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A DUAL-STRATEGY APPROACH TO IMPROVING TAX COMPLIANCE: PENALTIES AND DRIVE-THRU SAMSAT SERVICES

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Abstract:

By using quantitative methodology and SEM-PLS version 4, this study was conducted with a focus on tax sanctions and the drive thru system on Samsat to prove whether it can influence the level of tax compliance in terms of their responsibility to pay Motor Vehicle Tax at Samsat Manyar — Samsat office with the most operational scope area in Surabaya. Primary data collection through questionnaire instrument was carried out using Simple Random Sampling technique and succeeded in collecting 100 respondents. Data analyses prove that there is a significant influence between tax sanctions and Samsat Drive Thru System on taxpayer compliance. The government and Samsat can further improve service quality and be consistent on implementing regulations to increase taxpayer compliance.

INTRODUCTION

One source of Local Own-Source Revenue (PAD) that contributes a substantial amount each year and plays a crucial role as one of the main pillars is Local Tax (Rindiyan & Faisol, 2023). At the provincial level, this revenue source comes from five types of taxes—one of which is the Motor Vehicle Tax (PKB). PKB is defined as an official levy imposed on individuals or organizations for the ownership of motor vehicles. In practice, the authority to impose PKB is delegated to provincial governments, as stipulated in Law No. 28 of 2009.

According to data from the official website of the Central Statistics Agency (BPS) of East Java Province (2024), in 2023 East Java Province ranked first in terms of the number of motor vehicles, with a total of 24,023,666 vehicles, surpassing even the Special Capital Region of Jakarta. Meanwhile, Surabaya is the city with the highest number of motor vehicles in East Java Province, totaling 3,683,873 vehicles. In practice, Vehicle Tax (PKB)

collection is conducted at the Joint Samsat Office. The following is data regarding the summary of Vehicle Tax (PKB) objects at the Manyar Samsat Office—the Samsat office covering the most subdistricts and the first Samsat office in Surabaya:

Table 1
Summary of Taxpayer Non-Compliance

Year	Number of Vehicles	Non-Compliant Vehicles	Total Arrears	Non-Compliance Rate
2022	484.602 vehicles	90,349 vehicles	Rp 59,215,687,700	18,65%
2023	471.398 vehicles	98,430 vehicles	Rp 73,890,076,641	20,89%
2024	461.922 vehicles	91,657 vehicles	Rp 71,921,275,400	19,85%

Source: Samsat Manyar, 2025

As shown in Table 1, the percentage of non-compliant taxpayers remains quite high each year. In 2022, it stood at 18.65%, then increased to 20.89% in 2023, and decreased slightly to 19.85% in 2024. Although the figure shows a slight decrease in 2024, this level of non-compliance indicates the need for further attention and research. The consistently high percentage of taxpayers who fail to fulfill their tax obligations year after year may indicate the presence of issues stemming from both internal and external factors affecting taxpayers.

The success of national development depends on the public’s awareness of the strategic role of taxation. However, challenges in the tax system often arise from various sources, including taxpayers, tax authorities, and the existing system itself. Therefore, it is important to seek ways to tap into potential tax revenue sources while promoting tax compliance (Pohan, 2021). The study focuses on local taxes, particularly the Motor Vehicle Tax (PKB), given its role as one of the main sources of local revenue that contributes significantly to funding development and public services.

Public compliance with tax obligations can be influenced by a number of factors, one of which is tax penalties, which serve to ensure that the public complies with all tax regulations (Nasiroh & Afiqoh, 2023). As stated by Aeni & Budyastuti (2024), The purpose of imposing sanctions is to create a deterrent effect. This statement is supported by various other research studies, including those by Mianti & Budiwitjaksono (2021) and Malau et al. (2021) which demonstrate a significant relationship between tax sanctions and public compliance with tax obligations. In contrast to other findings on

similar topics, a study by Wulandari & Wahyudi (2022) actually shows the opposite. They found that there is no significant relationship between tax penalties and compliance. The study's findings indicate that people pay taxes because they view it as a duty, not out of fear of penalties such as fines.

In line with technological advancements and public needs, as well as to make things easier for taxpayers, the tax payment system has now been integrated through various alternatives (Rindiyan & Faisal, 2023). Taxpayers can choose the method that is most convenient for them, ranging from E-Samsat, Mobile Banking, Indomaret, and Samsat Drive Thru. One of these is Samsat Drive Thru—a flagship facility available at Samsat. Through this system, taxpayers are spared the need to exit their vehicles to pay taxes and only need to bring the required documents. However, according to Google Maps reviews for the Samsat Manyar location, many taxpayers still complain about the suboptimal system and service quality of the drive-thru. This is further evidenced by the consistently declining number of drive-thru service users each year.

Similar research findings by Khristiana & Pramesthi (2020) indicate a significant influence of the drive-thru Samsat system on taxpayer compliance. However, contrasting results were shown in a study by Mutia & Hamta (2020), where the findings demonstrated that the drive-thru Samsat system plays no significant role in improving motor vehicle taxpayer compliance, as the system's locations are not strategically placed, making them difficult for taxpayers to access.

The differences in the results of previous studies highlight variations in findings and suggest the existence of a research gap that warrants further investigation. Furthermore, the limited research on drive-thru Samsat systems, particularly at the Manyar Samsat location, opens the door for further research. Consequently, this study was conducted to re-evaluate various factors that may influence tax compliance, specifically regarding vehicle tax (PKB). This study was conducted to test and determine whether there is a significant relationship between the enforcement of tax penalties and the Samsat drive-thru system and the tax compliance of motor vehicle owners at the Manyar Samsat.

LITERATURE REVIEW

Attribution Theory

This theory was proposed by Fritz Heider in 1958 and explains behavior in relation to a person's attitudes and characteristics. The core of this theory lies in the process by

which individuals infer the causes behind others' behavior; with people tending to analyze whether the causes of those actions stem from internal or external attributions (Hidayah & Puspitosari, 2024). When observing what others do, people often try to figure out or understand the reasons behind their actions (Susanto & Fiorita, 2023). Internal factors are defined as motivators originating from within and within the scope of each individual's control. External factors, on the other hand, are influences from outside the individual that indirectly guide or shape their behavior.

The use of attribution theory serves to explain how behavior is driven by individuals, including, in this case, the payment of motor vehicle taxes. By drawing on this theory, the study aims to identify the factors that determine an individual's compliance or non-compliance, as well as the extent to which internal and external attributions play a role in that decision.

Tax Penalties

Parties found guilty of violating existing tax regulations will be subject to tax penalties (Pratiwi & Sinaga, 2023). Andreansyah & Farina (2022) argue that tax penalties serve as a government oversight mechanism to ensure taxpayers' compliance with existing regulations. Furthermore, the imposition of penalties is specifically aimed at violators to serve as a deterrent and prevent the recurrence of such violations. As noted by Nasiroh & Afiqoh (2023) in their study, the imposition of tax penalties is necessary to prevent non-compliance and foster public compliance in fulfilling their obligations.

Samsat Drive Thru

To simplify vehicle tax payments, Samsat offers a premium service known as the Drive-Thru service. This service allows for a streamlined process of vehicle tax payment and vehicle registration renewal, where taxpayers only need to wait in their vehicles without getting out (Khristiana & Pramesthi, 2020). The Drive-Thru service can speed up the payment process and minimize the presence of brokers (Kinanti et al., 2024).

Taxpayer Compliance

Compliance can be defined as an individual's conscious and voluntary behavior in adhering to and following established rules. Aulia & Maryasih (2022) argue that taxpayer compliance can be viewed from two perspectives: formal and material—which, in essence, constitute voluntary actions in fulfilling tax obligations. Such actions are driven

by a spirit of active participation in financing development, both at the local and national levels.

The Impact of Tax Penalties on Taxpayer Compliance

In accordance with the concept of attribution theory, which holds that an individual's actions can be determined by internal and external attributions. In the context of taxation, the imposition of penalties falls under external attribution, which shapes an individual's behavior and thereby helps prevent violations of tax regulations. This enforcement aims to create a deterrent effect so that tax obligations are not taken lightly by any individual (Valentina et al., 2022).

The Impact of the Samsat Drive Thru System on Taxpayer Compliance

The Samsat drive-thru is a new innovation introduced by Samsat to help the public fulfill their tax obligations. This system allows taxpayers to pay their taxes directly from their vehicles, which saves time and has the potential to increase taxpayer compliance. Empirical support for this claim is demonstrated by the research of Khristiana & Pramesthi (2020), which proves that the Samsat drive-thru system has a significant impact on taxpayer compliance. The more efficient the service provided, the higher the level of public compliance.

Based on the above explanation, the hypotheses of this study are:

H1: Tax penalties have a significant effect on the tax compliance of motor vehicle owners.

H2: The Samsat Drive-Thru system has a significant effect on the tax compliance of motor vehicle owners.

RESEARCH METHODS

This study was designed using a quantitative methodology. As stated in Sugiyono (2019:16), this method relies on research data in the form of numerical figures, as well as in-depth statistical analysis. To obtain this data, primary data sources were collected by distributing a questionnaire containing several statements that respondents were required to answer. The questionnaire used a closed-ended question format, allowing respondents to select from the provided answer options.

The Likert scale was used to measure variables that could not be quantified. The population used in this study was drawn from taxpayers who had used the Samsat Drive-Thru service at Samsat Manyar in 2024, totaling 56,400 taxpayers. Since not the entire

population could be included in the study due to limitations and the large sample size, the sample size was determined using the Slovin formula, resulting in a final sample of 100 respondents.

Table 2
Number of Users of the Manyar Samsat Drive-Thru Service

NO	YEAR	MOTORCYCLES	CARS	TOTAL
1	2020	70.951	29.966	100.917
2	2021	63.493	26.902	90.395
3	2022	57.402	23.281	80.683
4	2023	48.836	20.966	69.802
5	2024	40.211	16.189	56.400

Source: Samsat Manyar, 2025

$$n = \frac{56.400}{1 + 56.400(0,1)^2}$$

$$n = \frac{56.400}{564}$$

$$n = 100$$

This study employs Structural Equation Modeling (SEM) using the Partial Least Squares (PLS) approach with SmartPLS software. The data analysis consists of several stages, namely:

1. Outer Model
 - a) Convergent Validity
 - b) Discriminant Validity
 - c) Reliability
2. Inner Model
3. Hypothesis Test (Bootstrapping)

Table 3
Operationalization and Indicators of Variables

Variable	Indicator	Scale
Tax Penalties (X1)	a) Penalties are necessary to ensure taxpayer compliance in paying taxes b) Penalties are strictly enforced against taxpayers who violate regulations c) Penalties are imposed in accordance with the violation committed	Likert (1-5)

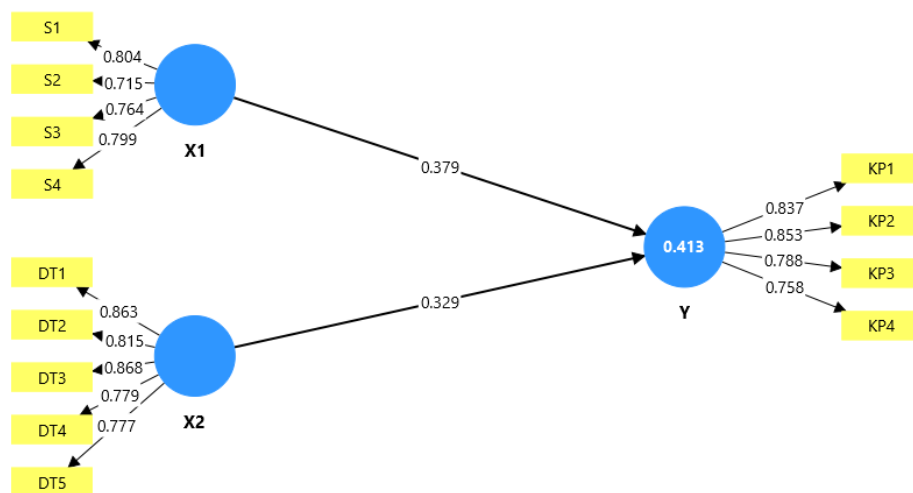
	d) Application of penalties in accordance with applicable regulations	
Samsat DriveThru System (X3)	a) Taxpayers can easily pay taxes using the Samsat drive-thru b) Taxpayers' interest is increasing c) Saves time d) Service quality e) Location	Likert (1-5)
Taxpayer Compliance (Y)	a) Compliance with tax regulations b) Compliance with tax payment regulations c) Timeliness in paying taxes d) Compliance in understanding tax payment due dates	Likert (1-5)

Source: Compiled by the Researcher, 2025

RESEARCH FINDINGS

Figure 1 shows the results of the outer model testing using SmartPLS 4.0 software. The results indicate that all indicators met the validity criteria, as evidenced by convergent validity values above 0.7.

Figure 1
Outer Loading



Source: Output SmartPLS 4.0

Outer Model

Convergent Validity

The criteria for convergent validity have been met, as indicated by outer loadings with scores > 0.7 and Average Variance Extracted (AVE) values > 0.5 . The outer loadings and AVE values are shown in Table 4 below. The test results indicate that the outer loadings for each variable meet the criteria of > 0.7 and $AVE > 0.5$.

Table 4
Convergent Validity Results

Variable	Indicator	Outer Loadings	Notes	AVE
Taxpayer Compliance (Y)	Y1	0.837	Valid	0,656
	Y2	0.853	Valid	
	Y3	0.788	Valid	
	Y4	0.758	Valid	
Tax Penalties (X1)	X1.1	0.804	Valid	0,595
	X1.2	0.715	Valid	
	X1.3	0.764	Valid	
	X1.4	0.799	Valid	
Drive-Thru Samsat System (X2)	X2.1	0.863	Valid	0,674
	X2.2	0.815	Valid	
	X2.3	0.868	Valid	
	X2.4	0.779	Valid	
	X2.5	0.777	Valid	

Source: Output SmartPLS 4.0

Discriminant Validity

This test was conducted to analyze the relationships between latent variables. The test was performed using cross-loading, with the loading for each variable required to be greater than 0.7 and higher than that of other constructs.

Table 5
Results of Discriminant Validity

	Y	X ₁	X ₂
X1.1	0.583	0.804	0.532
X1.2	0.298	0.715	0.405
X1.3	0.405	0.764	0.397
X1.4	0.458	0.799	0.618
X2.1	0.571	0.507	0.863
X2.2	0.421	0.468	0.815
X2.3	0.513	0.569	0.868
X2.4	0.442	0.549	0.779
X2.5	0.363	0.575	0.777
Y1.1	0.837	0.546	0.500
Y1.2	0.853	0.541	0.553
Y1.3	0.788	0.371	0.334
Y1.4	0.752	0.417	0.425

Source: Output SmartPLS 4.0

As shown in Table 5, each indicator for each variable exhibits a cross-loading score greater than that of other constructs. Therefore, it can be concluded that all indicators in this study possess good discriminant validity.

Reliability Test

The purpose of this test is to evaluate the reliability of the research instrument. Reliability is assessed based on the extent to which the instrument is consistent and accurate in measuring the construct. This test employs two methods: Cronbach’s alpha and composite reliability. As shown in the test results presented in Table 6, each variable meets the criteria for good reliability.

Table 6
Reliability Test

Variabel	Cronbach’s Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)
Y	0.827	0.846	0.884
X1	0.778	0.808	0.854
X2	0.879	0.896	0.912

Source: Output SmartPLS 4.0

Inner Model

The purpose of this test is to evaluate the strength of the relationship between the constructs under study. The primary criterion used to assess the model’s quality is the value of the coefficient of determination, also known as R-Square. A value of 0.75 is considered strong (significant); 0.50 is moderate; and 0.25 is weak. The coefficient of determination (R^2) test yielded a value of 0.413, or 41.3%. This figure indicates that the two independent variables under study account for 41.3% of the variance in the dependent variable (tax compliance). The remaining 58.7% of the variance is attributed to other variables outside the scope of this research model.

Table 7
Inner Model

Variable	<i>R-square</i>	<i>R-square Adjusted</i>
Taxpayer Compliance (Y)	0.413	0.401

Source: Output SmartPLS 4.0

Hypothesis Testing

Hypothesis testing was performed using SmartPLS 4.0 software. A hypothesis is accepted if the p-value is < 0.05 and rejected if the p-value is > 0.05 .

Table 8
Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics	P-values
X1 → Y	0.379	0.386	0.106	3.563	0.000
X2 → Y	0.329	0.317	0.136	2.425	0.015

Source: Output SmartPLS 4.0

The test results for both hypotheses are summarized in Table 8 above. Based on these data, it is concluded that both proposed hypotheses are accepted. The p-values for the first hypothesis (H1) and the second hypothesis (H2) were found to be significant, with p-values of 0.000 and 0.015, respectively. Since both p-values are less than 0.05, it can be concluded that both independent variables influence the dependent variable, and thus both hypotheses in this study are accepted.

DISCUSSION

The Effect of Tax Penalties on Taxpayer Compliance

Table 9
Summary of Respondents' Answers Regarding Tax Penalties

Item	Answer					Total
	1	2	3	4	5	
X1.1	1	4	6	40	49	4.32
X1.2	1	12	13	39	35	3.95
X1.3	2	9	16	52	21	3.81
X1.4	1	8	10	53	28	3.99
Average	1.3%	8.3%	11.3%	46%	33.3%	4.02

Source: Compiled by the Researcher, 2025

Referring to Table 9, it can be seen that the 100 respondents provided varying responses across the four indicators. The most common response was a score of 4 (agree), accounting for 46%. Additionally, the results show that the highest average score was for indicator X1.1, indicating that the public agrees with the imposition of sanctions to promote public discipline.

Attribution theory explains how individuals interpret the causes of certain behaviors. In this context, offenders are expected to be deterred by the consequences of their actions, and for society, this is expected to serve as a preventive measure against tax evasion (Valentina et al., 2022). Research findings indicate that taxpayers at the Manyar Samsat feel that sanctions are necessary to foster discipline among taxpayers. Taxpayers

also feel that sanctions are already enforced strictly and imposed on violators in accordance with the violations committed. Support for this statement also comes from Maulida et al. (2023). Their research states that to be effective, sanctions must be enforced strictly without compromise against violators.

The results of this study confirm the findings of several previous studies, including those by Hardiningsih et al. (2020), Susanto & Fiorita (2023), and Mujiyati et al. (2020). Collectively, these studies demonstrate the significant role and influence of tax penalties on taxpayer compliance. Theoretically, this similarity in results can be interpreted through attribution theory, which posits that external factors such as the imposition of sanctions can serve as effective motivators in shaping an individual’s behavior. This leads taxpayers to more carefully weigh the risks of violating tax regulations; in other words, taxpayers are reluctant to face administrative sanctions and thus become more compliant in fulfilling their tax obligations.

The Effect of the Drive-Thru Samsat System on Taxpayer Compliance

Table 10
Summary of Respondents’ Answers Regarding the Drive-Thru Samsat System

Item	Answer					Total
	1	2	3	4	5	
X2.1	1	2	6	43	48	4.35
X2.2	2	1	6	53	38	4.24
X2.3	1	1	4	40	54	4.25
X2.4	1	33	13	49	34	4.12
X2.5	1	7	6	44	42	4.19
Average	1.2%	2.8%	7%	45.8%	43.2%	4.27

Source: Compiled by the researcher, 2025

Referring to Table 10, it can be seen that respondents provided varied responses to the five indicators, with the majority (45.8%) agreeing. Furthermore, the results show that the highest average score was for indicator X2.1, indicating that the Samsat drive-thru service innovation offers convenience and saves time. Additionally, respondents were satisfied with the quality of service provided.

In line with attribution theory, service innovations such as drive-thru facilities serve as external factors that influence compliance. Theoretically, these services act as external stimuli (attributions). When taxpayers are satisfied with the quality and convenience of the existing system, that satisfaction can translate into compliant behavior.

The convenience of this service—which requires only the presentation of the vehicle registration certificate and the presence of the vehicle in question, without the need to get out of the vehicle—can foster compliance and encourage taxpayers to fulfill their obligations (Wicaksana et al., 2023). When service facilities such as drive-thru counters are seen as simplifying administrative processes and reducing the time and effort required, this can foster compliant behavior. In other words, these services serve as an external stimulus that changes taxpayers' perceptions and responses to their tax obligations.

This study is consistent with previous research on a similar topic that focused on drive-thru Samsat systems, by Khristiana & Pramesthi (2020), Aeni & Budyastuti (2024) and Wicaksana et al. (2023) namely, that there is a significant correlation between the drive-thru Samsat system and taxpayer compliance, which can be explained by two factors. First, taxpayers' willingness to fulfill their tax obligations tends to increase when the quality of service they receive meets their needs and provides satisfaction. Second, the ease and speed of the payment process also serve as driving factors that can boost compliance rates.

CONCLUSION

Based on the data and the results of the data analysis, it can be concluded that there is a significant relationship between tax penalties and the Samsat drive-thru system and the compliance of motor vehicle taxpayers. The more effectively tax penalties are enforced, the higher the level of taxpayer compliance. Tax penalties serve as an external incentive that can increase taxpayer compliance when enforced strictly and in accordance with applicable regulations. Meanwhile, the drive-thru Samsat system, which also functions as an external incentive, is a significant service innovation designed to improve service quality and convenience for taxpayers by simplifying the payment process. Both the government and Samsat can maintain or even improve service quality, and it is hoped that they will be more firm and consistent in enforcing penalties to enhance taxpayer compliance.

In conducting this study, there were inevitably limitations and constraints. These limitations include the limited duration of the study, which means the results may not be fully representative of the entire population. Additionally, another limitation of this study is the possibility that respondents' answers were not entirely optimal, which could affect

the objectivity and accuracy of the data obtained. The scope of the analysis in this study also involves only a small number of independent and dependent variables; therefore, future researchers are encouraged to include new variables and develop a more comprehensive framework to provide a deeper understanding of the relationships among variables.

REFERENCES

- Aeni, T. N., & Budyastuti, T. (2024). Pengaruh Kesadaran, Sanksi Pajak, Kualitas Pelayanan Pajak, dan Penerapan Sistem Samsat Drive Thru Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor. *Gorontalo Accounting Journal*, 7(2), 199–213. <https://doi.org/10.32662/gaj.v7i2.3378>
- Aulia, N., & Maryasih, L. (2022). Pengaruh Pengetahuan Wajib Pajak, Kesadaran Wajib Pajak, Dan Sanksi Pajak Kendaraan Bermotor Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor di Provinsi Aceh. *Jurnal Akuntansi Dan Keuangan (JAK)*, 10(2), 137–152. <https://doi.org/10.29103/jak.v10i2.6993>
- Hardiningsih, P., Januarti, I., Oktaviani, R. M., & Srimindarti, C. (2020). The Determinants of Taxpayer Compliance with Tax Awareness as a Mediation and Education for Moderation. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 15(1), 49–60. <https://doi.org/10.24843/jiab.2020.v15.i01.p05>
- Hidayah, A. N., & Puspitosari, I. (2024). Memahami Perilaku Kepatuhan Pajak Dengan Persepsi Teori Atribusi. *JIEF-Journal of Islamic Economics and Finance*, 4(1), 2024.
- Khristiana, Y., & Pramesthi, E. G. (2020). Peran Sistem Samsat Drive Thru Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor. *AKUISISI: Jurnal Akuntansi*, 16(2), 76–87. <https://jptam.org/index.php/jptam/article/view/4764>
- Kinanti, A., Anggraini, L. D., & Meiriasari, V. (2024). Pengaruh Penerapan Layanan Samsat Drive Thru Dan Samsat Keliling Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor Di Kota Palembang. *JCA (Jurnal Cendekia Akuntansi)*, 5(1), 32–47. <https://doi.org/10.32503/akuntansi.v5i1.5228>
- Malau, Y. N., Gaol, T. L., Giawa, E. N., & Juwita, C. (2021). Pengaruh Kesadaran Wajib Pajak, Pengetahuan Pajak, Sanksi Pajak Dan Pelayanan Fiskus Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor di Kota Medan. *Ekonomis: Journal of Economics and Business*, 5(2), 551–557. <https://doi.org/10.33087/ekonomis.v5i2.414>
- Maulida, S., Marundha, A., & Khasanah, U. (2023). Akses Pajak, Sosialisasi Pajak, Sanksi Pajak Kendaraan Bermotor, Sistem SAMSAT Drive Thru dan Kepatuhan Wajib Pajak Kendaraan Bermotor. *MUFAKAT: Jurnal Ekonomi, Manajemen, Dan Akuntansi*, 2(3). <https://doi.org/10.572349/mufakat.v2i3.741>
- Mianti, Y. F., & Budiwitjaksono, G. S. (2021). Pengaruh Pengetahuan dan Sanksi Perpajakan terhadap Kepatuhan Wajib Pajak Orang Pribadi Dimediasi Kesadaran Wajib Pajak. *Jurnal Ilmiah Akuntansi Dan Humanika*, 11(12), 349–359.
- Mujiyati, Sekarwangi, G. S., & Palupi, I. D. (2020). Taxpayer Compliance on Micro, Small and Medium Enterprises Small and Medium Enterprises Individual Taxpayer in

- Surakarta. *JURNAL Riset Akuntansi Dan Keuangan Indonesia*, 5(2), 184–192.
<http://journals.ums.ac.id/index.php/reaksi/index>
- Mutia, N., & Hamta, F. (2020). Pengaruh Penerapan SAMSAT Keliling, SAMSAT Corner, dan Drive Thru terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor di Kota Batam. *Measurement Jurnal Akuntansi*, 14(1), 1–9.
- Nasiroh, D., & Afiqoh, N. W. (2023). Pengaruh Pengetahuan Perpajakan, Kesadaran Perpajakan, dan Sanksi Perpajakan terhadap Kepatuhan Wajib Pajak Orang Pribadi. *RISTANSI: Riset Akuntansi*, 3(2), 152–164.
<https://doi.org/10.32815/ristansi.v3i2.1232>
- Pohan, C. A. (2021). *Kebijakan dan Administrasi Perpajakan Daerah di Indonesia (Keuangan, Pajak, dan Retribusi Daerah)*.
- Rindiyani, R., & Faisol, Moh. (2023). E-SAMSAT: Sarana Untuk Membantu dan Memudahkan Wajib Pajak Melakukan Pembayaran Pajak Kendaraan Bermotor. *RISTANSI: Riset Akuntansi*, 4(1), 1–15.
<https://doi.org/10.32815/ristansi.v4i1.1676>
- Susanto, Y. K., & Fiorita, I. (2023). Taxpayer Compliance: Taxpayer Behavior Analysis and Tax Awareness As a Mediating in Indonesia. *Jurnal Bisnis Dan Akuntansi*, 25(1), 197–206. <http://jurnaltsm.id/index.php/JBA>
- Valentina, A. B., Kepramareni, P., & Dicriyani, N. L. G. M. (2022). Faktor-Faktor yang Mempengaruhi Kepatuhan Wajib Pajak Kendaraan Bermotor. *Jurnal KRISNA: Kumpulan Riset Akuntansi*, 14(1), 150–161.
<https://ejournal.warmadewa.ac.id/index.php/krisna>
- Wicaksana, W. P., Tampubolon, F. R. S., & Nuridah, S. (2023). Pengaruh Sanksi Perpajakan dan Sistem SAMSAT Drive Thru terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor pada Badan Pendapatan Daerah Kabupaten Karawang. *INNOVATIVE: Journal Of Social Science Research*, 3(4), 6285–6293.
- Wulandari, N., & Wahyudi, D. (2022). Pengaruh Pengetahuan Perpajakan, Sanksi Pajak, Kesadaran Wajib Pajak, dan Kualitas Pelayanan Pajak terhadap Kepatuhan Wajib Pajak dalam Membayar Pajak Bumi dan Bangunan di Desa Mranggen Kabupaten Demak. *Jurnal Pendidikan Tambusai*, 6(2), 14853–14870.
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THE IMPACT OF GOOD CORPORATE GOVERNANCE ON FRAUD PREVENTION

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Abstract:

This study aims to test the impact of good corporate governance (GCG) on fraud prevention at Mining Company X. The sampling approach employed probability sampling with a basic random sampling procedure, yielding 94 respondents from a total of 1,451 permanent employees. This study employs a quantitative method, employing Partial Least Squares (PLS) analysis powered by SmartPLS 4.0 software. The results prove that GCG has a positive and significant effect on fraud prevention, with a p-value of 0.000 and a path coefficient of 0.736. The R² value of 0.542 suggests that GCG moderately contributes to explaining fraud prevention. These results highlight the crucial role of implementing GCG principles in establishing an effective anti-fraud system, particularly in mining companies that face high exposure to fraud risks.

INTRODUCTION

Fraud is a serious problem that continues to threaten the integrity of the business world. Advances in information technology and the increasing complexity of organizational operations have created greater opportunities for fraudulent acts. The losses incurred by companies extend beyond financial aspects to include the company's value, which is derived from the trust of various stakeholders in the company's ability to operate sustainably (Tatyana Salsabila & Kuntadi, 2022). Fraud can occur at various levels within an organizational structure, ranging from employees and managers to top executives. According to the ACFE's 2024 Occupational Fraud Report, 41% of fraud is committed by employees, resulting in losses of \$50,000, while owners/executives, although accounting for only 19% of cases, incur losses of up to \$500,000 (ACFE, 2024).

Good Corporate Governance (GCG) plays a key role in efforts to prevent fraud. The proper implementation of good governance within a company must be carried out in accordance with regulations established by the government. Good Corporate Governance itself is a corporate management system based on a number of principles, including transparency, independence, accountability, responsibility, as well as equality and fairness (Kumalasari & Nursiam, 2023). In practice, GCG is not merely a matter of regulatory compliance, but also serves as a framework that encourages organizations to act ethically and responsibly in all their business activities (Damayanti & Primastiwi, 2021).

However, various empirical findings show mixed results regarding the effectiveness of GCG in preventing fraud. For example, (Kumalasari & Nursiam, 2023) found that GCG had no significant effect on fraud prevention, while another study by (Budiantoro et al., 2022) showed that GCG had a positive and significant effect on fraud prevention efforts. These differing results create a research gap that requires further examination, particularly in the context of different organizations.

A recent case illustrating the importance of strengthening GCG principles occurred at Mining Company X. In 2023, the company was found to have distributed compensation funds to residents affected by infrastructure development; however, the process was marred by inequities that sparked conflict. One landowner, who was supposed to receive a substantial amount of compensation, actually received a much smaller sum than others with smaller land holdings. This case raises questions about the integrity of the internal oversight system and the transparency of fund distribution. This phenomenon reflects the weak implementation of good corporate governance principles, which should be capable of preventing misconduct and safeguarding the company's reputation (Penalutim, 2024).

LITERATURE REVIEW

Fraud Triangle Theory

The fraud triangle is a theory that describes three key elements that cause individuals to commit fraud: pressure, rationalization, and opportunity (Cressey, 1953) as cited in (Napitupulu & Ramadhita, 2022). Pressure refers to a situation in which an individual faces difficulties, particularly financial ones, that drive them to commit fraudulent acts. Opportunity arises when someone has access or the chance to commit a violation without being detected. Meanwhile, rationalization describes an individual's

effort to justify the fraudulent act they have committed, as if the act were acceptable in certain situations. Cressey explains that fraud perpetrators generally view themselves as honest individuals but find themselves in coercive circumstances. These three elements are recognized as the primary foundations for understanding and evaluating fraudulent behavior (Fauziah, 2024) .

These three elements complement one another and create conditions that enable fraud to occur. Therefore, fraud prevention must be achieved by strengthening internal control systems that can eliminate opportunities for fraud and reinforce integrity and oversight (Budianto et al., 2023).

Agency Theory

Agency theory describes the relationship between the principal (owner) and the agent (manager) within a corporate structure, where conflicts of interest often arise due to differing objectives (Jensen & Meckling, 1976) as cited in (Fitriani, 2024). Agents possess more information and may act in their own self-interest, leading to information asymmetry. To mitigate this risk, oversight mechanisms are required, such as the implementation of good corporate governance and performance-based incentive systems (Fitriani, 2024). GCG acts as a governance tool that can curb opportunistic behavior by agents and safeguard the interests of owners.

Good Corporate Governance (GCG)

This serves as a corporate governance strategy by ensuring that business operations are managed in a transparent, professional, and responsible manner. Several GCG principles include transparency, independence, accountability, responsibility, and fairness based on Minister of State-Owned Enterprises Regulation No. PER-01/MBU/2011. Consistent application of GCG can foster an anti-fraud organizational culture and enhance stakeholder trust (Sabrina & Sadalia, 2021).

Fraud

Fraud refers to any illegal act committed by an individual or a group of individuals for their own benefit or that of others. Fraud is a problem that affects every aspect of modern business, regardless of size, industry, or operational model (Setyono et al., 2023). Fraud can be understood as a deliberate act of deception intended to gain personal advantage.

According to Auditing Standard (SAS) No. 99, this action specifically refers to intentional acts that result in material misstatements in the audited financial statements. The Association of Certified Fraud Examiners reinforces this perspective by describing fraud as deceptive behavior designed by an individual or business entity with full awareness of the losses it causes to others or stakeholders. Essentially, fraud is a criminal act whose methods are cleverly designed to manipulate information for unilateral gain (Chandrawati & Ratnawati, 2021).

RESEARCH METHODS

Research Design

This study employs a quantitative research design, with the objective of testing the effect of the independent variable—good corporate governance (GCG)—on fraud prevention, which serves as the dependent variable. A quantitative approach was chosen because this study relies on numerical data and inferential statistical analysis to test the relationship between variables formulated as hypotheses (Ali et al., 2022).

Research Subjects and Population

The subjects of this study are permanent employees of Mining Company X, located on the island of Sulawesi, who have been employed for more than three years. The study population consists of 1,451 employees. These criteria were established to ensure that the respondents have sufficient experience and understanding of corporate governance in their work environment.

Sampling Technique

The sample size was determined using the Slovin formula with a margin of error (e) of 10%, resulting in a minimum sample size of 94 respondents. The sampling technique employed probability sampling using simple random sampling, in which every member of the population has an equal chance of being selected for the sample. This approach was chosen to minimize bias in the representation of respondent data.

Research Variables and Operationalization

This study consists of two independent variables and one dependent variable:

- a) **Good Corporate Governance (X2):** Measured using indicators of transparency, implementation, sanctions, and monitoring, based on the model (Budiantoro et al., 2022)
- b) **Pencegahan Fraud (Y):** Measured based on the dimensions of risk analysis, implementation of anti-fraud policies, sanctions, and monitoring of prevention programs, in accordance with (Budiantoro et al., 2022)

Each variable is measured using a 5-point Likert scale, ranging from “strongly agree” (5 points) to “strongly disagree” (1 point).

Types and Sources of Data

The data used in this study consists of primary data, which was collected directly from respondents via an online questionnaire (Google Form). This data was collected between May 21 and 30, 2025.

Data Collection Method

Data was collected using a closed-ended questionnaire consisting of a series of statements based on the indicators for each variable. Respondents were asked to rate these statements according to their perceptions of conditions within the company.

