The Effect of Anti-fraud Socialization, Whistleblowing System, and Social Sanction on Assets Misappropriation

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Article's Information	ABSTRACT
	Based on the AFCE report (2022), asset misappropriation is identified as the most prevalent form of fraud across all sectors. However, unlike other types of fraud, research addressing methods to mitigate asset misappropriation remains limited. This study aims to conduct empirical testing regarding the influence of anti-fraud socialization, whistleblowing systems, and social sanctions on asset misappropriation. This study uses a quantitative approach by utilizing primary data collected through questionnaires. The sample size in this research consists of 158 respondents who are employees of Regional Government Agencies of South Sulawesi. Hypothesis testing was conducted using the Smart-PLS application, employing bootstrapping techniques to estimate the path coefficients of each variable. The result showed that (1) anti-fraud socialization has a negative effect on asset misappropriation; (2) whistleblowing systems do not have a significant impact on asset misappropriation, and (3) social sanctions have a negative effect on asset misappropriation.

ABSTRAK

Berdasarkan laporan AFCE, penyalahgunaan aset merupakan fraud yang paling banyak ditemukan di semua sektor termasuk sektor pemerintahan. Akan tetapi, berbeda dengan jenis fraud lainnya, penelitian yang membahas cara memitigasi penyalahgunaan aset ini masih terbatas. Penelitian ini bertujuan untuk melakukan pengujian empiris untuk mengetahui pengaruh dari sosialisasi antifraud, whistleblowing system, dan sanksi sosial terhadap penyalahgunaan aset. Penelitian ini menerapkan pendekatan kuantitatif yang menggunakan data primer yang diperoleh melalui penyebaran kuesioner. Sampel penelitian terdiri dari 158 responden yang berasal dari lebih dari 25 Organisasi Perangkat Daerah Pemerintah di Sulawesi Selatan. Pengujian hipotesis dilakukan pada aplikasi Smart-PLS, dengan menerapkan teknik bootstrapping guna mengestimasi koefisien jalur dari masing-masing variabel. Hasil penelitian menunjukkan bahwa (1) sosialisasi antifraud berpengaruh negatif terhadap penyalahgunaan aset; whistleblowing system tidak berpengaruh terhadap penyalahgunaan aset, dan (3) sanksi sosial berpengaruh negatif terhadap penyalahgunaan aset..

Introduction

Asset misappropriation is one of the most common types of fraud, involving actions such as embezzlement, asset manipulation, and fraudulent billing schemes (ACFE, 2020). According to ACFE (2022), out of 2,690 cases across 125 countries, 86% involved asset misappropriation, surpassing corruption (50%) and financial statement fraud (9%). In Indonesia, the Supreme Audit Board (BPK) (2022) identified 1,049 cases of incomplete or inaccurate asset recording, 2,791 cases of weaknesses in revenue and expenditure controls, and 1,443 cases of poor budgetary control. These findings highlight the persistent risk of asset misappropriation, particularly in governmental contexts.

A framework often used to explain the causes of asset misappropriation is the fraud triangle, which identifies three main factors contributing to fraud: pressure, opportunity, and rationalization. Cho (2018) highlights that these factors can be addressed by improving controls within the organizational environment. The first approach involves imposing clear consequences for fraudulent actions. The second focuses on fostering a strong ethical culture to discourage individuals from justifying asset misappropriation. The third emphasizes the importance of implementing effective mechanisms for monitoring and reporting fraudulent activities.

Cho (2018) refers to these three mechanisms as top-down controls. Theoretically, these controls can be explained through the social control theory (Durkheim, 1938). According to this theory, social control encompasses all mechanisms and arrangements to maintain social order by inducing individuals to conform to established rules (Ross, 2017).

To address this issue, this study draws on two theoretical frameworks: Durkheim's social control theory and Kahneman's dual-process theory. Durkheim's theory posits that social order is maintained through the enforcement of norms, rules, and sanctions. This is particularly relevant to anti-fraud mechanisms such as social sanctions, which aim to deter fraudulent behavior by reducing opportunities and rationalizations for misconduct. Kahneman's dual-process theory differentiates between intuitive (fast) and deliberative (slow) thinking, providing a basis for anti-fraud socialization aimed at fostering ethical awareness and deliberate decision-making in public officials.

