The Effect of Accounting Information Systems on Internal Control of Fuel Oil Inventories at Public Fuel Filling Stations on Lombok Island

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ARTICLEINFO	ABSTRACT
  	The purpose of this study is to determine how much the accounting information system affects the internal control of fuel inventory, with the hope of providing useful recommendations for gas station managers in improving their operational and financial performance. This research was designed as associative research with a quantitative approach. The data collection method uses primary data. The sample for this research was 41 gas stations. This research uses a simple linear regression analysis method with the SPSS version 29 test tool. The study results show that the accounting information system has a significant positive effect on internal inventory control. This is proven by the values with and. Implementing an accounting information system influences internal control of fuel supplies by 69.6%. Other variables influence the remaining 30.4%. This shows that the internal inventory control generated by a company is better if the company uses a better accounting information system.

INTRODUCTION

In general, every company in its business activities uses an inventory accounting information system to produce high-quality inventory data to help it manage inventory better. This accounting information system offers solutions through technology that enables accurate inventory recording, real-time management of inventory data, and the provision of reliable reports. In addition, accounting information systems ensure compliance with accounting standards and government regulations, reducing the risk of fines or sanctions. One type of company that uses an accounting information system to carry out its operations is a distributor company. In Indonesian Minister of Trade Regulation Number 24 of 2021, a distributor is a distribution business actor who carries out commodity marketing activities under his name and can also be under the name of the producer, supplier, or importer based on an agreement.

Public Fuel Filling Station is a business entity that plays a role in the distribution of fuel oil to the public. Because gas stations provide various types of fuel at different prices, of course, gas stations are vulnerable to shortages, excesses, or losses due to theft or leaks of fuel stock which will impact company profits and reduce consumer confidence. Therefore, every gas station is required to have internal controls to maintain the operational integrity and effectiveness of the gas station. The company's internal control is all efforts made by a company to regulate all of its operational activities so that company goals can be achieved economically and efficiently, data and reports can be trusted and presented fairly, all resources can be used and protected, and all applicable regulations are obeyed. With this internal control for fuel inventory, it is hoped that this control activity can be effective, such as ensuring that the amount of fuel inventory is ideal for a gas station, monitoring physical fuel inventory, and preventing various violations that can harm gas stations.

Wulandari (2021), in research conducted at PT. Perkebunan Nusantara II Tanjung Morawa found that the accounting information system variable had a significant influence of 62.1% on the internal control variable. The results of previous research are also strengthened by the findings of Andrely (2022) carried out at PT. Bank SulutGo Capem Ranotana, where the result is that the inventory information system has a strong and significant correlation of 77.9% with internal control. This study aims to find out how much the accounting information system influences internal control of fuel supplies, with the hope of providing useful recommendations for gas station managers in improving their operational and financial performance.

LITERATURE REVIEW
Accounting Information System (AIS)

A system that can record, process, collect, and store data to provide information to decision-makers is the definition of AIS. This includes people, instructions and procedures, data, software, IT infrastructure, as well as internal controls and security procedures (Romney & Steinbart 2018). According to Romney & Steinbart (2018), AIS has several components, including:

1. People who use the system.

2. Instructions and procedures used to record, process, collect, and store data.
3. Data relating to the company and its operational activities.
4. Software to process data.
5. IT infrastructure, which consists of computers, peripherals, and communications networks used to process data.
6. Internal controls and security procedures to safeguard accounting information systems.

Internal control

An action taken by a business entity to help achieve effective operational goals, provide reliable reports, and comply with applicable laws is the definition of internal control (Considine, Parkes, Olesen, Blount, and Speer 2012). Considine, Parkes, Olesen, Blount, & Speer (2012) stated that there are five components in internal control, including:

1. Control environment, which shows how the organization's management views, emphasizes and is aware of the organization's internal and operational controls. Commitment, integrity, organizational structure, standards, and other elements are environmental components here.
2. Risk assessment is the process of finding and analyzing risks that are felt to hinder the achievement of organizational goals.
3. Control activities are management's response to risks discovered as part of the stages in risk management. Companies can identify risks and reduce fraud by creating procedures and policies.
4. Information and communication, to ensure that communication between entities can be well received by all employees.
5. Monitoring, to ensure that controls remain relevant and control the risks they face.

