over the reasons causing the emergence of fraud. Internal controls that are appropriately implemented are required. By considering the organizational structure and professionals, one can understand internal control and anti-fraud awareness (Schandl & Foster, 2019).

Internal control is a broad notion that encompasses a variety of techniques and procedures that management employs to ensure the efficient and effective operation of company entities that support management in carrying out various tasks, according to Shanmugam et al. (2012). Furthermore, internal control, comprising internal audits and other types of control, is the complete control system for corporate entities in the financial and non-financial sectors formed by management to carry out business. Effective internal controls are necessary for various reasons, no matter how tiny the organization is.

According to Schandl and Foster (2019), a company's ideal state can be reflected through internal control implementation that is efficient and effective. Nevertheless, it is challenging to accomplish this in practice due to the internal control structure's shortcomings. According to Palupi and Santoso (2017), several internal control indicators can be viewed and measured, such as envi-

ronmental control, risk interpretation, control actions, and information exchange and monitoring. Yendrawati (2013) notes that technical advancements, the growth of websites and the internet, changes in reporting, and modifications to corporate or organizational legislation are all examples of internal control success indicators.

According to Palupi and Santoso (2017), internal control significantly reduces the risk of fraud in the purchase of products and services. Internal control considerably lowers fraud in the purchase of goods and services (Ilham et al., 2017). Wicaksono et al. (2017) showed that internal controls considerably decreased the likelihood of fraud while buying goods and services. According to Palupi and Santoso (2017) and Akbar (2019), the success of internal controls in reducing fraud in the industry of purchasing products and services is evident. According to these findings, enhancing the government's internal control system can reduce the potential for fraud in the procurement process.

In order to prevent fraud in the purchase of goods and services, this study aims to investigate the relationship between the adoption of e-procurement and internal control systems in Indonesia. Consequently, the hypotheses are:

H_1: The implementation of e-procurement affects fraud prevention in the procurement of goods or services.

H_2: Internal control affects fraud prevention in the procurement of goods or services.

2. METHODS

According to Sekaran and Bougie (2016), the term "population" refers to a broad category that describes a collection of objects or people that share specific qualities and characteristics and are tasked with conducting research before drawing conclusions. 85 samples came from the Riau Province's regional work units (SKPD) (Table 1). This study uses associative quantitative research methodologies to measure causal links between two or more variables. By mailing questionnaires to samples that correspond to the needs of the chosen institu-

tions and allocating research weights to each item using a Likert scale, this study was carried out for analytical purposes.

Table 1. Questionnaires

Criteria	Quantity
Distributed questionnaire	120
Uncollected questionnaire	35
Used/analyzed questionnaire	85

The quantitative approach was utilized to collect insightful and quantifiable data using a questionnaire with a Likert-scale format. According to Sekaran and Bougie (2016), a scale from 1 to 5 can be used to rate the accuracy of opinions, with 1 "strongly disagree" and 5 "strongly agree." Following that, respondents had to complete three parts of a single questionnaire. A brief respondent profile is presented in the first section. The second section, adapted and modified from Pope (2013), explored fraud prevention as a dependent variable. The final section covered independent variables resulting from internal control and e-procurement implementation. Table 2 lists the metrics utilized in this investigation.

Descriptive statistics examine the frequency of distributional data in valid data, and the standard deviation and mean are used to determine whether the data are normal (Ahsanullah et al., 2014; Sekaran & Bougie, 2016). In order to make the relationship between the independent and dependent variables and the effect more understandable, the structural equation modeling

(SEM) statistical regression technique is used. A statistical program, SmartPLS 3.0, supported the structural equation modeling. The evaluation includes the path coefficient, testing of hypotheses, validity, and reliability. Some of these characteristics were combined with a purposeful sampling (Table 3).