Previous studies on top-down mechanisms for mitigating asset misappropriation remain limited, as they primarily focus on controlling corruption and fraud. For example, Seregig et al. (2019) and Leonard (2014) used socialization as a mechanism for fraud and corruption prevention, while whistleblowing systems were studied as tools to prevent financial statement fraud (Silva & Sousa, 2017) and general fraud (Pamungkas et al., 2017; Su & Ni, 2018). Social sanctions, on the other hand, have been explored mainly in the context of fraud reduction (Sarre & Fiedler, 1999). Despite this, Cow (2018) emphasized the scarcity of research addressing asset misappropriation specifically. Previous studies, such as those by Bakri et al. (2017) and Siahaan et al. (2019), have employed variables like integrity, but research on utilizing top-down mechanisms within the governmental sector remains underexplored.

This study aims to fill this gap by examining the influence of anti-fraud socialization, whistleblowing systems, and social sanctions on asset misappropriation within local government agencies. The variables are adapted from Cow's (2018) framework but refined for quantitative analysis. For instance, the anti-fraud socialization variable is adapted from Norziaton et al.'s (2018) focus on awareness, aligning it with Durkheim's theory of social control. The whistleblowing system and social sanctions variables are drawn from Okafor et al. (2020) and Wang et al. (2019), respectively, but tailored to address asset misappropriation. By focusing on these mechanisms in a governmental context, this study aims to contribute to both theoretical advancements and practical applications in fraud prevention.

South Sulawesi, ranked as the third lowest in Indonesia's integrity index (KPK, 2019), has faced persistent challenges in maintaining accountability. Since 2019, its government has partnered with the Corruption Eradication Commission (KPK) to enhance transparency and prevent asset misappropriation, making it an ideal context for this investigation. By employing a quantitative approach, this research provides insights into how top-down mechanisms, guided by Durkheim's and Kahneman's theories, can mitigate asset misappropriation. This contributes to both advancing theoretical frameworks and developing practical solutions to strengthen fraud prevention in the public sector.

Method

This study employs a quantitative explanatory method to investigate asset misappropriation among Civil Servants (ASN) in the Regional Government Organization of South Sulawesi Province, focusing on those with at least 2 years of work experience. A sample of 155 participants was selected using a non-probability convenience sampling technique, based on their willingness to participate. The sample size was determined according to Hair et al. (2021), ensuring a 5% significance level and a P-value range of 0.11-0.2, suitable for data analysis using the PLS application. Data was collected through offline and online questionnaires, utilizing a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

The study examines asset misappropriation, which is categorized into two dimensions: cash misappropriation (e.g., theft, billing schemes, and fictitious expenses) and inventory/non-cash asset misappropriation (e.g., asset misuse and procurement manipulation). Indicators for these dimensions are adapted from research by Karim, Said, & Bakri (2015), Bakri, Mohamed, & Said (2017), Yusrianti & Ghozali (2020), and Umar, Firnanda, & Purba (2021). The study also explores anti-fraud socialization, which refers to how an organization communicates its values and principles to prevent and detect fraud. This is measured through the indicators of accumulation, translation, and dissemination, based on the work of Heikkila & Gerlak (2013) and Wilson (2020).

In addition, the whistleblowing system is examined, focusing on how employees can report fraud. It includes disclosure facilities (e.g., procedures and channels), follow-up actions (e.g., investigations), and protection for whistleblowers (e.g., protection from threats and defamation). These indicators are drawn from Brown (2008). Finally, the study investigates social sanctions, both formal (e.g., reprimands, fines) and informal (e.g., social rejection), which are applied in response to fraud. These indicators are adapted from Warren (2018).

Result and Discussion

Throughout the study, the researcher distributed questionnaires both online and offline. The results of these distributions resulted in 92 questionnaires filled out online and 69 questionnaires filled out offline. Consequently, the total number of questionnaires collected amounted to 161 sets. However, due to 3 incomplete questionnaires, the total questionnaires used as the sample in this research were 158. This sample size surpasses the predetermined sample target of 155. As stated by Hair et al. (2021), in order to achieve a significance level of 5% with a Pmin value ranging from 0.11 to 0.2, a sample size of approximately 155 is required.

Furthermore, descriptive statistical analysis in this study was conducted usig the Smart-PLS 3.0 application. As evident from Table 1, each variable under investigation demonstrates a standard deviation smaller than its corresponding mean value. This observation implies that the data distribution for each variable exhibits a relatively normal distribution pattern. This insight is further supported by the kurtosis and skewness values lying within the range of -2 and 2. In line with the rule of thumb, kurtosis and skewness values within the range of -2 to 2 are indicative of a normally distributed dataset."