Supply

Inventory must be managed well, especially for companies that sell merchandise. This inventory will have the ability to determine the inventory value which will later be presented in the financial position report as well as the acquisition price. Inventory is defined as materials that already exist while the production process is in progress or are stored for sale in general company activities and merchandise that is stored for later sale (Sigit Hermawan 2019). Wulandari (2021), in research conducted at PT. Perkebunan Nusantara II Tanjung Morawa found that the accounting information system variable had a significant influence of 62.1% on the internal control variable. The results of

previous research are also strengthened by the findings of Andrely (2022) carried out at PT. Bank SulutGo Capem Ranotana, where the result is that the inventory information system has a strong and significant correlation of 77.9% with internal control. Based on previous research findings, researchers made the following hypothesis.

H1: Accounting Information Systems have a significant influence on Internal Control of Fuel Inventory.

After creating a hypothesis, the researchers then created a conceptual framework which can be seen in the image below.
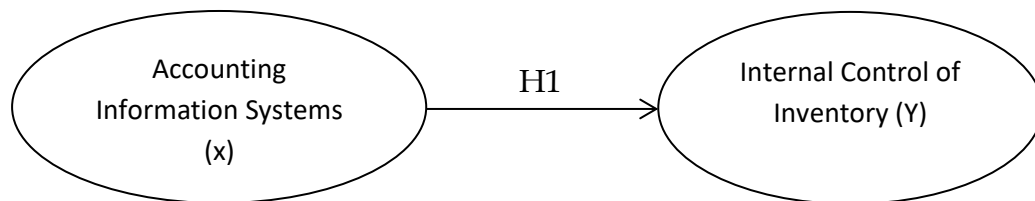
Picture 1 Conceptual Framework

METHODOLOGY

In this research, the researchers designed it as associative research with a quantitative approach. The variables in this study consist of independent variables and dependent variables. The independent variable in this study is the accounting information system, where the accounting information system is a system that can record, process, collect, and store data to provide information to decision-makers. Meanwhile, the dependent variable is internal inventory control, which is action taken by a business entity to help achieve effective operational goals, provide reliable inventory reports, and comply with applicable laws. Variable measurement uses a Likert scale, which measures attitudes by expressing opinions strongly agree, agree, neutral, disagree, strongly disagree with the question items submitted. Researchers chose all gas stations on Lombok Island as their research population. The sample collection technique used is a purposive sampling technique, where there are certain criteria set by the researchers in selecting the sample, in this case, the criteria are gas stations with the Dealer Operation Dealer Owner (DODO) type, where the gas stations are purely owned by private companies or individuals and also managed by private companies or individuals. The data collection technique uses primary data, where questionnaires were distributed to respondents at 58 gas stations. After distributing the questionnaire, the final sample of this research was 41 gas stations. The analytical method used by researchers is simple linear regression analysis assisted by the SPSS version 29 test tool.

RESEARCH RESULT

Validity test

To determine the validity of an instrument used, this test is carried out. Instrument results can be considered valid only if the data that has been collected is combined with real data about the object under study. If the r-table

value > r-count, the questionnaire is considered valid. The questionnaire is considered invalid if the r-table value < calculated r-value. The results of this test can be seen in the table below.

Table 1
Accounting Information System Variable Validity Test Results (X)

Question Item (X)	N	r-count	r-table	Information
1	41	,834	.2605	Valid
2	41	,808	.2605	Valid
3	41	,852	.2605	Valid
4	41	,850	.2605	Valid
5	41	,734	.2605	Valid
6	41	,787	.2605	Valid
7	41	,858	.2605	Valid
8	41	,821	.2605	Valid
9	41	,840	.2605	Valid
10	41	,802	.2605	Valid
11	41	,843	.2605	Valid
12	41	,770	.2605	Valid
13	41	,865	.2605	Valid
14	41	,707	.2605	Valid
15	41	,666	.2605	Valid
16	41	,689	.2605	Valid

Source: Primary Data Processing Results (2024)

The correlation value (r-count) of the accounting information system variables for each question item ranges between 0.865 and 0.666, while the 5% r-table value is 0.2605 so the correlation value of the question items or r-count value > r-table. Therefore, all question items can be declared valid by the researchers.

Table 2
Validity Test Results of Internal Inventory Control Variables

Question Item (Y)	N	r-count	r-table	Information
1	41	,739	.2605	Valid
2	41	,610	.2605	Valid
3	41	,766	.2605	Valid
4	41	,668	.2605	Valid
5	41	,746	.2605	Valid
6	41	,757	.2605	Valid
7	41	,930	.2605	Valid
8	41	,897	.2605	Valid
9	41	,858	.2605	Valid
10	41	,913	.2605	Valid
11	41	,760	.2605	Valid
12	41	,884	.2605	Valid

13	41	,901	.2605	Valid
14	41	,811	.2605	Valid
15	41	,857	.2605	Valid
16	41	,923	.2605	Valid
17	41	,966	.2605	Valid
18	41	,898	.2605	Valid

Source: Primary Data Processing Results (2024)

The correlation value (r-count) of the inventory internal control variable for each question item ranges between 0.966 and 0.610, while the 5% r-table value is 0.2605 so the correlation value of the question items or r-count value > r-table. Therefore, all question items can be declared valid by the researchers.