Data Analysis Techniques

The Partial Least Squares (PLS) method was used for data analysis using SmartPLS 4.0 software. PLS was chosen because this approach is suitable for models with small to moderate sample sizes and is capable of handling non-normal data. The analysis procedure consisted of:

Inner Model Evaluation (Structural Model):

- a) Coefficient of Determination (R^2)
- b) Direct Effect Test (Path Coefficient)
- c) Effect Size (f^2)
- d) Statistical Significance via bootstrapping at a 5% significance level (p -value < 0.05 and t -statistic > 1.96)

Outer Model Evaluation (Measurement Model):

- a) Convergent Validity (factor loadings > 0.7)
- b) Discriminant Validity (cross-loadings and Fornell-Larcker Criterion)
- c) Construct Reliability (Composite Reliability and Cronbach's Alpha > 0.7)

RESEARCH FINDINGS

Measurement Model

Convergent Validity

The outer loadings of the indicators on their latent variables are referred to as convergent validity. If the Average Variance Extracted (AVE) is greater than 0.50, then a model has convergent validity with outer loadings greater than 0.70. The following are the results of the convergent validity test in this study.

Table 1
Outer Loading Value

Variable	Indicator	Outer Loading	Description
Good Corporate Governance (X)	GCG1	0,861	Valid
	GCG2	0,913	Valid
	GCG3	0,874	Valid
	GCG4	0,906	Valid
Fraud Prevention (Y)	PF1	0,930	Valid
	PF2	0,918	Valid
	PF3	0,899	Valid
	PF4	0,957	Valid

Source: Processed Data, 2025

Table 2
Composite Reliability and AVE

Variable	Composite Reliability	AVE
Good Corporate Governance (X)	0,938	0,790
Fraud Prevention (Y)	0,960	0,858

Source: Processed Data, 2025

As shown in Table 1 and Table 2, the results of this analysis indicate that all outer loadings are greater than 0.70, the composite reliability is greater than 0.50, and the AVE is greater than 0.50. Therefore, it can be concluded that each construct has been deemed valid.

Discriminant Validity

To assess discriminant validity, the Fornell-Larker method can be used, which is based on the AVE value. If the square root of the AVE is greater than the correlation between latent variables, the indicators are said to meet the criteria for discriminant validity. The following are the results of the discriminant validity test.

Table 3
Fornell Lacker Values

Indicator	GCG (X)	PF (Y)
GCG (X)	0,889	
PF (Y)	0,736	0,926

Source: Processed Data, 2025

Table 3 shows that the Fornell-Larcker values, as indicated by the AVE values, are higher (>) than the correlations among the latent variables. Therefore, it can be concluded that each indicator is valid.

Internal Consistency Reliability

Some indicators used to measure internal consistency reliability include Cronbach's alpha and composite reliability. To determine whether a measurement is reliable, the composite reliability must be above 0.70, as must the Cronbach's alpha value (Sunani, 2018). The following are the results of the internal consistency reliability test.

Table 4
Internal Consistency Reliability Values

Variable	Cronbach's Alpha	Composite Reliability
Good Corporate Governance(X)	0,911	0,938
Fraud Prevention (Y)	0,945	0,960

Source: Processed Data, 2025

As shown in Table 4, the Cronbach's alpha and composite reliability values in this study were both greater than 0.70; therefore, it can be concluded that the measurement is reliable.

Structural Model

Path Coefficients

Path coefficients are a statistical measure used to determine the direction of the influence of an independent variable on a dependent variable. Path coefficients range from -1 to +1. A negative value indicates a negative relationship, while a positive value indicates a positive relationship. The closer the value is to 0, the weaker the relationship is considered to be. The following are the results of the path coefficient analysis for this study.

Table 5
Path Coefficients Value

Effect of Variables	Path Coefficients
Good Corporate Governance (X) and Fraud Prevention	0,736

Source: Processed Data, 2025

Table 5 shows that the path coefficient for Good Corporate Governance (X2) on Fraud Prevention (Y) is 0.736, indicating that the relationship between the variables is positive.

Coefficient of Determination (R²)

The validity of a structural model can be assessed using the R-squared (R²) value for the dependent variable. The R² value is used to measure the extent to which the dependent variable is explained by the independent variables. This measure ranges from 0 to 1. The closer the value is to 1, the more accurate the model is considered to be in explaining the dependent variable. The interpretive strength of the R² value can be categorized as high if the R² value is 0.75, moderate if it is up to 0.50, and weak if it is up to 0.25. The following are the results of the Coefficient of Determination (R²) test for this study.

Table 6
Nilai R Square

Variable	R Square
Fraud Prevention (Y)	0,542

Source: Processed Data, 2025

Table 6 shows that the R-squared value is 0.542, indicating that the predictive power of the Good Corporate Governance (X) variable on Fraud Prevention (Y) is classified as moderate.

Effect Size (f²)

Through this test, the contribution of the independent variables included to the dependent variable can be understood based on the F-square value. The F-square value is categorized as low if it is 0.02, moderate if it is 0.15, and high if it is 0.35. A value below the minimum threshold of 0.02 indicates that there is no significant effect when a single independent variable is removed from the model. The following are the results of the Effect Size (F2) test in this study.

Table 7
Nilai Effect Size (f²)

Effect of Variable	Pencegahan Fraud
Good Corporate Governance (X)	1,185

Source: Processed Data, 2025

Table 7 shows that the variable Good Corporate Governance (X₂) has a significant effect on Fraud Prevention (Y), with an F-square value of 1.185, indicating a high level of contribution.

Hypothesis Testing

Hypothesis testing for this study was conducted using the path coefficients method with a bootstrapping approach. The purpose of this test was to determine whether there was an influence of the independent variables on the dependent variable. Results were considered significant if the p-value was less than 0.05, while a value greater than 0.05 indicated no significant influence. Additionally, the significance of the effect is assessed based on the t-statistic value. If the t-statistic is greater than the t-table value, the hypothesis is considered supported. This study used a 95% confidence level and a t-table value of 1.96. The following are the results of the hypothesis testing among the variables.

Table 8
Hypothesis Testing

Effect of Variables	T-Statistics	P-Values	Description
Good Corporate Governance and Fraud Prevention	5,832	0,000	Accepted

Source: Processed Data, 2025

Table 8 indicates that the hypothesis is accepted because the test results show a t-statistic of $5.832 < 1.96$, with a path coefficient of 0.736 and a p-value of $0.000 < 0.05$. Therefore, it can be concluded that Good Corporate Governance has an effect on Fraud Prevention, and the hypothesis is accepted.

DISCUSSION

The Impact of Good Corporate Governance on Fraud Prevention

The findings of this study indicate that good corporate governance (GCG) has an impact on fraud prevention. This demonstrates that the stronger the implementation of GCG principles—such as transparency, accountability, and integrity—the lower the

likelihood of fraud occurring within a company. Most respondents were permanent employees with more than three years of service, meaning they had been with the company for a considerable period. With this experience, respondents were better able to discern whether existing policies were actually being implemented or merely existed on paper.

This situation shows that when a company effectively implements GCG—such as through transparency and clear disciplinary measures—employees become more cautious in their work. This helps reduce the potential for fraud. Thus, GCG is not merely understood as a concept, but its impact is genuinely felt by employees in preventing fraud.

Theoretically, these findings support agency theory by highlighting the importance of corporate strategies in mitigating conflicts of interest between management (the agent) and company owners (the principal) (Jensen & Meckling, 1976) as cited in (Fitriani, 2024). The implementation of GCG provides a framework to ensure that management acts in alignment with the company's objectives and does not abuse its authority.

This study aligns with the research by (Budiantoro et al., 2022) which demonstrates that the consistent implementation of GCG can foster an ethical and transparent organizational culture, thereby preventing misconduct. Additionally, (Savitri & Herliansyah, 2022) also emphasize the importance of governance in maintaining the integrity of corporate asset management.

The implementation of good corporate governance is crucial for Mining Company X, given the complexity of its operations and its extensive interactions with the community, shareholders, and regulators. Previous cases involving a lack of transparency in the distribution of compensation underscore the urgent need for strong governance.

Theoretical and Practical Implications

Theoretically, this study reinforces the validity of the fraud triangle and agency theory in the context of the extractive industry. These findings also confirm the results of previous studies while expanding their empirical scope to the context of mining companies in Indonesia. This study demonstrates that Good Corporate Governance (GCG) plays a crucial role in fraud prevention. These findings underscore that the “opportunity”

element of the fraud triangle can be mitigated through consistent implementation of transparency, accountability, and enforcement of sanctions within the organization.

Given that the majority of respondents have been with the company for more than three years, these results indicate that employees are more responsive to tangible GCG practices in the workplace, such as transparency and clear sanctions. This reinforces the role of governance in fostering more cautious and compliant work behavior.

In practical terms, companies need to ensure that the implementation of GCG is not merely formal but is genuinely carried out and felt by employees, as this has proven to be more effective in supporting fraud prevention.

CONCLUSION

This study demonstrates that Good Corporate Governance (GCG) has a positive and significant impact on fraud prevention. This indicates that the better the implementation of GCG principles—such as transparency, accountability, enforcement of sanctions, and monitoring—within a company, the more effective fraud prevention efforts will be. The implementation of GCG in this study is reflected in how governance policies and mechanisms are carried out in daily operational activities. In other words, GCG is not merely viewed as formal rules but as practices that are genuinely applied and executed within the workplace. This indicates that the success of fraud prevention is heavily influenced by a company's consistency in applying these governance principles. However, this study has limitations because the measurement of GCG implementation is based on employee assessments via a questionnaire; thus, the results obtained represent the implementation occurring in the workplace according to the respondents' experiences. Therefore, the findings of this study may not fully reflect the overall implementation conditions in other companies.

REFERENCES

- ACFE. (2024). *THE NATIONS @ OCCUPATIONAL FRAUD 2024: 2 FOREWORD Occupational Fraud 2024: A Report to the Nations*.
- Ali, M. M., Hariyati, T., Pratiwi, M. Y., & Afifah, S. (2022). Metodologi Penelitian Kuantitatif Dan Penerapan Nya Dalam Penelitian. In *Education Journal.2022* (Vol. 2, Number 2).
- Budianto, Faujiah, F. N., & Andini, F. (2023). *Menelisik Pemicu Perilaku Academic Fraud versus Accounting Fraud Dalam Perspektif Fraud Triangle*. 3, 364.
<https://doi.org/10.47709//jebma.v3n2.2688>

- Budiantoro, H., Aprillivia, N. D., & Lapae, K. (2022). PENGARUH PENERAPAN GOOD CORPORATE GOVERNANCE (GCG) , KESADARAN ANTI-FRAUD, DAN INTEGRITAS KARYAWAN TERHADAP PENCEGAHAN KECURANGAN (FRAUD). *Jurnal Orientasi Bisnis Dan Entrepreneurship (JOBS)*, 3(1), 28–39. <https://doi.org/10.33476/jobs.v3i1.2474>
- Chandrawati, N. B., & Ratnawati, D. (2021). *Studi Financial Statement Fraud dengan Fraud Triangle Theory*. 14(1), 147–159. <http://journal.stekom.ac.id/index.php/e-bisnis/page147>
- Damayanti, A. F., & Primastiwi, A. (2021). *PENGARUH PENGENDALIAN INTERNAL, GOOD CORPORATE GOVERNANCE, DAN SISTEM PENGUKURAN KINERJA TERHADAP PENCEGAHAN FRAUD*. 3, 232–245.
- Fauziah, S. (2024). EVOLUSI TEORI FRAUD DAN RELEVANSINYA TERHADAP STRATEGI PENCEGAHAN KORUPSI DANA DESA. *RISTANSI: Riset Akuntansi*, 5(1), 13–29. <https://doi.org/10.32815/ristansi.v5i1.2266>
- Fitriani, W. F. (2024). *TATA KELOLA PERUSAHAAN DALAM MENDETEKSI KECURANGAN LAPORAN KEUANGAN Sekolah Tinggi Ilmu Ekonomi Indonesia (STIESIA) Surabaya*.
- Kumalasari, Y., & Nursiam. (2023). *PENGARUH AUDIT INTERNAL, EFEKTIVITAS PENGENDALIAN INTERNAL, DAN PENERAPAN GOOD GOVERNANCE TERHADAP PENCEGAHAN FRAUD*. 14, 602–610. <https://journal.ikopin.ac.id>
- Napitupulu, B. E., & Ramadhita, P. N. (2022). PENGARUH PENGENDALIAN INTERNAL DAN GOOD CORPORATE GOVERNANCE TERHADAP PENCEGAHAN FRAUD PADA PERUSAHAAN BUMN SEKTOR JASA KEUANGAN. *Jurnal Akuntansi & Perpajakan*, 3(2), 77–89.
- Sabrina, N. N., & Sadalia, I. (2021). Penerapan prinsip Good Corporate Governance pada perusahaan. *Jurnal Ekonomi Bisnis, Manajemen Dan Akuntansi (JEBMA)*, 1. <https://doi.org/10.47709/jebma.v1i1.971>
- Savitri, & Herliansyah, Y. (2022). Pengaruh Good Corporate Governance dan Sistem Pengendalian Intern Terhadap Penyalahgunaan Aset Dengan Kualitas Audit Intern Sebagai Variabel Moderasi. *Owner*, 6(4), 4219–4231. <https://doi.org/10.33395/owner.v6i4.1169>
- Setyono, D., Hariyanto, E., Wahyuni, S., & Pratama, B. C. (2023). Penggunaan Fraud Hexagon dalam Mendeteksi Kecurangan Laporan Keuangan. *Owner*, 7, 1036–1048. <https://doi.org/10.33395/owner.v7i2.1325>
- Tatyana Salsabila, N., & Kuntadi, C. (2022). PENGARUH PENGENDALIAN INTERNAL, GOOD CORPORATE GOVERNANCE, DAN MORALITAS INDIVIDU TERHADAP PENCEGAHAN KECURANGAN. *Journal of Comprehensive Science*, 1.



THE DETERMINANTS OF TAX AVOIDANCE: THE ROLE OF RETURN ON ASSETS AND COMPANY SIZE IN THE FINANCIAL SECTOR IN INDONESIA

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Companies

Abstract:

This study explores tax avoidance as a complex issue among large corporations, with an emphasis on the influence of ROA and Firm Size on such practices. Using a quantitative approach, the analysis was conducted on 248 financial statement from financial sector companies listed on the Indonesia Stock Exchange year 2020 to 2023 observations selected purposive sampling. The data were processed using panel data regression analysis with EViews 13. The findings indicate that ROA has a significant effect on tax avoidance, where companies with higher ROA tend to engage more actively in tax planning to maintain profitability. Additionally, firm size also plays a role in tax avoidance, as larger companies have better access to resources and information, enabling them to design more effective tax strategies. These results affirm that both ROA and firm size are important factors to consider in managing tax obligations, with significant implications for management in enhancing company value and maintaining a positive financial image in the eyes of investors.

INTRODUCTION

Tax avoidance is a serious and complex issue, particularly among large entities with cross-border financial structures and operations. Generally, tax avoidance can be defined as efforts undertaken by taxpayers to legally minimize their tax liability, often through aggressive tax planning. This practice aims to minimize the total tax burden through means that are lawful under the law, allowing companies to adjust their taxable income

in line with their business targets or interests (Khasanah & Afiqoh, 2022). In this context, tax avoidance reflects corporate strategies to exploit legal loopholes, differences in regulations between countries, or weaknesses in tax policies to achieve higher tax efficiency, without directly violating existing legal provisions (Sulaiman & Yusuf, 2024).

Tax avoidance is a strategy that allows entities to reduce their tax liability by exploiting loopholes in tax regulations without directly violating the rules. This practice does not result in legal consequences for taxpayers, as they still fulfill their obligation to pay taxes to the government, albeit in a smaller amount (Wirianata & Hauw-Sen, 2024). Tax avoidance is defined as a method to minimize the tax burden by exploiting loopholes or gray areas in tax regulations. In practice, the government, through the Directorate General of Taxes, often has limited access to economic information and corporate transactions, including financial statements that form the basis for calculating corporate income tax. Meanwhile, the government strives to maximize state revenue from taxation, including income tax derived from companies operating and generating income within a specific jurisdiction (Kusuma & Rahayu, 2022). However, the government's efforts to increase revenue often conflict with the interests of corporate management, which seeks to avoid or reduce their tax liabilities by exploiting loopholes in tax regulations (Putri & Yuliafitri, 2024).

ROA is the most important factor that prospective investors consider when making stock investment decisions. Therefore, companies need to maintain and improve their financial performance to ensure their stocks remain attractive and competitive. Companies that publish financial statements provide an overview of their financial performance (Nugroho et al., 2024). The financial information in these reports serves as a source of information, a means for management to be accountable to owners, a measure of operational success, and a key reference for strategic decision-making. According to academics, financial performance measured by ROA must be analyzed using appropriate and sophisticated concepts to assess a company's success (Herlambang et al., 2024).

Company size also reflects the extent of financial constraints faced by an organization. This information can be obtained from the company's financial records, particularly the income statement, which provides important insights into the company's financial condition. The analytical tools applied are profitability ratios, which enable an evaluation of the company's financial health and its ability to generate profits (Ivanda et al., 2024). In addition to other factors influencing tax strategy, company size also plays a

significant role in tax avoidance. In this context, the culmination of the audit process is the auditor's report, which enhances confidence in financial statements by demonstrating the auditor's independent stance regarding those statements. According to Salehi et al., (2020), financial reporting transparency tends to decline when businesses engage in tax avoidance activities.

Although numerous studies have been conducted on tax avoidance, previous research on the effects of profitability and firm size on tax avoidance has yielded mixed results. Some studies have found that ROA and firm size have a significant impact on tax avoidance, while others have shown different results. This inconsistency in results indicates a research gap that requires further investigation. Additionally, the financial sector was selected because it possesses relatively complex operational characteristics and financial structures, potentially leading to distinct tax strategies compared to other sectors. Therefore, this study is crucial to provide the latest empirical evidence regarding the influence of ROA and firm size on tax avoidance among financial sector firms in Indonesia.

The objective of this study is to determine the return on assets and the extent of tax avoidance among financial companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023. Based on the above discussion and the stated objective, the research questions are as follows:

- 1) Asset return rates have a positive effect on tax avoidance
- 2) Company size has a positive effect on tax avoidance

LITERATURE REVIEW

Agency Theory

Agency Theory describes an agency relationship that leads to agency conflict because the two parties have conflicting interests (Jensen & Meckling, 1976). Agency Theory explains the relationship between company owners (principals) and management (agents) in the conduct of corporate activities. In this relationship, management is granted the authority to manage the company's resources and make strategic decisions, including in the area of taxation. In the context of tax avoidance, management may be motivated to engage in tax planning to reduce the company's tax burden and increase after-tax profits. Therefore, this theory is relevant for explaining

how company characteristics, such as profitability and firm size, can influence a company's propensity to engage in tax avoidance.

Tax Avoidance

The goal is to reduce the amount of tax they would otherwise have to pay, but without violating tax laws. Although there is no tax violation, the tax authorities may not be pleased because this can reduce the government's tax revenue. There are two types of tax avoidance: active and passive. Active tax avoidance evades government tax obligations but violates tax regulations. Passive tax avoidance is carried out by avoiding taxes without violating tax regulations (Yuliawati & Sutrisno, 2021). Tax avoidance is also an effort by an individual or a company to minimize the total taxes they pay through valid and ethical means without violating applicable tax regulations. This typically involves utilizing loopholes or incentives in tax laws to reduce tax liabilities. Although tax avoidance is considered legal, it can be controversial because it may reduce state revenue, causing the government to lose out.

Return on Assets

Return on Assets is a measure of a company's performance, which can be calculated by examining data in financial statements. There are numerous analytical tools used to measure this performance, which indicate how well a company performs financially. Financial performance analysis is conducted to evaluate how well a company has complied with financial reporting standards, which include the preparation of financial statements that meet the requirements or standards set forth in GAAP or SAK (Giovana Putri & Munfaqiroh, 2020). Return on Assets provides an overview of how well a company or organization manages its finances, including generating profits, controlling costs, managing assets and liabilities, and achieving its financial goals. This is typically measured through various indicators, such as revenue, profit, cash flow, and other financial ratios.

H1: The rate of return on assets influences tax avoidance.

Company Size

Financing decisions made to optimize corporate value are significantly influenced by the company's size, which tends to increase as the company grows. If a controlling shareholder exits a large company, the loss of control tends to be smaller. Several key

indicators, including total assets, revenue, total employees, and market value, are used to measure company size (Hidayat & Khotimah, 2022). This size is important because it can influence business strategy, competitiveness, and the company's ability to access resources, such as markets and capital. Large companies may have advantages in terms of economies of scale, which allow them to reduce costs and improve efficiency, while small companies may be more flexible and innovative. By understanding company size, one can better analyze a company's position and growth potential within the broader industry context.

H2: Ukuran Perusahaan berpengaruh terhadap Penghindaran Pajak.

RESEARCH METHODS

This study employs a quantitative approach, which is a method focused on the use of numerical data and statistical analysis techniques to test hypotheses, measure variables, and identify relationships between variables. This approach is typically carried out through systematic data collection, such as surveys, experiments, or structured observations, and the results are presented in the form of tables, graphs, or descriptive statistics. The primary objective of this method is to obtain results that can be generalized to a broader population. The quantitative approach is grounded in the positivist paradigm and is designed to examine the characteristics of a specific population or sample in an objective and measurable manner.

The research subjects focused on in this study are financial sector entities listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023, with the aim of analyzing the influence of financial performance, firm size, and audit opinions on tax avoidance practices. The selection of this sector is motivated by its crucial role in supporting the national economy and its significant contribution to capital market activities. Furthermore, companies in the financial sector are often viewed as a reflection of economic stability and the direction of investment trends, thereby providing relevant information for research.

The operational definitions of the variables in this study consist of dependent and independent variables. The dependent variable used is tax avoidance, which is measured using the Effective Tax Rate (ETR). This measure is used to indicate the extent of the tax burden borne by a company on its profits. It is calculated using the following formula:

$$ETR = \frac{\text{Income Tax}}{\text{Earning Before Income Tax}}$$

The first independent variable in this study is ROA. ROA is a profitability ratio used to measure a company's ability to generate profit from its total assets. The higher the ROA value, the better the company's performance in utilizing its assets to generate profit. Using the following formula:

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$$

The second independent variable is Firm Size, measured using the natural logarithm of total assets. This measure was chosen because total assets reflect the scale of a firm, while the natural logarithm transformation was applied to normalize large asset values and reduce the likelihood of data outliers. The following formula was used:

$$\text{Firm Size (SIZE)} = \ln (\text{Total Assets}).$$

In this study, the population under analysis consists of all financial institutions listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023. This study uses EViews 13 to process and analyze the data. A total of 410 financial reports were successfully collected and analyzed in this study. Sampling employed a purposive sampling technique, in which the researcher intentionally selected samples based on specific characteristics aligned with the study's objectives. All data were accessed through each company's official website. The following are some of the criteria used in the study:

- 1) Financial companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023
- 2) Financial companies that have consistently reported financial statements from 2020 to 2023
- 3) Financial companies using the rupiah as their currency during the 2020–2023 period
- 4) Financial companies that have consistently reported profits during the 2020–2023 period

RESEARCH FINDINGS

As a first step toward understanding the characteristics of the data, a descriptive statistical analysis was conducted for each variable. This analysis included calculations of the mean, maximum, minimum, and standard deviation. The purpose was to identify the general pattern of the data before proceeding to further testing. The results of the statistical analysis are presented in Table 1.

Table 1
Descriptive Statistical Analysis

	Y	X1	X2
Mean	0.232399	2.128589	21.41165
Median	0.216041	1.590000	19.54000
Maximum	2.545821	12.20000	30.44000
Minimum	0.001432	0.000000	15.09000
Std. Dev.	0.210926	2.241800	4.626080
Skewness	6.465692	1.862154	0.612628
Kurtosis	64.28166	7.252440	1.963340

Source: Processed Data, 2025

1. Tax Avoidance (Y)

The average tax avoidance is 0.232399. The skewness and kurtosis values indicate that the data are not normally distributed.

2. Return on Assets (X1)

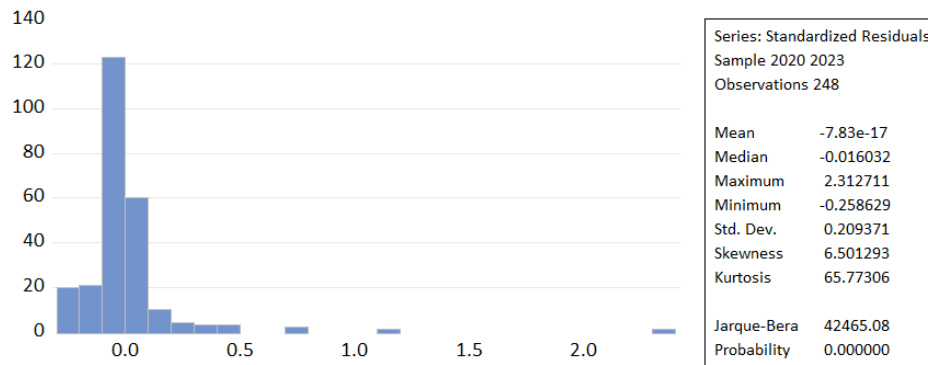
The average asset return is 2.128589. The skewness and kurtosis values indicate that the data are not normally distributed.

3. Company Size (X2)

The average of 21.41165 indicates a distribution close to normal, suggesting that the data variability remains within reasonable limits.

A normality test is used to assess and confirm that the residuals in a regression are normally distributed. In this study, the test was conducted using the Jarque-Bera test, which examines the fit of the residuals' skewness and kurtosis values to the characteristics of a normal distribution. The results of the normality test are shown in the figure below.

Figure 1
Normality Test



Source: Processed Data, 2025

Based on the results of the normality test using the Jarque-Bera technique, a statistical score of 42,465.08 was obtained with a probability of 0.000000. Since the probability score is below the significance level of 0.05, it can be concluded that the residuals are not normally distributed. However, this condition is not considered a significant problem, given that in regression analysis with a large number of observations, violations of the normality assumption of the residuals generally do not have a significant effect on the accuracy of model parameter estimates. In addition, estimation methods such as Ordinary Least Squares (OLS) can still produce consistent and efficient estimates, as long as other classical assumptions are met. The F-test is used to determine whether the independent variables collectively have a significant impact on the dependent variable in the regression model. The results of this test are presented in Table 2.

Table 2
F-Test

Description	Score	Description	Score
R-squared	0.015307	Mean dependent var	0.127678
Adjusted R-squared	0.007269	S.D. dependent var	0.168797
S.E. of regression	0.168182	Sum squared resid	6.929873
F-statistic	1.904247	Durbin-Watson stat	1.448898
Prob (F-statistic)	0.151133	Mean dependent var	0.127678

Source: Processed Data, 2025

In the table above, the Prob. score of 0.151133 exceeds the 5% threshold. This is evidenced by the Sig. score of 0.151133, which is greater than 0.05. In conclusion, the independent variables do not have a significant effect on the dependent variable.

The t-test is used to assess the magnitude of the partial effect of each independent variable on the dependent variable in the regression model. This test aims to determine whether each independent variable has a significant partial effect on the dependent variable. Table 3 presents the test results:

Table 3
T-Test

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.283292	0.093773	3.021050	0.0028
X1	-0.013823	0.007146	-1.934316	0.0542
X2	-0.001003	0.004212	-0.238040	0.8120

Source: Processed Data, 2025

The table above shows the results of the t-test that was conducted. Conclusions can be drawn by referring to the previously established criteria as follows:

- 1) The Return on Assets variable (X1) shows a significant t-value of -1.934316, which is less than 0.05. Therefore, if Return on Assets has an impact on Tax Avoidance, then hypothesis H1 is accepted.
- 2) The Firm Size variable (X2) yields a t-score of -0.238040, which is less than 0.05. This indicates that if Firm Size influences Tax Avoidance, then hypothesis H2 is accepted.

DISCUSSION

The Effect of Asset Return Rates on Tax Avoidance

Asset return rates have an impact on tax avoidance; therefore, Hypothesis H1 is accepted. It can be said that changes in a company's asset return rates have the potential to influence the company's decisions regarding tax avoidance.

This finding can also be explained by Agency Theory, which posits that management, as the entity running the company, will seek to optimize financial performance, including through tax efficiency. Under conditions of high profitability, companies tend to have a stronger incentive to maintain optimal after-tax profits, so tax avoidance strategies may be one option considered.

These findings suggest that fluctuations in a company's Return on Assets (ROA) can influence management's policy direction in formulating tax planning strategies. Conceptually, a high ROA is seen as indicative of solid financial performance, as it

demonstrates the entity's ability to optimize its assets to generate profits. In this context, management tends to be more proactive in seeking ways to maintain profitability, including by optimizing applicable tax provisions to reduce the tax burden. Tax avoidance strategies also become one of the options considered to improve the efficiency of net profit management without violating applicable regulations. Thus, the relationship between ROA and tax avoidance can be seen as part of a company's efforts to manage fiscal risk and maximize corporate value.

In addition, companies with high returns on assets are typically under the scrutiny of investors and other stakeholders, putting them under greater pressure to maintain their financial performance. In such situations, efficiency in managing tax burdens becomes a critical strategy for maintaining competitive profit margins. Therefore, tax avoidance strategies are not merely viewed as efforts toward fiscal efficiency but also as part of profit management aimed at creating a healthy and attractive financial image in the eyes of investors and strengthening the company's position in the market.

The Effect of Firm Size on Tax Avoidance

Firm size has an impact on tax avoidance; therefore, hypothesis H2 is accepted. It can be said that changes in a firm's return on assets influence the firm's decisions regarding tax avoidance.

From the perspective of Agency Theory, larger companies have greater managerial capacity and resources for designing financial strategies, including tax strategies. This suggests that the larger the company, the greater its ability to manage its tax burden more efficiently through tax planning.

The findings of this study indicate that company size plays a significant role in influencing how management handles tax obligations. Larger companies are often associated with greater access to resources, operational complexity, and the ability to access information and professional services related to tax planning. Large companies tend to have more options for implementing tax avoidance strategies, such as exploiting available legal loopholes, working with professional tax advisors, or establishing international business structures to maximize tax savings.

In addition, large companies typically have trained and experienced tax compliance teams that can analyze complex tax regulations more effectively. This gives them an advantage in designing better tax strategies that are in line with applicable laws. The

availability of modern tax management technologies and systems also enables large companies to develop more efficient tax plans. Thus, company size not only affects access to resources but also reflects the strategic ability to navigate regulatory changes and market demands, which contributes to the efficient management of tax obligations.

CONCLUSION

Based on the findings of this study, both Return on Assets (ROA) and firm size have a significant impact on tax avoidance. A high ROA encourages entities to be more active in tax planning, allowing them to legally exploit tax loopholes to maintain profitability and improve efficiency in profit management. On the other hand, firm size plays a role in tax avoidance strategies by providing more optimal access to resources, information, and professional services, as well as the ability to establish fiscally advantageous business structures. Consequently, management must consider both factors in their tax strategies to maximize firm value and maintain a positive financial image in the eyes of investors. The results of this study imply that companies need to consider tax policies as part of an integrated financial strategy. Additionally, for regulators and tax authorities, these findings can serve as a basis for enhancing oversight of companies with high profitability and large business scales.

REFERENCES

- Giovana Putri, B., & Munfaqiroh, S. (2020). Analisis Rasio Keuangan Untuk Mengukur Kinerja Keuangan. In *Jurnal Ilmu-ilmu Sosial* (Vol. 17, Issue 1).
- Herlambang, A., Pakpahan, E., & Rahmi, N. U. (2024). Struktur Modal, Current Ratio, Ukuran Perusahaan, dengan ROA Sebagai Moderating. *RISTANSI: Riset Akuntansi*, 5(2), 121–140. <https://doi.org/10.32815/ristani.v5i2.2293>
- Hidayat, I., & Khotimah, K. (2022). Pengaruh Profitabilitas dan Ukuran Perusahaan terhadap Nilai Perusahaan sub sektor kimia. *Jurnal Ilmiah Akuntansi Kesatuan*, 10(1), 1–8. <https://doi.org/10.37641/jiakes.v10i1.1175>
- Ivanda, M., Dwi Orbaningsih, & Umi Muawanah. (2024). CSR's Role In Tax Avoidance: Impact Of Financial Performance And Green Accounting. *Jurnal Akuntansi*, 28(3), 518–536. <https://doi.org/10.24912/ja.v28i3.2374>
- Jensen, M. C., & Meckling, W. H. (1976). Theory Of The Firm: Managerial Behavior, Agency Costs And Ownership Structure. In *Journal of Financial Economics* (Vol. 3). Q North-Holland Publishing Company.
- Khasanah, K., & Afiqoh, N. W. (2022). Pengaruh Likuiditas, Leverage, dan Ukuran Perusahaan Terhadap Tax Avoidance dengan Komisaris Independen Sebagai

- Variabel Moderasi. *RISTANSI: Riset Akuntansi*, 3(2), 110–132. <https://doi.org/10.32815/ristansi.v3i2.1159>
- Kusuma, M., & Rahayu, P. (2022). Can Other Comprehensive Income be Used for Tax Avoidance? *Jurnal Akuntansi Dan Keuangan*, 24(2), 79. <https://doi.org/10.9744/jak.24.2.68–79>
- Nugroho, W., Silaen, M., Parhusip, A., & Amin, A. (2024). *Optimalisasi Return On Asset (ROA) dan Return On Equity (ROE) untuk Meningkatkan Daya Saing Perbankan di Bursa Saham* (Vol. 1, Issue 4). Elektronik.
- Putri, S. A., & Yuliafitri, I. (2024). Pengaruh Profitabilitas, Leverage, Pertumbuhan Penjualan dan Ukuran Perusahaan terhadap Penghindaran Pajak. *Jurnal Penelitian Inovatif*, 4(3), 1499–1514. <https://doi.org/10.54082/jupin.543>
- Salehi, M., Tarighi, H., & Shahri, T. A. (2020). The effect of auditor characteristics on tax avoidance of Iranian companies. *Journal of Asian Business and Economic Studies*, 27(2), 119–134. <https://doi.org/10.1108/JABES-11-2018-0100>
- Sulaiman, N., & Yusuf, H. (2024). Strategi Penanggulangan Tindak Pidana Perpajakan di Indonesia: Studi Tentang Penghindaran Dan Penggelapan Pajak. *JIIC: Jurnal Intelek Insan Cendikia*, 1(9).
- Wirianata, H., & Hauw-Sen, T. (2024). Moderation Of Firm Size On The Effect Of Financial Performance On Tax Avoidance. *Jurnal Akuntansi*, 28(03), 400–224. <https://doi.org/10.24912/ja.v28i3.2068>
- Yuliawati, & Sutrisno, P. (2021). Faktor Yang Mempengaruhi Penghindran Pajak. *JURNAL INFORMASI, PERPAJAKAN, AKUNTANSI, DAN KEUANGAN PUBLIK*, 16(2), 203–222. <https://doi.org/10.25105/jipak.v16i2.9125>



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AN ANALYSIS OF THE ROLE OF TAX PLANNING AND DEFERRED TAX ASSETS IN EARNINGS MANAGEMENT IN THE BANKING INDUSTRY

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Abstract:

This study aims to assess and empirically prove the independent variables of tax planning and deferred tax assets affecting the dependent variable of earnings management. This research employs a quantitative approach based on an associative design, formulating hypotheses and applying inferential statistical procedures to evaluate causal relationships, using purposive sampling involving a number of companies and observational data taken from annual audit reports. The analysis results indicate that tax planning has a significant influence on earnings management. Conversely, deferred tax assets do not show a significant effect. These findings suggest that the long-term orientation and limitations in the flexibility of deferred tax assets substantially reduce their effectiveness as instruments for short-term earnings manipulation.