Table 1. Descriptive Statistics

Variables	Mean	Standard deviation	Kurtosis	Skewness
Anti-fraud Socialization	2.483	1.077	0.425	0.585
Whistleblowing System	3.496	0.970	0.087	-0.546
Social Sanction	3.218	1.041	-0.263	-0.320
Asset Misappropriation	2.354	1.217	-0.710	0.491

Source: Primary Data, 2023

Table 2. Convergent Validity Test Results Based on Outer Loading and AVE at the First Order Level

Dimension	Measurement Items	Indicator	Outer Loading	AVE
SA	SA1	Accumulation	0.745	
	SA2	Translation	0.858	0.753
	SA3	Dissemination	0.850	
WS1	WS1.1	The subject matter of disclosure	0.782	
	WS1.2	Procedure of disclosure	0.870	0.689
	WS1.3	Channel of disclosure	0.836	
WS2	WS2.1	Investigation on disclosure	0.930	
	WS2.2	Report on the findings of the investigation	0.931	0.865
WS3	WS3.1	Protection from threats or persecution	0.879	
	WS3.2	Protection from defamation	0.904	
	WS3.3	Protection from disciplinary sanction	0.867	0.790
	WS3.4	Protection from material/financial loss	0.905	
SS1	SS1.1	Physical aggression	0.844	
	SS1.2	Social rejection	0.877	0.779
	SS1.3	Ostracism	0.867	
SS2	SS2.1	Verbal Reprimand	0.812	
	SS2.2	Written Reprimand	0.885	
	SS2.3	Compensation for Losses	0.905	0.721
	SS2.4	Fine	0.871	
	SS2.5	Revocation of work permit	0.766	
PA1	PA1.1	Theft of cash on hand	0.829	
	PA1.2	Billing schemes	0.923	
	PA1.3	Fictitious medical or travelling expenses	0.919	0.805
	PA1.4	Expenditure mark-up	0.900	
	PA1.5	Fictitious salary or Assistance	0.910	
PA2	PA2.1	Misuse of inventory and all other assets	0.903	
	PA2.2	Manipulate the procurement of goods of services	0.922	0.820
	PA2.3	Larceny of inventory and all other assets	0.892	

Source: Primary data, 2023

This research employs multiple variables measured across several dimensions. These dimensions are further assessed using various research indicators. Consequently, this study necessitates a two-stage examination, namely the first-order and second-order testing. The outcomes of the first-order analysis will subsequently serve as initial data for conducting the second-order testing phase.

In the first-order stage, testing was conducted to assess the indicators' convergent validity, discriminant validity, and reliability concerning their respective dimensions. As presented in Table 2, all indicators exhibit Outer Loadings more than 0.7. Conversely, outcomes of the PLS Algorithm test indicate that the Average Variance Extracted (AVE) values for each dimension are more than 0.5. According to Garson (2016), an indicator is considered to meet the criteria of convergent validity when it attains an outer loading value above 0.7 and an AVE value above 0.5. Thus, all indicators at the first-order level have met the requirements of convergent validity.

In terms of discriminant validity, the validity of an indicator can be assessed through cross-loading values and the Fornell-Larcker criterion. The anticipated cross-loading value necessitates each indicator to possess a higher loading factor for the construct it measures than other constructs' loading value (Garson, 2016). Meanwhile, the Fornell-Larcker criterion is expected to show a higher square root of AVE for the variable (dimension) it measures compared to the square root of AVE for other variables/dimensions (Garson, 2016).

The PLS Algorithm results indicate that the cross-loading values for each indicator are higher for the construct it measures than for the construct it does not. This demonstrates that the cross-loading values at the first-order level fulfil the required criteria. Furthermore, the Fornell-Larcker criterion values, as shown in Table 3, also demonstrate that the square root of AVE for each dimension is more significant than its correlation with other dimensions. Therefore, the instruments have met the discriminant validity requirements.

The final testing at the first-order level was conducted to assess the reliability of each indicator concerning its corresponding dimension. This can be observed through the values of composite reliability and Cronbach's alpha for each research dimension. As illustrated in Table 4, the composite reliability for each dimension displays figures exceeding 0.7. On the other hand, Cronbach's alpha for each dimension is more than 0.6. As affirmed by Jogiyanto (2011), an indicator is deemed to meet the criteria for reliability if it has a composite reliability value above 0.7 and a Cronbach's alpha exceeding 0.5. Consequently, all indicators at the first-order level have met the expected reliability criteria.