Reliability Test

With this test, we can see whether the tool used is truly reliable. It is considered reliable if the instrument has similar data at different times. Question items that have been declared valid are tested for reliability using Cronbach's Alpha analysis method. It is said to be reliable if the value is greater than 0.6, which means that the questionnaire can be trusted and can be used. It is said to be unreliable if the value is smaller than 0.6, which means that the questionnaire cannot be trusted and cannot be used. The results of this test can be seen in the table below.

Table 3
Accounting Information System Variable
Reliability Test Results (X)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,959	,962	16

Source: Primary Data Processing Results (2024)

Table 4
Internal Control Variable Inventory
Reliability Test Results (Y)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,972	,973	18

Source: Primary Data Processing Results (2024)

After looking at the table above, the researchers found that the accounting information system variable and the inventory internal control variable had Cronbach Alpha values of 0.959 and 0.972. Thus, this research variable is considered reliable.

Normality test

With this test, we can see whether the residual value is normally or not normally distributed. The Kolmogorov-Smirnov (KS) test was applied to test the normality of these residual values. It is considered to have a normal distribution if 0.05 is smaller than the significance value and is considered not to have a normal distribution if 0.05 is greater than the significance value. The following table shows the results of normality testing.

Table 5
Normality Test Results
One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residuals
N			41
Normal Parameters, b	Mean		.0000000
	Std. Deviation		5.05076031
Most Extreme Differences	Absolute		,129
	Positive		,129
	Negative		-.127
Statistical Tests			,129
Asymp. Sig. (2-tailed)c			,082
Monte Carlo Sig. (2-tailed) d	Sig.		,082
	99% Confidence Interval	Lower Bound	,075
		Upper Bound	,089

Source: Primary Data Processing Results (2024)

By looking at the table above, researchers found the significance value was 0.089>0.05. Therefore, the researchers stated that the residual values were considered to be normally distributed.

Linearity Test

With this test, we can see the form of a relationship between one variable and another. The basis for decision-making is significant deviation from linearity, if the value of significant deviation from linearity is > 0.05 then the relationship between one variable and another variable is said to be linear. Meanwhile, if the significant deviation from linearity value is <0.05 then the

relationship between the independent variable and the dependent variable is said to be non-linear. The following table presents the results of this test.

Table 6
Linearity Test Results
ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Internal Control of Inventory * Accounting Information System	Between Groups	(Combined)	2981.610	19	156,927	8,907	<.001
		Linearity	2331.203	1	2331.203	132.311	<.001
		Deviation from Linearity	650,407	18	36.134	2,051	,058
	Within Groups		370,000	21	17,619		
	Total		3351.610	40			

Source: Primary Data Processing Results (2024)

By looking at the table above, the researchers found that the significant deviation from the linearity value was 0.058>0.05, meaning that the accounting information system variables and internal inventory control variables had a linear relationship with each other.

Heteroscedasticity Test
With this test, we can determine whether there is an inequality of variance in the regression model between the residuals from one observation to another. The Glejser test is used to test this heteroscedasticity. If 0.05 is smaller than the significance value, it means that symptoms of heteroscedasticity do not exist, whereas if 0.05 is greater, the significance value means that symptoms of heteroscedasticity exist. The test results can be seen in the table below.

Table 7
Heteroscedasticity Test Results
Coefficientsa

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	7,775	3,534		2,200	,034
	Accounting information system	-.054	,051	-.168	-1,067	,293

a. Dependent Variable: Abs_RES
Source: Primary Data Processing Results (2024)

By looking at the table above, researchers found a significance value of 0.293>0.05. Therefore, the researchers state that the symptom of heteroscedasticity does not exist in this regression model.

Simple Linear Regression Analysis

With this analysis, we can see the relationship between one dependent variable and one or more independent variables. The equation for simple linear regression is generally formulated as:

$$Y = a + \beta X$$

Information:
Y = Internal Control of Inventory
X = Accounting Information System
a = constant
b = regression coefficient

The table below presents the results of a simple linear regression analysis carried out by the researchers.