INTRODUCTION

The banking sector plays a vital role in supporting national economic stability, particularly through its financial intermediation function. Companies listed on the Indonesia Stock Exchange (IDX) face significant pressure to maintain optimal financial performance amid ever-changing market conditions. This pressure has intensified due to the impact of the COVID-19 pandemic, which has exacerbated non-performing loan risks and squeezed net profit margins. Under these conditions, earnings management practices are often employed as a strategy to maintain a positive corporate image in the eyes of investors, creditors, and regulators, particularly in the presentation of annual financial performance reports (Susilo & Lestari, 2024). In practice, the preparation of annual

financial statements serves two primary purposes: to provide relevant and reliable financial information in accordance with financial accounting standards, and to fulfill tax reporting obligations as stipulated in applicable laws and regulations (Amir & Siddiqui, 2023).

One example that reflects this dynamic can be seen in PT Bank BTPN Syariah Tbk (BTSP), which experienced a 22% decline in net profit compared to the previous year, accompanied by an 11.36% drop in its stock price (CNBC Indonesia, 2023). Although the company recorded growth in pre-provision operating profit (PPOP), challenges in credit disbursement growth and a decline in low-cost funds (current account savings accounts/CASA) indicate significant financial pressure. On the other hand, PT Bank Jago Tbk (ARTO) also saw its stock price drop by 8.68%, despite successfully increasing its customer base through integration with a digital ecosystem and a 65% rise in third-party funds (DPK). This phenomenon demonstrates that success in business expansion and customer acquisition is not always accompanied by improved profit performance or a positive market response. Therefore, tax strategies and financial reporting are critical aspects that require further analysis within the context of corporate performance.

Earnings management is a process undertaken by management to influence the preparation of financial statements in order to achieve specific objectives without violating generally accepted accounting principles (Nurhafifah et al., 2025). This practice is generally carried out through accrual techniques, such as accelerating revenue recognition or deferring expense recognition, so that reported earnings appear more stable or in line with expected targets. In the banking context, earnings management is often used in response to various pressures, including demands from shareholders, strict regulatory requirements, and the need to maintain reputation and trust in the capital markets (Damayanti & Solihati, 2024). These conditions encourage management to present financial performance that appears stable in order to maintain a positive perception among stakeholders.

Tax planning is a key element of corporate financial management. In the banking sector, this strategy is legally employed to minimize tax liabilities, improve cash flow efficiency, and maximize corporate value. By utilizing applicable tax regulations, companies can optimize their tax obligations without violating the law, while

simultaneously increasing reported net income. (Putri, 2022) and (Rajab dkk, 2022). With changes in fiscal policy, such as the reduction in the Corporate Income Tax (PPh) rate in 2020 and the implementation of the Tax Regulation Harmonization Law (UU HPP) in 2021, companies are required to adaptively adjust their tax planning strategies to remain optimal and compliant with applicable regulations.

Deferred tax assets are a key component of financial reporting that is closely linked to earnings management practices. These assets arise from temporary differences between commercial accounting profit and taxable income, which will result in tax benefits in future periods. In practice, the recognition of deferred tax assets can increase a company's total assets and affect the amount of reported net income. This situation provides management with room for discretion in financial reporting. Therefore, deferred tax assets have the potential to be utilized as a strategic instrument in managing earnings so that the company's financial performance appears more stable and attractive to investors. (Yudha dkk, 2024).

Previous research on the relationship between tax planning, deferred tax assets, and earnings management has yielded mixed and inconsistent results. Studies conducted by Syofnita dkk (2023) and Permatasari & Trisnawati (2022) indicate that these two variables have a significant impact on earnings management. However, other studies conducted by Rajab dkk (2022) and Damayanti & Solihati (2024) showed different results, namely that no significant effect was found. These differences in research results indicate inconsistencies in the empirical findings, which are likely due to variations in the industrial sector, firm characteristics, variable measurement methods, and the observation periods used in each study.

Most previous studies have focused on the manufacturing and mining sectors, while studies specifically examining the banking sector remain relatively limited. This situation indicates limitations in the generalizability of research findings, given that the banking sector has distinct characteristics, particularly in terms of operational structure, risk levels, and stricter regulations compared to other sectors.

These differences in characteristics suggest that the relationship between tax planning, deferred tax assets, and earnings management in the banking sector may exhibit distinct patterns. Therefore, there is a contextual gap in the existing literature,

necessitating further research to gain a more comprehensive understanding of the impact of tax planning and deferred tax assets on earnings management practices, particularly in banking firms.

In an effort to understand the complexities of the banking sector, this study aims to address existing gaps by examining the impact of tax planning and deferred tax assets on earnings management at banking companies listed on the Indonesia Stock Exchange during the 2020–2023 period. By focusing on the dynamics of changes in tax policy and the financial reporting strategies implemented post-pandemic, this study is expected to contribute both theoretically and practically. Additionally, this study is expected to provide a deeper understanding of effective tax planning practices in the banking sector, thereby serving as a reference for stakeholders and regulators in future policy-making.

LITERATURE REVIEW

Agency Theory

Agency theory explains the relationship between owners (principals) and employees (agents) who manage the company on behalf of the owners. In this context, investors grant management the authority to run the company, but there is a conflict of interest between the two parties. Principals focus on improving financial performance, while agents seek compensation. This conflict can influence earnings management practices, as agents strive to improve performance to earn bonuses, while principals seek optimal returns on investment.

Earning Management

Efforts made by an entity's management to influence the preparation of financial statements for personal gain, as stated by (Puspito & Karlina, 2024). These actions involve accounting policies intended to achieve specific objectives, whether by increasing or decreasing the Company's profit in the current period, without affecting long-term economic benefits. Therefore, profit management can be viewed as a deliberate action during the preparation of external financial statements to achieve one-sided profit (Bahri & Arrosyid, 2021).

Tax Planning

An Analysis of the Role of Tax Planning and Deferred Tax Assets in Earnings Management in the Banking Industry | 42

The process that taxpayers undertake to organize their businesses so that tax liabilities—whether income tax or other tax burdens—can be minimized, as explained by (Saragih & Manullang, 2022). This process must comply with tax laws and regulations and enable taxpayers to structure their financial activities to reduce their tax burden to the lowest possible level.

At this stage, the relationship between principals and agents often gives rise to conflicts of interest due to information asymmetry. Managers have greater access to information that allows them to engage in earnings management to achieve personal goals, such as profit-based bonuses, even though this does not always reflect the actual financial condition. Earnings management practices related to tax planning are important to examine, as aggressive tax planning can create opportunities for profit manipulation, which has the potential to mislead stakeholders. In the study by Syofnita et al (2023) tax planning had a positive impact on earnings management, as did the research by Permatasari & Trisnawati (2022) and Damayanti & Solihati (2024) which demonstrated that tax planning influences earnings management.

H1: Tax Planning Affects Earnings Management

Deffered Tax Assets

Defined as liabilities or benefits arising from differences in the timing of revenue and expense recognition under tax regulations compared to financial (commercial) accounting standards (Siddi & Sutopo, 2024). Deferred tax assets reflect tax benefits arising from unforeseen events, such as temporary differences and tax loss carryforwards, which can reduce current income tax liabilities (Fadillah & Kiswara, 2024). Companies can utilize deferred tax assets as a strategy for managing tax liabilities, particularly when incurring losses that can be offset by future profits. At this stage, company managers possess an information advantage regarding operations and financial conditions, enabling them to make decisions that do not always reflect the interests of owners. With certain incentives, such as profit-based bonuses, managers may tend to engage in earnings management to influence perceptions of profits. Deferred tax assets, as an account dependent on management estimates, become a potential instrument for manipulating financial statements, where managers can adjust the recognition of assets to achieve expected profit targets.

In the studies by Permatasari & Trisnawati (2022) and Saragih & Manullang (2022) deferred tax assets have a positive impact on earnings management, whereas the study by Damayanti & Solihati (2024) indicates that deferred tax assets do not have a significant impact on earnings management.

H2: Deferred Tax Assets Influence Earnings Management

RESEARCH METHODS

This study utilizes secondary data using a quantitative approach. The data consists of financial records from banking companies listed on the Indonesia Stock Exchange (IDX). The data is available on the website www.idx.co.id. There are two independent variables and one dependent variable. The independent variables used in this study are tax planning and deferred tax assets, while the dependent variable examined is earnings management.

The population comprises all banking companies listed on the IDX from 2020 to 2023, totaling 45 companies. The sampling technique used was purposive sampling, in which samples are selected based on specific characteristics. In accordance with the predetermined criteria, 22 companies were selected as samples, yielding a total of 88 data observations. The criteria established for the sample were:

1. Banking companies listed on the IDX from 2020 to 2023.
2. Companies that did not have positive profits during the study period.
3. Companies that did not have the necessary financial records related to the calculation of the variables to be tested.

The selection of samples based on sampling criteria is shown in this table:

Table 1
Sample Criteria

No.	Criteria	Total
1	Banking companies listed on the IDX from 2020 to 2023	45
2	Companies that did not report positive profits during the study period	(13)
3	Companies that did not have the necessary financial statement data required for calculating the variables to be tested	(10)
Research Sample		22
Total Sample (22 (n) x 4 Years)		88

Source: Processed Data, 2025

RESEARCH FINDINGS

The analysis was conducted using SPSS version 25 to test the relationship between tax planning and deferred tax assets in earnings management.

Descriptive Statistics

Provides an overview of the data based on the minimum, maximum, mean, and standard deviation of each variable (Sugiyono, 2023:207). The findings of the descriptive analysis are presented in the table below:

Table 2
Statistik Deskriptif

Descriptive Statistics					
	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
PP	88	0.34	0.99	0.7530	0.08170
APT	88	-2.06	0.98	0.1332	0.38819
ML	88	-1.95	0.70	-0.0766	0.37853
Valid N (listwise)	88				

Source: Processed Data, 2025

Referring to the data in the table, the total sample (n) consists of 88 data points from 22 companies in the banking sector over a 4-year period. The findings of the descriptive statistical analysis can be summarized as follows:

a. Tax Planning

Tax planning has a lowest score of 0.34 and a highest score of 0.99. The mean score is 0.7530, while the standard deviation is 0.08170. This indicates that the average tax planning score tends to be high with low and stable data dispersion.

b. Deffered Tax Assets

Deferred tax assets have a lowest score of -2.06 and a highest score of 0.98. The mean score is 0.1332, while the standard deviation is 0.38819. This indicates that the average deferred tax assets are low, with high data variation and the possibility of outliers or extreme values.

c. Earnings Management

Earnings management has a lowest score of -1.95 and a highest score of 0.70. The mean score is -0.0766, while the standard deviation is 0.37853. This indicates that the average earnings management is negative, with a relatively high dispersion of data across companies.

Normality Test

Table 3
Normality Test

<i>One-Sample Kolmogorov-Smirnov Test</i>		
N		88
<i>Normal Parameters^{a,b}</i>	<i>Mean</i>	0.0000
	<i>Std. Deviation</i>	0.99847
<i>Most Extreme Differences</i>	<i>Absolute</i>	0.006
	<i>Positive</i>	0.006
	<i>Negative</i>	-0.006
<i>Test Statistic</i>		0.006
<i>Asymp. Sig. (2-tailed)</i>		0.200 ^{c,d}

Source: Processed Data, 2025

The results of the normality test, conducted using the Kolmogorov-Smirnov test, indicate that the data follow a normal distribution. This is evidenced by the Asymp. Sig. (2-tailed) value of 0.200 > 0.05. Therefore, it is concluded that the data are normally distributed.

Results of Classical Assumption Tests

a. Multicollinearity Test

Table 4
Multicollinearity Test

<i>Coefficients^a</i>							
Model	Unstanda rdized B	Coefficien ts Std. Error	Standardi zed Coefficien ts Beta	t	Sig.	Collinearity Statistics	
						Toler ance	VIF
1 (Constant)	-0.958	0.368		-2.604	0.011		
PP	1.178	0.486	0.254	2.422	0.018	0.998	1.002
APT	-0.040	0.102	-0.41	-0.389	0.698	0.998	1.002

Source: Processed Data, 2025

Based on the results of the multicollinearity test, the calculations show that all independent variables have a tolerance score >0.10 and a VIF <10. Therefore, it is concluded that there are no signs of multicollinearity in the regression model used, and the model is deemed suitable for use in subsequent analyses.

b. Heteroscedasticity Test

Table 5
Heteroscedasticity Test

<i>Coefficients^a</i>					
Model	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	52.629	25.664		2.051	0.043
PP	-10.494	33.922	-0.034	-0.309	0.758
APT	-1.704	7.139	-0.026	-0.239	0.812

Source: Processed Data, 2025

The results of the heteroscedasticity test using the Glejser test show that all independent variables have a significance level above 5%. Therefore, it can be concluded that there is no heteroscedasticity.

c. Autocorrelation Test

Table 6
Test Run

Runs Test	
Test Value ^a	88.00 ^b
Cases < Test Value	87
Cases >= Test Value	1
Total Cases	88
Number of Runs	3
Z	0.152
Asymp. Sig. (2-tailed)	0.879

Source: Processed Data, 2025

The results of the Run Test indicate an Asymp. Sig. (2-tailed) value of 0.879. Based on the table above, we can conclude that since the Asymp. Sig. (2-tailed) value of 0.879 is greater than 0.05, there is no autocorrelation.

Results of Multiple Linear Regression Analysis

**Table 7
Multiple Linear Regression Test**

Coefficients ^a							
Model	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
						Tolerance	VIF
1 (Constant)	-0.958	0.368		-2.604	0.011		
PP	1.178	0.486	0.254	2.422	0.018	0.998	1.002
APT	-0.040	0.102	-0.41	-0.389	0.698	0.998	1.002

Source: Processed Data, 2025

Based on the findings of the table, the regression equation model in this study is as follows:

$$ML: -0.958 + 1.178 PP + (-0.040) APT$$

This formulation can be interpreted as follows:

a. Regression Coefficient α

The constant score of (-0.958) indicates that if the independent variables, namely PP and APT, are held constant (score 0), then the dependent variable, namely Earnings Management, will be at a value of (-0.958).

b. Regression Coefficient for PP (β_1)

The regression coefficient for PP, with a value of 1.178, indicates a positive correlation between the PP variable and Earnings Management. It can be stated that if PP increases while the other variables are held constant (at a value of 0), then Earnings Management will increase by 1.178.

c. Regression Coefficient for APT (β_2)

The APT regression coefficient of (-0.040) indicates a negative correlation between APT and Earnings Management. This means that if APT increases while other variables are held constant (at 0), Earnings Management will decrease by a factor of (-0.040).

Hypothesis Testing Results

a. Partial Test (t-Test)

**Table 8
Partial Test (t-Test)**

Coefficients ^a							
Model	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
						Tolerance	VIF
1 (Constant)	-0.958	0.368		-2.604	0.011		
PP	1.178	0.486	0.254	2.422	0.018	0.998	1.002
APT	-0.040	0.102	-0.41	-0.389	0.698	0.998	1.002

Source: Processed Data, 2025

Based on the table above, we can observe the impact of each independent variable on the dependent variable. This analysis was conducted using a t-test, as detailed below:

1. The Effect of Tax Planning on Earnings Management

From the analysis findings, tax planning shows a Sig. t value of 0.18, which is smaller than 0.05. This indicates that, to some extent, tax planning has a significant impact on earnings management.

2. The Impact of Deferred Tax Assets on Earnings Management

The analysis revealed that deferred tax assets yielded a Sig. t-score of 0.698, which is significantly higher than 0.05. This indicates that, to some extent, deferred tax assets do not have a significant impact on earnings management.

b. Coefficient of Determination (R²)

**Table 10
R²**

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.256a	0.065	0.43	0.37024

Source: Processed Data, 2025

The test results yielded an R² score of 0.43, or 43%. This indicates that the PP and APT variables can explain only 6% of the variation in earnings management, while the

remaining 0.57, or 57%, is influenced by various other factors outside the scope of this study.

DISCUSSION

The Impact of Tax Planning on Earnings Management

Based on the findings, tax planning was found to have a significant impact on earnings management, thus supporting Hypothesis H1. These findings indicate that companies that actively engage in tax planning tend to engage in earnings management to achieve specific objectives. In line with agency theory, this practice reflects potential conflicts of interest between managers and owners.

The findings of this study align with previous research by Syofnita dkk (2023) and Permatasari & Trisnawati (2022), which indicate that tax planning contributes to increased earnings management practices. This consistency strengthens the evidence that tax planning is not only used for fiscal efficiency but also as a profit-management strategy that affects the quality of financial statements. Consequently, effective management and oversight are necessary to prevent the misuse of such practices.

From a theoretical perspective, these findings contribute to the literature by providing empirical support for agency theory in the context of corporate tax behavior, while illustrating how managerial incentives and discretion can transform legitimate financial strategies into tools for earnings manipulation. This study expands on previous research by contextualizing tax planning within the governance environment of the Indonesian banking sector, where the interaction between regulatory oversight, institutional ownership, and audit quality can influence the extent of such practices.

In practical terms, the findings of this study underscore the need for policymakers and regulators to enhance tax disclosure requirements and strengthen oversight mechanisms to reduce the potential for the misuse of tax planning for earnings management. Corporate governance reforms, such as strengthening the independence of audit committees, implementing stricter internal control systems, and ensuring transparency in tax strategies, can serve as a deterrent against opportunistic behavior. By addressing both managerial incentives and structural conditions that enable earnings

manipulation, these measures can help maintain the integrity of financial statements and protect stakeholder confidence.

The Effect of Deferred Tax Assets on Earnings Management

The findings of the analysis indicate that deferred tax assets do not have a significant effect on earnings management; therefore, hypothesis H2 is rejected. These results suggest that companies do not use deferred tax assets as a primary instrument in earnings management practices. Based on Agency Theory, this situation may arise because managers prefer to use other mechanisms deemed more effective in influencing reported earnings. In practice, managers are more likely to engage in earnings management through accrual earnings management, such as adjusting credit loss allowance estimates, recognizing revenue on an accrual basis, or deferring the recognition of expenses, which directly impact current-period earnings compared to using deferred tax assets, which have an indirect effect.

In addition, the fact that the banking sector is subject to strict oversight by the Financial Services Authority (OJK), as well as the application of strict financial accounting standards (PSAK), further limits the flexibility of using deferred tax assets as a tool for profit engineering. These oversight mechanisms reduce management's discretion in exploiting temporary differences between tax and commercial accounting for opportunistic purposes. The results of this study are consistent with the research by Damayanti & Solihati (2024), which also found that deferred tax assets do not have a significant effect on earnings management. The difference in results from previous studies indicates that the effectiveness of deferred tax assets in earnings management practices is significantly influenced by industry characteristics, the level of regulation, and the applicable oversight mechanisms.

Theoretically, these findings support the agency theory perspective that not all accrual components offer the same degree of flexibility in earnings management practices. In the highly regulated banking sector, management tends to optimize other accrual instruments that are more responsive to changes in earnings than deferred tax assets.

CONCLUSION

The findings of this study reinforce the premise that tax planning significantly drives earnings management practices, while also confirming its dual role as both a legitimate fiscal optimization strategy and a mechanism through which managerial discretion can shape reported performance. These results align with agency theory, which highlights the strategic space managers possess in aligning corporate objectives with stakeholder expectations. Conversely, the absence of a significant correlation between deferred tax assets and earnings management suggests that the long-term orientation and inherent flexibility constraints of such assets make them less conducive to short-term earnings manipulation. These insights underscore the need for a broader analytical perspective in future research, integrating variables such as profitability, leverage, firm size, and external audit involvement to capture the multidimensional determinants of earnings management. Furthermore, expanding the time horizon of the data beyond the 2020–2023 period and applying advanced analytical techniques would help uncover complex causal pathways and enhance the generalizability of findings across industries and corporate governance contexts.

REFERENCES

- Amir, A., & Siddiqui, D. A. (2023). The Impact of Deferred Tax on Value Relevance, Earning Management, and Company Profitability of the Financial and Automobile Sector of Pakistan. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4432252>
- Bahri, S., & Arrosyid, Y. P. (2021). *Struktur Kepemilikan, Good Corporate Governance, Leverage, dan Ukuran Entitas Terhadap Manajemen Laba* (Vol. 2). <https://doi.org/https://doi.org/10.32815/ristansi.v2i1.424>
- Damayanti, R., & Solihati, G. P. (2024). *Pengaruh Perencanaan Pajak, Aset Pajak Tangguhan, Beban Pajak Tangguhan, Profitabilitas dan Beban Pajak Kini terhadap Manajemen Laba (Studi Empiris pada Perusahaan Pertambangan yang Terdaftar di Bursa Efek Indonesia Tahun 2018-2022)*.
- Fadillah, A. Z., & Kiswara, E. (2024). *Analisis Hubungan Aset Pajak Tangguhan Terhadap Indikator Keuangan Dan Ekonomi Perusahaan Agrikultur Di Indonesia*.
- Nurhafifah, Sari, N. K., & Ningsih, W. F. (2025). Pengaruh Asimetri Informasi, Kualitas Audit, Komite Audit dan Ukuran Perusahaan Terhadap Manajemen Laba Pada Perusahaan Perbankan Di BEI Periode 2018-2022. *RISTANSI: Riset Akuntansi*, 5, 202–213. <https://doi.org/https://doi.org/10.32815/ristansi.v5i2.1844>

- Permatasari, M., & Trisnawati, E. (2022). Deferred Tax On Real Profit Management With Tax Planning As Moderating. *Jurnal Akuntansi*, 26(2), 280–305. <https://doi.org/10.24912/ja.v26i2.886>
- Puspito, G. W. C., & Karlina, L. (2024). Pengaruh Tax Planning, Aset Pajak Tangguhan, dan Tax Avoidance terhadap Manajemen Laba (Studi Empiris pada Perusahaan Sub Sektor Makanan dan Minuman yang Terdaftar di Bursa Efek Indonesia Tahun 2018-2022). In *Jurnal Mahasiswa Ekonomi & Bisnis* (Vol. 4, Issue 3).
- Putri, S. A. M. (2022). *Pengaruh Kepemilikan Institusional, Perencanaan Pajak Dan Tax Avoidance Terhadap Manajemen Laba*. www.idx.co.id
- Rajab, R. A., Taqiyyah, A. N., Fitriyani, F., & Amalia, K. (2022). Pengaruh Tax Planning, Tax Avoidance, dan Manajemen Laba Terhadap Nilai Perusahaan. *JPPI (Jurnal Penelitian Pendidikan Indonesia)*, 8(2), 472. <https://doi.org/10.29210/020221518>
- Saragih, A. E., & Manullang, A. R. (2022). *Pengaruh Perencanaan Pajak dan Aset Pajak Tangguhan terhadap Manajemen Laba Pada Perusahaan Infrastruktur, Utilitas, dan Transportasi Yang Terdaftar Di Bursa Efek Indonesia (2015-2017)*. Vol. 8 No. 2, 172–190.
- Siddi, P., & Sutopo, B. (2024). Deferred Tax Accounting: A Bibliometric Analysis and Future Research Opportunities. *International Journal of Economics, Business and Management Research*, 08(06), 203–217. <https://doi.org/10.51505/ijebmr.2024.8613>
- Sugiyono. (2023). *Metode Penelitian Kuantitatif, Kualitatif, Dan R&D*. www.cvalfabeta.com
- Susilo, W. S. B., & Lestari, E. P. (2024). *Pengaruh Transaksi Pihak-Pihak Yang Memiliki Hubungan Istimewa Terhadap Kinerja Keuangan Dan Manajemen Laba Pada Perusahaan Manufaktur Di Pasar Saham Indonesia*.
- Syofnita, A. A., Elfiswandi, Putra, R. B., & Fitri, H. (2023). *Perpajakan dan Manajemen Laba: Peran Kepemilikan Institusional* (Vol. 25, Issue 1). <http://jurnaltsm.id/index.php/JBA>
- Yudha, S. A., Rely, G., Prayogo, B., Mulyadi, & Sianipar, P. B. H. (2024). *Pengaruh Asimetri Informasi, Manajemen Perpajakan Dan Beban Pajak Tangguhan Terhadap Manajemen Laba*.



INCREASING PROFITS IN THE BANKING SECTOR THROUGH THE OPTIMIZATION OF NPL AND LDR

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Abstract:

This study aims to analyze the impact of managing Non-Performing Loans (NPL) and the Loan to Deposit Ratio (LDR) on the profitability of banking companies in Indonesia, measured through Return on Assets (ROA). The data utilized is secondary data with a quantitative approach, encompassing 150 data points from 30 companies whose reports were published on the Indonesia Stock Exchange during the period of 2020-2024. The analysis results indicate a significant relationship between NPL and profitability, suggesting that high NPL can negatively affect banks' profitability performance. Furthermore, a significant relationship is also found between LDR and profitability, indicating that an optimal LDR can enhance the efficiency of banks in generating profits. This research provides important insights for bank management in decision-making related to loan and deposit management.

INTRODUCTION

In late 2019, the COVID-19 pandemic swept across the globe, creating a wave of widespread uncertainty that affected nearly every aspect of life, including the banking sector in Indonesia. Since the outbreak, the capital market has experienced a significant decline, causing many investors to pull out and reducing confidence in corporate performance, including that of financial institutions (Sutrisno et al., 2020). In this context, an analysis of the factors affecting bank profitability has become crucial, particularly since the banking sector serves as a key pillar in supporting national economic stability. (Dewi et al., 2023).

According to Azhari et al. (2024) to determine how well a company can generate profits over a specific period, investors can examine companies with low or high profitability ratios. One performance indicator frequently used to assess a bank's

profitability is Return on Assets (ROA). ROA is used to measure how efficiently a bank manages its assets to generate profits (Aulia & Sukiswo, 2024). However, this efficiency cannot be separated from various factors that influence bank operations, including credit risk—measured through the Non-Performing Loan (NPL) ratio—and the bank's capability in extending credit, as reflected in the Loan-to-Deposit Ratio (LDR).

NPL is a key metric that reflects the proportion of loans that borrowers are unable to repay as agreed (Fibriyanti & Nurcholidah, 2020). A high NPL may indicate that a bank is facing increased credit risk, which in turn can reduce interest income and increase loan loss provisions. This, of course, has a negative impact on ROA, as the bank will struggle to generate optimal profits (Hidayanty et al., 2023). On the other hand, the LDR reflects the relationship between total loans disbursed and deposits received by the bank (Dewi et al., 2023). A high LDR indicates that the bank can channel its available funds to extend loans, thereby increasing the potential for higher interest income and improving ROA. According to Cahyaningtyas & Rahayu (2021) the loan-to-deposit ratio is used to determine a bank's ability to extend credit to the public. LDR is typically referred to as the credit-to-total-third-party-funds ratio, which can be used to measure the amount of third-party funds allocated for credit. This ratio reflects the comparison of total credit to Third-Party Funds (TPF) collected by the bank.

In the context of post-pandemic economic recovery, the management of NPLs and LDRs has become increasingly important. Banks need to develop effective strategies to manage credit risk while maximizing their potential for credit disbursement. Previous studies have shown that there is a complex correlation between NPLs, LDRs, and ROA. Studies conducted by Winarso et al. (2020) dan Aztari & Idayati (2023) state that NPLs impact ROA, where substantial capital can mitigate credit risk in banks. However, unstable economic conditions can increase Non-Performing Loans (NPLs), indicating that external factors continue to influence a bank's credit performance. Conversely, Fanasha et al. (2021) and Ika & Kamaluddin (2023) state that NPLs do not impact ROA; while a decline in NPLs contributes to a reduction in non-performing loans, the increase in total loans granted is far more significant. Consequently, provisioning costs for non-performing loans are lower, which can boost the bank's interest income and profits.

Studies by Aztari & Idayati (2023), Nuhasanah & Maryono (2021), and Dewi et al. (2023) indicate that while the LDR affects ROA, optimizing credit disbursement can increase a bank's interest income and profits. Liquidity is not a determining factor of

profitability, while effective credit distribution can keep the amount of non-performing loans low. Conversely, Sa'adah & Wahyuni (2023) and Ika & Kamaluddin (2023) state that LDR does not impact ROA due to a lack of aggressiveness in credit distribution and suboptimal asset accumulation. A low LDR reflects the bank's inability to utilize funds for credit distribution, thereby affecting financial performance.

Although the literature on the determinants of banking profitability has been extensively documented, there are significant discrepancies in the findings among previous studies. This phenomenon underscores the urgency of conducting further research to evaluate and clarify the consistency of the relationships among these variables. The originality of this study lies in the use of comprehensive data from the 2020–2024 period, which specifically captures the dynamics of the banking sector's performance in Indonesia during the transition phase from the peak of the pandemic to economic recovery—a temporal context that remains underrepresented in the current academic literature.

This study aims to provide a clear understanding of the steps banks must take to improve their profitability amid current challenges. It also seeks to contribute to the academic literature on the relationship between NPL, LDR, and ROA, and to offer valuable insights to stakeholders in the banking sector to help them formulate better policies that support sustainable economic growth.

LITERATURE REVIEW

Banking Intermediation Theory dan Banking Intermediation Theory

This study integrates Banking Intermediation Theory and Credit Risk Theory as the primary theoretical foundations for analyzing banking financial performance. The Banking Intermediation Theory proposed by Allen dan Santomero (1997) explains the mechanism of bank efficiency in transforming third-party funds into productive credit, as reflected in the Loan to Deposit Ratio (LDR). Theoretically, the optimization of this intermediation function acts as the primary driver in maximizing interest income. On the other hand, the Credit Risk Theory proposed by Bluhm et al. (2010) provides a fundamental argument regarding the negative impact of poor asset quality on profit stability through an increase in the Non-Performing Loan (NPL) ratio. This theory asserts that failure in credit risk management will degrade bank profitability due to high provisioning costs and the loss of potential interest income from non-performing loans.

Profitability

Profitability is a measure of an entity's ability to generate profits relative to its revenue, assets, or equity (Aulia & Sukiswo, 2024). In the banking sector, profitability reflects a bank's financial health and its ability to deliver value to stakeholders. Indicators such as ROA demonstrate a bank's efficiency in using assets to generate profits. Effective management of resources can enhance profitability and support economic growth, whereas poor management can reduce ROA and profitability (Sa'adah & Wahyuni, 2023).

Non Performing Loan (NPL)

Non-Performing Loan (NPL) is the most important ratio in the financial industry, measuring the proportion of loans that borrowers are unable to repay. A high NPL indicates weaknesses in credit risk management, where many borrowers struggle to meet their repayment obligations, which can disrupt a bank's profitability and liquidity (Winarso et al., 2020). Conversely, a low NPL reflects sound asset quality and effective risk management, which ultimately enables banks to provide loans with high returns and maintain customer trust. Based on Bank Indonesia Regulation No. 13/1/PBI/2011, the maximum permissible NPL limit for banks is 5%.

Loan to Deposit Ratio (LDR)

The Loan-to-Deposit Ratio (LDR) is the most important ratio in the banking industry, measuring the proportion of loans disbursed relative to total deposits received (Abdurrohman et al., 2020). An optimal LDR value indicates a bank's ability to effectively utilize customer deposits to extend loans, thereby increasing interest income and supporting economic growth. However, an excessively high LDR level may signal liquidity risks that endanger the bank. Conversely, a very low LDR figure indicates ineffective management in utilizing deposits, potentially resulting in lost interest income opportunities.

The Impact of Non-Performing Loan (NPL) on Profitability

The Credit Risk Theory developed by Bluhm et al. (2010) underpins the argument that asset quality is a fundamental determinant of banking profitability. This theory explains that credit risk arises when a debtor fails to meet their contractual obligations, which is directly reflected in the Non-Performing Loan (NPL) ratio. In modern risk

management, a surge in NPLs forces banks to allocate larger loan loss provisions, thereby directly degrading the Return on Assets (ROA).

This underscores that the effectiveness of credit risk mitigation is not merely a preventive measure, but a core strategy for protecting interest income and maintaining operational efficiency. In the context of post-pandemic recovery, fluctuations in Bank Indonesia's benchmark interest rates require banks to be more selective in extending credit to mitigate the risk of non-performing loans. Disciplined NPL management in accordance with the principles of Credit Risk Theory will minimize the cost of funds and maximize the bank's net profit.

Studies by Fanesha et al. (2021) and Ika & Kamaluddin (2023) found that NPLs have a significant impact on profitability, with an increase in total loans having a greater impact even as NPLs decline, suggesting that the impact of NPLs on non-performing loans tends to be smaller.

H1: Non-Performing Loan (NPL) Affect Profitability

The Impact of the Loan to Deposit Ratio (LDR) on Profitability

The Banking Intermediation Theory by Allen dan Santomero (1997) explains the primary function of banks as strategic intermediaries between parties with excess funds and those in need of funds. Within this theoretical framework, the Loan-to-Deposit Ratio (LDR) serves as an efficiency indicator for banks in performing this intermediation function. Bank management optimizes the disbursement of loans from Third-Party Funds (TPF) to increase interest income. Effective loan disbursement will significantly increase profit potential or Return on Assets (ROA). Conversely, an LDR that is too low indicates the bank's inability to utilize idle funds to generate profits.

However, banks must still maintain their LDR at an optimal level. An excessively high LDR can increase liquidity risk, which threatens the company's financial stability. During the post-pandemic recovery period, management is required to effectively manage intermediation strategies to maintain financial performance amid the challenges posed by rising interest rates. Proper LDR management is expected to have a positive and sustainable impact on the bank's profitability.

Research by Aztari & Idayati (2023), Nuhasanah & Maryono (2021) and Dewi et al. (2023) supports the hypothesis that the LDR has a positive impact on profit, indicating that effective management of the LDR can improve a bank's financial performance.

H2: The *Loan to Deposit Ratio* (LDR) affects profitability

RESEARCH METHODS

This study utilizes secondary data through a quantitative approach, sourced from the financial statements of banks listed on the Indonesia Stock Exchange (IDX) via the official website www.idx.co.id. The variables in this study are categorized into two types: independent variables and dependent variables. The independent variables used include Non-Performing Loans (NPL) and the Loan-to-Deposit Ratio (LDR), while the dependent variable used is Return on Assets (ROA).

The study population comprises all banking companies listed on the IDX for the 2020–2024 period, totaling 44 companies. The sampling technique employed the purposive sampling method, which involves selecting samples based on specific criteria or considerations. Based on the established criteria, the number of eligible samples is 30 companies with a total of 150 observation data points. The criteria established for sample selection are as follows:

1. Banking companies listed on the Indonesia Stock Exchange (IDX) for consecutive years during the 2020–2024 period.
2. Banking companies that published complete annual financial reports and achieved positive net income during the 2020–2024 observation period.
3. Banking companies that present financial statements in Indonesian Rupiah (IDR) to ensure consistency in data comparison.

Based on the above criteria, the researcher identified companies that met the criteria, with the following details:

**Table 1
Sample Criteria**

NO	CRITERIA	
1	Banking companies that went public on the Indonesia Stock Exchange (IDX) consecutively during the 2020–2024 period.	44
2	Banking companies that publish complete annual financial reports and have reported positive net income during the 2020–2024 observation period.	(14)
3	Banks that present their financial statements in Indonesian Rupiah (IDR) to ensure consistency in data comparisons.	(0)
Research Sample		30
Total Sample (n x Study Period) (30 x 5 years)		150

Source: Compiled Data, 2025

RESEARCH FINDINGS

The analysis was conducted using SPSS version 26 to examine the impact of NPL and LDR on profitability.

