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Effect of the anti-fraud policy towards reducing public e-procurement corruption using the ability of internal audit forensic accounting techniques

Abstract. The SPSE e-procurement application has been used to suppress procurement corruption that often occurs in the Indonesian government. However, procurement corruption still occurs, allegedly the cause is due to the existence of a weak anti-fraud policy (AFP) in Indonesian government ministries and agencies. This study aims to prove empirically, whether there is an influence of AFP, on reducing corruption in the public e-procurement system with an approach to improving the health of the e-procurement system through proactive fraud detection with a forensic accounting technique approach. This research uses Quantitative Research Methods, research data is collected through questionnaire instruments, face-to-face interviews, and focus group discussions (FGD) which are carried out in 82 Ministries and agencies in Indonesia in 2022. Sampling using census techniques. The data were analyzed using a Structural Equation Modeling (SEM) approach assisted by the application of Lisrel 8.80. The results showed that anti-fraud policy has no significant effect on proactive fraud detection, anti-fraud policy has a positive and significant effect on reducing public e-procurement corruption, anti-fraud policy indirectly has a positive and significant effect on reducing corruption in public e-procurement through proactive fraud detection.
Keywords: Anti-Fraud Policy; Proactive Fraud Detection; Forensic Accounting Technique; Reducing Public E-Procurement Corruption
JEL Classifications: E24; E41; E64

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Data Availability Statement: The dataset is available from the authors upon request.

1. Introduction

Every organization in the world strives to build the best anti-corruption program to reduce corruption. However, the high number of corruption cases in Indonesia shows that the anti-corruption program has not been a top priority. This can be seen from the statement of the Global Corruption Barometer-Asia (2020) statement that Indonesia is the third most corrupt country in Asia after the first position is occupied by India and followed by Cambodia in second place. The development of Indonesia's corruption perception index (CPI) score in the last 7 years has only increased by 4 points from the 36th rank in 2015, rose to 40 in 2019, and again fell to 38 in 2021 amid the COVID-19 virus pandemic, where the CPI score scale of 0 means the most corrupt. According to Transparency International (TI), the slow development of the CPI shows that a country has a development in efforts to reduce corruption that is lacking.

Procurement corruption that causes heavy losses occurs in many Indonesian government ministries and agencies. Based on the modus operandi handled by the KPK (Indonesia's Corruption Eradication Commission (abbreviated KPK) which is a government agency established to fight corruption) from 2004-2020, the second most cases were found in the procurement sector after bribery. Although most procurements have used e-procurement, namely SPSE since 2008. Another evidence was found by anti-corruption observer Yuntho (2019) that in recent years (before 2019) Indonesia Corruption Watch (ICW) found 18 ministries caught in corruption cases, and the KPK also admitted that it had handled 231 corruption cases in the ministry, of which eight (8) were carried out by its own active ministers. Corruption in this ministry occurs allegedly due to the selection of ministers in Indonesia based on political parties and financial assistance when it becomes a successful team of presidential candidates, not because of competence, and is exacerbated by the nepotism of Ministers appointing important officials from the same party, making it vulnerable to being exploited for the benefit of the party's political capital raising and personal gain (Yuntho, 2019). Procurement of Goods and Services is the most vulnerable sector to corruption in the ministry therefore according to the OECD (2016) fighting procurement corruption can be done with an approach to improving integrity in the public procurement system.

To improve the reduction of procurement corruption ideally, the internal resources of auditors of these government ministries and agencies must have more ability than ordinary audits, namely they must be more proactive in detecting allegations of fraud, and fraud /corruption that has occurred. However, the fact that the supervisory function (Internal audit) in the government ministries and agencies is not functioning properly is suspected to be due to corruption by high-ranking officials or ministers, and covering it up to protect the good name of the corps, it can also be due to the weak resource capabilities of internal auditors (Yuntho, 2019). The evidence according to BPKP is Indonesia's National Government Internal Auditor, APIP (Internal Government Supervisory Officer) as an internal auditor in the government is not optimal, because in 2016 APIP's capabilities in the Ministry and Regional Government of 71.91% are still included at Level-1 meaning that government auditors are still unable to detect corruption (Fathini et al., 2017; Valizadeh Khargh et al., 2023). According to Lee, (2016); OECD (2016) anti-fraud policies that are strong or have the power to obey if they contain examples of concrete practices of the type of corruption, the type of expected response, and clear WBS (Whistleblowing System) reporting tools that encourage employees to act when they find corruption, which is expected to encourage the reduction of organizational corruption. This is supported by the opinion of Mahmood et al. (2022) who report that effective fraud detection occurs when the organizational culture has a code of ethics policy and workers realize fraud as a negative and unacceptable behavior. Hence, the pressure to commit fraud is lower, integrity is higher and rationalization to commit fraud is lower. However, the reduction of corruption is difficult to realize because the policy of each government ministry and agency depends on the officials in power, this is in accordance with the opinion of Graycar & Sidebottom (2012) and Darsono et al. (2022) that corruption occurs due to the excessive power of government departments and public officials.