Table 8
Results of Simple Linear Regression Analysis
Coefficientsa

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	20,778	6.104		3,404	,002
	Accounting information system	,826	,087	,834	9,439	<.001

a. Dependent Variable: Internal Control of Inventory
Source: Primary Data Processing Results (2024)

By looking at the table above, the researchers managed to find the results of a simple linear regression equation for x and y which is formulated as follows:

$$Y = 20.778 + 0.826X$$

Because the regression coefficient value is plus (+), it can be said that there is a positive influence of implementing an accounting information system on improving internal inventory control. Researchers found that for each accounting information system variable increased by 1 unit, the internal inventory control variable would also increase by 0.826 units.

Hypothesis testing

With this test, we can see whether the regression coefficient has a significant or insignificant effect. The significance value is something that is seen in decision-making in this analysis. It is stated that there is an influence of one variable on another variable if 0.05 is greater than the significance value and it is stated that there is no influence of one variable on another variable if 0.05 is smaller than the significance value. Based on Table 8 above, the significance value is 0.001<0.05. Therefore, the researchers state that H1 is accepted, where there is an influence of accounting information system variables on internal inventory control variables.

t test

In this test, it is said that there is an influence of one variable on another variable if the t-count value > t-table value and it is said that there is no influence of one variable on another variable if the t-count value < t-table. The t-table value obtained in this research is 2.023. Based on Table 8, it can be concluded that H1 is accepted because the t-value is 9.439>2.023, which means that there is an influence of accounting information system variables on internal inventory control variables.

R Square

To find out how much one variable influences another variable, we can look at the R Square value in the Model Summary which is part of the regression analysis that has been carried out. The following are the Model Summary results obtained.

Table 9

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834a	,696	,688	5.115

a. Predictors: (Constant), Accounting Information Systems
Source: Primary Data Processing Results (2024)

By looking at the table above, the researchers conclude that accounting information system variables influence internal inventory control variables. Where R Square shows the percentage of influence that one variable has on other variables. It is known that the R Square value in the table is 0.696. In other words, the accounting information system influences the success of internal inventory control by 69.6%. Other variables influence the remaining 30.4%.

DISCUSSION

The focus of this study is on AIS and internal control of fuel supplies at gas stations on Lombok Island. Where there is a crucial influence of implementing AIS on improving internal control of fuel supplies. This is because fuel inventory is recorded with appropriate software. In addition, data can be obtained quickly and accurately through the use of an accounting information system by procedures, making it easier for management to make

more precise and strategic decisions. The results of this research support several previous studies. Research by Wulandari (2021) suggests that AIS significantly influences internal inventory control by 62.1%. Apart from that, these findings also support the findings of Andrely (2022), where the results of his research concluded that the inventory information system significantly influenced internal control by 77.9%.

Although AIS influences internal inventory control significantly and has many benefits in its use, several challenges and obstacles need to be considered. One of the main obstacles is the fairly high cost of implementing and maintaining the system, especially for gas stations with smaller operating scales. Apart from that, employee resistance to system changes can also be an obstacle in implementing accounting information systems. Adequate training and education need to be provided to ensure employees can operate the system well.

CONCLUSIONS AND RECOMMENDATIONS

By looking at the research results and discussion above, the researchers conclude that the accounting information system influences internal inventory control positively and significantly. This can be seen from the values of, with, and. Implementing an accounting information system influences internal control of fuel supplies by 69.6%. Other variables influence the remaining 30.4%. This shows that the internal control of inventory produced by a company is better if the company uses a better accounting information system.

Several recommendations that can be given to gas station management are:
1. Gas station management is advised to invest sufficient resources in the implementation and maintenance of accounting information systems. While the initial costs may be high, the long-term benefits derived from improved internal controls and operational efficiencies will be significant.
2. For the implementation of the accounting information system to run smoothly, management needs to provide adequate training and education to employees. This training should include how to use the system, understand the importance of internal controls, and how to overcome resistance to change
3. To further improve internal control of fuel inventory, management can consider developing additional features in the accounting information system. Features such as predictive analytics for inventory planning and integration with other management systems can add significant value.
4. Management must carry out regular monitoring and evaluation of the performance of the accounting

information system that has been implemented. To ensure the system is running as expected and identify areas that need improvement or adjustment, this evaluation is very important.

ADVANCED RESEARCH

This research only focuses on certain variables related to internal control and accounting information systems. Apart from that, researchers only use quantitative data that is focused on a certain period. This may not fully reflect long-term changes or trends that occur in the internal control of fuel inventories at gas stations. Future studies could add other variables that might influence internal control, such as external factors (government policy, economic conditions) and internal factors (organizational culture, leadership). This can certainly create a more comprehensive perspective regarding what factors can influence internal control of fuel supplies. In addition, further research can combine quantitative methods with case studies and qualitative approaches. In-depth interviews with gas station managers and staff can provide additional insight into the challenges and benefits faced.

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