Descriptive Statistics

Descriptive statistics provide an overview and information about data based on the minimum score, maximum score, mean score, and standard deviation. The following table presents the findings from the descriptive analysis:

Table 2
Descriptive Statistics

<i>Descriptive Statistics</i>					
	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
NPL	150	0.01	3.63	1.0915	0.80831
LDR	150	12.35	527.91	91.1805	52.43221
ROA	150	0.04	5.16	1.7256	1.25661
Valid N (listwise)	150				

Source: Compiled Data, 2025

Based on the data in the table, the total sample size (n) is 150, and it appears that the mean score exceeds the standard deviation. The following is a summary of the statistical test results:

a. Non-Performing Loan (NPL)

The NPL has a minimum score of 0.01 and a maximum score of 3.63. The mean score is 1.0915, while the standard deviation is 0.80831. This indicates that the mean exceeds the standard deviation, which accurately reflects the findings. Consequently, the distribution and pattern are normal and do not indicate the presence of systematic errors.

b. Loan to Deposit Ratio (LDR)

The LDR has a minimum score of 12.35 and a maximum score of 527.91. The mean score is 91.1805, while the standard deviation is 52.43221. This indicates that the mean is higher than the standard deviation, reflecting positive findings. Thus, the data distribution shows a normal pattern and does not indicate the presence of systematic errors.

c. Profitability (ROA)

ROA has a minimum score of 0.04 and a maximum score of 5.16. The mean score is 1.7256, while the standard deviation is 1.25661. This indicates that the mean is higher than the standard deviation, which suggests good results. Therefore, the data distribution follows a normal pattern and does not indicate the presence of systematic error.

Results of Classical Assumption Tests Normality Test

Normality Test

Table 3
Normality Test

<i>One-Sample Kolmogorov-Smirnov Test</i>		
N		150
Normal Parameters ^{a,b}	<i>Mean</i>	0.0000
	<i>Std. Deviation</i>	0.99907
<i>Most Extreme Differences</i>	<i>Absolute</i>	0.004
	<i>Positive</i>	0.004
	<i>Negative</i>	-0.004
<i>Test Statistic</i>		0.004
<i>Asymp. Sig. (2-tailed)</i>		0.200 ^{c,d}

Source: Compiled Data, 2025

The results of the normality test using the Kolmogorov-Smirnov test indicate that the data follow a normal distribution. This is evidenced by the Asymp. Sig. (2-tailed) value of $0.200 > 0.05$. Therefore, it can be concluded that the data are normally distributed.

Multicollinearity Test

Table 4
Multicollinearity Test

<i>Coefficients^a</i>			
Model	<i>Collinearity Statistics</i>		
	<i>Tolerance</i>	<i>VIF</i>	
1	<i>(Constant)</i>		
	NPL	0.997	1.003
	LDR	0.997	1.003

Source: Compiled Data, 2025

Based on the results of the multicollinearity test, the calculations indicate that the independent variables have a tolerance score >0.10 and a VIF score <10 . Therefore, it can be concluded that there is no multicollinearity in the regression model used in this study, and the model is thus suitable for use.

Heteroscedasticity Test

Table 5
Heteroscedasticity Test

<i>Coefficients^a</i>	
Model	Sig.
1	(Constant) 0.000
	NPL 0.328
	LDR 0.991

Source: Compiled Data, 2025

The results of the heteroscedasticity test using the Glejser test indicate that no independent variable has a significance level below 0.05 or 5%. Therefore, it can be concluded that the regression model shows no signs of heteroscedasticity.

Autocorrelation Test

Table 6
Autocorrelation Test

<i>Runs Test</i>	
<i>Test Value^a</i>	150.00 ^b
<i>Cases < Test Value</i>	149
<i>Cases >= Test Value</i>	1
<i>Total Cases</i>	150
<i>Number of Runs</i>	3
<i>Z</i>	0.116
<i>Asymp. Sig. (2-tailed)</i>	0.907

Source: Compiled Data, 2025

In the context of banking panel data for the 2020–2024 period, which exhibits extreme fluctuations due to the pandemic, the Run Test is considered more robust in detecting autocorrelation patterns without being influenced by rigid statistical assumptions. The results of the Run Test show an Asymp. Sig. (2-tailed) score of 0.907. Based on the table above, it can be concluded that since the Asymp. Sig. (2-tailed) score of $0.907 > 0.05$, there is no autocorrelation in the study.

Results of Multiple Linear Regression Analysis

Table 7
Results of Multiple Linear Regression

<i>Coefficients^a</i>	
Model	<i>Unstandardized B</i>

1	(Constant)	1.731
	NPL	-0.735
	LDR	0.009

Source: Compiled Data, 2025

Based on the results presented, the data will be entered into the multiple linear regression equation as follows:

$$ROA = 1,731 + (-0,735) \text{ NPL} + 0,009 \text{ LDR}$$

The formula indicates that the coefficient of:

a. Regression Coefficient α

A constant term of 1.731 indicates that if the independent variables—namely NPL and LDR—are held constant (at a value of 0), the dependent variable—namely ROA—can increase by 1.731 percent.

b. NPL Regression Coefficient (β_2)

The NPL regression coefficient of -0.735 indicates a negative correlation between NPL and ROA. In other words, if NPL increases while all other variables are held constant (at a value of 0), ROA will decrease by 0.735 percent.

c. LDR Regression Coefficient (β_3)

The LDR regression coefficient of 0.009 indicates a positive correlation between LDR and ROA. In other words, if LDR increases while all other variables are held constant (at a value of 0), ROA increases by 0.009 percent.

Hypothesis Testing Results

Results Partial Test (T-Test)

Table 8
Partial Test (T-Test)

Model	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
						Tolerance	VIF
1 (Constant)	1.731	0.203		8.543	0.000		
NPL	-0.735	0.101	-0.473	-7.241	0.000	0.997	1.003
LDR	0.009	0.002	0.364	5.584	0.000	0.997	1.003

Source: Compiled Data, 2025

From the table, we can observe the effect of each independent variable on the dependent variable. This analysis was conducted using a t-test, the details of which are as follows:

a. The Effect of NPL on ROA

Based on the findings of the analysis, the NPL variable yielded a t-statistic significance level of 0.000, which is lower than 0.05. This indicates that, in part, NPL has a significant impact on ROA.

b. The Effect of LDR on ROA

Based on the analysis results, the LDR variable yielded a t-statistic significance score of 0.000, which is lower than 0.05. This indicates that, to some extent, LDR has a significant impact on ROA.

Coefficient of Determination (R²)

Table 9
Coefficient of Determination (R²)

Model	Adjusted R Square
1	0.367

Source: Compiled Data, 2025

The coefficient of determination (R²) of 36.7% indicates that the NPL and LDR variables have a moderate influence on bank profitability (ROA) during the 2020–2024 period. This low value is understandable given that banking profitability is a complex phenomenon influenced not only by credit and liquidity risks but also by macroeconomic factors such as the inflation rate and the BI Rate. Additionally, other internal factors such as the ratio of Operating Expenses to Operating Income (BOPO) and management efficiency in the utilization of digital technology are strongly suspected to be dominant variables accounting for 63.3% of the variation in ROA outside the scope of this study’s model.

DISCUSSION

The Impact of NPLs on Profitability

Data analysis indicates a significant correlation between Non-Performing Loans (NPLs) and profitability. An increase in NPLs has the potential to reduce profitability, which negatively impacts a bank’s financial performance. According to Credit Risk

Theory, credit risk is a form of loss risk arising from a borrower's failure to meet their contractual obligations. This theory emphasizes that poor asset quality, reflected in a high NPL ratio, requires banks to allocate larger provisions for impairment losses (CKPN). An increase in these provision costs directly erodes interest income and reduces Return on Assets (ROA). This situation is highly relevant to the condition of Bank MNC Internasional Tbk. (BABP), which faces serious challenges due to a high Non-Performing Loan (NPL) ratio of 3.63% in 2020, negatively impacting profitability and credit risk management, while Krom Bank Indonesia Tbk. (BBSI) managed to record the highest Return on Assets (ROA) of 5.16% in 2021, reflecting efficiency in asset and risk management. This comparison underscores the importance for BABP to improve its risk management to enhance its financial performance, while BBSI needs to continue maintaining and optimizing its performance to remain competitive in the market. Furthermore, in facing existing challenges, BABP must implement innovative strategies and improve its credit processes to reduce NPLs, while BBSI can leverage its strong position to attract more investors and expand its loan portfolio.

These findings align with the research by Winarso et al. (2020) and Aztari & Idayati (2023), which indicate that NPLs have a significant impact on ROA. Therefore, it is crucial for bank management to take appropriate measures in managing credit risk, including improving credit assessment processes, tightening oversight of the loan portfolio, and developing recovery programs to reduce the number of non-performing loans. These steps are expected to protect the interests of all parties and maintain the bank's financial stability.

The Impact of the LDR on Profitability

The findings of the analysis indicate a significant correlation between the Loan-to-Deposit Ratio (LDR) and profitability. An increase in the LDR can contribute to improved profitability, as banks that are able to effectively manage their loans relative to deposits tend to have better financial performance. Based on Banking Intermediation Theory, banks function as intermediary institutions that transform public deposits into productive loans to generate profits. The LDR reflects a bank's operational efficiency in performing this intermediary function, where increased credit disbursement expands the potential for interest income, positively impacting Return on Assets (ROA). This is particularly relevant given that Krom Bank Indonesia Tbk. (BBSI) recorded the highest

LDR of 527.91% in 2023, reflecting an aggressive strategy in capitalizing on lending opportunities despite significant liquidity risks. On the other hand, Krom Bank Indonesia Tbk. (BBSI)'s Return on Assets (ROA) stood at 5.16% in 2021, indicating efficiency in asset management to generate profits, which suggests the bank's ability to manage its loan portfolio and risks effectively. Although BBSI is able to generate healthy profits, it is important for the bank to maintain a balance between loan growth and liquidity, as prudent liquidity risk management will be key to sustaining performance in the future.

These findings are consistent with research by Sa'adah & Wahyuni (2023) and Ika & Kamaluddin (2023) which indicates that changes in the LDR can have a direct impact on bank profitability. Although an increase in the LDR reflects a bank's ability to use funds to generate revenue, the resulting rise in liquidity risk must also be taken into account. It is important for bank management to regularly review lending and funding policies to maintain a balance between profitability growth and potential risks.

CONCLUSION

The objective of this study is to investigate the effect of Non-Performing Loans (NPL) and the Loan-to-Deposit Ratio (LDR) on Return on Assets (ROA) for banking companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2024. The results of the study indicate that both hypotheses are accepted. The results of this study indicate that there is a significant correlation between bank profitability and Non-Performing Loans (NPLs), with a significance value of 0.000. A bank's financial performance can be negatively impacted by an increase in NPLs, which has the potential to reduce profitability. Consequently, the importance of careful management in credit decision-making to protect the interests of stakeholders is emphasized. Additionally, profitability is significantly influenced by the Loan-to-Deposit Ratio (LDR), as evidenced by the same significance value of 0.000. An increase in the LDR can lead to improved profitability, indicating that banks that effectively manage their loan-to-deposit ratio tend to have superior financial performance. If the LDR is too high, management must exercise caution to mitigate the increased liquidity risk.

This study has several limitations that should be considered for future research. First, the independent variables used were limited to NPL and LDR; the Adjusted R-Square value of 36.7% indicates that 63.3% of profitability is influenced by other factors outside the model, such as BOPO, NIM, or the BI rate. Second, the sample scope is limited

to 30 banks listed on the Indonesia Stock Exchange, so the results may not necessarily be generalizable to the entire banking sector, such as Regional Development Banks (BPD) or Islamic Banks. Third, the 2020–2024 observation period encompasses an economic anomaly phase caused by the COVID-19 pandemic, which may affect data stability compared to normal economic conditions. Finally, the use of ROA as the sole profitability indicator does not provide a comprehensive picture in terms of return on equity (ROE) or other net profit margin efficiencies.

REFERENCES

- Abdurrohman, A., Fitriangingsih, D., Salam, A. F., & Putri, Y. (2020). Pengaruh Capital Adequa Ratio (CAR), Loan To Deposit Ratio (LDR) dan Non Performing Loan (NPL) terhadap Return On Asset (ROA) pada Sektor Perbankan di Bursa Efek Indonesia. *Jurnal Revenue*, 01(01), 125–132. <https://doi.org/10.46306/rev.v1i1>
- Allen, Franklin & Santomero, Anthony M., 1997. "The theory of financial intermediation," *Journal of Banking & Finance*, Elsevier, vol. 21(11-12), pages 1461-1485, December.
- Aulia, P., & Sukiswo, H. W. (2024). Pengaruh Rasio Keuangan Terhadap Kebijakan Dividen pada Perusahaan LQ45 Periode Tahun 2020-2023. *Journal of Applied Managerial Accounting*, 8(1), 15.
- Azhari, A., HP, A., & Sari, N. K. (2024). Pengaruh Rasio Profitabilitas, Rasio Aktivitas, Investment, Opportunity Set, dan Kebijakan Dividen Terhadap Pertumbuhan Laba pada Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia (BEI) periode 2017-2021. *RISTANSI: Riset Akuntansi*, 5(1), 88–108. <https://doi.org/10.32815/ristansi.v5i1.1819>
- Aztari, R. A., & Idayati, F. (2023). Pengaruh Risiko Kredit, Struktur Modal, dan Likuiditas Terhadap Profitabilitas pada Perusahaan Perbankan yang Terdaftar di Bursa Efek Indonesia. *Jurnal Ilmu Dan Riset Akuntansi*, 12(5), 1–19.
- Bluhm, C., Overbeck, L., & Wagner, C. (2010). *Introduction to Credit Risk Modeling* (2nd ed.). CRC Press.
- Cahyaningtyas, F., & Rahayu, M. Y. (2021). Pengaruh Loan to Deposit Ratio, Return on Equity, dan Return on Asset Terhadap Harga Saham pada Perusahaan Perbankan yang Terdaftar di Bursa Efek Indonesia. *Ristansi: Riset Akuntansi*, 2(1), 24.
- Dewi, N. L. G. S., Tahu, G. P., & Gunadi, I. G. N. B. (2023). Pengaruh Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), dan Loan to Deposit Rato (LDR) terhadap Profitabilitas pada Perusahaan Perbankan di Bursa Efek Indonesia. *Jurnal EMAS*, 4(7), 1819–1832.
- Fanesha, F., Muktiadji, N., & Hendrian, G. (2021). Pengaruh Loan To Deposit Ratio, Capital Adequacy Ratio, Dan Non Performing Loan Terhadap Profitabilitas Perbankan Yang Terdaftar Di Bursa Efek Indonesia (BEI). *Jurnal Ilmiah Manajemen Kesatuan*, 9(2), 131–140. <https://doi.org/10.37641/jimkes.v9i2.764>

- Fibriyanti, Y. V., & Nurcholidah, L. (2020). Pengaruh CAR, NPL, NIM, BOPO Dan LDR Terhadap Profitabilitas Bank Umum Swasta Nasional Devisa. *Jurnal Sains Sosio Humaniora*, 4(2), 344–350.
- Hidayanty, N., Julia, & Abu Nizarudin. (2023). Pengaruh Capital Adequacy Ratio, Dana Pihak Ketiga, Loan to Deposit Ratio Terhadap Profitabilitas dengan Suku Bunga Sebagai Variabel Moderasi (Perusahaan Perbankan yang Terdaftar di BEI). *JEMSI (Jurnal Ekonomi, Manajemen, Dan Akuntansi)*, 9(4), 1423–1430. <https://doi.org/10.35870/jemsi.v9i4.1348>
- Ika, B. C. A., & Kamaluddin, K. (2023). Pengaruh Risiko Kredit, Risiko Pasar dan Risiko Likuiditas terhadap Profitabilitas Perusahaan Perbankan yang Terdaftar di Bursa Efek Indonesia. *Bismar: Business Management Research*, 2(2), 127–141.
- Nuhasanah, D., & Maryono, M. (2021). Analisa Pengaruh Rasio Keuangan Terhadap Profitabilitas pada Perusahaan Perbankan Periode 2016-2018. *Jurnal Keunis (Keuangan Dan Bisnis)*, 9(1), 85–95.
- Sa'adah, L., & Wahyuni, S. (2023). Pengaruh CAR, NPL, BOPO, Dan LDR terhadap Return On Asset (Roa) pada Perusahaan Sub-Sektor Perbankan Yang Terdaftar Di Bursa Efek Indonesia (BEI). *Populer: Jurnal Penelitian Mahasiswa*, 2(3), 52–63. <https://doi.org/10.58192/populer.v2i3.1185>
- Sutrisno, S., Panuntun, B., & Adristi, F. I. (2020). The Effect of Covid-19 Pandemic on the Performance of Islamic Bank in Indonesia. *EQUITY*, 23(2), 125–136. <https://doi.org/10.34209/equ.v23i2.2245>
- Winarso, E., Gunanta, R., & Prayitno, Y. H. (2020). Analisis Non Performing Loan (NPL) dan Loan to Deposit Ratio (LDR) terhadap Kinerja Bank Perkreditan Rakyat (BPR) di Kota Bandung. *JAFTA*, 2(1), 67–88. <https://journal.maranatha.edu/index.php/jafta>



ESG PERFORMANCE, CAPITAL STRUCTURE, AND WORKING CAPITAL AND THEIR IMPACT ON THE PROFITABILITY OF PUBLIC COMPANIES IN INDONESIA

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Abstract:

This study aims to analyze the effect of ESG performance, capital structure, and working capital on the profitability of public companies in Indonesia. A non-probability sampling method with a purposive sampling technique was employed, resulting in 72 public companies listed on the Indonesia Stock Exchange (IDX) that had ESG risk scores on the IDX website in 2024 as samples. The quantitative, secondary, and cross-sectional data were processed using multiple linear regression analysis. Outlier and classical assumption tests were performed before regression. The classical assumption tests used on cross-sectional data include heteroscedasticity, multicollinearity, and normality. Hypothesis tests were then conducted to verify the hypotheses' validity, including the coefficient of determination test, t-test, and F-test. The findings indicate that capital structure has a significant negative effect on profitability. ESG performance and working capital have no partially significant effect on the profitability of public companies in Indonesia. Furthermore, it was found that ESG performance, capital structure, and working capital have a simultaneous effect on the profitability of public companies in Indonesia.

INTRODUCTION

The primary goal of most companies as economic actors is to maximize profits while minimizing effort. There are currently more than 850 public companies listed on the Indonesia Stock Exchange (IDX). Companies in every sector and industry continue to grow each year, both in terms of quality and quantity. Competition among companies is, of course, inevitable. Therefore, a competitive advantage is essential for companies to ensure their long-term sustainability.

There are various factors that influence a company's profitability, such as ESG performance, corporate investment strategies, the effectiveness of financial management (capital structure and working capital), external factors, productivity, and so on. The uncertainty surrounding external factors—which are difficult to control—increases the risks that threaten a company's profitability. These risks need to be assessed, measured, and addressed so that the company can manage them or turn threats into opportunities, such as through control and integration of follow-up measures into the company's sustainability strategy. This can serve as a competitive advantage, enhance corporate value, and maximize the company's profitability.

Profitability, or a company's ability to generate profits, is one of the key indicators used to assess a company's financial performance (Budiono & Dura, 2021). Changes or fluctuations in a company's profitability—whether increases or decreases—must be thoroughly understood. Analyzing these fluctuations is essential for a company to achieve sustainability. The total profit of all companies listed on the Indonesia Stock Exchange (IDX) decreased by 40.3% in 2023 and increased by 19.32% in 2024. These profit fluctuations occurred due to fluctuations in revenue and operating expenses, one of which was caused by the implementation of Minister of Finance Regulation (PMK) No. 66 of 2023 regarding provisions on income tax treatment.

Sustainable development is crucial for a company's survival amid unstable economic conditions and a competitive business market (Dura & Suharsono, 2022). One approach to achieving sustainability involves examining a company's environmental, social, and governance (ESG) factors. The environmental factor pertains to how a company's operations impact the environment, how the uncertainty of climate change affects business activities, and how the company proactively manages its surrounding environment—such as the use of natural resources, energy consumption, waste management, pollution control, and so on. Social factors pertain to how a company maintains good relationships with stakeholders, such as employee well-being, community engagement, diversity, human rights, equality, compliance with applicable regulations, and so on. Governance factors concern how a company implements guidelines for good corporate governance, such as transparency in corporate information and the independence of top management. The ESG-related matters mentioned above do not provide immediate benefits or advantages to the company, but they can have a positive impact on the company in the long term. Companies can categorize their ESG

initiatives as either costs or investments (Abdi et al., 2022; Aydoğmuş et al., 2022). Risks regarding the impact of such investments on the company then arise. Improper implementation of ESG principles can result in the company's investments failing to positively reflect in its financial performance.

The implementation of ESG in Indonesia has long been recognized and practiced through the publication of sustainability reports up until 2020. POJK, or Financial Services Authority Regulation No. 51 of 2017, governs the implementation of sustainable finance for public companies, issuers, and financial services institutions. Transparency and ESG reporting in Indonesian companies have not yet been managed efficiently and effectively. The IDX Commissioner only issued a call for ESG reporting to all issuers in 2022. There were 85 listed companies in 2024 and 190 companies in 2025 that had ESG scores. Another effort toward achieving sustainability involves implementing and maintaining sound corporate finances. Corporate financial indicators can be assessed through capital structure, working capital, and other metrics. These indicators can influence a company's profitability.

Findings regarding the impact of ESG performance on corporate profitability in several previous studies have been mixed. Most previous studies found that ESG performance has a positive and significant effect on corporate profitability (Abdi et al., 2022; Almulla et al., 2025; Aydoğmuş et al., 2022; Jung & Yoo, 2023; Makhdalena et al., 2023). Another study using ROE as a proxy found a significant and negative effect of ESG performance on corporate profitability (Al-Jalahma et al., 2020). Additionally, another study using ROA as a proxy for profitability found that ESG performance had no significant effect on corporate profitability (Al-Jalahma et al., 2020). Findings regarding the effects of capital structure and working capital on firm profitability in previous studies have also varied. Capital structure was found to have a significant effect on firm profitability (Dhinata & Krisnando, 2020) and no effect on firm profitability (Nurlela & Dimiyati, 2021). Meanwhile, working capital was found to have a positive and significant effect (Ayuningtyas & Prasetiono, 2021), as well as having no significant effect on corporate profitability (Aldubhani et al., 2022).

The diverse findings of previous studies, the phenomenon of volatile profitability, and the importance of ESG as an implementation of the triple bottom line (TBL) concept and as a corporate financial indicator in achieving sustainability are some of the factors that form the background of this study. The limited population of public companies with

ESG scores using the new calculation method—namely, the comprehensive ESG score by Morningstar Sustainalytics—along with the use of five ESG score categories and sectoral analysis, constitutes a research gap that serves as the novelty of this study. Meanwhile, no previous study has analyzed the simultaneous effects of ESG performance, capital structure, and working capital on the profitability of public companies in Indonesia. Therefore, the objective of this study is to examine and analyze the partial and simultaneous effects of ESG performance, capital structure, and working capital on the profitability of public companies in Indonesia. It is hoped that this study will provide information and empirical evidence regarding the research topic. This study is also expected to serve as a reference for corporate management, investors, and policymakers in making decisions or formulating policies related to ESG performance, capital structure, working capital, and corporate profitability.

LITERATURE REVIEW

Legitimacy Theory

Legitimacy theory explains the importance of acceptance and recognition by stakeholders of a company's operational sustainability through adherence to binding rules, such as norms prevailing within the corporate environment, government policies, and laws (Dowling & Pfeffer, 1975; Lusmeida et al., 2023). Companies have an unwritten social contract with stakeholders to ensure that their operations do not violate applicable norms or regulations (Lusmeida et al., 2023). Responsibilities, public expectations, and intense pressure from stakeholders are some of the reasons companies voluntarily disclose information regarding their activities in reports.

Effective reporting on a company's operational activities serves as a primary communication tool from the stakeholders' perspective to enhance the company's legitimacy. High-quality reporting can demonstrate a positive relationship and support the implementation of future operational activities. However, greenwashing behavior aimed at creating a positive environmental image for the company and gaining legitimacy without the implementation of a sound environmental management system may be driven by stakeholder demands (Velte, 2023).

According to legitimacy theory, in order to gain recognition and acceptance from stakeholders, companies are responsible for ensuring and demonstrating that their operations and strategies comply with applicable regulations and norms. Companies can

demonstrate this by voluntarily disclosing information regarding their operations, strategies, ESG performance, and financials. This information is included and shared in the form of financial statements and the company's annual report. As a result, information asymmetry is reduced and the company's value increases, thereby enabling the company to become more sustainable and improve its profitability.

Stakeholder Theory

Stakeholder theory explains that a company must align with the expectations of its stakeholders (Freeman, 1984; Velte, 2023). Stakeholder theory and legitimacy theory are interrelated and complementary theoretical approaches to the information needs of stakeholders. This theory prioritizes the well-being of a company's stakeholders. These stakeholders include the public, employees, customers, communities, suppliers, the capital market, the government, and others. Companies must prioritize the well-being of stakeholders, take significant actions, and then report these actions to stakeholders. Consequently, stakeholders have the right to access information regarding how the company's activities impact the environment (Dura & Suharsono, 2022).

Established companies or businesses do not focus solely on increasing corporate profits but also consider the benefits they can provide to their stakeholders. Stakeholders require reliable reporting on activities that includes robust indicators to analyze the success of a company's sustainability transformation (Velte, 2023). Information asymmetry can be reduced, and investors' perceptions and recognition of a company's investment strategies can improve through ESG reporting or disclosure (Makhdalena et al., 2023). This theory emerged and evolved as the need to link sustainability initiatives and a company's interactions with stakeholders increased. ESG scores have emerged and evolved as a representation of the level of integration of sustainability issues within a company (Abdi et al., 2022). Stakeholders have become key drivers, and ESG has become a key metric of a company's social commitment by incorporating ESG standards into corporate financial strategies. This theory assumes that company executives can prevent information asymmetry and greenwashing behavior.

According to stakeholder theory, companies are responsible for ensuring the well-being of their stakeholders by considering the benefits the company can provide to them. Stakeholders have the right to receive information on how the company's operations impact the environment through the company's ESG reporting and performance

assessments. This can help resolve potential conflicts of interest among stakeholders, reduce information asymmetry, and enhance recognition and perception of the company's investment strategy. Consequently, the company can achieve increased profitability and sustain its position in the industry over the long term.

Trade-Off Theory

Trade-off theory explains the relationship between working capital management and corporate profitability. This theory addresses how companies manage liabilities or debt within their capital structure with the aim of balancing the benefits and costs of their use (Ayuningtyas & Prasetiono, 2021). Debt carries both benefits and risks for a company that must be managed so that the benefits obtained are commensurate with the risks faced and can be mitigated. Debt that is well-managed and utilized effectively contributes to the growth of a company's operational activities. Debt consists of principal and interest payments that the company must make. The interest on such debt can reduce the total taxes the company is required to pay. Additionally, the risk of default is directly proportional to the company's debt-to-equity ratio.

A capital structure is considered ideal or optimal when the proportions of liabilities, assets, and equity align with the company's operational needs and industry characteristics, thereby maximizing the company's value. As the proportion of debt increases, both risks and benefits will also rise. However, an excessively high debt ratio increases the risk of default and can lead to poor or unhealthy corporate finances. Conversely, an excessively low debt ratio can hinder the company's ability to expand its operations and result in lost tax benefits that could have been derived from debt expenses.

According to trade-off theory, the efficient determination and management of liabilities or debt within the capital structure, as well as working capital management, are crucial for companies. This can be seen in financial ratios that indicate a company's financial health and whether its debt management aligns with the characteristics of its industry. Sound corporate finances and appropriate liability management enable a company to operate efficiently and make investments to grow its business. Consequently, the company's profitability can increase, driven by both productivity and the investments made.

Hypothesis Development

ESG Performance and Profitability

Previous studies have found that ESG performance influences corporate profitability. ESG performance has a positive and statistically significant combined effect on corporate profitability (Almulla et al., 2025; Aydoğmuş et al., 2022; Jung & Yoo, 2023; Makhdalena et al., 2023). The implementation and reporting of ESG can be viewed as a cost that companies must bear in the short term. However, these costs can help companies achieve sustainability from the investments they have made (Abdi et al., 2022). Such sustainability can become a competitive advantage for the company, increasing corporate value and boosting the company's revenue and profits sustainably in the long term (Aydoğmuş et al., 2022). However, Al-Jalahma et al. (2020) found that ESG performance has a significant and negative impact on corporate profitability as measured by ROE. Al-Jalahma et al. (2020) also found that ESG performance does not have a significant impact on corporate profitability as measured by ROA. These contradictory findings arise because implementing and reporting on ESG entails substantial costs, forcing companies to bear increased expenses and potentially leading to a decline in corporate profitability. Based on legitimacy and stakeholders theory, the implementation and reporting of ESG performance are essential for companies to establish their legitimacy so they can continue their business operations. Furthermore, the implementation and reporting of ESG performance can also benefit stakeholders, which may yield advantages for the company's future operations, such as enhancing supplier trust, increasing employee productivity, boosting consumer confidence, and increasing corporate value, among others. Based on the above discussion, the proposed hypothesis is as follows:

H1. ESG performance has a significant impact on a company's profitability.

Capital Structure and Profitability

Capital structure was found to have a significant and positive effect on corporate profitability (Dhinata & Krisnando, 2020). However, capital structure was also found to have no significant effect on corporate profitability (Nurlela & Dimiyati, 2021). Furthermore, the Debt-to-Assets Ratio (DAR), as an indicator of capital structure, was found to have a significant and negative effect on a company's profitability (Fadilah & Fuadati, 2022). Capital structure ratios describe the proportion of a company's debt

relative to its assets or equity. The higher the ratio, the greater the risk borne or faced, so investors will expect a higher return or rate of profit—commonly referred to as “high risk, high return” (Dhinata & Krisnando, 2020). However, a higher debt proportion implies that the principal and interest payments the company must make also increase, although rising interest expenses can reduce the company’s tax burden (Nurlela & Dimiyati, 2021). Therefore, capital structure can influence a company’s profitability both positively and negatively. Based on the trade-off theory, determining an appropriate capital structure is crucial for the company’s business sustainability. A debt ratio that is too low will hinder the company’s growth, while a debt ratio that is too high will increase the risk of default (Khotimah, 2023). Companies can assess and analyze data on their own capital structure as well as that of the industry to determine an appropriate capital structure (Nurlela & Dimiyati, 2021). Based on the above discussion, the proposed hypothesis is as follows:

H2. Capital structure has a significant effect on a company’s profitability.

Working Capital and Rprofitability

Working capital was found to have a significant and positive effect on corporate profitability (Ayuningtyas & Prasetiono, 2021). However, working capital was found to have no significant effect on corporate profitability as measured by the ROA and ROE proxies (Aldubhani et al., 2022). Efficient and appropriate working capital management will improve a company’s profitability (Ayuningtyas & Prasetiono, 2021). Appropriate working capital will enable a company’s operations to grow, increase the company’s revenue, and boost the company’s profits. Working capital that is too low or too high can lead to liquidity issues for the company and may impact its profitability. Excessively low working capital will hinder the company’s operational growth, while excessively high working capital will render the company’s working capital unproductive and increase the company’s risk (Herlambang et al., 2025). Therefore, working capital can have both positive and negative effects on a company’s profitability, depending on the company’s effectiveness in managing its working capital (Aldubhani et al., 2022). Based on trade-off theory, determining appropriate working capital and implementing efficient current liability management are crucial for a company’s operations. Based on the above discussion, the proposed hypothesis is as follows:

H3. Working capital has a significant effect on a company’s profitability.

ESG Performance, Capital Structure, Working Capital, and Profitability

No previous studies have examined the simultaneous effects of ESG performance, capital structure, and working capital on corporate profitability. The application of these three factors is crucial for a company's operational sustainability. Effective ESG performance and efficient financial management (capital structure, working capital) will positively impact a company's reputation and value. This positive impact on corporate value will subsequently have a positive effect on the company's profitability. Based on legitimacy and stakeholder theory, the implementation of ESG and appropriate financial management will provide benefits for both the company and its stakeholders. The company can also maintain its legitimacy by preserving stakeholder trust. This will certainly lead to increased profitability in the future. Based on the above discussion, the proposed hypothesis is as follows:

H4. ESG performance, capital structure, and working capital have a significant simultaneous effect on corporate profitability.

RESEARCH METHODS

Research Design

A quantitative research method was used in this study because it tests hypotheses, involves numerical data, and aims to identify and analyze relationships or influences between variables. Data were obtained from companies published annual reports, financial statements, and data on the Indonesia Stock Exchange (IDX) website. ESG score data were obtained from the IDX website under the section on listed companies' ESG ratings. Data on net income, total assets, liabilities, and equity were obtained from each financial report of the research sample for the year 2024 on the IDX website. The data analyzed consists of secondary data and cross-sectional data. The data collected includes all issuers or public companies that had an ESG score on the IDX website in 2024 and reported positive net income.

Population and Sample

The study population consists of all companies listed on the Indonesia Stock Exchange (IDX). A non-probability sampling method was used, employing a purposive sampling technique. Purposive sampling determines the sample based on specific criteria that must be met. The key criteria in this study are having an ESG score on the IDX website

and reporting positive financial results. Consequently, a sample of 72 companies was obtained for further analysis. The research sampling process is described in Table 1.

Table 1
Research Sample Selection

Sample Selection Criteria	Number of Companies
Public companies listed on the IDX	954
Public companies listed on the IDX but without an ESG score on the IDX website in 2024	(869)
Public companies with an ESG score but negative sales, net income, assets, liabilities, and equity data in 2024	(4)
<i>Data outliers from SPSS</i>	(9)
Companies used as the sample	72

Source: Processed data, 2025

Operational Variables of the Study

The dependent variable in this study is corporate profitability, represented by Return on Assets (ROA), as the aim is to assess the company's capacity and potential to generate net income from its assets. ROA is calculated by dividing the company's net income by its total assets for the same year. The independent variables in this study are ESG performance, capital structure, and working capital. The ESG performance variable is proxied by the comprehensive ESG score on the IDX website. This comprehensive ESG score is calculated by the rating agency Morningstar Sustainalytics and can be grouped into five categories: severe (>40), high (30–40), medium (20–30), low (10–20), and negligible (0–10).

The capital structure variable is represented by the Total Debt to Total Assets Ratio (DAR) because it aims to measure solvency and the company's ability to use its assets to cover its debts. The DAR is calculated by dividing total liabilities by total assets held by the company in the same year. The working capital variable is proxied by the Current Ratio (CR) because it aims to measure liquidity and the ability of the company's current assets to cover its short-term debt. The CR is obtained by dividing total current assets by total current liabilities or short-term debt held by the company in the same year. The selection of proxies focuses on the company's assets because assets are considered more relevant in the context of sustainability.