Table 3. Discriminant Validity Test Results Based on Fornell-Larcker Criterion at the First Order Level

	PA1	PA2	SS1	SS2	SA	WS1	WS2	WS3
PA1	0.897							
PA2	0.826	0.906						
SS1	-0.078	-0.131	0.863					
SS2	-0.519	-0.418	0.248	0.849				
SA	-0.494	-0.433	0.100	0.231	0.819			
WS1	-0.133	-0.101	-0.188	0.169	0.208	0.830		
WS2	-0.284	-0.257	-0.057	0.299	0.329	0.676	0.930	
WS3	-0.176	-0.166	-0.238	0.159	0.197	0.463	0.490	0.889

Source: Primary data, 2023

Table 4. Reliability Test Results Based on Composite Reliability and Cronbach's Alpha Values at the First Order Level

Variabel	Dimensi	Composite Reability	Cronbach's Alpha
Anti-Fraud Socialzation	SA	0.859	0.769
	WS1	0.869	0.774
Whistleblowing System	WS2	0.928	0.844
	WS3	0.938	0.911
Social Sanction	SS1	0.897	0.836
	SS2	0.928	0.902
Asset Misappropriation	PA1	0.954	0.939
	PA2	0.932	0.890

Source: Primary data, 2023

At the second-order level, the latent variable values obtained from the first-order analysis are used as initial data for the testing of both the outer model and the inner model. The latent variable values of WS1, WS2, WS3, SS1, SS2, PA1, and PA2 are collaborated with the questionnaire results measured on a Likert scale for SA1, SA2, and SA3.

Similar to the first-order analysis, the second-order analysis also examines convergent validity, discriminant validity, and reliability within the outer model. The measurement process is identical to that of the first order. The distinguishing factor is that while the first-order analysis assesses the outer model at the level of indicators and dimensions, the second-order analysis assesses the outer model at the level of dimensions and variables.

Table 5. Convergent Validity Test Results at the Second Order Level

Variables	Item	Indicators	Outer Loading	AVE
SA	SA1	Accumulation	0.743	
	SA2	Translation	0.857	0.671
	SA3	Dissemination	0.852	
WS	WS1	Disclosure Facility	0.804	
	WS2	Follow-up of disclosure	0.918	0.688
	WS3	Whistleblower protection	0.758	
SS	SS2.1	Verbal Reprimand	0.789	
	SS2.2	Written Reprimand	0.867	
	SS2.3	Compensation for Losses	0.902	0.720
	SS2.4	Fine	0.884	
	SS2.5	Revocation of work permit	0.795	
PA1	PA1.1	Misappropriation of cash	0.963	0.912
	PA1.2	Misappropriation of inventory and all other assets	0.947	

Source: Primary data, 2023

Table 5 reveals that the SS (social sanctions) variable solely incorporates indicators from formal sanctions (SS2). This outcome arises from the formal sanctions dimension (SS1) possessing outer loading values below 0.7. Hair et al. (2020) state that indicators with outer loading values below 0.7 must be eliminated from the model. This result further indicates that informal sanctions do not correlate strongly with formal sanctions and do not contribute as significantly as formal sanctions in constructing social sanctions.

Subsequent to removing the SS1 dimension from the model, the outcomes of convergent validity measurement at the second-order level are displayed in Table 5. The outer

loading values for each dimension/indicator have exceeded 0.7, while the AVE values for each dimension/indicator surpass 0.6. This signifies that the dimensions/indicators employed in this second-order stage fulfil the criteria for convergent validity.

Furthermore, discriminant validity at the second-order stage is also assessed through cross-loading values and the Fornell-Larcker criterion. As indicated in Table 6, all cross-loading values within a single variable exceed 0.7 and exhibit significant loadings on their corresponding constructs compared to other constructs. Meanwhile, the Fornell-Larcker criterion values, as depicted in Table 7, indicate that the square root of AVE for each variable is greater than its correlation with other latent variables. Consequently, it can be inferred that the second-order stage has fulfilled the requirements for discriminant validity.