Based on the background of the research above, the purpose of this study is to examine the falsification of procurement corruption and the ability to detect proactive fraud from internal auditors and its relationship with anti-fraud policies, thus formulating 3 research problems, namely:
1) Do anti-fraud policies have a positive effect on proactive fraud detection?
2) Do anti-fraud policies have a positive effect on reducing public e-procurement corruption (EPC)?
3) Does the AFP have a positive effect on reducing public EPC through proactive fraud detection?

2. Brief Literature Review

Anti-fraud Policies

A strong fraud policy is a clear and specific internal organizational rules and procedures depicted in the zero-tolerance statement against organizational corruption, containing the components of fraud risk management, namely: Fraud Risk assessment, fraud Prevention techniques, Proactive fraud Detection, and Effective fraud investigation, and contained in a document to be used as an integrity pact that is signed jointly with both employees and third parties.

Proactive Fraud Detection

Fraud Procurement is employee fraud that is part of corruption fraud. This is supported by the opinion of ACFE - The Association of Certified Fraud Examiners (2011) stating that occupational fraud and abuse (employee frauds) means:

«The use of one's work for personal gain through misuse or intentional theft of the organization's resources or assets. National Fraud authority (NFA) states that Procurement fraud is intentional fraud intended to affect any stage in the procurement life cycle until payment for financial gain or cause losses that can be done by contractors or subcontractors outside the organization, as well as staff within the organization. Thus, Proactive Fraud detection of e-procurement based on forensic accounting techniques is the ability to recognize potential fraud and what has occurred immediately, especially e-Procurement fraud, namely fraud that affects every stage in the life cycle of procurement assisted by e-procurement technology carried out by contractors or subcontractors and employees by means of I) studying the schemes and symptoms (Red flag) of possible fraud and II) forensic accounting techniques, namely: 1) interviews, 2) document reviews, and 3) examination of electronic media».

Reducing public EPC

Corruption reduction can be done with various approaches to various studies there are those that measure the reduction of corruption in the form of numbers there are also in the form of social approaches as Graycar & Sidebottom (2012) made a broadly referenced formula that describes the causes of corruption as well as a tool to reduce corruption, namely that Corruption equals monopoly plus discretion minus accountability (corruption = monopoly power + discretion – accountability). It is understood that the cause of corruption is monopoly power and discretion power which can be reduced by accountability. Thus, reducing public EPC is carried out with an approach to increasing integrity in the public procurement system through procedures including; increasing transparency and integrity, strengthening accountability, good Risk management strategies, comparing between benefits and value for money and Supervision and Control.

3. Research Method

This study uses Quantitative Research Methods, the samples in this study use non-probability sampling methods or saturated samples. The population/sample of the study is 82 line ministries and government agencies in Indonesia. The primary data in this study were collected through questionnaires for two respondents, namely: Internal Auditors & Employees from the procurement department called UKPBJ (Goods/Services Procurement Work Unit). Respondents filled out questionnaires where the answers have been provided. Quantitative data resulting from the distribution of questionnaires in the form of ordinal scale data for measurement using the Likert Scale approach. The research hypotheses are considered as follows:

H1: AFP has a positive effect on proactive fraud detection.

H2: The weakness of the AFP has a Positive Effect on Improving the Integrity of the Procurement System.

H3: The weakness of the AFP has a positive effect on improving the integrity of the Public Procurement System through proactive fraud detection internal audit.