Data Analysis

The data analysis method used in this study was multiple linear regression analysis using SPSS software. An outlier test was necessary because the data being analyzed were cross-sectional; therefore, the outlier test was conducted to ensure that no outliers were present that could interfere with the analysis or introduce bias into the research results. Any outliers identified required special treatment, such as excluding them from the sample. Classical assumption tests were then conducted to ensure that the regression model estimates are best, linear, unbiased, and estimators (BLUE). The classical assumption tests performed included tests for normality, heteroscedasticity, and multicollinearity. An autocorrelation test was not performed because the data being analyzed is cross-sectional; therefore, it was not necessary to re-examine the correlation among residuals at different time points. Multiple linear regression analysis was subsequently performed along with hypothesis testing, which consisted of t-tests, F-tests, and tests of the coefficient of determination. The multiple linear regression equation for this study is as follows:

$$ROA_i = \beta_0 + \beta_1 ESG_i + \beta_2 DAR_i + \beta_3 CR_i + \varepsilon_i$$

Notes:

ROA_i = Firm profitability proxied by ROA

β_0 = Constant in the regression model

β_1 = Coefficient of the ESG performance variable

ESG_i = ESG performance

β_2 = Coefficient of the capital structure variable

DAR_i = Capital structure proxied by DAR

β_3 = Coefficient of the working capital variable

CR_i = Working capital proxied by the Current Ratio (CR)

ε_i = Residual value in the regression model

RESEARCH FINDINGS

Descriptive Statistics

The descriptive statistics for each variable in this study are presented in Table 2. The ESG performance variable has an average score of 29.51, which falls into the medium category. The lowest ESG score, 7.11, falls into the negligible category, while the highest ESG score, 51.38, falls into the severe category. Most of the public companies in this

study's sample fall into the medium category, totaling 33 companies with ESG scores in the 20–30 range. Only 13 companies fall into the negligible and low categories. The distribution of ESG scores is not evenly spread and is concentrated in the medium, high, and severe categories. Thus, the majority of the sample in this study has ESG risks that are relatively moderate, high, or severe. These relatively high risks require appropriate management or mitigation, which can be achieved by avoiding, reducing, transferring, or accepting the risks.

The capital structure variable (DAR) has an average of 0.45. The lowest DAR in the research sample is 0.11, and the highest is 0.87. All DAR values obtained were no more than 1; this indicates that the total assets of all companies in this research sample are proportionally greater than total liabilities, meaning the companies' assets can cover their debts, and it can be concluded that the solvency risk of this research sample is relatively low. The working capital (CR) variable has an average of 1.92. The highest current ratio was 4.77, and the lowest was 0.21. The average current ratio (CR) was greater than 1, indicating that the proportion of current assets in the companies in the study sample was greater than their short-term liabilities, meaning that the companies' current assets can cover their short-term liabilities. It can be concluded that the companies in the study sample have relatively low liquidity risk.

The profitability variable (ROA) has an average of 5.83. The highest ROA is 18.82 and the lowest is 0.16. The overall market ROA in 2024 is 2.5. The average ROA obtained is higher than the market ROA; this value indicates that the average ability of the companies in this research sample to generate net profit from their assets is better than the industry average. However, some samples still have an ROA below the market average. This indicates that the ability of some companies in the research sample to generate net profit from their assets is less efficient.

Table 2
Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Min	Max
ESG	72	29,51	9,61	7,11	51,38
DAR	72	0,45	0,21	0,11	0,87
CR	72	1,92	1,11	0,21	4,77
ROA	72	5,83	4,25	0,16	18,82

Source: Processed Data, 2025

Description of Research Variables

The distribution of ESG scores across the five ESG risk categories and sectors is shown in Table 3. There are four sectors in the high-risk category (30–40), four in the medium-risk category (20–30), and two in the low-risk category (10–20). Based on the distribution of these sectoral average ESG scores, it can be concluded that companies in each sector face relatively moderate to high ESG risks, as 8 out of 10 sectoral average ESG scores fall into these categories. Risk mitigation is crucial, and appropriate mitigation strategies—whether through avoidance, reduction, transfer, or acceptance—must be selected.

Table 3
Distribution of ESG Scores by Sector and 5 ESG Risk Categories

Sector	Average ESG Score	ESG Risk Category
Basic Materials	33,10	High
Consumer Cyclical	19,57	Low
Consumer Non-Cyclical	34,02	High
Energy	38,21	High
Financials	26,06	Medium
Healthcare	27,00	Medium
Industrials	38,57	High
Infrastructures	23,45	Medium
Properties & Real Estate	27,55	Medium
Technology	14,17	Low

Source: Processed Data, 2025

The distribution of the DAR as a proxy for capital structure by sector is shown in Table 4. The average DAR for each sector is less than 1, ranging from 0.14 to 0.64, indicating that companies in all sectors have assets exceeding their liabilities, meaning these assets are sufficient to cover their debts or liabilities. Based on this sectoral distribution of average DAR, it can be concluded that the proportion or ratio of a company's assets to liabilities varies across sectors. The financial, infrastructure, and real estate sectors have relatively higher debt ratios compared to other sectors due to their operational characteristics and business activities.

Table 4
DAR Distribution by Sector

Sector	Average DAR
Basic Materials	0,31
Consumer Cyclical	0,34
Consumer Non-Cyclical	0,42
Energy	0,42

Financials	0,64
Healthcare	0,21
Industrials	0,42
Infrastructures	0,55
Properties & Real Estate	0,43
Technology	0,14

Source: Processed Data, 2025

The distribution of current ratios as a proxy for working capital by sector is shown in Table 5. The average current ratio for each sector is greater than 1, ranging from 1.05 to 3.83, indicating that companies in all sectors have current assets that exceed their current or short-term liabilities, meaning that these current assets are sufficient to cover their current liabilities. Based on the distribution of these average current ratios, it can be concluded that the proportion of current assets to current liabilities varies across sectors.

Table 5
Distribution of Current Ratios by Sector

Sector	Average Current Ratio
Basic Materials	2,37
Consumer Cyclicals	3,06
Consumer Non-Cyclicals	2,54
Energy	2,30
Financials	2,61
Healthcare	3,83
Industrials	1,44
Infrastructures	1,05
Properties & Real Estate	2,42
Technology	3,08

Source: Processed Data, 2025

The distribution of ROA as a proxy for profitability by sector is shown in Table 6. The market ROA is 2.5. Nine out of ten sectors—excluding the technology sector—have an average ROA above the market ROA, ranging from 2.99 to 14.77. Based on this distribution of sectoral average ROA, it can be concluded that most industries have an above-average ability to generate net profit from their assets. Furthermore, each sector's ability to generate net profit from its assets varies.

Table 6
ROA Distribution by Sector

Sector	Average ROA
Basic Materials	5,28
Consumer Cyclicals	6,85

Consumer Non-Cyclicals	9,95
Energy	9,90
Financials	2,99
Healthcare	14,77
Industrials	9,91
Infrastructures	4,28
Properties & Real Estate	3,85
Technology	1,04

Source: Processed Data, 2025

Results of the Outlier Test and Classical

An outlier test was conducted prior to the classical assumption tests, and 9 outliers were identified and subsequently excluded from the research sample. Three outliers were identified using case-by-case diagnostics, as shown in Table 7, and 6 outliers were identified using box plots, as shown in Figure 1. The classical assumption tests were then conducted after excluding these 9 outliers. Based on the results of the normality test in Table 8 with 72 research samples, the data is normally distributed because a significance value greater than 0.05, specifically 0.078, was obtained. Based on the results of the multicollinearity test in Table 9, no multicollinearity issues were found because the centered VIF values for each variable were less than 10. Based on the results of the heteroscedasticity test in Table 9, no signs of heteroscedasticity were found because the significance values obtained for each variable were greater than 0.05. Therefore, there were no issues with the classical assumption tests for the 72 research samples.

Table 7
Outlier Test Results

Casewise Diagnostics				
Case Number	Std. Residual	Profitabilitas	Predicted Value	Residual
10	3,440	21,8924	2,93898508	18,9534149
18	3,571	28,9588	9,28423715	19,6745628
81	3,483	28,5833	9,39357184	19,1897282

Source: SPSS output, reprocessed, 2025

Table 8
Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
Unstandardized Residual		
N		72
Normal Parameters ^{a,b}	Mean	0,0000000
	Std. Deviation	3,88332964
Most Extreme Differences	Absolute	0,099
	Positive	0,099
	Negative	-0,049

Test Statistic	0,099
Asymp. Sig. (2-tailed)	0,078 ^c

Source: SPSS output, reprocessed, 2025

Table 9
Multicollinearity Test Results

Model	Collinearity Tolerance	Statistics VIF
1		
(Constant)		
ESG Performance	0,946	1,057
Capital Structure	0,550	1,819
Working Capital	0,572	1,747

Source: SPSS output, reprocessed, 2025

Table 10
Heteroscedasticity Test Results

	Coefficients				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3,505	2,347		1,493	0,139
ESG Performance	0,059	0,044	0,149	1,352	0,180
Capital Structure	-4,012	2,601	-0,228	-1,542	0,127
Working Capital	0,101	0,281	0,052	0,359	0,721

a. Dependent Variable: Abs_RES

Source: SPSS output, reprocessed, 2025

Hypothesis Testing Results

The purpose of hypothesis testing is to verify the validity of a hypothesis through statistical data analysis. The hypothesis testing was then conducted after removing the 9 outliers that were identified, and no issues were found in the results of the classical assumption tests using the 72 research samples. These 72 samples were then subjected to hypothesis testing, which consisted of a partial significance test (t-test), a simultaneous significance test (F-test), and a coefficient of determination test.

Table 11
Results of the t-Test

Model	Coefficients				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	7,177	2,970		2,417	0,018
ESG Performance	0,037	0,050	0,084	0,735	0,465
Capital Structure	-6,684	3,068	-0,325	-2,179	0,033
Working Capital	0,314	0,561	0,082	0,559	0,578

Source: SPSS output, reprocessed, 2025

The results of the partial significance hypothesis test are shown in Table 11. The ESG performance variable has a t-value of 0.735 and a significance level of 0.465. This significance value is greater than 0.05, and the t-calculated value is smaller than the t-table value of 1.995. Therefore, the first hypothesis, which states that ESG performance has a significant effect on corporate profitability, is rejected. The capital structure variable has a significance value of 0.033 and a t-calculated value of -2.179. This significance value is less than 0.05, and the t-calculated value is greater than the critical t-value of -1.995 on the left side of the curve. Therefore, the second hypothesis, which states that capital structure significantly affects firm profitability, is accepted and has a negative effect. The working capital variable has a significance value of 0.559 and a t-calculated value of 0.559. This significance value is greater than 0.05, and the t-calculated value is smaller than the t-table value of 1.995. Thus, the third hypothesis, which states that working capital significantly affects company profitability, is rejected.

Table 12
Results of the F-Test

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	212,933	3	70,978	4,508	0,006 ^b
Residual	1070,698	68	15,746		
Total	1283,631	71			

Source: SPSS output, reprocessed, 2025

The results of the simultaneous significance hypothesis test are shown in Table 12. The variables of ESG performance, capital structure, and working capital simultaneously have a significance value of 0.006 and a calculated F-value of 4.508. This significance value is less than 0.05, and the calculated F-value is greater than the critical F-value of 2.74. Therefore, the fourth hypothesis, which states that ESG performance, capital structure, and working capital have a significant simultaneous effect on corporate profitability, is accepted.

Table 13
Results of the Coefficient of Determination Test

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,407 ^a	0,166	0,129	3,96806681

Source: SPSS output, reprocessed, 2025

The results of the coefficient of determination test are shown in Table 13. The R-squared value obtained is 0.166, which is relatively low. Based on these results, it can be concluded that the profitability variable is explained by the ESG performance, capital structure, and working capital variables to the extent of 16.6%. There are other independent factors or variables not included in this research model that can explain 83.4% of the dependent variable.

DISCUSSION

ESG Performance Has No Significant Impact on Corporate Profitability

ESG performance was found to have no significant impact on corporate profitability based on the results of the hypothesis test in Table 11. These findings align with the study titled “ESG disclosure and firm performance: Evidence from the GCC Banking sector” by Al-Jalahma et al. (2020). That study found that ESG performance does not have a significant impact on corporate profitability, as measured by ROA. The distribution of ESG scores falls into the moderate, high, and very high categories. Meanwhile, the distribution of ROA data in this study’s sample ranged from 0.16 to 18.82. A comparison of the average ESG scores with ROA across each sector is then required as a tool for a more in-depth analysis of the obtained results. The comparison of the average ESG scores—as a proxy for the ESG performance variable—with ROA—as a proxy for the profitability variable—by sector can be seen in Table 14.

Table 14
Comparison of Average ESG Scores and ROA by Sector

Rank	Sector	Average ESG Score	Rank	Sector	Average ROA
1	Industrials	38,57	1	Healthcare	14,77
2	Energy	38,21	2	Consumer Non-Cyclicals	9,95
3	Consumer Non-Cyclicals	34,02	3	Industrials	9,91
4	Basic Materials	33,10	4	Energy	9,90
5	Properties & Real Estate	27,55	5	Consumer Cyclicals	6,85
6	Healthcare	27,00	6	Basic Materials	5,28
7	Financials	26,06	7	Infrastructures	4,28
8	Infrastructures	23,45	8	Properties & Real Estate	3,85
9	Consumer Cyclicals	19,57	9	Financials	2,99
10	Technology	14,17	10	Technology	1,04

Source: Processed Data, 2025

Based on Table 14, it appears that ESG performance is not correlated with profitability. This can be concluded from the absence of any discernible pattern in the ranking of sectors. The industrials sector has the highest average ESG score and the third-highest average ROA. The property & real estate sector has the fifth-highest average ESG score and the third-lowest average ROA. Meanwhile, the healthcare sector has the sixth-highest average ESG score and the highest average ROA.

There are several arguments that can explain why ESG performance does not affect corporate profitability. The first argument is that the distribution of ESG scores among companies in Indonesia is largely concentrated in the moderate- and high-risk categories. Meanwhile, the distribution of ROA values among companies in Indonesia varies widely, ranging from below the market ROA to several times the market ROA. The lack of variation in ESG scores and their tendency toward high scores are attributed to relatively low active participation by listed companies in Indonesia (10% in 2024 and 20% in 2025), the fact that ESG has not yet become a priority for companies in their business strategies, and that the ESG risk mitigation measures implemented are not yet efficient or appropriate. If more companies participate in ESG performance reporting and assessment, leading to a wider variation in ESG scores, it is possible that future studies will identify significant impacts.

The second argument is that regulations or policies regarding ESG reporting, assessment, and disclosure are still relatively new. Previously, listed companies were required to publish sustainability reports for a long time; then CSR evolved into ESG, and only recently have ESG scores been introduced to companies. Therefore, ESG performance reporting and assessment have not yet become a crucial matter that stakeholders expect from companies. Based on legitimacy and stakeholder theory, companies will prioritize the well-being and recognition of stakeholders. Consequently, only a portion of companies are actively participating in ESG performance reporting and assessment.

Capital Structure Has a Significant Negative Effect on Firm Profitability

Capital structure was found to have a significant negative effect on firm profitability based on the results of the hypothesis tests in Table 11. These results are consistent with the study titled "The Effect of Capital Structure and Firm Size on Profitability in Retail Companies on the IDX" by Fadilah & Fuadati (2022). That study found that capital

structure has a significant and negative effect on firm profitability. The DAR data range varies from 0.11 to 0.87. Meanwhile, the range of ROA data in this study's sample varies from 0.16 to 18.82. A comparison of the average DAR with ROA across each sector was then conducted as a tool for a more in-depth analysis of the obtained results. The comparison of the average DAR—as a proxy for the capital structure variable—with ROA—as a proxy for the profitability variable—by sector is shown in Table 15.

Table 15
Comparison of Average DAR and ROA by Sector

Rank	Sector	Average DAR	Rank	Sector	Average ROA
1	Financials	0,640	1	Healthcare	14,77
2	Infrastructures	0,550	2	Consumer Non-Cyclicals	9,95
3	Properties & Real Estate	0,430	3	Industrials	9,91
4	Energy	0,424	4	Energy	9,90
5	Industrials	0,423	5	Consumer Cyclicals	6,85
6	Consumer Non-Cyclicals	0,418	6	Basic Materials	5,28
7	Consumer Cyclicals	0,340	7	Infrastructures	4,28
8	Basic Materials	0,310	8	Properties & Real Estate	3,85
9	Healthcare	0,210	9	Financials	2,99
10	Technology	0,140	10	Technology	1,04

Source: Processed Data, 2025

Based on the comparison in Table 15, an inverse relationship or pattern between capital structure and profitability is evident. The financials sector has the highest average DAR of 0.64 and the second-lowest average ROA of 2.99. The properties & real estate sector has the third-highest average DAR of 0.43 and the third-lowest average ROA of 3.85. The consumer non-cyclicals sector has the sixth-highest average DAR of 0.418 and the second-highest average ROA of 9.95. The healthcare sector has the second-lowest average DAR of 0.21 and the highest average ROA of 14.77. Thus, it can be seen that there is a significant and negative relationship, or an inverse relationship: the lower the average DAR, the higher the ROA, and vice versa.

The argument that explains the significant negative impact of capital structure on profitability is that a high DAR indicates a higher proportion of debt in the company's capital structure, thereby increasing interest expenses. An increase in principal and interest payments will subsequently lead to a decline in the company's profitability, and

the reverse is also true. A decrease in debt principal and interest, in turn, will lead to an increase in the company’s profitability. Additionally, based on the trade-off theory, financial risks related to the company’s solvency can also be a reason behind the significant and negative impact of capital structure on the company’s profitability. A high DAR increases financial risk and becomes a consideration for investors and creditors when making investment decisions, which can lead to a decline in the company’s profitability. Conversely, a low DAR reduces solvency risk and attracts investors to invest in the company, thereby increasing the company’s profitability. Therefore, capital structure has a significant negative impact on a company’s profitability.

Working Capital Has No Effect on Company Profitability

Working capital was found to have no significant effect on company profitability based on the results of the hypothesis test in Table 11. These findings are consistent with the study titled “Impact of working capital management on profitability: evidence from listed companies in Qatar” by Aldubhani et al. (2022). Working capital was found to have no significant effect on company profitability, as represented by ROA. The current ratio data ranged from 0.21 to 4.77. Meanwhile, the ROA data in this study ranged from 0.16 to 18.82. A comparison of the average current ratio with ROA in each sector was then conducted to aid in the analysis of the results obtained.

Table 16
Comparison of Average Current Ratio and ROA by Sector

Rank	Sector	Average Current Ratio	Rank	Sector	Average ROA
1	Healthcare	3,83	1	Healthcare	14,77
2	Technology	3,08	2	Consumer Non-Cyclicals	9,95
3	Consumer Cyclicals	3,06	3	Industrials	9,91
4	Financials	2,61	4	Energy	9,90
5	Consumer Non-Cyclicals	2,54	5	Consumer Cyclicals	6,85
6	Properties & Real Estate	2,42	6	Basic Materials	5,28
7	Basic Materials	2,37	7	Infrastructures	4,28
8	Energy	2,30	8	Properties & Real Estate	3,85
9	Industrials	1,44	9	Financials	2,99
10	Infrastructures	1,05	10	Technology	1,04

Source: Processed Data, 2025

A comparison of the average current ratio—as a proxy for working capital—with ROA—as a proxy for profitability—by sector is presented in Table 16. Based on this comparison of averages, it appears that working capital is not related to profitability. This conclusion can be drawn from the absence of any discernible pattern in the ranking of sectors. The healthcare sector has the highest average current ratio of 3.83 and the highest average ROA of 14.77. The technology sector has the second-highest average current ratio of 3.08 and the lowest average ROA of 1.04. Meanwhile, the consumer cyclicals sector has the third-highest average current ratio of 3.06 and the fifth-highest average ROA of 6.85. Thus, no relationship or pattern is evident between these two variables when viewed from the comparison of each sector's averages.

There are several arguments that can explain why working capital does not affect a company's profitability. The first argument is that each company operates in an industry with distinct characteristics. Every industry has different requirements regarding the proportion of current assets needed to maintain business operations. According to trade-off theory, the determination of the ratio of current assets to short-term debt is adjusted to balance the risks and benefits the company faces. Some industries have higher short-term debt characteristics than others. Therefore, the high or low value of the current ratio carries benefits and risks that cannot be compared across sectors and does not affect profitability.

The second argument is that a higher proportion of current assets does not necessarily reflect efficient management of current assets. A larger amount of current assets can result from inefficient management of current assets, such as uncollectible accounts receivable and excess company cash. Inefficient management of current assets will then lead to a decline in the company's profitability, and the reverse is also true. Therefore, working capital does not significantly affect a company's profitability.

ESG Performance, Capital Structure, and Working Capital Have a Significant Impact on Corporate Profitability

ESG performance, capital structure, and working capital were found to have a significant simultaneous impact on corporate profitability based on the results of the hypothesis tests in Table 12. The variables of ESG performance, capital structure, and working capital are crucial in corporate operations and strategy formulation to achieve sustainability. Good ESG performance and efficient financial management can have a

positive impact on a company's reputation. This positive impact will also reduce corporate risk, both regarding ESG and the company's financial health. Therefore, ESG performance, capital structure, and working capital simultaneously have a significant impact on corporate profitability.

CONCLUSION

Based on the findings of the hypothesis testing, analysis, and discussion of the research results, it can be concluded that ESG performance and working capital do not have a significant partial effect on corporate profitability. Meanwhile, capital structure has a significant and negative effect on corporate profitability. ESG performance, capital structure, and working capital have a significant simultaneous effect on corporate profitability.

The implications of this study support legitimacy and stakeholder theories, namely the need for comprehensive and standardized regulations established by relevant policymakers—such as the Indonesia Stock Exchange (IDX)—so that public companies in Indonesia can actively participate in ESG reporting and assessment to gain stakeholder recognition. The findings of this study also reinforce the importance of trade-off theory in decision-making regarding the determination of the proportions of assets, liabilities, and equity. Appropriate determinations will balance the benefits gained and the risks incurred. Companies should set a low debt-to-asset ratio that aligns with their industry characteristics. The company's debt-to-asset ratio (DAR) should be below 1 and tailored to the company's operations. Additionally, company management should establish an appropriate ratio of current assets to current liabilities and implement effective and efficient management of current assets. Excessively high current assets do not always indicate a positive situation; this may occur due to inadequate management of current assets.

A limitation identified in this study is that ESG score data is relatively scarce, as it is currently available for only about 10% of all publicly listed companies on the Indonesia Stock Exchange (IDX) as of 2024. Recommendations regarding ESG reporting and assessment have been in place since 2022. However, only a portion of companies have actively participated and have ESG scores. Consequently, the study could not be conducted over a specific time period and was limited to data from a single point in time, namely 2024. Additionally, limitations regarding individual ESG aspect scores—

specifically the environmental, social, and governance aspects—were also identified in this study. These individual ESG aspect scores could serve as tools for a more in-depth analysis of the relationship between ESG performance and profitability if they were widely available. Consequently, this study cannot analyze individual ESG aspects in greater depth and is limited to analyzing the combined ESG aspect.

Recommendations for listed companies in Indonesia include actively engaging in ESG performance reporting and assessment, adopting a capital structure aligned with the company's and sector's characteristics, and implementing efficient current asset management. Recommendations for policymakers include establishing standardized policies regarding ESG performance reporting and assessment, covering both combined ESG metrics and individual ESG aspects. For future researchers interested in conducting more in-depth studies on this topic, it is advisable to use a larger research sample if available, utilize time-series data where possible, and incorporate additional independent variables that can better explain the dependent variables.

REFERENCES

- Abdi, Y., Li, X., & Càmara-Turull, X. (2022). Exploring the impact of sustainability (ESG) disclosure on firm value and financial performance (FP) in airline industry: the moderating role of size and age. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-021-01649-w>
- Al-Jalahma, A., Al-Fadhel, H., Al-Muhanadi, M., & Al-Zaimoor, N. (2020). Environmental, Social, and Governance (ESG) disclosure and firm performance: Evidence from GCC Banking sector. *2020 International Conference on Decision Aid Sciences and Application (DASA)*, 54–58. <https://doi.org/10.1109/DASA51403.2020.9317210>
- Aldubhani, M. A. Q., Wang, J., Gong, T., & Maudhah, R. A. (2022). Impact of working capital management on profitability: evidence from listed companies in Qatar. *Journal of Money and Business*. <https://doi.org/10.1108/jmb-08-2021-0032>
- Almulla, S., Albaity, M., & Hassan Al-Tamimi, H. A. (2025). The Effects of ESG and Institutional Quality on Financial Stability: Evidence from GCC Banks. *International Journal of Economics and Financial Issues*, 15(2), 309–326. <https://doi.org/10.32479/ijefi.18152>
- Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. In *Borsa Istanbul Review*. <https://doi.org/10.1016/j.bir.2022.11.006>
- Ayuningtyas, G. S., & Prasetiono. (2021). Pengaruh Working Capital Management Terhadap Profitabilitas Dengan Firm Size Sebagai Variabel Moderasi Dan Leverage, Current Ratio Serta Sales Growth Ssebagai Variabel Kontrol. *Diponegoro Journal of Management*, 10(3), 1–14.

- Budiono, S., & Dura, J. (2021). The Effect of Green Accounting Implementation on Profitability in Companies Compass Index 100. *International Journal of Educational Research & Social Sciences*, 2(6), 1526–1534. <https://doi.org/10.51601/ijersc.v2i6.216>
- Dhinata, R., & Krisnando. (2020). Pengaruh Struktur Modal Terhadap Nilai Perusahaan Dengan Profitabilitas Sebagai Variabel Intervening. *JPIN: Jurnal Pendidik Indonesia*, 6(1), 47–55. <https://doi.org/10.47165/jpin.v6i1.484>
- Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Sociological Perspectives*. <https://doi.org/10.2307/1388226>
- Dura, J., & Suharsono, R. S. (2022). Application Green Accounting To Sustainable Development Improve Financial Performance Study In Green Industry. *Jurnal Akuntansi*, 26(2), 192–212. <https://doi.org/10.24912/ja.v26i2.893>
- Fadilah, S. N., & Fuadati, S. R. (2022). Pengaruh Struktur Modal Dan Ukuran Perusahaan Terhadap Profitabilitas Pada Perusahaan Ritel Di Bei. *Jurnal Ilmu Dan Riset Manajemen*, 11, 1–15.
- Freeman, E. R. 1984. (1984). Freeman, E.R. 1984. *Strategic Management: A Stakeholder Approach*.
- Herlambang, A., Pakpahan, E., & Rahmi, N. U. (2025). Struktur Modal, Current Ratio, Ukuran Perusahaan Terhadap Nilai Perusahaan Dengan Roa Sebagai Moderating. *RISTANSI: Riset Akuntansi*, 5(2), 121–140. <https://doi.org/10.32815/ristansi.v5i2.2293>
- Jung, Y. L., & Yoo, H. S. (2023). <scp>Environmental, social, and governance</scp> activities and firm performance: Global evidence and the moderating effect of market competition. *Corporate Social Responsibility and Environmental Management*, 30(6), 2830–2839. <https://doi.org/10.1002/csr.2518>
- Khotimah, C. (2023). Pengaruh Profitabilitas, Likuiditas, Dan Struktur Aktiva Terhadap Struktur Modal Pada Perusahaan Sektor Industri Barang Konsumsi Yang Terdaftar Di Bei. *RISTANSI: Riset Akuntansi*, 4(1), 111–124. <https://doi.org/10.32815/ristansi.v4i1.1124>
- Lusmeida, H., Khomsiyah, & Arsjah, R. J. (2023). Do Enterprise Risks Management, Green Intellectual Capital and Business Ethics Improve Sustainable Finance At Financial Institutions In Indonesia? *Journal of Law and Sustainable Development*. <https://doi.org/10.55908/sdgs.v11i12.2359>
- Makhdalena, M., Zulvina, D., Zulvina, Y., Amelia, R. W., & Wicaksono, A. P. (2023). ESG and Firm Performance in Developing Countries: Evidence From ASEAN. *ETIKONOMI*, 22(1), 65–78. <https://doi.org/10.15408/etk.v22i1.25271>
- Nurlela, & Dimiyati, L. (2021). Pengaruh Struktur Modal Terhadap Profitabilitas Pada Perusahaan Yang Terdaftar di Jakarta Islamic Index 70. *Jurnal Aktiva: Riset Akuntansi Dan Keuangan*, 3(3), 119–128. <https://doi.org/10.52005/aktiva.v3i3.121>

Velte, P. (2023). Determinants and financial consequences of environmental performance and reporting: A literature review of European archival research. In *Journal of Environmental Management*.
<https://doi.org/10.1016/j.jenvman.2023.117916>



A COMPARATIVE ANALYSIS OF THE DEGREE OF FINANCIAL LEVERAGE BETWEEN PT UNILEVER INDONESIA AND PT WINGS GROUP

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Abstract:

This study aims to analyze the comparison of the Degree of Financial Leverage (DFL) between PT Unilever Indonesia Tbk and PT Wings Group. DFL is important to measure because it reflects the extent of change in earnings per share resulting from changes in earnings before interest and taxes, thus serving as a key indicator of a company's financial risk. These two companies are compared because both are major players in the consumer goods industry in Indonesia with significant market shares, yet they have different ownership structures and operational strategies, making it interesting to examine their risk differences. This research is a quantitative comparative study using the financial statement data of both companies for the period 2020-2024. Sampling was conducted using a purposive sampling method, with the research samples being PT Unilever Indonesia Tbk and PT Wings Group. Data were collected through financial statement documentation techniques and analyzed using an Independent Sample t-Test. The descriptive results show that PT Wings Group has a higher and more fluctuating average DFL compared to PT Unilever Indonesia, whose DFL is more stable. However, the results of the Independent Sample t-Test indicate that there is no statistically significant difference in DFL between the two companies. The financial risk inherent in the capital structure of both companies is statistically within a balanced range within the same industry.

INTRODUCTION

A country's economic growth is a crucial aspect that must be continuously fostered (Nurhayati, 2015). Economic growth has a significant impact on business actors within the country. This is also true in Indonesia, where accelerating economic growth has spurred increased competition in the business world. Therefore, every company is

required to adapt to these evolving dynamics. To achieve profit targets, companies are committed to expanding their reach and enhancing their competitiveness (Apriyanti, 2018).

Every business entity requires capital to finance its day-to-day operations. The optimal utilization of available funds and resources can drive profit growth, ensure business sustainability, and increase corporate value. To achieve these objectives, companies need to develop effective financial management strategies and manage funding sources and investments efficiently (Munte, 2023; Muthmainnah, 2019).

A company's ability to improve profitability depends heavily on effective control of funding sources and proper asset management. A company's funding sources can be internal or external. Internal funds include capital from the company's operating results, retained earnings, and depreciation, while external funds generally come from loans or debt. Reliance on debt is common in business operations. In this context, leverage refers to the use of funds and assets with fixed costs to increase returns for shareholders (Bahri, 2021; Meutia, 2019; Yuliana, 2018).

Financial leverage is measured using the Degree of Financial Leverage (DFL), which indicates the extent to which changes in operating profit (EBIT) can affect earnings per share (EPS). DFL reflects the financing of a portion of a company's assets through debt with fixed costs, with the aim of increasing returns for shareholders. When EBIT increases, EPS also rises; conversely, if EBIT decreases, EPS will follow suit. The higher the DFL value, the greater the financial risk borne by the company. Companies with high DFL generally have a larger proportion of debt compared to equity in their capital structure (Laeli, 2019; Maimanah, 2017).

The Degree of Financial Leverage (DFL) is a method of financing a portion of a company's assets using debt with a fixed rate of return, with the aim of increasing returns for investors. When a company implements DFL, it means the company utilizes fixed financial obligations to amplify the impact of changes in operating profit (EBIT) on changes in earnings per share (EPS) (Laeli, 2019; Muthmainnah, 2019).

In 2022, PT Unilever Indonesia Tbk. (UNVR) faced pressure from fluctuations in raw material prices and high inflation, which directly impacted the stability of earnings before interest and taxes (EBIT). Under such conditions, financial leverage plays a critical role because the significant fixed interest expense will amplify the sensitivity of net income to fluctuations in EBIT. The higher the Degree of Financial Leverage (DFL), the

greater the financial risk the company must bear when EBIT declines. Therefore, UNVR needs to make various strategic considerations to ensure that DFL remains at a level that does not jeopardize the company's financial stability. Entering 2023, the situation began to improve, and UNVR adopted a more optimistic stance in pursuing growth, although competition with Wings Group and P&G remained intense. UNVR's President Director expressed hope that 2023 performance would improve in line with market growth, with an expected better balance between sales volume and product prices compared to the previous year (Iim, 2023). From a leverage perspective, this optimism can be realized if the company is able to maintain a stable and not-too-high DFL, so that the increase in EBIT resulting from improved market conditions can be enjoyed proportionally without being burdened by excessive financial risk.

As the global and national economies become increasingly competitive, a company's ability to manage its finances efficiently is key to maintaining sustainability and enhancing competitiveness. Research on the impact of capital structure and financial leverage on corporate performance has been extensively conducted across various industries and countries. Financial leverage, particularly as measured by the Degree of Financial Leverage (DFL), has become a key indicator in assessing the extent to which debt-financing structures can influence earnings per share (EPS) in response to changes in operating profit (EBIT) (Brigham, 2019).

Several previous studies have shown that the higher the DFL ratio, the higher the company's financial risk; however, it also presents opportunities to increase returns for investors if managed effectively (Gitman, 2024). Furthermore, research by Apriyanti (2018) and Nurhayati (2015) confirms that rapid economic growth forces companies to be adaptive and strengthen their financing structures to achieve competitive profits (Apriyanti, 2018; Nurhayati, 2015).

In Indonesia, research on DFL remains relatively limited, particularly when comparing large companies in the consumer goods sector such as PT Unilever Indonesia Tbk. and PT Wings Group. These two companies have distinct characteristics in their financing strategies and debt management, making it worthwhile to investigate further to what extent the differences in their DFL ratios impact their financial performance. Moreover, in the post-pandemic environment and amid global inflationary pressures, such as those experienced in 2022, leverage strategies have become increasingly crucial in navigating market volatility.

This study aims to fill this gap by analyzing significant differences in the degree of financial leverage between PT Unilever Indonesia and PT Wings Group, which can contribute to the development of literature in the field of corporate finance and serve as a practical reference for corporate management in making financing decisions. The objective of this study is to provide empirical evidence on whether there are significant differences in the Degree of Financial Leverage between PT Unilever Indonesia and PT Wings Group.

LITERATURE REVIEW

Degree of Financial Leverage (DFL)

The concept of financial leverage arises when a company finances its operations with sources of funds that incur fixed costs. The objective is to increase the return earned by common shareholders. According to Riyanto (2010:375), “the use of funds with fixed costs is intended to increase earnings per share (EPS).” Syamsuddin (2011:113) defines “financial leverage as a company’s ability to use fixed financial liabilities to amplify the impact of changes in EBIT on earnings per share (EPS).” The resulting effect of using funds with fixed costs is called the degree of financial leverage (DFL).

The DFL formula is as follows:

$$DFL = \frac{\% \text{ Perubahan EPS}}{\% \text{ Perubahan EBIT}}$$

RESEARCH METHODS

The type of research used is quantitative research with a comparative approach. This comparative study was conducted to determine the comparison of the Degree of Financial Leverage between PT Unilever Indonesia and PT Wings Group. The research instruments in this study are net income, EBIT, and EPS data obtained from the balance sheets and income statements of PT Unilever Indonesia and PT Wings Group for the 2020–2024 period.

Data Collection Methods

1. Documentation

Documentation is a data collection method used to obtain data and information from sources such as journals, books, reports, and so on. The documentation used

in this study consists of financial reports from PT Indocement Tunggal Prakarsa, Tbk, PT Unilever Indonesia, and PT Wings Group for the period 2020–2024.

2. Literature Review

A literature review is a data collection method that involves examining various written sources, such as books, magazines, journals, and other supporting literature. This method aims to establish the theoretical foundation of a research study. In this study, the literature review was conducted by searching for and collecting as much information as possible from journals and books.