Table 6. Discriminant Validity Test Results based on Cross-Loading Values at the Second Order Level

	PA	SS	SA	WS
PA1	**0.963**	0.524	0.494	0.259
PA2	**0.947**	0.423	0.433	0.232
SA1	0.226	0.079	**0.743**	0.152
SA2	0.395	0.175	**0.857**	0.218
SA3	0.496	0.262	**0.852**	0.341
SS1	0.351	**0.789**	0.219	0.123
SS2	0.402	**0.867**	0.176	0.122
SS3	0.457	**0.902**	0.165	0.186
SS4	0.453	**0.884**	0.219	0.319
SS5	0.443	**0.795**	0.215	0.447
WS1	0.124	0.185	0.208	**0.804**
WS2	0.284	0.314	0.330	**0.918**
WS3	0.180	0.177	0.197	**0.758**

Source: Primary data, 2023

Table 7. Discriminant Validity Test Results based on Fornell-Larcker Criterion Values at the Second Order Level

	PA	SS	SA	WS
PA	0.955			
SS	-0.500	0.849		
SA	-0.488	0.233	0.819	
WS	-0.258	0.290	0.312	0.829

Source: Primary data, 2023

For assessing the research instrument's reliability, the outcomes can be observed through Composite Reliability and Cronbach's Alpha values. The results obtained from the PLS Algorithm test at the second-order stage reveal that all variables possess Composite Reliability values exceeding 0.7 and Cronbach's Alpha values surpassing 0.6 (Table 8.). This indicates that the research instrument at the second-order stage has fulfilled the requirements for reliability.

Table 8. Reliability Test Results

Variable	Composite Reliability	Cronbach's Alpha
Anti-Fraud Socialization	0.859	0.676
Whistleblowing System	0.868	0.774
Social Sanction	0.928	0.726
Asset Misappropriation	0.954	0.939

Source: Primary data, 2023

The assessment of goodness of fit can be conducted by examining the values of R-Square, F-Square, VIF, and SRMR (Garson, 2016; Hair et al., 2020). In the context of

PLS, this type of testing is incorporated in the inner model testing. As shown in Table 9, the testing results indicate an R-squared value of 0.396. This suggests that the model in this study lies within the moderate to substantial range. Regarding the F-Square parameter, the SS. variable exerts an effect of 0.241 on PA, whereas the SS exerts an effect of 0.219. This reveals that both SA and SS have moderate to significant effects. Meanwhile, the F-Square value 0.001 for WS on PA implies a negligible effect.

Table 9 also presents VIF values in the range of 1.119-1.172 for each independent variable concerning the dependent variable. According to Hair et al. (2021), values below 5 indicate the absence of multicollinearity within constructs. The SRMR value of 0.085 is also indicated in the table. This value demonstrates that the model employed in this study is fitting, considering the expected SRMR values in PLS fall within the range of 0.10 to 0.08.

Tabel 9. Results of Model Fit Testing

Testing		PLS Result
R-Square		0.396
F-Square	SS – PA	0.241
	SA – PA	0.219
	WS - PA	0.001
VIF	SS - PA	1.119
	SA – PA	1.136
	WS - PA	1.172
SRMR		0.089

Source: Primary data, 2023

Hypothesis testing can be examined through T Statistics and P-values. After evaluating the Path Coefficient outcomes during the Bootstrapping test, these results are obtained. As depicted in the table, the T-Statistic values for social sanctions and anti-fraud socialization on asset misappropriation are above 1.64, while the T-Statistic value for the whistleblowing system on asset misappropriation is below 1.64. Meanwhile, the P-Values for Social Sanctions and Anti-Fraud Socialization on asset misappropriation are below 0.05, whereas the P-Value for whistleblowing system on asset misappropriation is above 0.05. Therefore, Hypothesis I and Hypothesis II are accepted in this study, while Hypothesis III is not accepted.

Table 10. Hypothesis Testing Results Based on Path Coefficient Values"

	Path Coefficient Values	T Statistics (|O/STDEV|)	P Values
SS -> PA	-0.404	5.331	0.000
SA -> PA	-0.387	5.649	0.000
WS -> PA	-0.021	0.326	0.372

Source: Primary data, 2023

The statistical testing results regarding the influence of anti-fraud socialization on asset misappropriation indicate a significant negative effect with a path coefficient of -0.404. This implies that adequate anti-fraud socialization can lead to a reduction in asset misappropriation. This finding aligns with the study by Seregig et al. (2018), which asserts that anti-fraud socialization can function as a preventive mechanism against fraud, including asset misappropriation. This finding is also congruent with Leonard's study (2014), which states that socialization through anti-fraud education plays a vital role in detecting fraudulent activities, including asset misappropriation.