Verifiable Analytics

The verifiable analysis aims to test the influence of latent variables in this study. Analysis using the Structural Equation Modeling (SEM) method assisted by the Application of Lisrel 8.8. SEM forms two types of models, namely Measurement Model Testing and Structural Model Testing.

4. Result and Discussion

Demographic Respondent

Of the total questioners attributed 164 returned 142. The data collection process was carried out during the COVID-19 pandemic for approximately six months. The data was collected through two questionnaire instruments obtained through Google from and hardcopy questionnaires were filled out on the spot while conducting interviews & FGDs.

Measurement Model Testing

The measurement model aims to describe how well each indicator can be used as an instrument for measuring latent variables through testing the validity and reliability of indicators and dimensions of research variables. The measurement model testing in this study used a two-level test called the confirmatory factor analysis (CFA) approach. The first level (first order) shows the relationship between the indicator and its dimensions. While the second level (second order) shows the relationship between dimensions and research variables. The results of the CFA test are described in Table 1.

Data in Table 1 shows that most of the standardized factor loading values ⩾ 0.50 means that all indicators are declared to have good validity. Similarly, the reliability of the measurement model is shown from the CR value of ⩾ 0.70 and the VE ⩾ 0.50 for most dimensions and variables is declared good. Hence, it can be concluded that all dimensions and indicators are declared valid and reliable for measuring research variables.

Structural Model Testing

Structural model testing aims to test research hypotheses. Previously, testing the suitability of the research model was carried out to ascertain whether the model constructed in theory fits with the data collected empirically. The results of the calculation of structural path coefficients for the model in this study are shown in Table 1.

Table 1:
The CFA; AFP & Reducing Public EPC

Anti fraud policy (AFP)						Reducing public e-procurement Corruption					
Dimensions and Indicators	SFL ≥ 0.5	Error	CR ≥ 0.7	VE ≥ 0.5	Conclusion	Dimensions and Indicators	SFL ≥ 0.5	Error	CR ≥ 0.7	VE ≥ 0.5	Conclusion
Second Oder CFA						Second Oder CFA					
Anti fraud Policy			0.9974	0.9896	Good Reliability	*Reducing public e-*			0.9711	0.9221	Good Reliability
MEKRISKA	0.90	0.0065			Good validity	*INTRANSP*	0.30	0.0086			Not Good validity
MEKFP	0.99	0.010			Good validity	*ACCBLTY*	0.25	0.011			Not Good validity
MEKPD	0.83	0.010			Good validity	*RISKMS*	0.34	0.014			Not Good validity
INVTSANK	0.94	0.0087			Good validity	*VALMONY*	0.63	0.013			Good validity
First Order CFA						*SURVICON*	-0.13	0.011			Not Good validity
MEKRISKA			0.8447	0.5257	Good Reliability	First Order CFA					
COMCOMP	0.68	0.54			Good validity	*INTRANSP*			0.7	0.4871	Good Reliability
COMLEAD	0.78	0.38			Good validity	*INTRANSP1*	0.73	0.46			Good validity
STRATEGY	0.79	0.38			Good validity	*INTRANSP2*	0.66	0.56			Good validity
RISKA4	0.80	0.36			Good validity	*ACCBLTY*			0.8677	0.6898	Good Reliability
RISKA5	0.54	0.71			Good validity	*ACCBLTY1*	0.72	0.48			Good validity
MEKFP			0.8444	0.5807	Good Reliability	*ACCBLTY2*	0.97	0.05			Good validity
DEFINIT	0.62	0.61			Good validity	*ACCBLTY3*	0.78	0.40			Good validity
DILIGEN	0.67	0.55			Good validity	*RISKMS*			0.5314	0.5314	Good Reliability
RESPONB	0.85	0.27			Good validity	*RISKMS1*	0.73	0.47			Good validity
PREV4	0.87	0.24			Good validity	*VALMONY*			0.5310	0.3869	Not Good Reliability
MEKPD			0.7940	0.5712	Good Reliability	*VALMONY1*	0.79	0.38			Good validity
REPORT	0.89	0.21			Good validity	*VALMONY2*	0.39	0.85			Good validity
MONITOR	0.79	0.38			Good validity	*SURVICON*			0.8110	0.5197	Good Reliability
EVAL	0.55	0.70			Good validity	*SURVICON1*	0.71	0.50			Good validity
INVTSANK			0.7781	0.5400	Good Reliability	*SURVICON2*	0.73	0.46			Good validity
INVEST	0.70	0.51			Good validity	*SURVICON3*	0.81	0.34			Good validity
SANC1	0.80	0.36			Good validity	*SURVICON4*	0.62	0.62			Good validity
SANC2	0.70	0.51			Good validity						