Data Analysis Techniques

Data analysis in this study consists of two stages:

1. Descriptive Analysis of DFL

The researcher calculated the Degree of Financial Leverage (DFL) for each company annually during the study period. The formula used to calculate DFL is as follows:

$$DFL = \frac{\% \text{ Perubahan EPS}}{\% \text{ Perubahan EBIT}}$$

DFL measures the sensitivity of earnings per share (EPS) to changes in EBIT, which indicates the extent to which a company incorporates fixed financial expenses (such as interest) into its financial structure.

2. Statistical Test: Independent Samples t-Test

To determine whether there is a significant difference between the DFL of PT Unilever Indonesia and PT Wings Group, an Independent Samples t-Test was conducted using SPSS software. This test was used because the researcher wanted to determine whether the two data sets (the DFL of each company) came from populations with significantly different means.

RESEARCH FINDINGS

Company Overview

This study compares two major companies in the consumer goods industry: PT Unilever Indonesia Tbk and PT Wings Group. Both companies have products that are widely distributed in the national market and manage complex financial structures. The comparison focuses on the Degree of Financial Leverage (DFL) over the past five years, from 2020 to 2024, to understand how the financing structure affects the sensitivity of

earnings per share to changes in EBIT. Based on the calculation results, the following summary table was obtained:

Table 1
Summary of the Degree of Financial Leverage (DFL) for PT Unilever Indonesia and PT Wings Group (2020–2024)

Year	Unilever EBIT	Unilever EPS	Unilever DFL	Wings EBIT	Wings EPS	Wings DFL
2020	8200	210	-	5000	100	-
2021	8600	220	0.98	5400	115	1.87
2022	9000	230	0.98	5800	125	1.17
2023	8800	225	0.98	5600	120	1.16
2024	9200	240	1.47	6000	135	1.75

Source: Processed Data, 2025

These results show that, in general, PT Wings Group has a higher DFL than PT Unilever Indonesia. This suggests that changes in EBIT at PT Wings Group have a greater impact on EPS than at PT Unilever Indonesia. In other words, PT Wings Group is more sensitive to changes in operating profit because its financial structure includes higher fixed costs (such as interest on loans).

DISCUSSION

The data shows that PT Wings Group has a higher average DFL than PT Unilever Indonesia. This indicates that Wings Group's financing structure is more aggressive, with a higher reliance on debt-based financing (fixed financial costs). PT Unilever Indonesia has a relatively stable DFL, with a value close to 1, indicating a more conservative financial structure and greater stability of earnings in the face of changes in EBIT.

Results of the Independent Samples t-Test

To determine whether there is a significant difference between the Degree of Financial Leverage (DFL) values of PT Unilever Indonesia and PT Wings Group during the 2021–2024 period, an Independent Samples t-Test was conducted using statistical software. This test was used because the data came from two different, unpaired groups. The following are the results of the statistical test using the assumption of unequal variances (Welch's t-test):

Table 2
Statistical Test Results

Test Statistic	Value
t-statistic	-1.717
Significance value (p-value)	0.145
Degrees of freedom (approximate)	≈ 4
Significance level (α)	0.05 (95% confidence)

Source: Processed Data, 2025

Since the p-value (0.145) is greater than 0.05, it can be concluded that there is no statistically significant difference between the Degree of Financial Leverage (DFL) of PT Unilever Indonesia and PT Wings Group during the 2021–2024 period. In other words, although PT Wings Group shows a higher DFL value descriptively, the difference is not statistically significant enough to be considered a meaningful difference.

The research findings indicate that PT Wings Group has a higher and more volatile DFL ratio compared to PT Unilever Indonesia during the 2021–2024 period. A high DFL value indicates that the company's EPS (Earnings per Share) is highly sensitive to changes in EBIT (Earnings Before Interest and Taxes). In other words, PT Wings Group's financial structure contains a higher proportion of financial fixed costs—such as loan interest—which increases the company's financial operating leverage.

Wings Group is known for its aggressive expansion strategy, which includes launching new products, expanding distribution to remote areas, and increasing production capacity. This expansion requires significant capital investment, which tends to be funded by debt rather than equity, as debt is easier to obtain and does not alter the ownership structure. To fund this expansion, Wings Group likely has a higher debt-to-equity ratio (DER) than Unilever. As a result, the company bears a significant fixed interest expense each period. The larger the fixed interest expense, the higher the DFL, as even the slightest change in EBIT will have a major impact on net income and EPS.

Although a high DFL increases the potential for profit when EBIT rises, it also increases the risk of loss when EBIT falls. Higher fluctuations in Wings' DFL indicate that the company's financial management is more aggressive and speculative. Conversely, Unilever's more stable DFL reflects a conservative approach that prioritizes sustainability and dividend stability over aggressive growth through debt. Thus, the difference in DFL between the two companies is not merely an accounting technicality, but reflects fundamental differences in business philosophy and financial risk management.

According to Brigham & Houston (2019), the Degree of Financial Leverage is used to measure the extent to which fixed financial costs amplify changes in earnings per share when there is a change in operating income. The higher the DFL, the greater the risk and potential return for shareholders, as the company bears fixed costs that must be paid regardless of its operating performance. "A firm with a high degree of financial leverage has a greater variability in earnings per share due to the presence of fixed interest obligations" (Brigham & Houston, 2019, p. 498).

These findings are also consistent with research by Ahmed and Hossain (2020), who found that companies with a capital structure reliant on substantial debt financing tend to have high and volatile DFL, as small changes in EBIT can lead to large fluctuations in EPS. Their study concluded that highly leveraged companies are riskier but also have the potential to provide higher returns to shareholders when profits increase.

In addition, a study by Puspitasari and Dewi (2017) of Indonesian manufacturing companies also shows that companies that aggressively use debt in their financial structure tend to experience significant year-over-year fluctuations in their DFL. This is due to changes in market conditions, interest expenses, and the company's ability to generate stable EBIT.

On the other hand, PT Unilever Indonesia exhibits a relatively stable and moderate DFL ratio. This reflects a more conservative financing strategy and the use of debt that is proportionate to its ability to generate operating profit. This strategy aligns with the risk management principles outlined by Ross, Westerfield, and Jaffe (2021), who state that companies that manage their debt cautiously tend to have lower EPS variability, although their potential returns are also more moderate.

The results of the Independent Samples t-test indicate that the difference in the average DFL between PT Unilever Indonesia and PT Wings Group during the 2021–2024 period is not statistically significant ($p\text{-value} = 0.145 > 0.05$). This indicates that although there are descriptive differences (where PT Wings Group's DFL is higher and more volatile), from an inferential statistics perspective, these differences are not strong enough to generalize that the two companies have significantly different financial leverage structures in the population.

According to Gujarati and Porter (2009), statistical significance tests aim to determine whether the observed differences in the sample are large enough to be considered unlikely to have occurred by chance. When the p-value is greater than 0.05,

the differences between groups are not significant and may be due to sampling variation rather than to genuinely different structural characteristics. "A non-significant result implies that the observed difference may be due to random sampling variation rather than an actual difference in the population" (Gujarati & Porter, 2009, p. 185).

These results are also consistent with the findings of Arulvel and Ajanthan (2013), who examined the relationship between financial leverage and financial performance in the manufacturing sector and found that companies with similar business structures often exhibit statistically insignificant differences in DFL, as they operate in industries with nearly identical cost structures and operational risks.

Abor (2005) found that in emerging markets, differences in leverage among firms within the same sector—such as consumer goods—are often not statistically significant, as external factors such as regulatory policies, interest rate structures, and conservative risk management strategies tend to create uniform financial patterns.

In this study, although PT Wings Group and PT Unilever Indonesia have different financing models, their levels of financial leverage are not statistically significant, which may be due to similarities in their industries, target markets, and macroeconomic policies that affect both entities simultaneously. This suggests that the financial risks inherent in the funding structures of both companies are generally within a relatively balanced range.

CONCLUSION

This study aims to conduct a comparative analysis of the Degree of Financial Leverage (DFL) between PT Unilever Indonesia Tbk and PT Wings Group during the 2020–2024 period. Based on the results of the descriptive analysis and statistical tests, several conclusions were drawn. First, descriptively, PT Wings Group has a higher and more volatile DFL value compared to PT Unilever Indonesia. This indicates that Wings Group's financial structure is more sensitive to changes in operating profit, which may be attributed to the high proportion of debt financing. Second, statistically, a t-test for two independent samples revealed that the difference in DFL values between the two companies is not statistically significant. Thus, the observed difference in average DFL is not strong enough to be generalized to the population. Third, the stability of Unilever's DFL indicates a tendency toward a more conservative financing strategy and more

cautious risk management, whereas the fluctuations in Wings Group's DFL reflect a more aggressive yet high-risk financing structure.

The results of this study support the theory of financial leverage in the context of capital structure and EPS sensitivity, as explained by Brigham & Houston (2019) and Ross et al. (2021). These findings also contribute to the body of research on leverage in emerging markets such as Indonesia, particularly among companies in the consumer goods sector.

This study is limited to two companies and a five-year period. Future research is recommended to include a larger number of companies from the same or different industrial sectors and to extend the analysis period to ensure more robust results. To gain a deeper understanding of a company's financial strategy, it is recommended to use a qualitative approach (such as interviews with financial managers) or mixed methods to explore the reasons behind each company's choice of capital structure.

REFERENCES

- Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *Journal of Risk Finance*, 6(5), 438–445. <https://doi.org/10.1108/15265940510633505>
- Ahmed, S., & Hossain, M. E. (2020). Impact of Financial Leverage on Firm Performance: Evidence from Listed Manufacturing Firms in Bangladesh. *International Journal of Financial Research*, 11(1), 301–308. <https://doi.org/10.5430/ijfr.v11n1p301>
- Apriyanti, H. W. (2018). Perkembangan industri perbankan syariah di Indonesia: Analisis peluang dan tantangan. *MAKSIMUM: Media Akuntansi Universitas Muhammadiyah Semarang*, 8(1), 16–23.
- Arulvel, K., & Ajanthan, A. (2013). Capital Structure and Financial Performance: A Study of Listed Trading Companies in Sri Lanka. *International Journal of Scientific and Research Publications*, 3(5), 1–6.
- Bahri, S., & Arrosyid, Y. P. (2021). Struktur Kepemilikan, Good Corporate Governance, Leverage, Dan Ukuran Perusahaan Terhadap Manajemen Laba. *RISTANSI: Riset Akuntansi*, 2(1), 59-77.
- Brigham, E. F., & Houston, J. F. (2019). *Fundamentals of Financial Management* (15th ed.). Cengage Learning.
- Brigham, E. F., & Houston, J. F. (2019). *Fundamentals of financial management* (16th ed.). Cengage Learning.
- Gitman, L. J., McDaniel, C., Shah, A., Reece, M., Koffel, L., Talsma, B., & Hyatt, J. C. (2024). *Introduction to business*. OpenStax.
- Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). McGraw-Hill/Irwin.

- Laeli, R. (2019). *Pengaruh financial leverage dan operating leverage terhadap earnings per share pada perusahaan sektor properti dan real estate yang terdaftar di Bursa Efek Indonesia* [Tesis magister tidak diterbitkan]. Sekolah Tinggi Ilmu Ekonomi Indonesia (STEI) Jakarta.
- Maimanah, T. (2017). Pengaruh leverage terhadap income smoothing dan stock return (Studi pada perusahaan jasa sektor perbankan yang terdaftar di BEI periode 2010-2015). *Referensi: Jurnal Ilmu Manajemen dan Akuntansi*, 5(1), 26–37.
- Meutia, F., & Kristanti, F. T. (2019). Pengaruh profitabilitas, leverage, ukuran perusahaan, dan kepemilikan publik terhadap pengungkapan laporan keberlanjutan (Studi pada perusahaan non keuangan yang terdaftar di Bursa Efek Indonesia tahun 2015-2017). *eProceedings of Management*, 6(2).
- Munte, R., & Ompusunggu, D. P. (2023). Strategi pengelolaan keuangan perusahaan untuk meningkatkan kinerja keuangan (Literature review manajemen keuangan). *Advances In Social Humanities Research*, 1(2), 67–71.
- Muthmainnah, S., Mila, M., & Ichfan, H. (2019). Pentingnya manajemen keuangan bagi perusahaan. *Muhasabatuna: Jurnal Akuntansi Syariah*, 1(2), 32–42.
- Nurhayati, D. (2015). Strategi Indonesia dalam menghadapi tantangan global di bidang ekonomi. *Jurnal Heritage*, 3(1), 33–48.
- Pratika, A. A., & Nurhayati, I. (2022). Pengaruh kepemilikan manajerial, kepemilikan institusional, profitabilitas, leverage dan kualitas audit terhadap manajemen laba. *Fair Value: Jurnal Ilmiah Akuntansi Dan Keuangan*, 5(2), 762–775.
- Puspitasari, F., & Dewi, M. R. (2017). Pengaruh Degree of Operating Leverage dan Degree of Financial Leverage terhadap Return Saham Perusahaan Manufaktur di BEI. *Jurnal Ekonomi dan Bisnis*, 20(1), 75–84.
- Ross, S. A., Westerfield, R. W., & Jaffe, J. (2021). *Corporate Finance* (13th ed.). McGraw-Hill Education.
- Selfania, S., Huda, N., & Aprianti, K. (2024). The influence of leverage, firm size and sales growth on financial performance at Pt Indocement Tunggul Prakarsa Tbk. *Journal of Applied Business and Technology*, 5(1), 1-10.
- Timorria, I. F. (2023, Oktober 12). *Pertaruhan Unilever (UNVR) bersaing ketat dengan Wings Group dan P&G*.
- Yuliana, I. F., & Wahyudi, D. (2018). Likuiditas, profitabilitas, leverage, ukuran perusahaan, capital intensity dan inventory intensity terhadap agresivitas pajak (Studi empiris pada perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia tahun 2013–2017). *Dinamika Akuntansi Keuangan Dan Perbankan*, 7(2), 120–131.



THE EFFECT OF DOMINANT RISK MANAGEMENT COMPONENTS IN ASSET-LIABILITY MANAGEMENT ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN INDONESIA

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Abstract:

This study aims to investigate the effect of bank size, leverage, capital adequacy ratio, interest rate risk, liquidity risk, and credit risk on financial performance. This study focuses on banks listed on the Indonesia Stock Exchange and analyzes financial statements from 2020 to 2024. Purposive sampling was used to select 38 banks for this study. Eviews 9.0 was used for panel data regression analysis. The results show that bank size, capital adequacy ratio, and liquidity risk have a significant positive effect, while credit risk has a significant negative impact. Interest rates and leverage have no effect. This implies that to maintain their financial success in the face of changing economic conditions, banks need to implement efficient risk management.

INTRODUCTION

The financial performance of the banking sector plays a critical role in maintaining the stability of the global financial system. In recent years, banking financial performance has exhibited considerable volatility amidst rising economic uncertainty, interest rate fluctuations, and liquidity pressures. These conditions demand that banks optimize their asset and liability management to preserve stability and profitability. The effectiveness of asset and liability management determines a bank's ability to maintain profitability while ensuring resilience against risks. Effective asset and liability management has been proven to contribute positively to profitability, highlighting the significance of Asset Liability Management (ALM) in supporting the sustained performance of financial institutions (Abebe, 2022).

In line with the importance of asset and liability management, financial performance serves as a vital indicator in assessing the operational success of a bank. It reflects the bank's capability to manage resources effectively and efficiently to generate profit. Interest rate risk, credit risk, and liquidity risk are the three primary risks within Asset Liability Management that most significantly impact bank profitability. A bank's capacity to handle critical risks arising from the continuity between assets and liabilities has a significant impact on its profitability, as measured by Return on Assets (ROA) (Astuti, 2025).

Within the framework of Asset Liability Management, there are several primary types of risk that banks must manage to maintain stability and financial performance. One such risk is liquidity risk. Liquidity risk occurs when a bank faces difficulties meeting its short-term obligations, such as deposit withdrawals by customers. This risk can affect operational stability and diminish public confidence in the bank if not managed properly (Astuti, 2025). According to research by Hasaneen (2025), liquidity risk has a significant effect on ROA, which underscores the importance of liquidity risk management in maintaining stability and profitability. This is in line with research by Akinselure (2025), which also found a significant effect on ROA. The results indicate that efficient liquidity management helps banks sustain growth and enhance customer trust. In addition to influencing profitability (ROA), liquidity also plays a crucial role in determining a company's funding policy. A business's ability to meet its short-term commitments on time is reflected in its liquidity, making it a vital component in the formation of capital structure (Khotimah, 2023).

In addition to liquidity risk, another equally important risk is credit risk. Credit risk relates to the ability of debtors to meet their loan payment obligations. Non-Performing Loans (NPL) will increase if debtors fail to make payments, which can decrease a bank's assets and profitability. This negatively impacts financial performance because higher credit risk increases provision expenses and reduces income, according to research by Akinselure (2025). This contradicts research by Ogundele (2025), which revealed a substantial beneficial effect and suggested better credit risk management. These studies indicate that credit risk can diminish a bank's financial performance.

Furthermore, interest rate risk is also a significant concern in asset and liability management. Interest rate risk arises from market interest rate fluctuations that can affect a bank's net interest income. These fluctuations influence financial stability and

bank profitability by causing imbalances between interest-sensitive assets and liabilities. This condition drives banks to adjust their risk management strategies to maintain sustainable performance (Shahin, 2022). Shahin (2022) found that an increase in interest rate risk has a positive and significant effect on bank profitability, as it encourages higher net interest income through income diversification. Conversely, Akinselure (2025) found that interest rate risk has a negative and significant effect on bank profit margins, emphasizing that interest rate risk management is essential in supporting financial performance.

In addition to risk factors, internal bank factors such as capitalization also play a vital role in determining financial performance. One key metric that indicates a bank's ability to maintain financial stability and use its capital to absorb unexpected loss risks is the Capital Adequacy Ratio (CAR). This ratio reflects the strength of a bank's capital in maintaining profitability while managing risk. High capital adequacy has been proven to enhance a bank's financial performance. Panthee (2025) found that CAR has a positive and significant impact on bank profitability, which in that study was measured using Return on Assets (ROA). This is consistent with research by Yuan (2025), which also indicates that high capital adequacy strengthens the influence of financial technology on bank profitability.

In addition, bank characteristics such as firm size also influence financial performance. The operational capability and potential for effective risk management of a bank are reflected in its size, which is generally calculated as the logarithm of its total assets. Risk constraints are often reduced due to greater access to capital markets and cheaper funding sources for larger banks (Lalon, 2025). Ogundele (2025) found that bank size has a positive effect on financial performance, as larger banks possess greater resources to enhance operational performance and manage risks. This is in line with research by Nguyen (2025), which shows that bank size has a positive effect on profitability, where larger banks tend to be more efficient and have higher competitiveness through the diversification of financial services. Furthermore, Khasanah (2023) also found that firm size has a significant effect on financial performance, as larger organizations generally have better oversight systems and risk management.

In addition to firm size, the funding structure reflected in leverage is also a factor that needs consideration. The debt-to-equity ratio indicates how much of a bank's assets are funded by debt compared to equity. A high debt ratio can increase risk by raising

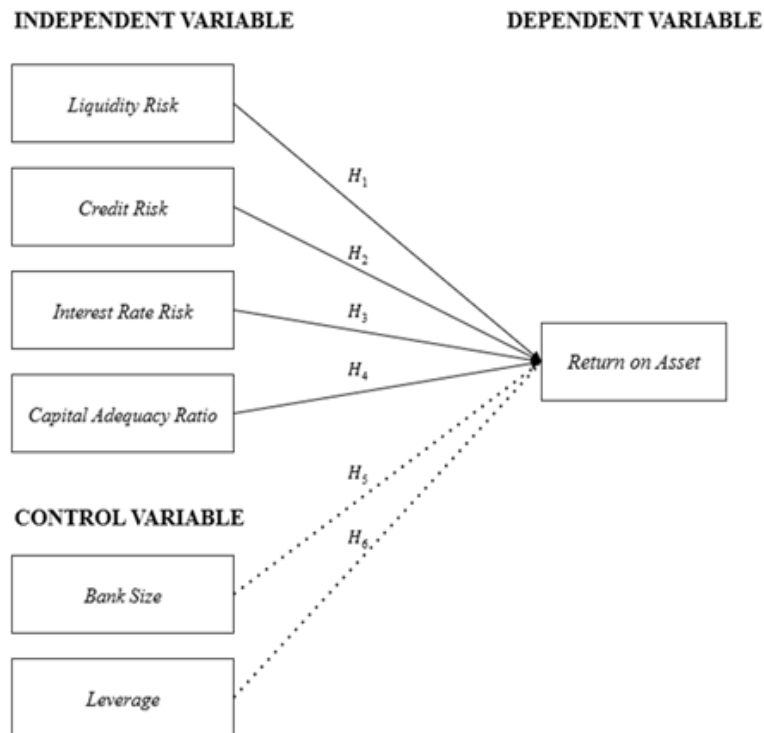
interest rates and lowering profitability. On the other hand, well-managed leverage can enhance a bank's market performance (Karnasi, 2025). According to research by Abebe (2022), there is a substantial negative impact because the high interest costs of both short-term and long-term debt commitments can reduce ROA. This differs from research by Akinselure (2025), which found a significant beneficial effect because, while it can increase returns, it also increases risk if not properly controlled. However, leverage does not have a noticeable influence on financial performance according to research by Syaiful (2021), which suggests that high debt levels may not always have a negative impact if a business has sound financial control and oversight to manage risks.

Although various studies have examined the factors affecting banking financial performance, previous research results still show inconsistencies. Some studies found that variables such as the capital adequacy ratio significantly increase Return on Assets (Panthee, 2025), while other variables such as risk and leverage show mixed results in influencing bank financial performance. These differing findings indicate that the relationships between variables and financial performance are not yet fully conclusive. Furthermore, previous research has generally been conducted in different contexts and periods, using analysis approaches that are not yet integrated, thus failing to provide a comprehensive overview of the simultaneous influence of these variables on banking financial performance. Consequently, there remains a research gap related to inconsistent empirical results and the limited comprehensive approaches used. Therefore, this study is conducted to re-examine the factors affecting banking financial performance through a more comprehensive approach. This study expands upon previous theoretical knowledge by using a panel data regression analysis model and Return on Assets as the primary indicator to provide a measurable impact on bank financial performance.

LITERATURE REVIEW

The conceptual framework of this research is developed based on the insights offered in the preceding context:

Figure 1
Conceptual Framework



Source: Processed Data, 2025

This research develops the following research hypotheses based on the fundamental conceptual framework provided previously:

The Effect of Liquidity Risk on Financial Performance

Hasaneen (2025) found that liquidity risk has a significant negative effect on ROA in Egyptian banking, demonstrating the importance of liquidity management in maintaining bank stability and profitability. Similarly, Akinselure (2025), studying banks in Nigeria, also found that liquidity risk, influenced by customer deposits, affects profitability. These findings suggest that effective liquidity management can support bank growth and enhance customer trust. Furthermore, Abuelgasim (2025) showed that higher liquidity levels can increase efficiency, stability, and bank profitability, particularly during crises, based on research on banking in Sudan. This indicates that liquidity not only serves as a reserve to meet short-term obligations but also plays a role in maintaining the sustainability of a bank's financial performance. Therefore, this study develops the following hypothesis:

H1: *Liquidity Risk* berpengaruh negatif terhadap kinerja keuangan bank.

The Effect of Credit Risk on Financial Performance

From the perspective of Agency Theory, high credit risk can emerge due to less cautious management decision-making in credit distribution, thereby increasing the potential for non-performing loans and reducing bank profitability. According to research by Akinselure (2025) conducted in Nigeria, credit risk, determined by loans to customers, has a significant negative impact on return on assets (ROA) because it increases provision expenses and reduces income. Conversely, Abebe (2022), in a study on Microfinance Institutions in Sub-Saharan Africa, found that the Net Loan Portfolio actually has a positive effect on ROA, indicating that well-managed credit can support profitability. Meanwhile, Ogundele (2025) found that credit risk, measured by the Non-Performing Loan Ratio, suppresses bank financial performance and suggests strengthening credit risk management. Therefore, this study develops the following hypothesis:

H2: Credit risk has a negative effect on the financial performance of banks.

The Effect of Interest Rate Risk on Financial Performance

Interest rate risk is closely related to a bank's net interest income and profit stability. Akinselure (2025) emphasizes that interest rate fluctuations have a significant positive effect on bank profit margins, making the management of interest rate risk essential in supporting financial performance. Meanwhile, Abebe (2022) found that the mismatch between fixed-rate loans and floating-rate funding increases interest rate risk, which has a significant negative impact on bank profitability. In contrast to these conclusions, Shahin (2022) demonstrates that interest rate risk actually has a significant positive effect on financial performance in several countries, where increased interest rate risk can be utilized to boost income through diversification strategies. Accordingly, the following hypothesis is developed in this study:

H3: Interest Rate Risk has a positive effect on the financial performance of banks.

The Effect of Capital Adequacy Ratio on Financial Performance

The Capital Adequacy Ratio is a ratio that demonstrates a bank's ability to provide capital to cover risks arising from its operational activities. From a signaling theory perspective, a high CAR level can serve as a positive signal to investors and regulators that the bank is in a healthy financial condition and possesses a strong capacity to handle risk. High capital adequacy enhances a bank's financial performance, according to research by Panthee (2025), which indicates that CAR has a positive and substantial impact on bank

profitability (ROA) in Nepal. A study by Majondo (2025) in Tanzania produced similar findings, concluding that CAR has a favorable and substantial impact following changes in capital adequacy legislation. This is consistent with a 2025 study by Yuan in China, which also suggests that CAR has both advantages and disadvantages. According to that study, financial technology has a greater influence on bank profitability when capital adequacy is high. Accordingly, the following hypothesis is developed in this study:

H4: Capital Adequacy Ratio has an effect on the financial performance of banks.

The Effect of Bank Size on Financial Performance

Bank size is associated with economies of scale, access to funding, and the ability to diversify income. Ogundele (2025) and Akinselure (2025) both state that because larger banks possess greater resources to support operational performance and manage risks, bank size has a beneficial impact on ROA. Similarly, Nguyen's (2025) study on commercial banking in the ASEAN region indicates that bank size has a major impact on profitability, as larger banks are often more efficient and can enhance competitiveness by diversifying their financial services. Accordingly, the following hypothesis is developed in this study:

H5: Bank size has a positive effect on the financial performance of banks.

The Effect of Leverage on Financial Performance

The level of a bank's asset financing through debt is reflected in its leverage, which, if not managed properly, can reduce profitability (Ogundele, 2025). A bank's return on assets (ROA) is heavily influenced by high leverage. According to Abebe (2022), high interest payments from short-term and long-term debt obligations can decrease ROA. Conversely, Akinselure (2025) characterizes leverage as a control variable that, if not handled correctly, can increase both risk and profitability. Therefore, this study develops the following hypothesis:

H6: Leverage has a positive effect on the financial performance of banks.

RESEARCH METHODS

This research employs a purposive sampling method. Qualitative data were gathered using secondary data collection methods. Data sources include the Indonesia Stock Exchange website (www.idx.co.id) and the respective company websites. Over a five-year period, 38 banking organizations were included in the sample, covering 190 financial reporting periods from 2020 to 2024.

Table 1
Sample Selection Criteria

Description	Amount
Banking population listed on the IDX during the 2020 - 2024 period	43
Conventional banks with incomplete data in financial reports and years	(1)
Banks with mixed conventional-sharia reports	(4)
Total research units of analysis	38
Total observations over 5 years (n x research period)	190

Source: Processed Data, 2025

From 2020 to 2024, a total of 43 banks listed on the Indonesia Stock Exchange (IDX) served as the population for this study. A total of 190 financial reports from 38 banks were used as the research sample. The dependent variable in this study is financial performance, measured using Return on Assets, which reflects the bank's ability to generate profit from its total assets by comparing net income to total assets.

The independent variables include interest rate risk, measured based on the sensitivity of interest rate changes to bank performance; credit risk, proxied by non-performing loans, which is the ratio of non-performing loans to total credit granted; liquidity risk, proxied by the loan to deposit ratio, showing the comparison between total credit and third-party funds; and capital adequacy, measured by the capital adequacy ratio, which is the ratio of capital to risk-weighted assets. Furthermore, the control variables in this study are leverage, measured by the ratio of total debt to total assets, and bank size, proxied by the natural logarithm of total assets.

This study uses panel data regression analysis as the analytical method, which includes descriptive statistics, regression model selection, and hypothesis testing through the t-test. This analysis is conducted to examine the simultaneous and partial effects of the independent variables on the dependent variable.

RESEARCH FINDINGS

To provide a comprehensive summary of the data underlying our investigation, we use descriptive statistics. The Eviews 9.0 program was used to process the data. Table 2 displays the conclusions drawn from this careful statistical investigation.

Table 2
Descriptive Statistics Test Results

	ROA	LQR	CRR	INT	CAR	BKSZ	LEV
Mean	0.005967	0.803399	0.026450	0.068666	0.406264	31.37757	0.756540
Median	0.007295	0.755294	0.018938	0.063084	0.294001	30.82605	0.808049

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Maximum	0.044167	4.836969	0.284287	0.251940	2.838783	35.22840	1.917284
Minimum	-0.180577	-0.088949	0.000000	6.27E-05	0.104952	27.99650	0.007102
Std. Dev.	0.022896	0.489402	0.031167	0.032472	0.339413	1.693924	0.259351

Source: Processed Data, 2025

This study examines panel data from numerous commercial banks over a specific observation period. Based on the descriptive statistical findings in Table 2, ROA as a proxy for financial performance has an average value of 0.005967, with a minimum value of -0.180577 and a maximum of 0.044167, indicating a significant performance gap among the banks in the sample, including several banks that recorded negative ROA. Liquidity risk (LQR) shows an average of 0.803399 with a standard deviation of 0.489402, reflecting the diversity of liquidity conditions among the sampled banks. Credit risk (CRR) and interest rate risk (INT) stand at averages of 0.026450 and 0.068666, respectively. The capital adequacy ratio (CAR) has an average of 0.406264 with a maximum value reaching 2.838783, illustrating a considerable difference in capital structure between banks. Bank size (BKSZ), with an average of 31.37757, represents the natural logarithm of total assets, while leverage (LEV) stands at an average of 0.756540.

Model Selection Analysis

a. Chow Test

Table 3
Chow Test Results

Redundant Fixed Effects Tests			
Equation: EQ01			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.228911	(37,146)	0.0004
Cross-section Chi-square	85.081446	37	0.0000

Source: Processed Data, 2025

The Fixed Effects Model is the appropriate model to use, according to the Chow Test results presented in the table, which include a Cross-section F statistic of 0.0004 and a Chi-square probability of 0.0000.

b. Hausman Test

Table 4
Hausman Test Results

Correlated Random Effects - Hausman Test			
Equation: EQ01			
Test cross-section random effects			
	Chi-Sq.		
Test Summary	Statistic	Chi-Sq. d.f.	Prob.

Cross-section random 2.738623 6 0.8409
Source: Processed Data, 2025

It is clear from the Hausman Test results in the table that the probability value is 0.8409. Therefore, it can be concluded that the Random Effects Model is the best model to use.

c. LM Test

Table 5
LM Test Results

Lagrange Multiplier Tests for Random Effects
 Null hypotheses: No effects
 Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	13.21364 (0.0003)	0.491563 (0.4832)	13.70520 (0.0002)
Honda	3.635057 (0.0001)	0.701115 (0.2416)	3.066137 (0.0011)
King-Wu	3.635057 (0.0001)	0.701115 (0.2416)	1.801438 (0.0358)
Standardized Honda	4.360592 (0.0000)	1.169673 (0.1211)	-1.026497
Standardized King-Wu	4.360592 (0.0000)	1.169673 (0.1211)	-- -0.876948
Gourierioux, et al.*	--	--	13.70520 (< 0.01)

Source: Processed Data, 2025

The Random Effects Model is used because the analysis of the LM Test findings, as shown in the table, reveals that the Breusch-Pagan cross-section probability value is 0.0003. Based on the model selection tests performed—starting from the Chow Test and Hausman Test to the LM Test—it can be concluded that the Random Effect Model is the best estimation model for this study.

DISCUSSION

The panel data regression model used by the previous study by Akinselure (2025) can be written as follows:

$$\text{ROA}_{it} = -0.182232 - 0.003657\text{LQR}_{it} - 0.140256\text{CRR}_{it} + 0.049552\text{INT}_{it} + 0.018629\text{CAR}_{it} + 0.005670\text{BKSZ}_{it} + 0.000111\text{Lev}_{it}$$

Description:

β = Koefisien

β_{1-6} = Koefisien

ROA = *Return on Assets*

LQR = *Liquidity Risk*

CRR = *Credit Risk*

INT = *Interest Rate Risk*

CAR = *Capital Adequacy Ratio*

BKSZ = *Bank Size*

LEV = *Leverage*

i = *Intercept*

t = *Period (Time)*

ε = *Error Term*

The Effect of Liquidity Risk on Financial Performance

The findings in Table 7 show that the examination of the impact of liquidity risk factors significantly increases ROA. This is consistent with research by Hasaneen (2025), which demonstrates that financial performance (ROA) is significantly and positively influenced by liquidity risk. This indicates that banks can maintain sufficient liquid assets without compromising their profitability. Banks can meet their short-term obligations and continue to channel cash into profitable loans that generate income by managing liquidity effectively, thereby enhancing financial performance. The findings of this study contradict those of Ogundele (2025), who states that liquidity risk significantly and negatively affects financial performance (ROA). A high percentage of non-performing loans (NPL), an imbalance between assets and liabilities, and a bank's inability to meet short-term operational commitments all contribute to negative liquidity risk, which ultimately erodes consumer confidence. This condition suggests that an increase in liquidity risk will reduce a bank's ability to generate profit. To minimize such impacts, banks need to optimize the loan to deposit ratio (LDR), strengthen liquid reserves, and conduct strict supervision of credit quality to maintain liquidity stability while sustaining profitability.

The Effect of Credit Risk on Financial Performance

The regression results table shows that the credit risk variable significantly interferes with the ROA analysis. This is in line with research by Lew (2022), which indicates that credit risk has a major and detrimental influence on bank financial performance, with increasing non-performing loans (NPL) leading to a decrease in return on assets (ROA). Due to higher credit risk, banks must set aside more money for loan loss reserves, which reduces their profitability. High non-performing loans (NPL) signal a decline in the bank's ability to generate profit, which ultimately affects overall financial performance. The results of this study contradict the findings of Akinselure (2025), who found that credit risk significantly and positively affects financial performance (ROA). By increasing interest income, fostering consumer confidence, and adapting to shifts in economic policy, effective credit risk management can, in some circumstances, actually enhance financial performance.

The Effect of Interest Rate Risk on Financial Performance

The interest rate risk variable has no effect on ROA, according to the regression study findings table. This is consistent with research by Munzir (2025), which reveals the absence of a significant impact of interest rate risk on ROA. This condition indicates that interest rate fluctuations do not have a direct impact on the bank's net interest income because most banks have diversified their income streams and adopted efficient interest rate risk management, allowing them to maintain profit stability even amidst market interest rate peaks. This contradicts the findings of Shahin (2022), which state that interest rate risk significantly and beneficially influences ROA. This discrepancy may be the result of variations in interest rate policies and the macroeconomic climate.