The findings of this study also support the theory of social control, which posits that socialization builds trust and attachment to prevailing values and norms. Internalized values enhance an individual's integrity, deterring them from engaging in asset misappropriation, a form of transgression against norms and values. This finding further aligns with Kahneman's dual-process theory (2011), stating that socialization can

strengthen reasoning processes that control intuitive tendencies to avoid engaging in fraudulent behaviours.

The three socialization processes, acquisition, translation, and dissemination, are interconnected. During the acquisition phase, government institutions provide an adequate understanding of asset misappropriation, its prevention methods, and reporting mechanisms. However, knowledge about anti-fraud values does not necessarily prevent individuals from misappropriating assets. This can occur because decision-making processes do not always occur through rational reasoning but also through intuitive processes that are responsive, emotional, and self-serving (Kahneman, 2011).

Therefore, the next step after the acquisition process is to implement a system and practices where all these values can be translated into the organizational environment. At this stage, individuals require policy guidelines or instruction to apply this information. These guidelines can be obtained from experts, reliable advisors, or decision-makers who can translate these anti-fraud values into the workplace environment (Heikkila & Gerlak, 2014).

Lastly, individuals within the organization must also disseminate and remind each other about anti-fraud values and their application in the work context. This mechanism ensures the organization's collective distribution and application of these values (Heikkila & Gerlak, 2014). Individuals will remind one another if any employee forgets or intends to misappropriate assets. This dissemination process may require persuasion and framing through media to keep the anti-fraud values alive within the organization. Through these complementary stages of socialization, it is anticipated that individuals within the organization can shape and maintain an environment free from asset misappropriation based on collective responsibility.

Based on the results indicated in the path coefficient testing, the whistleblowing system does not significantly influence asset misappropriation. This is evident from the T-Statistic value, below 1.64 (0.326), and the Path Coefficient value, above 0.05 (0.372). This finding supports the research conducted by Inawati and Sabila (2021), who stated that the whistleblowing system does not significantly affect fraud prevention, including asset misappropriation.

Inawati and Sabila (2021) explained that ineffective whistleblowing often occurs when institutional leaders are involved in fraud. Employees hesitate to report asset misappropriation due to concerns about jeopardizing their careers. Consequently, they remain silent, even though they fundamentally know how and where to report such fraudulent activities.

Whistleblowing can also be ineffective when asset misappropriation has been perpetrated by numerous individuals within an organization. This phenomenon can be explained by the theory of collective action posited by Personn et al. (2013). When asset misappropriation becomes a collective issue, individuals rationalize their actions by assuming everyone else would engage in the same behaviour. Hence, they refrain from reporting instances of asset misappropriation, as they believe such conduct has already become a collective norm within the organization. Furthermore, individuals involved in asset misappropriation may avoid reporting others for fear of potential reprisals.

Another contributing factor to the ineffectiveness of whistleblowing systems is the low intention of whistleblowing. Hakim, Subroto, and Andayani (2017) affirm that Indonesia is among the countries that have implemented whistleblowing systems. However, the system's implementation still needs to be revised due to a lack of individuals' intention to become whistleblowers. Several obstacles leading to low intentions to report asset misappropriation include high levels of Machiavellian traits, low professional commitment, and perceptions regarding the severity or consequences of asset misappropriation.

Machiavellianism entails an attitude that disregards morality, has low commitment, and prioritizes self-interest. Individuals with such traits are willing to sacrifice group interests as long as they can secure their own. Yahya and Damayanti (2017) found that the higher a person's Machiavellian traits, the lower their intention to become a whistleblower. A similar trend is observed in individuals with low professional commitment. Those who lack belief in anti-fraud values are unaffected by witnessing others engage in fraudulent behaviour. This lack of concern for professional values ultimately discourages them from reporting asset misappropriation.

Perceptions about the seriousness of a violation also influence one's intention to become a whistleblower (Yahya & Damayanti, 2017). If someone perceives that an occurring asset misappropriation does not significantly harm the institution, they are inclined not to report it. Conversely, if they perceive that asset misappropriation causes substantial harm to the organization, they are more likely to report it. Compared to corruption and financial reporting fraud, asset misappropriation is often viewed as a fraud with a minor impact (Cow, 2018). Consequently, employees may need to pay more attention to it rather than face the hassle of reporting and the potential risks of being a whistleblower.