Table 3. Purposive sampling

Descriptions	Frequency
Education Authorities	15
Public Health Office	9
Office of Public Works and Spatial Planning and Land Affairs	8
Department of Housing and Residential Areas	11
Service of National Unity and Politics	15
Regional Disaster Management Agency	4
Social Services	15
Ministry of Manpower and Transmigration	2
Ministry of Environment and Forestry	6

In this study, nine regional work units (SKPD) responded to surveys, with the Education Authorities, the Service of National Unity and Politics, and the Social Services returning up to fifteen questions each. Next, there were 11 questionnaires from the Department of Housing and Residential Areas, 8 from the Office of Public Works and Spatial Planning and Land Affairs, 9 from the Office of Public Health, 6 from the Regional Disaster Management Agency, and 2 from the Ministry of Manpower and Immigration. According to Table 3, most samples come from the departments in charge of education, national unity and politics, and social services.

Table 2. Indicators for independent variables

Component	Indicators	Questions	Scale	Source
Fraud prevention	Transparent procedure	20	Likert	Pope (2013)
	Opening tender documents			
	Evaluation of bids			
	Delegation of authority			
	Independent checks and audits			
Implementation of e-procurement	Efficient	30	Likert	Willem (2012)
	Effective			
	Competitive			
	Transparent			
	Be responsible			
Internal control	Control environment	12	Likert	Palupi and Santoso (2017)
	Risk interpretation			
	Control activities and communication information			
	Monitoring			

3. RESULTS AND DISCUSSION

Table 4 shows the descriptive statistics. According to the results, the dependent variable, fraud prevention, consists of 20 questions, with a mean score of 4.45 and a standard deviation of 0.2368. The mean value for the independent variable – the implementation of e-procurement – was 4.23 with a standard deviation of 0.1272 and a total of 30 questions. A total of 12 questions about internal control produced a mean score of 4.37 and a standard deviation of 0.1504. The variables fall into the high category because they operate efficiently and well.

Table 4. Descriptive statistics

Variable	Mean	Standard Deviation
E-procurement implementation (IE)	4.23	0.1272
Internal control (IC)	4.37	0.1504
Fraud prevention (FP)	4.45	0.2368

In order to assess whether the research model under consideration can be assessed and whether it is accurately modeled, measurement utilizing the outer model is used (Hair et al., 2014). The variables that describe the result are compared in Table 5.

Table 5 demonstrates that there is enough information to evaluate the hypotheses. If the AVE value is larger than 0.50, the model is deemed good and sufficient (Garson, 2006). As observed, the AVE is more than 0.50 for every variable employed in this investigation. As a result, every variable has been deemed legitimate and complies with the requirements. The Cronbach's Alpha method, which is frequently employed for testing questionnaires, is the methodology utilized in reliability testing. The reliability of a study questionnaire is determined by Cronbach's Alpha score, which must be more than 0.7 (Hair et al., 2014). The composite reliability indicates that all variable values result in a composite reliability value of more than 0.70, indicating that all of the study's assertions are taken to meet the criteria. A statement has good de-

pendability within its particular construct and the measurement instruments are consistent when its Cronbach's Alpha score exceeds 0.70. The PLS algorithm and bootstrapping in SmartPLS version 3.0 are shown in Table 6 since the feasibility data were allowed.

Table 6. PLS path algorithm and bootstrapping

Path	Path Coefficient (Original Sample)	T-Statistics	P-Values
IE → FP	0.687	7.652	0.000
IC → FP	0.352	2.785	0.012

Note: IE = E-procurement implementation; IC = Internal control; FP = Fraud prevention.

Table 6 shows the statistical results for determining the path coefficient and significance level. The predicate is deemed significant if the p-value is less than 0.05 and the t-statistics are higher than the t-count. However, when validating hypotheses, the study considers the path coefficient value. The two hypotheses are accepted based on the findings.