Source: Own research results (2021)

Table 2:
The goodness of Fit Index (GOFI) Full Model

CRITERIA GOFI	ESTIMATE MODEL RESULT	CONCLUSION	CRITERIA GOFI	ESTIMATE MODEL RESULT	CONCLUSION
Absolute fit measures			*Incremental fit measures*		
Chi-square	2.81	FIT	NFI	0.79	MARGINAL FIT
RMSEA	0.11	NOT FIT	NNFI	0.85	MARGINAL FIT
			CFI	0.86	MARGINAL FIT
SRMR	0.0022	FIT	IFI	0.86	MARGINAL FIT
GFI	0.47	NOT FIT	RFI	0.78	MARGINAL FIT
Parsimonious fit measures			AGFI	0.43	NOT FIT
Normed *Chi-Square*	4.8	NOT FIT	PGFI	0.44	MARGINAL FIT

Source: Own research results

The results of the goodness of fit statistics test shown in Table 2 concluded that the model had met three GOD FIT criteria, namely Criterion. Absolute Fit Measures; i.e. evaluating, in general, the degree of GOD FIT match between the data and the model, where if the model shows a Chi-Square Value of 0 then the model has a «PERFECT FIT».

Incremental fit measures; i.e. comparing the proposed model with the baseline model where all the variables in the model are free from each other. NFI, NNFI, CFI, IFI, RFI values this model falls into the category of «MARGINAL FIT». Parsimonious fit measures; i.e. testing the conciseness of the model. Normed chi-Square values in this Model belong to the category «NOT FIT». The magnitude of the influence between the resulting latent variables, can be known by looking at the value of the coefficient of the path formed (see Figure 1).

The result of structural model analysis of Figure 1 shows the overall model estimation values as expressed in statistical results and path coefficients of each hypothesis can be seen in Table 3.

Table 3 shows the results for **H1**: the line coefficient value of (-0.08) is below the significant value of 0.05. The *t*-count value of the Anti-fraud awareness programs variable -0.86 is smaller than the *t*-critical 1.64, at an error rate of 5% (One Tile) so H0 is accepted. The line coefficient value of 0.01 is below the significant value of 0.05. This means that the more effective anti-fraud awareness programs do not have a positive effect on proactive fraud detection. For **H2**, the line coefficient value of
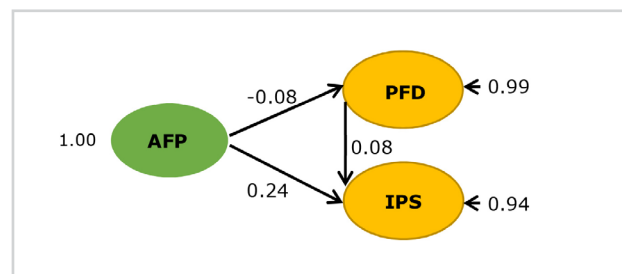

Figure 1:
Standard solutions structural model diagram
Source: Own research results

Table 3:
Hypothesis Test Results

	Hypothesis	t-statistic (≥1.64)	Significant	Path Coefficient Direct	Path Coefficient Indirect	Path Coefficient Total	Conclusion
H1	AFP --> PFD	-0.86 ≤ 1.64	Negative	-0.08		-0.08	Hypothesis is not Accepted
H2	AFP --> IPS	2.59 ≥ 1.64	Positive	0.24		0.24	Hypothesis is Accepted
H3	AFP --> PFD --> IPS	2.59 ≥ 1.64	Positive	0.24	-0.0064	0.23	Hypothesis is Accepted

Source: Own research results

0.24 is above the significant value of 0.05. The *t*-count value of the Anti-fraud awareness programs variable 2.59 is greater than the *t*-critical 1.64, at an error rate of 5% (One Tile) so that H0 is rejected. This means that the more effective Anti-fraud awareness programs have a positive and significant effect on reducing public EPC. For **H3**, the line coefficient value of 0.23 is above the significant value of 0.05. The *t*-count value of the Anti-fraud awareness programs variable 2.59 is greater than the *t*-critical 1.64, at an error rate of 5% (One Tile) so that H0 is rejected. This means that the more effective Anti-fraud awareness programs indirectly have a positive effect on reducing corruption in public e-procurement through proactive fraud detection.