Perceptions regarding the seriousness of a violation also influence an individual's intention to become a whistleblower (Yahya & Damayanti, 2017). If an individual perceives that a case of asset misappropriation does not cause significant harm to the institution, they tend to refrain from reporting it. Conversely, if they deem the asset misappropriation to result in substantial detriment to the organization, they are more inclined to report it. Compared to corruption and financial reporting fraud, asset misappropriation is often regarded as a fraud with relatively minor impacts (Cow, 2018). As a result, employees may choose to overlook such incidents rather than take the step to report them and potentially face the risks associated with being a whistleblower.

The results of the hypothesis testing indicate a negative effect of social sanctions on asset misappropriation with a path coefficient of -0.387. This implies that the practical application of social sanctions can diminish instances of asset misappropriation. When individuals contemplate engaging in asset misappropriation, they consider the potential sanctions they might face. If they perceive these sanctions to entail material and psychological drawbacks, they are more likely to abandon their intentions. These findings align with the research conducted by Wang (2019), which asserts that the imposition of social sanctions or penalties significantly contributes to fraud prevention, including asset misappropriation.

Furthermore, this study also reveals that the utilization of formal sanctions yields a more substantial contribution to social sanctions than informal sanctions. This observation becomes evident through the convergent validity testing during the second-order analysis. The results suggest that implementing formal sanctions does not necessarily align with implementing informal sanctions.

The prioritization of formal sanctions within the framework of social sanctions essentially aligns with Wang's (2019) findings, suggesting that penalties involving monetary fines tend to be perceived as more effective than non-monetary penalties. This occurs because penalties involving fines, restitution, or even termination, as found in formal sanctions, exert a more pronounced impact on an individual's financial situation, thereby imposing significant economic pressure. Conversely, non-monetary sanctions, as encountered in informal sanctions, lack direct financial consequences and consequently are deemed to carry less weight.

The prioritization of formal sanctions in implementing social sanctions is inherently in line with Wang's findings (2019), which suggest that sanctions involving monetary penalties are generally perceived as more effective than non-monetary penalties. This is due to the fact that sanctions entailing fines, restitution, or even termination, as observed in formal

sanctions, exert a more pronounced influence on an individual's financial condition, thereby imposing significant economic pressure. Conversely, non-monetary sanctions, as identified in informal sanctions, lack a direct financial impact, leading to their perceived lesser severity.

Lastly, the findings of this study also support the theory of social control, which asserts that social sanctions can motivate individuals to comply with and uphold values while deterring them from engaging in actions contrary to rules (Parson, 2013). In this context, negative formal sanctions play a role in constraining, preventing, and instilling a deterrent effect on individuals who intend to commit asset misappropriation. These findings are also consistent with the theory of operant conditioning proposed by B.F. Skinner (1938) posits that individuals are less likely to repeat their actions if met with unfavourable consequences, as observed in the consequences of implementing formal social sanctions.

Theoretically, this study provides empirical evidence for the theory of social control in general fraud prevention and asset misappropriation. This is consistent with the statement by Morril and Arsiniega (2019) asserting that social control can serve as a variable that can mitigate undesirable behaviours, including asset misappropriation. Moreover, these findings support Jensen and Meckling's (1976) position that from an agency theory perspective, social control can be viewed as a mechanism that can address the asymmetric information between principals and agents. Individuals' self-interest and bounded rationality that can trigger government resource misappropriation can be managed through social control.

This study also aligns with Kahneman's (2011) dual-process theory. Internalizing values through socialization enhances individual reasoning to avoid fraudulent behaviour driven by intuitive processes. Furthermore, this research furnishes empirical evidence for Skinner's (1938) operant conditioning theory. The negative effect of social sanctions on asset misappropriation reaffirms that behaviour subjected to punitive consequences is likely to be avoided and not repeated.

These findings can be considered when formulating policies for preventing asset misappropriation within the government sector. To mitigate asset misappropriation, the government can improve the quality of anti-fraud socialization and social sanctions within their organizations. Anti-fraud socialization should extend beyond mere training and seminars; it should encompass cultural integration, wherein leaders and government employees mutually remind each other to uphold anti-fraud values within the workplace. Regarding social sanctions, government institutions could bolster formal social sanctions, such as issuing verbal and written warnings, restitution of losses, imposing fines, and even termination, contingent on the severity of the asset misappropriation incidents.