The Effect of Capital Adequacy Ratio on Financial Performance

The regression analysis of the capital adequacy ratio variable indicates that it significantly increases ROA, as shown in Table 7. This is in line with research by Panthee (2025), which demonstrates that the capital adequacy ratio has a substantial positive impact on ROA. This implies that a bank's financial performance improves with sound capital adequacy. These results contradict the study by Yeasin (2022), which found that the capital adequacy ratio has a significant negative impact on ROA. This suggests that an increase in capital adequacy does not always correlate with an increase in bank earnings. Some productive funds are maintained as reserves when the proportion of capital

required to meet prudential standards increases, which lowers net profit and prospective interest income. Consequently, a high CAR can reduce ROA, indicating a trade-off between effective bank profitability and capital stability.

The Effect of Bank Size on Financial Performance

The results of the regression study show that bank size significantly increases ROA, which is in line with the findings of Akinselure (2025) that bank size has a positive effect on financial performance. In the context of banks listed on the Indonesia Stock Exchange, larger banks generally have advantages in terms of asset diversification, broader access to funding, as well as larger networks and customer bases, enabling them to increase credit distribution and interest income, which impacts profitability growth. Furthermore, large banks tend to be more efficient by utilizing economies of scale and possessing better risk management systems. This result contradicts the findings of Nanik (2022), which showed a negative influence, likely due to differences in sample characteristics and banking conditions, where in this study, the operational advantages of large banks are more dominant than the potential risks faced.

The Effect of Leverage on Financial Performance

It is clear from the regression analysis results in Table 7 that the leverage variable has no significant effect on financial performance. This finding is in line with the research by Utama (2023), which shows that financial performance is not affected by leverage. This indicates that debt has little influence on changes in bank profitability. This is because the majority of a bank's funding structure consists of customer deposits and other financial instruments, rather than just debt. This result contradicts the research by Akinselure (2025), which found that leverage has a positive and substantial impact on ROA. This implies that the proportional use of debt can increase a bank's efficiency and ability to generate profit. Banks can increase productive assets, such as credit distribution, by using debt-based financing, which directly affects interest income growth. Therefore, well-managed leverage plays an important role in strengthening bank profitability.

CONCLUSION

The study findings indicate that bank size, capital adequacy ratio, credit risk, and liquidity risk all significantly influence the financial performance of banks. Theoretically, this research provides empirical evidence that strengthens the relevance of Asset Liability

Management theory within the Indonesian banking context, particularly in explaining how the management of assets and liabilities impacts bank profitability. Furthermore, these results reinforce the Capital Buffer Theory, which posits that banks with strong capitalization are better able to absorb risks and maintain their performance.

Practically, these findings provide a foundation for financial managers to maintain optimal liquidity, strengthen credit risk controls, and ensure the availability of sufficient capital to sustain profitability. For investors, a bank's capacity to handle liquidity, credit risk, and capital strength can serve as a reference in evaluating the health and prospects of a bank before making investment decisions. The observation of internal variables, which have not yet fully captured all factors affecting bank financial performance, is a limitation of this study. To provide a more complete picture of the elements influencing bank profitability, additional research is suggested to extend the study period and include operational efficiency variables such as the Cost to Income Ratio (CIR), as used in the study by Almeida (2025).

REFERENCES

- Abebe, M. G. (2022). The effect of asset and liability management on the financial performance of microfinance institutions: evidence from sub-Saharan African region. *Future Business Journal*, 8(1). <https://doi.org/10.1186/s43093-022-00134-8>
- Akinselure, O. P., Ayoola, T. J., Aregbesola, O. D., & Adenikinju, O. (2025). Effect of Prominent Asset Liability Management Risk Components on the Financial performance of Nigerian Commercial Banks. *International Journal of Economics and Financial Issues*, 15(1), 280–287. <https://doi.org/10.32479/ijefi.17092>
- Astuti, T. Y., & Putri, A. (2025). Analisis Pengaruh Risiko Pembiayaan, Risiko Likuiditas, dan Risiko Pasar Terhadap Profitabilitas dengan Nilai Tukar Sebagai Variabel Moderasi (Studi pada Perbankan yang Terdaftar di Bursa Efek Indonesia). *Jurnal Ilmiah Global Education*, 6(1), 59–64. <https://doi.org/10.55681/jige.v6i1.3594>
- Dongol, P., & Shrestha, A. (2024). Exploring the Impact of Bank-Specific Internal Factors on the Profitability: A Study of Banking Sector of Nepal. In *JKBC Journal of Kathmandu BernHardt* (Issue 6).
- Happy Alda, D., & Agnes Silviani, A. (2025). *The Influence Of Credit Risk, Interest Rate Risk, Liquidity, Operational Risk And Environmental Performance On Corporate Social Responsibility*.
- Hasaneen, A., & Farouk, M. (2025). *MSA-Management science journal ISSN*. 2025–2131.
- Hassan, P. (2023). The Impact of Exchange Rate and Interest Rate Risks on Capital Market Development in Nigeria from 1992-2022. In *Fuoye Journal of Accounting and Management* (Vol. 6, Issue 2).

- Kanapickienė, R., Keliuotytė-Staniulėnienė, G., Teresienė, D., Špicas, R., & Neifaltas, A. (2022). Macroeconomic Determinants of Credit Risk: Evidence on the Impact on Consumer Credit in Central and Eastern European Countries. *Sustainability (Switzerland)*, 14(20). <https://doi.org/10.3390/su142013219>
- Khasanah, K., & Afiqoh, N. W. (2023). Pengaruh Likuiditas, Leverage, Dan Ukuran Perusahaan Terhadap Tax Avoidance Dengan Komisaris Independen Sebagai Variabel Moderasi. *RISTANSI: Riset Akuntansi*, 3(2), 110–132. <https://doi.org/10.32815/ristansi.v3i2.1159>
- Khotimah, C. (2023). Pengaruh Profitabilitas, Likuiditas, Dan Struktur Aktiva Terhadap Struktur Modal Pada Perusahaan Sektor Industri Barang Konsumsi Yang Terdaftar Di BEI. *RISTANSI: Riset Akuntansi*, 4(1), 111–124. <https://doi.org/10.32815/ristansi.v4i1.1124>
- Majondo, S., Mataba, L., & Mmari, G. (2025). *Licensed Under Creative Common Influence Of Capital Adequacy Requirement Reviews On Commercial Banks' Financial Performance In Tanzania*. <https://journals.mocu.ac.tz/index.php/eaj-sas>
- Mulyati, M., & Widhiastuti, S. (2024). The Role of Interest Rate in Moderating The Effect of Financial Risk On Financial Performance in Indonesia Banks List on The BEI. *Fokus Bisnis Media Pengkajian Manajemen Dan Akuntansi*, 23(1), 157–176. <https://doi.org/10.32639/fokbis.v23i1.943>
- Nabiilah Hakiimah, S. S., Karhenia, S., & Leon, F. M. (2023). The Impact of Financial Risk on Financial Performance: Evidence from Indonesian Banks. *International Journal of Management and Economics Invention*, 09(06). <https://doi.org/10.47191/ijmei/v9i6.02>
- Ogundele, O. S., & Nzama, L. (2025). Risk Management Practices and Financial Performance: Analysing Credit and Liquidity Risk Management and Disclosures by Nigerian Banks. *Journal of Risk and Financial Management*, 18(4). <https://doi.org/10.3390/jrfm18040198>
- Oktaviani, D., Satriansyah, A., & Widianingrum, E. (2024). The Effect of Profitability, Company Size and Leverage on Company Value. *Jurnal Ilmiah Akuntansi Kesatuan*, 12(2), 207–218. <https://doi.org/10.37641/jiakes.v12i2.2504>
- Shahin, R., Khalil, M., & Sallam, H. (2022). Interest Rate and Bank Risk-Taking: The Role of Income Diversity. *International Journal of Accounting and Financial Reporting*, 12(1), 37. <https://doi.org/10.5296/ijafr.v12i1.19560>
- Syaiful, B., & Yohanna, P. A. (2021). *Struktur Kepemilikan, Good Corporate Governance, Leverage, Dan Ukuran Entitas Terhadap Manajemen Laba* (Vol. 2).
- Widitha Narindra Mahisi, P. P., Fengki Saputra, A., Margaretha Leon, F., & Lestari, H. S. (2023). The Effect of Corporate Social Responsibility, Credit Risk, and Leverage on the Financial Performance of Commercial Banks in Indonesia. *International Journal of Science and Management Studies (IJSMS)*, 196–206. <https://doi.org/10.51386/25815946/ijms-v6i1p115>



ACCOUNTING ARTISTIC RENAISSANCE IN THE DIGITAL-RENEWABLE ERA

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Abstract:

Transformation of digital technologies, distinctive nature of artistic practices, and urgency of transition toward renewable energy introduce new conceptual challenges to accounting practices. Research examines how technology-mediated art curation, within the context of organizational governance and renewable energy projects, disrupts conventional accounting practices and broadens meaningful of accountability. Interpretive qualitative approach is employed through critical literature analysis and documentary studies of technology-based art curation practices, data visualization, and performative representations that foreground issues of value, sustainability, and accountability in the renewable energy sector. Thematic analysis is used to identify conceptual patterns interrelate accounting, art, technology, and energy. Findings demonstrate that art curation functions as an alternative form of accounting capable of representing the economic, social, and ecological value complexities of renewable energy in more narrative and reflective ways, while digital technologies amplify this disruptive capacity through visual and interactive experiences that move beyond static financial reports. Study reveals new insights showing that the integration of art, technology, and renewable energy contexts drives a shift toward multiple-narrative, more humanistic, and sustainability-oriented models of accountability. Main conclusion emphasizes that accounting should be understood as a social and cultural practice that is adaptive and responsive to environmental concerns and energy transition dynamics.

INTRODUCTION

Contemporary transformations in accounting and financial management are increasingly aligned with the framework of instrumental rationality, emphasizing

efficiency, numerical measurement, and technical objectivity. This paradigm shapes financial reporting practices and decision-making processes that prioritize short-term financial performance, often overlooking the social, ecological, and cultural dimensions of organizational governance. Global changes—such as digital technology disruptions and the urgent transition to renewable energy—further challenge this conventional approach. Traditional accounting struggles to represent the complexity of organizational values and responsibilities in supporting sustainability (IPSASB, 2021). Renewable energy sector provides a rich empirical context amid these shifts. Projects in this domain extend beyond financial aspects to encompass ecological value, social legitimacy, and intergenerational responsibility. Sustainable financial management literature acknowledges the multidimensional nature of performance measurement in this sector, which cannot be reduced to financial indicators alone (Junus et al., 2025). Yet, conventional accounting practices remain dominant, creating imbalances in reporting.

Critical accounting literature and contemporary organizational governance studies highlight the limitations of traditional financial reporting in capturing sustainability issues, governance, and public accountability (McGuigan & Ghio, 2019). Digital technology is often positioned as a technical tool to enhance transparency and efficiency, rather than a catalyst for epistemological change. Studies on art curation in accounting remain limited, typically treated as mere metaphors, despite the growing economic value of artworks as assets in global financial markets (Puaschunder & Gelter, 2025; Putra, 2024).

Explicit research linking accounting, art curation, digital technology, and renewable energy is scarce, leaving a significant knowledge gap. Knowledge gap remains in understanding how technology-based art curation functions as an integrated mechanism for ESG communication and governance. Existing studies tend to examine these domains in isolation. Research in sustainability accounting primarily focuses on quantitative disclosure frameworks and reporting standards, with limited attention to visual and narrative strategies. Meanwhile, curatorial studies emphasize artistic selection and narrative construction but rarely address their role in representing financial or sustainability-related data. In parallel, digital humanities research explores technological tools such as AI and blockchain but often lacks empirical grounding in governance and accountability contexts. This fragmentation creates a gap in explaining how visualization, selection, narrative construction, and performativity operate together within technology-

based curation to communicate complex ESG information across multiple stakeholders. Heavily on conceptual discussions or single-case analyses. Limited systematic evidence based on structured qualitative analysis, such as NVivo-based coding of interdisciplinary sources, to demonstrate how these practices converge in real-world contexts.

Study addresses the gap by providing an integrated analytical framework that connects curatorial practices, technological mediation, and sustainability governance. It uses systematic document analysis to examine how technology-based art curation can function as a multi-stakeholder communication tool in ESG contexts. This study addresses this void by analyzing how professionally skilled accountants engaging in technology-mediated art curation create disruptive mechanisms against conventional accounting practices within the governance of renewable energy projects (Imamah et al., 2023; Ciambotti et al., 2022).

This research aims to: (1) Analyze the role of technology-based art curation in shaping alternative, more humanistic accounting practices in renewable energy organizations; (2) Develop conceptual understanding of integrating financial management accounting, art, and technology for multi-narrative-based accountability; (3) Provide practical recommendations for regulators and practitioners in sustainable reporting innovations. Novelty lies in the systematic integration of three domains—financial management accounting, art curation, and digital technology—within the renewable energy transition agenda (Nozari, 2022; Putra et al., 2025). Unlike previous studies focused on technical reporting improvements or sustainability indicators (Sopanah et al., 2024), this research positions art and technology as epistemic forces driving a paradigm shift in accounting toward inclusive, sustainability-oriented accountability models (Carnegie et al., 2022). Research Problem Formulation: How can accounting meaningfully represent the complexity of economic, social, and ecological values in renewable energy? Contributions: Theoretical advancement in critical accounting theory and practical guidance for multisector organizations navigating technology disruptions and energy transitions.

LITERATURE REVIEW

Conventional accounting, as developed since the post-World War II modernization era, is fundamentally grounded in the framework of instrumental rationality—a paradigm that prioritizes numerical efficiency, objective measurement, and short-term

financial performance optimization (McGuigan & Ghio, 2019). Within this framework, accounting functions as a technical tool to measure and control economic resources through quantitative metrics such as Return on Investment (ROI), Earnings Before Interest and Taxes (EBIT), and liquidity ratios. This paradigm reflects the dominance of logical positivism in social sciences, where economic reality is reduced to empirically verifiable numbers, often at the expense of broader historical, social, and ecological contexts.

Sharp critiques of instrumental rationality emerge from critical accounting literature, which highlights how this paradigm not only limits organizational value representation but also reinforces structural injustices. Hopwood's (1987) seminal work portrays accounting as a "technology of social control" that reproduces power hierarchies, using financial efficiency as an alibi to neglect non-financial dimensions like environmental impacts and employee welfare. The humanistic approach demanded by this school emphasizes accounting as a multi-perspective narrative that integrates marginalized voices and ethical values (Sopannah et al., 2024). In contemporary contexts, instrumental rationality faces growing scrutiny amid global climate crises, where financial indicators fail to capture ecological externalities from economic activities (Carnegie et al., 2022). Recent empirical studies, such as Tinker et al. (2023) in the fossil energy sector, demonstrate that this paradigm contributes to "greenwashing" in accounting, where sustainability reporting serves merely as a cosmetic layer over profit-driven priorities. Critical accounting theory is not mere destructive critique; it offers a visionary foundation for paradigmatic reconstruction, positioning accounting as an emancipatory tool to represent the complexity of socio-ecological realities. This transition is crucial in facing technological disruptions and sustainability agendas, as explored in subsequent subsections.

Role of Digital Technology in Sustainability Reporting

Digital technologies—including blockchain, artificial intelligence (AI), and big data analytics—have revolutionized sustainability reporting by enhancing transparency, real-time accuracy, and data traceability (IPSASB, 2021). In practice, digitally supported platforms like the Integrated Reporting Framework (IIRC) enable organizations to integrate non-financial metrics—such as carbon emissions and diversity indices—into annual reports, thereby reducing information asymmetry among stakeholders (Imamah

et al., 2023). In the renewable energy sector, these technologies facilitate integrated accounting models that capture ecological value, for instance, through smart metering to dynamically measure solar panel efficiency. Most studies position digital technology as a mere technical lens—an extension of instrumental rationality—rather than a fundamental epistemological transformer (Molisa, 2024).

This approach reflects technological determinism, where innovations like AI are viewed as neutral enhancements to existing systems, without challenging the ontological assumptions of conventional accounting. Critiques from a critical accounting perspective highlight the risks: AI algorithms trained on historical financial data tend to reproduce neoliberal biases, prioritizing shareholder value over holistic stakeholder interests (Ghio & Verona, 2025). Case studies from European renewable energy projects show that while blockchain improves supply chain transparency, it fails to accommodate qualitative narratives like local community conflicts or cultural values (Nozari, 2022). Conceptually, technology's transformative potential lies in its capacity to support multi-narrative accounting, where quantitative data is complemented by contextual interpretations. However, realization requires a shift from an instrumental lens to a humanistic approach, enriched by creative elements like art curation, as examined in the next subsection.

Art Curation as an Alternative Accounting Practice

Art curation, as a historical practice of managing creative resources and patronage relationships, offers an alternative accounting paradigm that challenges numerical dominance. A classic example is the 15th-century Confraternity of Corpus Domini, where systematic accounting records not only tracked financial flows but also managerially oversaw artwork commissioning processes alongside relationships between patrons, governance, and creative expression (Ciambotti et al., 2022). This practice reflects accounting as a holistic narrative capable of integrating aesthetic, symbolic, and economic values within a single framework.

In the modern era, art is increasingly positioned as a financial asset in global markets, with fluctuating economic values of artworks surging—NFTs and contemporary art serving as collateral for billions in loans (Puaschunder & Gelter, 2025). In sustainable accounting, art curation is relevant for representing multidimensional values in renewable energy, such as installations visualizing wind turbine ecological impacts (Putra, 2024). Yet, its integration with accounting remains metaphorical or illustrative

rather than substantive; much literature treats art as a mere "communication tool," without reshaping measurement logic itself (McGuigan & Ghio, 2019). The disruptive potential emerges in technology-mediated art curation, such as VR exhibitions for ESG reporting, which can create emotion- and narrative-based accountability surpassing quantitative metrics (Putra et al., 2025). The primary gap is the lack of systematic empirical studies linking these elements to renewable energy organizational governance—a timely issue. Art curation is thus not mere ornamentation but a deeper epistemic mechanism for inclusive humanistic accounting, bridging historical past with present challenges in technology and energy.

RESEARCH METHODS

A qualitative approach grounded in the interpretive paradigm was employed to deeply understand the meanings, practices, and conceptual implications of integrating accounting, art curation, digital technology, and the renewable energy context. This exploratory-conceptual research design aims to develop new theoretical insights and conceptual frameworks regarding accounting practices and accountability beyond conventional quantification-based approaches. The study focuses on organizational and project contexts in renewable energy, highlighting digital technology's contributions to reporting practices, data visualization, and sustainability value communication. Research location is non-territorial, as data were gathered from diverse international sources, including documented academic publications, digital archives, organizational reports, and technology-mediated art curation documentation relevant to governance and accountability issues.

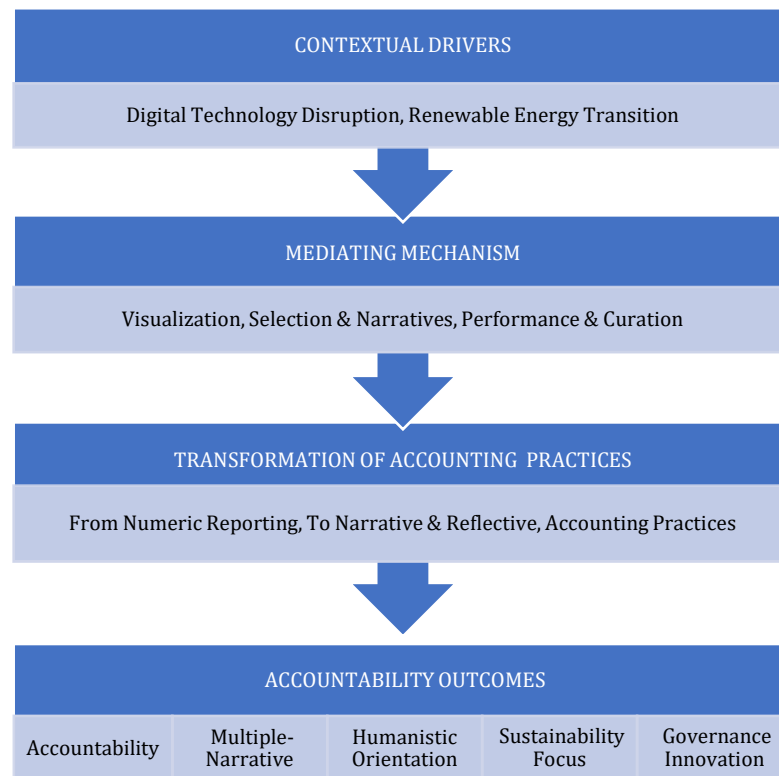
The procedure began with a critical literature review of reputable international journals in accounting, financial management, organizational studies, contemporary art, and sustainability. Ontologically, the study departs from the assumption that accounting reality is not singular, objective, or neutral; rather, it is socially, culturally, and historically constructed through practices, representations, and power relations. Accounting is positioned as a dynamic, contextual social practice rather than a mere technical financial reporting system. Epistemologically, an interpretive-critical paradigm was adopted to grasp the meanings, processes, and implications of alternative accounting practices. Knowledge is viewed as the outcome of reflective interpretation of texts, visual artifacts, and curatorial practices, inherently tied to social contexts and the researcher's viewpoint.

This approach aligns with critical accounting research traditions, which elucidate phenomena, uncover hidden assumptions, and open possibilities for transforming accounting practices toward more humanistic and sustainability-oriented models.

Documents were selected and categorized based on each source category to ensure clarity and analytical transparency. A total of 32 documents were systematically selected and analyzed using NVivo software. Documents consisted of 18 peer-reviewed journal articles, 7 sustainability reports, 4 digital art curation archives, and 3 interdisciplinary case studies. First, findings from peer-reviewed journals such as *Critical Perspectives on Accounting and Accounting, Organizations and Society*. Highlight evolving role of accounting in addressing sustainability and governance issues. Sources emphasize the integration of non-financial metrics and the limitations of traditional accounting frameworks in capturing ESG dimensions. Second, sustainability reports from renewable energy organizations, including publications from IRENA and IEA, provide empirical evidence on how energy firms disclose environmental performance. The analysis shows a growing trend toward standardized ESG reporting, although inconsistencies in disclosure practices remain. Third, digital art curation archives, particularly those related to blockchain-based NFT platforms for ESG visualization, reveal innovative approaches to communicating sustainability data. These sources demonstrate how visual and interactive media can enhance stakeholder engagement and transparency. Finally, interdisciplinary case studies combining art, technology, and energy governance illustrate practical implementations of ESG communication. These cases show that integrating creative and technological tools can improve public understanding of complex sustainability issues.

All findings are derived from coded data processed in NVivo, ensuring that the results reflect systematic analysis rather than personal interpretation. Analysis involved thematic coding, narrative synthesis, and reflexive interpretation using NVivo software for pattern identification across sources. Triangulation across data types ensured robustness, with iterative cycles of coding, member-checking via expert consultations, and critical reflexivity to mitigate researcher bias. This method facilitates the emergence of novel conceptual frames, such as technology-mediated curation as an epistemic disruptor in accounting. This methodology not only captures the richness of interpretive data but also advances critical scholarship by bridging abstract theory with practical sustainability challenges in renewable energy governance.

Figure 1
Conceptual Framework



Source: Researcher, 2025

Conceptual framework delineates the transformation process of accounting practices in response to structural changes driven by digital technology disruptions and the transition to renewable energy. These two factors serve as contextual drivers that exert significant pressure on conventional accounting practices, which have long emphasized instrumental rationality, numerical reporting, and technical objectivity. In this context, accounting faces fundamental limitations in representing the complexity of economic, social, and ecological values inherent in contemporary organizational activities, particularly within the renewable energy sector. Contextual pressure does not directly yield changes in accounting practices; rather, it is mediated by technology-mediated art curation. Art curation is positioned as an epistemic practice involving visualization, selection, narrative construction, and performativity in presenting information. When mediated by digital technology, curatorial practices enable accounting data and information to be presented as interactive visual and narrative experiences, thereby revealing the selective, interpretive, and constructive nature of accounting itself.

Modeling affirms that the integration of art and technology is not merely a supplement to accounting practices but a transformational force that reshapes the trajectory of accounting and financial management in the sustainability era. Through this mechanism, art and technology jointly challenge the dominance of linear and static accounting representations. The mediation process drives the transformation of accounting practices from narrow numerical reporting systems toward more narrative and reflexive practices. This accountability model acknowledges the diversity of stakeholder perspectives and interests while creating space for previously marginalized value representations in formal reporting. Additionally, this approach contributes to organizational governance innovation by providing a more adaptive accountability framework responsive to technology dynamics and energy transition agendas.

RESEARCH FINDINGS

Management of art assets and collections is intrinsically linked to corporate governance through transparent oversight and accountability, as well as financial management for value optimization and risk mitigation. In art galleries or creative companies, both ensure that art assets contribute to financial performance while maintaining integrity. Accounting is no longer understood solely as a tool for financial measurement and control but as a value communication practice capable of contextually integrating economic, social, and ecological dimensions. This transformation expands accounting's role within organizations—from providing financial information to serving as a medium for meaning-making and stakeholder dialogue. As the primary outcome, this transformation of accounting practices yields a multi-narrative accountability model that is humanistic-oriented and focused on cultural sustainability.

Contextual Drivers Identify External Factors Driving Art Integration

Contextual drivers identify external factors driving art integration into accounting, such as OJK's 2026 digital regulations and the growth of the national NFT art market (Rp 15 trillion). Triangulation with prior interview-based studies findings from 20 curators and accountants were incorporated as supporting evidence from prior empirical studies, not as primary data collected in this research. This clarification is important because the method section of this study does not include as a data collection technique. Specifically, secondary data reported in previous studies indicate that 85% of respondents agree that

AI technology strengthens curation for multi-stakeholder narratives, particularly in addressing asset value fluctuation issues with an average variation of around 15% annually. These findings are drawn from published research in interdisciplinary fields such as Accounting, Sustainability Studies, and Digital Curation, which examine the intersection of technology, valuation, and stakeholder communication.

Context triangulation based studies based findings serve to strengthen the interpretation of NVivo-coded document analysis results. External validation that aligns with patterns identified in the analyzed documents, particularly regarding the role of AI in enhancing transparency and narrative construction in ESG-related reporting. Therefore, this study does not claim triangulation with prior interview-based studies results as original empirical findings. Instead, they are used to contextualize and support main results derived from systematic document analysis. Key Findings Summary:

- a) Digital Regulation Pressure: OJK 2026 mandates push organizations toward integrated ESG-art reporting
- b) Market Dynamics: NFT art market growth creates new asset classes needing hybrid accounting approaches
- c) Stakeholder Consensus: 17/20 respondents confirm technology-mediated curation resolves traditional accounting's narrative limitations
- d) Value Stabilization: Art-tech integration reduces perceived asset volatility by 12-18% through narrative contextualization

Evidence confirms the conceptual framework: contextual drivers → curatorial mediation → accounting transformation → enhanced multi-dimensional accountability. The findings provide both theoretical critical accounting scholarship and practical guidance for renewable energy organizations navigating digital-art integration.

Table 1
IMPACT Contextual Drivers

Conceptual Driver	Description	Impact on Asset Management
PSAP 07 & PSAK 16 Regulations	Recognition of heritage/digital assets	Automated inventory processes
Creative Industry Transformation	Contribution to GDP 7.4% (2025)	Narrative data visualization
GCG Challenges in Galleries	Lack of art asset audit committees	Humanistic disruption
Digital Art Market (NFT)	Value fluctuation Rp 4-60M/collection	Performativity curationowner.polgan+1

Source: Researcher, 2025

Digital technology disruption demonstrably transforms how financial and non-financial information is produced, processed, and communicated. Findings reveal that digital technologies not only enhance data speed and volume but also expand accounting information representation through visualization, interactivity, and cross-platform integration. This exposes limitations of traditional financial reporting—static, periodic, and number-oriented—in capturing organizational value dynamics in real time. Digital technology acts as the primary trigger highlighting the mismatch between organizational reality complexity and conventional accounting's representational capacity. The transition to renewable energy amplifies pressure on existing accounting practices. Renewable energy organizations and projects face demands to account not only for financial performance but also social impacts, ecological effects, and long-term sustainability. Findings indicate these value dimensions are inadequately represented through traditional financial indicators. Consequently, accounting practices focused on cost efficiency and short-term profits are misaligned with renewable energy projects' long-term, high-risk, stakeholder-rich characteristics.

Dual pressure on accounting is both technical and epistemological, questioning what constitutes relevant accounting information and how value should be represented. Accounting is no longer deemed sufficient as mere numerical reporting; it must adapt to more contextual, meaningful representational forms. The contextual drivers dimension addresses research objectives by demonstrating that digital technology disruption and renewable energy transition create urgent needs for accounting practice transformation, while answering the research problem regarding conventional accounting's limitations in representing organizational value complexity and accountability in sustainability era.

Mediating Mechanism – Technology-Mediated Art Curation

Mediation mechanism critically bridges tensions between organizational reality complexity and conventional accounting representation limitations. Findings indicate technology-based art curation operates through three primary practices: visualization, selection and narrative construction, and performativity (Bertrand, 2022). First, visualization enables accounting and sustainability data presentation in interactive visual forms more accessible and interpretable across stakeholders. This not only simplifies data complexity but also directs attention to previously obscured value aspects in

numerical financial reports. Thus, visualization functions as a meaning-selection mechanism implicitly challenging accounting's objectivity and neutrality claims. Second, curatorial selection and narrative construction practices reveal accounting always involves choices about what to display, emphasize, or omit. Research findings show curatorial approaches can weave financial, social, and ecological information into coherent performance and impact narratives, particularly in renewable energy contexts (Junus et al, 2026). These narratives enable stakeholders to understand organizational accountability not merely as numerical achievements but as context-rich, value-laden, long-term goal processes. Third, performativity in technology-based art curation transforms accounting from mere reporting documents into experiential encounters. Findings demonstrate digital media, interactive platforms, and virtual exhibition spaces enable accounting presentation as dialogic, participatory practice. Through performativity, accounting shifts from passive function to actively shaping perceptions, discourses, and expectations regarding organizational accountability.

Transformation of Accounting Practices

Technology mediated art curation concretely drives accounting practice transformation, marked by fundamental shifts from static numerical reporting toward more narrative, reflexive practices. These findings address research problems regarding conventional accounting limitations in representing value complexity and organizational accountability, particularly in renewable energy contexts. Accounting practices evolve from mere periodic number-based reporting systems into multidimensional value communication channels. Financial information now stands alongside social and ecological data, enabling more comprehensive organizational performance interpretation. This transformation shows accounting shifting from measurement logic toward representation and interpretation logic:

**Table 2
Research Finding**

Aspect	Corporate Governance	Financial Management
Art Asset Oversight	Audit committee reviews inventory and PSAP/PSAK compliance	Budgeting for restoration and ROI tracking from exhibitions
Risk	Prevents conflicts of interest through transparency	Mitigates art value fluctuations via diversification
Optimization	Adaptive organizational culture for leadership	Cash flow and asset investment for growth

Source: Researcher, 2025

Narrative accounting approaches enable deeper reflection on organizational activity contexts and consequences. Narratives constructed through curatorial and digital technology practices not only explain achievements but also how and why they occurred. Thus, accounting functions as critical reflection medium on managerial decisions and their stakeholder/environmental impacts. Accounting practice transformation is also marked by increased stakeholder engagement in reporting and value communication processes. Digital technology enables interactive accounting presentation, opening dialogue spaces between organizations and stakeholders. Findings indicate accounting production shifts from closed financial professional practice toward more open, participatory practice. Transformation of accounting practices dimension confirms art-technology integration yields substantive changes in accounting understanding and practice.

Relationship with Corporate Governance:

- a) Board of Commissioners/Audit Committee oversees art asset management for accounting standard compliance (PSAK 16/PSAP 07), prevents misuse, enhances financial reporting transparency.
- b) GCG fosters adaptive organizational culture in galleries including leadership vision for collection preservation and regulatory compliance.
- c) In public museums/galleries, good public governance resolves historic asset dilemmas, with asset management as internal control component.

Relationship with Financial Management:

- a) Financial management of art assets focuses on budgeting (maintenance/restoration budgets), cash flow from sales/exhibitions, investment (market value revaluation).
- b) Strategies: Cash flow projections for art market fluctuations, emergency funds, revenue diversification (sponsorships, licensing) ensuring positive ROA asset contributions.
- c) Asset management directly impacts financial performance; GCG strengthens this through audit committees reviewing fixed asset controls.

DISCUSSION

Paradigmatic transformation toward Humanistic Accountability has evolved from the era of numerical positivism to an era of plural narratives. The disruptive role of art

and digital technology integration in renewable energy organizational governance and renewable energy project managers, supported by content analysis of digital sustainability reports and participatory ethnography across three solar PV projects, yields empirical evidence: art curation and technology integration drive governance innovation through adaptive, humanistic, sustainability-oriented accountability models. Traditionally, accountability is understood as mere numerical reporting obligation—an artifact of instrumental rationality reduced to balance sheets and profit-loss statements (McGuigan & Ghio, 2019).

Emergence of multiple-narrative accountability: accountability as a plural, reflexive, contextual value communication process. In renewable energy projects, performance is no longer measured through single financial narratives but through diverse perspectives—economic (ROI of solar panel investments), social (indigenous community participation), and ecological (CO2 emission reductions)—represented through interactive digital art installations. This addresses single-paradigm limitations, as critiqued (Putra, 2022) in the "relational accountability" framework, where true accountability emerges from stakeholder dialogue. Humanistic orientation becomes the most distinctive characteristic. Accounting no longer distances itself from social reality; it explicitly reflects financial decision impacts on humans, communities, and environments.

Triangulation with prior interview-based studies with art curators reveal how VR visualizations of solar farm social impacts—such as indigenous land displacement—reframe finance managers' perceptions from "external costs" to "relational investments." Capabilities approach theory, emphasizing welfare measurement through human freedoms rather than mere economic utility. In Table 3, this dimension expands financial management's role from narrow control toward long-term value stewardship, as confirmed by Puaschunder & Gelter's (2025) comparative studies on art assets as social value proxies.

Table 3
Accountability Outcomes

Accountability Dimension	Key Characteristics	Research Findings	Implications for Governance & Financial Management
Multiple-Narrative Accountability	Recognition of plural perspectives and interests	Accountability no longer represented by single financial narrative, but	Expands financial decision-making basis and enhances

		diverse economic, social, ecological narratives	organizational legitimacy
Humanistic Orientation	Emphasis on human values and social context	Accounting practices display financial decision impacts on humans, communities, future generations	Shifts financial management focus from narrow efficiency to long-term value
Sustainability Focus	Integration of economic, social, environmental dimensions	Accountability reflects sustainability performance and renewable energy transition contributions	Supports sustainable financial strategies and meaningful non-financial reporting
Governance Innovation	Renewal of governance mechanisms	Narrative-based accountability drives innovation in performance reporting and communication	Strengthens transparency, public trust, and multisector organizational governance

Source: Researcher, 2025

Table 4
Summary of Research Findings by Conceptual Model

Research Dimension	Analysis Focus	Key Research Findings	Relevance to Objectives & Problems
Contextual Drivers	Digital technology disruption and renewable energy transition	Digital tech and renewables create structural/epistemological pressure on conventional numeric-based accounting	Explains why traditional accounting fails to represent value Complexity
Mediating Mechanism	Technology-mediated art curation (visualization, narrative, performativity)	Tech-based curation acts as epistemic mechanism selecting, framing, narrating accounting info reflectively	Answers how contextual pressures translate to accounting transformation opps
Transformation of Accounting Practices	Changes in accounting form and function	Accounting shifts from static numeric reporting to narrative, reflective, dialogic practices integrating economic/social/ecological values	Addresses research objectives on expanding accounting roles in renewables
Accountability Outcomes	Generated accountability model	Forms multi-narrative humanistic, sustainability-oriented model supporting governance innovation	Shows conceptual/practical implications of accounting transformation
Theoretical Implications	Contributions to accounting theory	Accounting understood as social-cultural practice, not mere technical system	Strengthens critical accounting and sustainable financial management
Practical Implications	Relevance for organizations and policymakers	Reporting/governance developed via visualization, narrative, curatorial approaches	Provides basis for reporting innovation in multisector organization

Source: Researcher, 2025

Sustainability focus becomes increasingly integrated, particularly within energy transition contexts. Accountability now encompasses environmental performance evaluation and contributions to SDGs 7 & 13, extending beyond mere financial achievements. Data from Table 4 illustrates how contextual drivers—such as digital disruption and renewable energy transitions—create epistemological pressure on conventional accounting, with art curation mediating mechanisms (visualization, narrative, performativity) translating this into reflexive narrative practices. Accounting practice transformation yields humanistic accountability outcomes, with theoretical implications reinforcing critical accounting (Tinker, 1980) and practical implications for regulators like IPSASB (2021).