4. Discussion
Hypothesis 1: Anti-fraud policies have a positive effect on proactive fraud detection
Based on the results of hypothesis testing, shows that the AFP has no effect on proactive fraud detection. This is in contrast to the findings of Ferwerda et al. (2017) that anti-corruption policy describes the components of a corruption risk management system must state how to detect malpractice and corruption, monitor the implementation of programs regularly, evaluate and audit regularly and measure the place to report, complaints and whistleblowing. This research is also different from the results of the research of Kummer et al. (2015), and Gibson (2018), which found that there was a significant relationship between the use of prevention techniques, namely fraud control policy, and fraud detection.

Some indicators that result in fraud detection of the surveillance unit are less proactive, namely, the AFP regarding the measurement of tools for complaints, complaints, and whistleblowing system (WBS) detection tools categorized as Not Good, because 75% of respondents did not answer the implementation of the Fraud Detection Policy indicators measuring the effectiveness of WBS corruption detection tools in the government ministries and agencies, such as: 1) Complaint criteria, 2) Protection guarantees and 3) Follow-up investigations of corruption complaints in the government ministries and agencies.

Hypothesis 2: Anti-fraud policies have a positive effect on reducing public EPC
Based on the results of hypothesis testing, shows that the AFP has a positive and significant effect on reducing public EPC by 27%. The findings of this study prove empirically that the stronger the AFP, the more the reduction in public EPC in the government ministries and agencies. These findings are in line with the results of OECD research (2016) that policies of identifying and managing conflicts of interest, robust controls, and broader risk management and transparency framework are key weapons in government weapons to combat corruption while ensuring competitive processes that keep low costs and quality high remain in place.

AFP Indicators - The fraud prevention mechanism is still weak, two of the three indicators fall in the category of not good, and one indicator falls into the category of not good, first the implementation of the Definitions of corruption delivery is categorized as Bad according to 73% of respondents, namely; so that stakeholders cannot distinguish which activities include corruption. Secondly, the implementation of Due diligence processes or The obligation to list the results of the provider/vendor assessment as a tool for due diligence or requirements in the selection of partners is categorized as Not good according to 77% of respondents. Finally, the implementation of the delivery of the Definition of responsibility of employees and leaders in creating an anti-corruption culture is categorized as Not good according to 53% of respondents for who is responsible for preventing, detecting, and investigating corruption fraud.

Hypothesis 3: Anti-fraud policies have a positive effect on reducing public EPC through proactive fraud detection
Anti-fraud policies have a positive effect on reducing public EPC through proactive fraud detection by 26%. This research empirically proves the research of Morales et al. (2014) that effective fraud detection occurs when organizational culture has a code of ethics policy and workers realize fraud as a negative and unacceptable behavior. Hence, the pressure to commit fraud is lower, integrity is higher and rationalization to commit fraud is lower. The findings of this study are in line with the opinion of the OECD (2016) that policies of identifying and managing conflicts of interest, strong controls, and broader risk management and transparency framework are key weapons in the government's arsenal to fight corruption while ensuring competitive processes that keep low costs and quality high remain in place.

5. Conclusions

The findings of this study in detail are explained as follows:

AFP has no effect on proactive fraud detection, the cause is the AFP of the government ministries and agencies and its implementation is still less than the ideal standard.

Anti-fraud policies have an effect on reducing public EPC. There has not been a reduction in EPC in the government ministries and agencies due to the weak implementation of the agency's Risk Assessment policy who determines how agencies manage risks by designing controls such as robust prevention techniques to reduce Corruption.

Anti-fraud policies have a positive effect on reducing public EPC through proactive fraud detection internal audits. The lack of corruption in public e-procurement is the lack of implementation of agency investigation policies and detection.

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