This study found that the whistleblowing system does not significantly affect asset misappropriation. However, this does not imply that the mechanism should be disregarded, considering that whistleblowing systems are recommended by AFCE (2022) as a means of disclosing fraud. The government should continue seeking ways to enhance the effectiveness of this oversight mechanism. One approach could be to encourage whistleblowing intentions, motivating individuals to come forward as whistleblowers for instances of asset misappropriation within their work environment.

The findings of this study highlight the importance of strengthening anti-fraud socialization within government institutions to prevent asset misappropriation. Policymakers should focus on integrating anti-fraud education into the organizational culture through continuous training programs, leadership modeling, and peer-to-peer reinforcement. Leaders should take an active role in promoting ethical behavior and ensuring that anti-fraud values are consistently communicated and upheld. This cultural integration helps ensure that employees internalize anti-fraud values, reducing the likelihood of fraudulent behavior.

Furthermore, the study emphasizes the need for clear and enforceable social sanctions, especially formal sanctions such as fines, restitution, or dismissal, which serve as strong deterrents against asset misappropriation. Policymakers should prioritize formal sanctions and ensure their consistent application across the organization. Transparency in the sanctioning process is crucial to increase their perceived effectiveness. Publicizing the consequences of fraudulent behavior within the institution can enhance accountability and motivate employees to adhere to ethical standards.

Although the study found the whistleblowing system to have limited impact on preventing asset misappropriation, policymakers should not neglect this tool. Efforts should be made to improve the system by ensuring confidentiality and protecting whistleblowers from retaliation. Encouraging employees to report fraud can be achieved through clear, accessible reporting channels and incentivizing whistleblowing. Additionally, creating a supportive environment where employees feel safe and confident in reporting fraudulent activities is essential for strengthening the overall anti-fraud framework in government institutions.

Conclusion

This study examines the effect of anti-fraud socialization, whistleblowing systems, and social sanctions on asset misappropriation. The research utilizes primary data from questionnaires distributed to various Regional Government Organizations of South Sulawesi. One hundred fifty-eight questionnaires were distributed across more than 25 Regional Government Organizations and analyzed using PLS 3.0.

The research findings indicate that both anti-fraud socialization and social sanctions have a negative effect on asset misappropriation. Implementing anti-fraud socialization and social sanctions can effectively reduce instances of asset misappropriation. Conversely, the study reveals that whistleblowing does not affect asset misappropriation. These findings align with Inawati and Sabila's research (2021), which also presented similar conclusions. One factor that might contribute to the ineffectiveness of the whistleblowing system is the low whistleblowing intention, as highlighted in the study conducted by Yahya and Damayanti (2021).

This study provides key insights for policymakers and government institutions in addressing asset misappropriation. The findings highlight the importance of enhancing anti-fraud socialization and enforcing social sanctions. Policymakers should focus on integrating anti-fraud values into the organizational culture through continuous training and leadership modeling, ensuring that employees internalize these values and are motivated to act ethically. Additionally, implementing clear and enforceable formal sanctions, such as fines, restitution, and dismissal, is crucial. Transparency and consistency in applying these sanctions will reinforce their deterrent effect, helping reduce instances of asset misappropriation within government organizations.

Although the whistleblowing system showed limited impact in this study, it remains a critical tool for preventing fraud. To improve its effectiveness, policymakers should prioritize creating a safe environment for whistleblowers by ensuring confidentiality, protection from retaliation, and incentivizing reports of fraud. This could include providing rewards or recognition to those who report asset misappropriation. By focusing on strengthening anti-fraud education, improving social sanctions, and enhancing the whistleblowing system, government institutions can create a more transparent and accountable environment that reduces the risk of asset misappropriation.

This study could further explore several limitations in future research on the same topic. Firstly, this study solely utilized negative indicators for social sanctions without considering the potential measurement of positive social sanctions in both formal and informal social

sanctions. Furthermore, respondents' answers to the distributed questionnaires may carry biases due to the common tendency of individuals to avoid answering questions that could potentially harm their reputation.

Based on the limitations, several recommendations for future research can further develop the investigation on this topic. Firstly, subsequent studies could incorporate positive indicators of social sanctions to achieve a more comprehensive understanding of the construct of social sanctions. Additionally, it is advisable for future research to explore methods of data collection that effectively mitigate the potential for bias. Researchers might consider utilizing data on actual instances of asset misappropriation based on auditor reports to attain more accurate data.

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