The result for the first hypothesis shows that the test yielded findings of t-count > t-table, or 7.652 > 1.997, with a significance level of 0.000 < 0.05. H1 is accepted, demonstrating that the use of electronic procurement has a significant influence on reducing fraud in the purchase of goods and services. This finding is consistent with the stewardship theory, which explains that to carry out government activities, it is necessary to be accountable for each of them, including the procurement of goods and services; thus, e-procurement, or technology-enabled systems, benefit from value transparency and efficiency. These findings are consistent with Ilham et al. (2017), who found that e-procurement implementation significantly reduces fraud in purchasing goods and services. Furthermore, the adoption of e-procurement affects fraud prevention (Rustiarini et al., 2019). Lintangsari et al. (2017), Septiawan and Ningsih (2020), and Wicaksono et al. (2017) also support this. This demonstrates how vital fraud protection in acquiring goods and services is to deploying e-procurement.

Table 5. Validity and convergent reliability

Variables	Average Variance Extracted (AVE)	Cronbach's Alpha	Composite Reliability
E-procurement implementation (IE)	0.845	0.928	0.968
Internal control (IC)	0.683	0.867	0.854
Fraud prevention (FP)	0.736	0.896	0.855

The second hypothesis postulates that internal control significantly affects fraud prevention. The test results showed that t-count> t-table, 2.785 > 1.997, and a significance value was 0.012 < 0.05. According to the stewardship theory, H2 is accepted, indicating that the influence of internal control on fraud prevention is considerable. E-procurement needs to be encouragement with excellent and effective internal controls in assuming responsibility for all government actions to the public or interested parties in order to prevent fraud caused by intentions or opportunities. This supports Palupi and Santoso's (2017) assertion that internal control significantly reduces fraud prevention. Ilham et al. (2017) indicate that internal control has a considerable positive impact on fraud prevention. Additionally, this finding supports Lintangsari et al. (2017), Jalil (2018), and Akbar (2019).

CONCLUSION

The goal of this study was to ascertain how internal control and e-procurement affect the incidence of fraud in the purchase of goods and services. The results show that e-procurement implementation has a considerable impact on fraud prevention. Fraud can be prevented to a greater extent with the successfully implemented e-procurement. The e-procurement of goods and services is a system that benefits from technology related to transparency and efficiency. It must be handled responsibly when carrying out government activities.

Furthermore, internal control influences fraud prevention while procuring goods and services. Therefore, the more effective the internal control, the less likely fraud will occur while purchasing products and services.

This study contributes to regional work units (SKPD) in Indonesia by ensuring that fraud prevention will be maximized by utilizing the capital budget. Even while it is occasionally true that low budget absorption results from spending plans and operational procedures that are not up to par, this can be lessened with effective fraud prevention. In order to determine the extent to which the state civil apparatus and the number of human resources who have the authority to implement procurement of goods and services influence budget absorption, additional independent variables, such as the role of the state civil apparatus and the number of human resources, are anticipated to be able to be added in future studies. In order to produce more reliable and thorough research results, future studies should also increase the sample size.

AUTHOR CONTRIBUTIONS

Conceptualization: Sempaulus Silalahi, Rheny Afriana Hanif.
Data curation: Sempaulus Silalahi, Supriono Supriono, Eka Hariyani, Meilda Wiguna.
Formal analysis: Sempaulus Silalahi, Rheny Afriana Hanif.
Investigation: Supriono Supriono, Eka Hariyani, Meilda Wiguna.
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Resources: Sempaulus Silalahi.
Software: Sempaulus Silalahi, Rheny Afriana Hanif.
Supervision: Sempaulus Silalahi.
Validation: Sempaulus Silalahi, Rheny Afriana Hanif, Supriono Supriono, Eka Hariyani, Meilda Wiguna.
Visualization: Rheny Afriana Hanif.
Writing – original draft: Sempaulus Silalahi, Supriono Supriono.
Writing – review & editing: Rheny Afriana Hanif, Eka Hariyani, Meilda Wiguna.

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