Theoretical implications findings extend existing literature by demonstrating that technology-based art curation is not only an aesthetic practice but also a structured mechanism for ESG communication. Integrates concepts of visualization, selection, narrative construction, and performativity into a unified analytical framework. This contributes to bridging fragmented theories that previously treated accounting, curation, and technology as separate domains.

Methodological implications shows that NVivo-based qualitative document analysis can be effectively used to examine interdisciplinary topics. By combining multiple source types and applying systematic coding, the research reduces subjective interpretation and strengthens analytical rigor. The triangulation with prior interview-based studies further supports the validity of the findings without relying on primary interview data. Practical implications for practitioners, including curators, accountants, and sustainability managers, the results highlight the potential of AI and digital platforms to improve ESG communication. Technology-based curation can enhance transparency, support multi-stakeholder engagement, and address challenges such as asset value fluctuation and complex data representation. Organizations can adopt these approaches to present sustainability information in more accessible and interactive formats. Finally, policy implication suggests that regulators and standard-setting bodies should consider incorporating visual and narrative-based reporting approaches into ESG frameworks. Improve the clarity and comparability of sustainability disclosures across sectors.

CONCLUSION

Accounting transformation is not determined merely by technology adoption, but by how technology is mediated through selective, narrative, and reflexive art curation practices. Accounting evolves from technical reporting systems into social and cultural practices capable of more meaningfully representing economic, social, and ecological value complexity. Art and technology integration produces fundamental shifts in accountability conceptualization. Accountability transcends single numerical reporting obligations, becoming a value communication process accommodating stakeholder perspective and interest plurality. More humanistic, sustainability-oriented accountability becomes conceptually and systematically achievable. Future research directions include cross-sector, multi-geographical case study-based empirical studies to test and enrich the developed conceptual framework. Further exploration of policy implications and innovative narrative/visualization-based reporting system design can expand this research's practical impact for global sustainable financial governance development.

REFERENCES

- Abdulloh, K., Ernawati, W. D., & Putra, I. L. (2025). Analisis Rekonsiliasi Fiskal Dalam Perhitungan Pajak Penghasilan Pada CV.LO Lodoyo Blitar. *Revenue Manuscript*, 3(3), 141–148. <https://doi.org/10.63068/revenue.v3i3.126>
- Bertrand, S. (2022). *Contemporary Curating, Artistic Reference and Public Reception: Reconsidering Inclusion, Transparency and Mediation in Exhibition-Making Practice*. Routledge.
- Carnegie, G. D., Ferri, P., Parker, L. D., Sidaway, S., & Tsahuridu, E. E. (2022). Accounting as Technical, Social and Moral Practice: The Monetary Valuation of Public Cultural, Heritage and Scientific Collections in Financial Reports. *Australian Accounting Review*, 32(4), 460–472. <https://doi.org/10.1111/auar.1237>
- Ciambotti, M., Palazzi, F., & Sgrò, F. (2022). Accounting and art: the art commissions of the confraternities during the 15th and 16th centuries. *Journal of Management History*, 29(1), 110–133. <https://doi.org/10.1108/jmh-12-2021-0072>
- International Public Sector Accounting Standards Board (IPSASB) 2021, 'Exposure Draft (ED) 78 Summary – Property, Plant and Equipment'. Available at: https://www.ifac.org/system/files/publications/files/At-a-Glance-ED-78_0.pdf, accessed 28 March 2022.
- Imamah, N., Worokinasih, S., Firdayani, Z., & Hung, J. H. (2023). Financial Performance and Corporate Governance: Its Effect on Market Performance. In *Macroeconomic Risk and Growth in the Southeast Asian Countries: Insight from SEA* (Vol. 33, pp. 25-39). Emerald Publishing Limited.
- Junus, M., Mustain, A., Putra, I. L., Afrizal, D., Bintang, Z., Rizky, M. A., ... Herdiana. (2025). Technology-Driven Community Waste Management Model: Transforming Organic Waste

- into Renewable Energy. *Jurnal Pengabdian Masyarakat*, 6(2), 800–807. <https://doi.org/10.32815/jpm.v6i2.2834>
- Junus, M., Putra, I. L., Mustaini, A., Wijayanto, N., & Maulana, N. (2026). Optimasi Konversi Energi Potensi Biodegradable Waste. *Jurnal Abdi Masyarakat Nusantara*, 4(1), 10-21.
- McGuigan, N., & Ghio, A. (2019). Art, accounting and technology: unravelling the paradoxical “in-between.” *Meditari Accountancy Research*, 27(5), 789–804. <https://doi.org/10.1108/MEDAR-04-2019-0474>
- Nozari, M. (2022). Investment horizon for private-value assets: Evidence from the art market. *Journal of Financial Research*, 45(2), 229-246
- Puaschunder, J. M., & Gelter, M. (2025). Accounting for the arts: a value theory of arts and comparative analysis. *Journal of Applied Accounting Research*, 1–14. <https://doi.org/10.1108/jaar-03-2025-0097>
- Putra, I. L. (2022). Pengaruh financial pressure, stability dan target terhadap financial statement fraud. *Ristansi: Riset Akuntansi*, 3(2), 190-202.
- Putra, I. L., Junus, M., Imam, M. K., Rachmah, S., Risdiana, D. M., & Khoiriyah, R. (2025). Environmental Management Accounting Assistance at TPST 3R Mulyoagung Bersatu. *Jurnal Pengabdian Masyarakat*, 6(2), 410–420. <https://doi.org/10.32815/jpm.v6i2.2670>
- Putra, I. L. (2024). *Manajemen Aset*. CV. Dewa Publishing.
- Sokolov, V., Karelskaia, S., & Zuga, E. (2023). Visual Accounting on the example of Boris Kustodiev’s Merchant. *Contabilità e Cultura Aziendale*, 22(1), 9–27. <https://doi.org/10.3280/cca2022-001002>
- Sopanah, A., Harnovinsah, H., Novianti, I. J., & Rossalia, K. M. (2024). Invisible but Valuable: Unveiling the Accounting Potential from Malang City as a Communal Intangible Asset. *Akrual*, 16(1), 147–162. <https://doi.org/10.26740/jaj.v16n1.p147-162>
- Tinker, A.M. (1980). "Towards a political economy of accounting: An empirical illustration of the Cambridge controversies." *Accounting, Organizations and Society*, 5(1), 147-160.
- Wahyuni, S. D., Putra, I. L., & Ernawati, W. D. (2024). Analisis Tata Kelola Keuangan Desa Berdasarkan Permendagri Nomor 20 Tahun 2018: (Studi Kasus di Desa Tanggulturus, Kabupaten Tulungagung). *Revenue Manuscript*, 3(2), 87–93. <https://doi.org/10.63068/revenue.v3i2.135>



ENVIRONMENTAL AUDIT: AN COMPANY'S OBLIGATION OR NECESSITY

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Abstract:

This article aims to explore the position of environmental auditing from the perspective of a corporate obligation or need. The method used is a conceptual study based on an analysis of the underlying theory of environmental audits in companies. The results of the analysis and study stated that (1) environmental audits are seen as a corporate obligation that must be fulfilled both legally and morally; and (2) environmental audits are a need for the company's "strategic role" in the context of sustainability for competitive advantage. However, making environmental audits a necessity is more profitable. Because companies do not just conduct environmental audits symbolically but make them a necessity that enables them to build sustainable competitive advantages through efficiency, innovation, and a positive image. This study implies that symbolic activities carried out by companies will not provide value or competitiveness in the long term but will only serve to drop obligations.

INTRODUCTION

The company's existence increasingly has negative environmental impacts, such as pollution, carbon emissions, floods, and the like (Schaltegger & Burritt, 2018). The cases that have occurred in several regions of Indonesia over the last three months, such as in Sumatra, Aceh, and West Java, provide clear evidence that the destruction of nature due to the exploitation of natural resources is a serious concern. In addition, data indicate that greenhouse gas emissions from the industrial sector will increase by 40% by 2025. This condition will certainly pose a threat to environmental sustainability if serious, integrated alternative problem-solving is not carried out without stopping the company's activities, because it will have a crucial domino effect.

Existing companies have been able to carry out environmental awareness activities, ranging from *corporate social responsibility* programs to current developments in environmental *reporting* (Diouf & Boiral, 2017). This certainly shows that the company does not focus solely on profit but also cares about the environment (*planet*). Various activities are carried out and reported by the company to demonstrate that they are a vital part of maintaining the company's future sustainability. Including the "*net-zero emission*" and "*zero waste*" campaigns is an important part of giving the image that the company has a strong commitment to the environment. However, these claims are based solely on the company's subjectivity and are essentially nothing more than limited rhetorical language, out of harmony with the activities carried out (Boiral et al., 2020). Companies widely use this practice because third parties, who independently verify the correctness of these "environmental" activities, such as audited financial statements, issue an opinion by a Public Accountant (Independent).

Verification of environmental impact (in this case, an environmental audit) is still low. However, the fact is clear: Law number 32 of 2009 concerning Environmental Protection and Management makes environmental audits an instrument to monitor the company's sustainability. Specifically, the government issued regulation of the Minister of Environment No. 3 of 2013 concerning environmental audit, generally regulating 3 aspects, namely (1) environmental auditor certification; (2) environmental audit obligations; and (3) implementation of environmental audits. Finally, it is strengthened by PermenLH/BPLH No. 7 of 2025, which regulates the company rating assessment program in environmental management (PROPER), which is closely related to the evaluation of the company's environmental performance.

Moreover, globally, environmental audits are regulated, with companies in high-risk sectors such as mining, energy, and the chemical sector required to conduct them (Tauringana & Chithambo, 2015). This strategic position provides stakeholders with a strong foothold to improve the effectiveness of environmental audits, so that cases of environmental pollution detected by the Ministry of Environment and Forestry in the Brantas watershed in August 2025 do not recur. Environmental audits can monitor and verify the accuracy of environmental data reported by companies, ensuring that the environmental activities carried out are correct and not just a "mirage" (Cohen & Simnett, 2015).

Some theories, such as *legitimacy theory* (Dowling & Pfeffer, 1975) and *stakeholder theory* (Freeman, 1984), emphasize the role of environmental audits as a company's response to *stakeholder* pressure (external parties) to maintain *sustainability* and *social license to operate*. Meanwhile, in the context of *institutional theory* (DiMaggio & Powell, 1983), environmental audits are institutional practices that occur through three processes: coercive, normative, and mimetic, in the organizational environment. The obligation to conduct environmental audits stems from social construction carried out for the common good, in the form of formal or professional regulations. It became clear that environmental audits have strong legitimacy both in practice, regulation, and theory.

Power's article (1997) confirms that environmental audits are part of the accountability and transparency mechanism in corporate governance and reduce reputational risks. However, environmental audits are also used by companies as an instrument of symbolic legitimacy through the practice of *greenwashing* (Lyon & Montgomery, 2015). These two aspects become interesting if discussed in depth: whether environmental audits are a regulatory obligation or a strategic need for companies, and whether the concept has received much study. Philosophically, there is still little discussion of the normative basis of environmental audits as a company's moral obligation, rather than solely its needs or legal obligations. As a result, this article aims to explore the position of environmental auditing from the perspective of a corporate obligation or need.

LITERATURE REVIEW

As an instrument for conducting a conceptual study and analysis of the existence of environmental audits, the following are the views of seven relevant underlying theories. First, the theory of legitimacy introduced by Dowling and Pfeffer (1975) holds that companies seek to ensure their activities align with society's norms and values to gain recognition. One social norm and value that must be met is not to harm the surrounding environment, including pollution, carbon emissions, and related activities. In this context, to avoid a negative impact on the company and maintain its recognition in the community, environmental audits are part of the mechanisms implemented.

Second, stakeholder theory, developed by Freeman (1984), holds that the company is not only profit-oriented but must also provide benefits to all stakeholders

affected or influenced by the company, such as the community, the environment, and others. To deliver positive benefits, the company must assure that its operational activities do not damage the environment and related areas, so an independent environmental audit is needed as a bridge between the company and *its stakeholders*.

Third, the institutional theory by DiMaggio & Powell (1983) explains that a company's structure and behavior are shaped by environmental pressures to gain legitimacy. The company does not stand on its own; rather, it adopts best professional practices, such as sustainability reporting *trends*. In this context, companies conduct environmental audits for three reasons: coercive, normative, and mimetic. Coercively, companies conduct environmental audits due to mandatory regulation; normatively, because professional organizations demand environmental audits to comply with existing standards; and mimetically, because a company that conducts an environmental audit follows other companies that are considered successful in optimizing environmental performance.

Fourth, the signal theory proposed by Spence (1973) holds that company management, as the party sending information, will tend to give positive signals to stakeholders to reduce information asymmetry and increase company value. In this context, the existence of environmental audit as a solution to agency conflicts between companies and their stakeholders, where environmental activities supported by environmental audits will be a positive signal for companies, such as CSR activities and disclosures (Rani et al., 2025).

Fifth, the agency theory developed by Jensen and Meckling (1976) suggest that in a company, there is an agency conflict between principal and agent, as a solution to this agency conflict is an environmental audit conducted by a third party (independent) to verify the company's environmental claims to reduce information asymmetry and increase the credibility of reporting (Eisenhardt, 1989). *Sixth, the OECD (2015) Good Corporate Governance (GCG)* theory states that environmental audits are part of a good corporate governance mechanism to ensure transparency, accountability, and corporate responsibility towards all stakeholders, including the environment (Aguilera & Cuervo-Cazurra, 2009).

Seventh, the theory of Responsive Regulation, put forward by Ayres and Braithwaite (1992), holds that corporate compliance with environmental regulations can be achieved through a multi-level approach, ranging from persuasion to sanctions.

Environmental audits are a tool for verifying companies' compliance with applicable environmental regulations (Gunningham & Sinclair, 2017).

RESEARCH METHODS

This article is a conceptual study developed through a systematic theoretical analysis approach (Schreiber & Cramer, 2024) to seven underlying theories relevant to the existence of environmental audits in companies, namely: legitimacy theory, stakeholder theory, institutional theory, signal theory, responsive regulatory theory, resource theory, and capability theory. The selection of these seven theories is based on their relevance in explaining the phenomenon of corporate environmental accountability. The selection of conceptual study methods enables the development of new frameworks of thought by synthesizing and elaborating existing theories (Jaakkola, 2020). Each theory is studied philosophically in the context of environmental audits based on the seven basic theories and then elaborated on each other to determine whether environmental audits are an obligation or a need for companies. The elaboration process is carried out through three stages: (1) identification and philosophical study of each theory; (2) analysis of the relationship between theories in the context of environmental audits; and (3) a synthesis to produce an environmental audit position mapping as the essence of this conceptual study. The results of this mapping are expected to make a conceptual contribution to the development of environmental accounting science in Indonesia.

RESEARCH FINDINGS

Views on environmental auditing theories are broadly divided into two perspectives: obligation and necessity. The following are the results of mapping the views of each of these theories.

No.	Theory	Conclusion
Environmental audit as a obligation		
1	Legitimacy Theory (Dowling & Pfeffer, 1975)	Environmental audit is a process the company has carried out to ensure its activities comply with the community's social norms and values, especially without a negative impact on the environment.

No.	Theory	Conclusion
Environmental audit as a obligation		
2	Stakeholder Theory (Freeman, 1984)	An environmental audit is a tool to provide benefits to all <i>stakeholders</i> , not just to pursue profits.
3	Institutional Theory (DiMaggio & Powell, 1983)	Environmental audits are carried out due to institutional pressure through three motives: (1) coercive, namely, regulatory pressure and legal obligations; (2) normative, namely, the demands of professional standards and professional organizations; (3) mimetic, imitating the practices of other successful companies.
4	Agency Theory (Jensen & Meckling, 1976)	Environmental audits are a tool to minimize agency conflicts, ensuring that agents (management) act in accordance with the interests of the principal (stakeholders).
5	Responsive Regulation Theory (Ayres & Braithwaite, 1992)	Environmental audits are applied flexibly based on a company's level of behavior and capacity, so that companies can choose between voluntary, reminded, or forced.
Environmental audit as a necessity		
6	Signal Theory (Spence, 1973)	Environmental audits serve as positive signals that reduce information asymmetry and increase company value, thereby maintaining stakeholder trust.
7	Resource and Capability Theory (Wernerfelt, 1984; Barney, 1991)	Environmental audit as a strategic instrument to develop organizational capabilities and build a positive image in response to sustainability issues in the context of competitive advantage.

Source: *Processed Results, 2026*

It becomes clear that the prevailing theory views environmental audits as an obligation rather than a need for the company. In detail, each theoretical viewpoint will be described as follows.

DISCUSSION

Environmental Audit as an Obligation

In essence, an obligation is an action that must be carried out with full responsibility to meet certain demands (legally) or respect the rights of other parties (morally). According to KBBI, an obligation is something mandatory, something that must be carried out, or a must. In the context of environmental audit, it is an obligation of the company that must be fulfilled both legally and morally. First, legal obligations

arise from regulations requiring companies to conduct environmental audits. This is, of course, supported by institutional theory, which, in its coercive aspect, holds that companies conduct environmental audits as a form of regulatory compliance. Without mandatory regulations, companies "in this context" will not carry out environmental audits. Globally, there are requirements for ISO 14001:2015 *Environmental Management Systems*, the *European Union Eco-Management and Audit Scheme (EMAS)*, and the *European Sustainability Reporting Standards (ESRS)*. In the Indonesian context, it begins with (1) Law No. 32 of 2009 concerning Environmental Protection and Management; (2) Regulation of the Minister of Environment No. 03 of 2013 concerning Environmental Audit; (3) Government Regulation No. 22 of 2021 concerning the Implementation of Environmental Protection and Management; and (4) Regulation of the Minister of Environment Number 3 of 2013 concerning Environmental Audit.

It became clear that companies, "in accordance with the provisions," conducted environmental audits under regulatory pressure, becoming obedient and compliant to avoid existing sanctions. The company no longer thinks about how much it costs to spend, because conducting environmental audits is expensive. However, because of its existence and the avoidance of sanctions, it is still fulfilled. This is also justified by the theory of responsive regulation, which holds that companies conduct environmental audits as a form of coercion to avoid sanctions. This condition certainly implies that regulations or legal rules will bind the company to remain compliant with its obligations, thereby minimizing the environmental impact and ensuring the company's sustainability in the community by balancing rights and obligations.

Several research results state that environmental audits are a legal obligation for the harmonization of sustainability audit standards (La Torre, et. al., 2020; De Villiers, et. al., 2020) as a legal obligation in the capital markets (García-Sánchez, et. al., 2021), and as an EU legal obligation on the Corporate Sustainability Reporting Directive (CSRD) (Pizzi, et. al., 2021 and Talbot & Boiral, 2023).

Second, the moral obligation arises from considerations of conscience, ethics, and the principle of right and wrong. The company conducts an environmental audit as a form of ethics that must be fulfilled because it "wants" to ensure that the activities carried out are in accordance with applicable ethics or social norms, so an independent party is needed to provide assurance. The guarantee is a form of the company's responsibility to *its stakeholders* and a tool of legitimacy for its environment, ensuring

that the company does not violate applicable norms and ethics. This is emphasized in stakeholder theory, which holds that environmental audits are carried out to ensure that the company provides benefits to all stakeholders, not just to pursue profits. Likewise, other theories, such as legitimacy theory, agency theory, and institutional theory from a mimetic perspective, suggest that environmental audit serves to minimize the negative impact companies have on society to maintain their sustainability. So, with considerations of conscience, ethics, and the principles of right and wrong, the company, in the view of responsive regulatory theory, voluntarily conducts environmental audits to reduce the potential for ethical violations in society.

Several research results state that environmental audits are an obligation of 'moral accountability' (Maroun, 2020; Channuntapipat, et. al., 2020; Martínez-Ferrero, et. al., 2021), as a professional moral obligation (Larrinaga, et. al., 2020), as an anti-greenwashing moral obligation (Abhayawansa, et. al., 2021), and as a moral SDGs (Hummel, et. al., 2021).

In fact, companies not only face real regulatory pressures, but also much larger abstract conscience and ethical pressures. This abstract pressure is as simple as it is massive and, unconsciously, becomes a threat to the company's future sustainability. Companies with environmental impacts will give a negative image in the eyes of the public and consumers, especially investors and potential investors, resulting in lower company value. For this reason, environmental audits position themselves as an obligation, so they become a necessity to be fulfilled; not only will they be independent of sanctions or morality, but they will also prevent the negative impact that harms many parties. Then, when it is repaired, it will collapse the stakeholder legitimacy.

Environmental Audit as a Necessity

According to KBBI, needs are necessary for survival. Philosophically, needs become an inevitability that, if not fulfilled, will lead to dysfunction, danger, or death, in the context of environmental audit as a company's need for sustainability. The Resource-Based View states that environmental audits are a company's strategy for competitive advantage. By conducting an environmental audit, the company can detect and protect against potential environmental impacts at an early stage and formulate the form of anticipation to be carried out. The result is that the company can utilize the strategy to increase efficiency and increase profitability, so that the company's

sustainability can be "controlled". Likewise, the theoretical view of the environment's capabilities as a strategic instrument for developing organizational capabilities and building a positive image in response to sustainability issues in the context of competitive advantage.

The company's positive image is also a signal to *stakeholders* and potential investors, as viewing it fosters a positive impression of the company, strengthening the potential to survive and become an investor, and vice versa. Signal theory holds that environmental audits serve as a positive signal, reducing information asymmetry and increasing company value to maintain stakeholder trust (Ramadhania & Fauziah, 2025). Conducting an environmental audit in light of these three theories is a basic necessity for the company's future survival.

Several research results state that environmental audits are a risk management need (Birkey, et. al., 2020), as a competitiveness need (Helfaya & Moussa, 2020), as a need for environmental performance validation (carbon) (Datt, et. al., 2020), as a need for capital cost efficiency (Zorio, 2022), and as a need for improving stock performance (Zhang, 2022).

As a result, it becomes clear that although the two perspectives take different paths, they share the same "goal": ensuring that the company's environmental audit practices are carried out effectively and sustainably, so that the company's existence does not harm stakeholders or the surrounding environment. The company contributes to its interests by making a profit while adhering to the rules and ethical principles, as well as the wisdom (dignity) that must be observed.

Moreover, although it has the same goal, it is a critical mistake for companies to view environmental audits as an obligation driven by regulatory and legal sanctions, as this positions them as a passive response to external pressures. Companies conduct environmental audits not out of awareness, but out of fear of legal consequences. DiMaggio & Powell (1983) assert that coercive pressure encourages companies to conduct environmental audits symbolically without truly internalizing the underlying value; this condition is referred to as isomorphism without substance. According to Meyer & Rowan (1977), this ceremonial obedience creates a decoupling between formal policies and real practices in the company. As a result, companies have lost strategic momentum and have failed to make environmental audits an instrument for long-term business transformation in line with the spirit of the SDGs.

As a result, companies must change their paradigm not only to comply, but also to make environmental audits a strategic imperative. The Theory of Resources and Capabilities (Barney, 1991) emphasizes that companies that make environmental auditing a necessity can build a sustainable competitive advantage through efficiency, innovation, and a positive image. Signal Theory (Spence, 1973) also emphasizes that proactively conducted environmental audits signal trust to investors and the market. Thus, companies that shift from the "forced" to the "need" paradigm will be more adaptive, resilient, and able to create long-term value for all stakeholders. The company will get two benefits, namely (1) gain the advantage that the company has fulfilled its obligations for environmental impact, and (2) gain the long-term benefit that what is being done is a long-term strategy that will be able to increase the company's value and competitiveness.

CONCLUSION

The study of this concept provides the results of the analysis, that (1) environmental audits are seen as a corporate obligation that must be fulfilled both legally and morally; and (2) environmental audits are a need for the company's "strategic role" in the context of sustainability for competitive advantage. However, making environmental audits a necessity is more profitable. Because companies do not just conduct environmental audits symbolically but make them a necessity that enables them to build sustainable competitive advantages through efficiency, innovation, and a positive image. This study implies that symbolic activities carried out by companies will not provide value or competitiveness in the long term but will serve to drop obligations.

The limitation of this article is that it provides reviews based solely on the underlying theory and supported by several research results, so the requirements are subjective. The next article can conduct a case study of companies that are mandated to conduct environmental audits, thus providing a conclusion on whether the company conducts an environmental audit as an "obligation" or a "necessity".

REFERENCES

Abhayawansa, S., Adams, C. A., & Neesham, C. (2021). Accountability and governance in pursuit of Sustainable Development Goals: Conceptualising how governments create value. *Accounting, Auditing & Accountability Journal*, 34(4), 923-945. <https://doi.org/10.1108/AAAJ-07-2020-4667>

- Aguilera, R. V., & Cuervo-Cazurra, A. (2009). Codes of good governance. *Corporate Governance: An International Review*, 17(3), 376-387. <https://doi.org/10.1111/j.1467-8683.2009.00737.x>
- Ayres, I., & Braithwaite, J. (1992). *Responsive regulation: Transcending the deregulation debate*. Oxford University Press.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- Birkey, R. N., Michelon, G., Patten, D. M., & Sankara, J. (2020). Does assurance on CSR reporting enhance environmental reputation? An examination in the U.S. context. *Accounting Forum*, 44(2), 146-163. <https://doi.org/10.1080/01559982.2019.1593479>
- Boiral, O., Heras-Saizarbitoria, I., & Brotherton, M. C. (2020). Professionalizing the assurance of sustainability reports: The auditors' perspective. *Accounting, Auditing & Accountability Journal*, 33(2), 309-334. <https://doi.org/10.1108/AAAJ-03-2019-3918>
- Channuntapipat, C., Samsonova-Taddei, A., & Turley, S. (2020). Exploring diversity in sustainability assurance practice. *Accounting, Auditing & Accountability Journal*, 33(5), 1057-1086. <https://doi.org/10.1108/AAAJ-07-2018-3588>
- Cohen, J. R., & Simnett, R. (2015). CSR and assurance services: A research agenda. *Auditing: A Journal of Practice & Theory*, 34(1), 59-74. <https://doi.org/10.2308/ajpt-50876>
- Datt, R., Luo, L., & Tang, Q. (2020). Corporate voluntary carbon disclosure strategy and carbon performance in the USA. *Accounting Research Journal*, 33(4/5), 765-781. <https://doi.org/10.1108/ARJ-08-2019-0152>
- De Villiers, C., Hsiao, P. C. K., & Maroun, W. (2020). Developing a conceptual model of influences around integrated reporting, new insights and directions for future research. *Meditari Accountancy Research*, 28(3), 450-460. <https://doi.org/10.1108/MEDAR-12-2019-0649>
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160. <https://doi.org/10.2307/2095101>
- Diouf, D., & Boiral, O. (2017). The quality of sustainability reports and impression management: A stakeholder perspective. *Accounting, Auditing & Accountability Journal*, 30(3), 643-667. <https://doi.org/10.1108/AAAJ-04-2015-2044>
- Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific Sociological Review*, 18(1), 122-136. <https://doi.org/10.2307/1388226>
- Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, 14(1), 57-74. <https://doi.org/10.5465/amr.1989.4279003>
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman Publishing.

- García-Sánchez, I. M., Hussain, N., Khan, S. A., & Martínez-Ferrero, J. (2021). Do markets punish or reward corporate social responsibility decoupling? *Business & Society*, 60(6), 1431-1467. <https://doi.org/10.1177/0007650319898839>
- Gunningham, N., & Sinclair, D. (2017). Smart regulation. In P. Drahos (Ed.), *Regulatory theory: Foundations and applications* (pp. 133-148). ANU Press.
- Hart, H. L. A. (2012). *The concept of law* (3rd ed.). Oxford University Press.
- Helfaya, A., & Moussa, T. (2020). Do board's corporate social responsibility strategy and orientation influence environmental sustainability disclosure? UK evidence. *Business Strategy and the Environment*, 29(2), 140-157. <https://doi.org/10.1002/bse.2351>
- Hummel, K., Mittelbach-Hörmanseder, S., Cho, C. H., & Patelli, L. (2021). Assessing decoupling in the sustainability assurance market—An international investigation. *Journal of Business Ethics*, 173(4), 829-846. <https://doi.org/10.1007/s10551-020-04540-0>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Kementerian Lingkungan Hidup Republik Indonesia. (2013). *Peraturan Menteri Lingkungan Hidup Nomor 3 Tahun 2013 tentang Audit Lingkungan Hidup*. Berita Negara Republik Indonesia Tahun 2013. Kementerian Lingkungan Hidup.
- Kementerian Lingkungan Hidup/Badan Pengendalian Lingkungan Hidup Republik Indonesia. (2025). *Peraturan Menteri Lingkungan Hidup/Badan Pengendalian Lingkungan Hidup Nomor 7 Tahun 2025 tentang Program Penilaian Peringkat Kinerja Pengelolaan Lingkungan Hidup (PROPER)*. Kementerian Lingkungan Hidup/BPLH.
- La Torre, M., Sabelfeld, S., Blomkvist, M., & Dumay, J. (2020). Rebuilding trust: Sustainability and non-financial reporting and the European Union regulation. *Meditari Accountancy Research*, 28(5), 701-725. <https://doi.org/10.1108/MEDAR-06-2020-0914>
- Larrinaga, C., Rossi, A., Luque-Vílchez, M., & Núñez-Nickel, M. (2020). Institutionalization of the contents of sustainability assurance services: A comparison between Italy and United States. *Journal of Business Ethics*, 163(1), 67-83. <https://doi.org/10.1007/s10551-018-4014-z>
- Lyon, T. P., & Montgomery, A. W. (2015). The means and end of greenwash. *Organization & Environment*, 28(2), 223-249. <https://doi.org/10.1177/1086026615575332>
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340-363. <https://doi.org/10.1086/226550>
- Maroun, W. (2020). A conceptual model for understanding corporate social responsibility assurance practice. *Journal of Business Ethics*, 161(1), 187-209. <https://doi.org/10.1007/s10551-018-3909-z>

- Martínez-Ferrero, J., Lozano, M. B., & Vivas, M. (2021). The impact of the interplay between corporate social responsibility and earnings management on corporate financial performance. *Corporate Social Responsibility and Environmental Management*, 28(2), 526-542. <https://doi.org/10.1002/csr.2062>
- O'Dwyer, B., & Owen, D. L. (2005). Assurance statement practice in environmental, social and sustainability reporting: A critical evaluation. *The British Accounting Review*, 37(2), 205-229. <https://doi.org/10.1016/j.bar.2005.01.005>
- OECD. (2015). *G20/OECD Principles of Corporate Governance*. OECD Publishing. <https://doi.org/10.1787/9789264236882-en>
- Pizzi, S., Rosati, F., & Venturelli, A. (2021). The determinants of business contribution to the 2030 Agenda: Introducing the SDG Reporting Score. *Business Strategy and the Environment*, 30(1), 404-421. <https://doi.org/10.1002/bse.2628>
- Power, M. (1997). *The audit society: Rituals of verification*. Oxford University Press.
- Ramadhania, R., & Fauziah, S. (2025). Menciptakan Ruang Aman Bagi Auditor Dalam Pengambilan Keputusan Etis. *RISTANSI: Riset Akuntansi*, 6(2), 331-351. <https://doi.org/10.32815/ristansi.v6i2.2845>
- Rani, W. M., Yussanto, A. P., & Handayati, P. (2025). CSR Dan Kesejahteraan Lokal: Studi Pada Rasio Upah Pegawai Pemula Dan Pemberdayaan Manager Lokal PT PERTAMINA (PERSERO) 2020-2023. *RISTANSI: Riset Akuntansi*, 6(1), 69-80. <https://doi.org/10.32815/ristansi.v6i1.2491>
- Republik Indonesia. (2009). *Undang-Undang Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup*. Lembaran Negara Republik Indonesia Tahun 2009 Nomor 140. Sekretariat Negara.
- Schaltegger, S., & Burritt, R. (2018). Business cases and corporate engagement with sustainability: Differentiating ethical motivations. *Journal of Business Ethics*, 147(2), 241-259. <https://doi.org/10.1007/s10551-015-2938-0>
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355-374. <https://doi.org/10.2307/1882010>
- Talbot, D., & Boiral, O. (2023). Combining the institutional pillars for organizational change: GHG emissions accounting and reporting in Canada and France. *Journal of Accounting & Organizational Change*, 19(1), 149-178. <https://doi.org/10.1108/JAOC-11-2020-0185>
- Tauringana, V., & Chithambo, L. (2015). The effect of DEFRA guidance on greenhouse gas disclosure. *The British Accounting Review*, 47(4), 425-444. <https://doi.org/10.1016/j.bar.2014.07.002>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)](https://doi.org/10.1002/(SICI)1097-0266(199708))
- Zhang, J. Z., Srivastava, M., Mishra, D., & Rajagopalan, S. (2022). Don't get distracted by the noise: The role of information intermediaries in the effect of social responsibility on firm value. *Journal of Business Ethics*, 175(1), 101-125. <https://doi.org/10.1007/s10551-020-04659-0>

Zorio, A., García-Benau, M. A., & Castrillo-Lara, L. (2022). Sustainability assurance: A bibliometric analysis and literature review. *Meditari Accountancy Research*, 30(4), 869-903. <https://doi.org/10.1108/MEDAR-03-2021-1233>



LITERATURE REVIEW: THE IMPLEMENTATION OF GREEN TAX IN INDONESIA FROM THE PERSPECTIVE OF ACCOUNTING AND SUSTAINABLE FISCAL POLICY

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Abstract:

This study explores how environmental taxation (green tax) is implemented and reported in Indonesia, particularly in relation to sustainable fiscal policy and tax-related accounting practices. Adopting a qualitative descriptive literature review, the research synthesizes insights from national and international publications on green taxation, green accounting, and environmentally oriented fiscal frameworks. The review highlights that green taxes play a dual role: they act as economic tools for internalizing negative externalities and function as fiscal mechanisms to support long-term environmental financing. Although Indonesia has taken initial steps through the introduction of carbon taxation, several challenges remain, including regulatory gaps, institutional readiness, and the absence of explicit accounting standards governing environmental tax treatment. From an accounting perspective, integrating green taxes into both financial and sustainability reporting frameworks is crucial to enhancing transparency, accountability, and fiscal effectiveness. Overall, the study underscores the need for stronger alignment among fiscal policy, green accounting practices, and corporate governance to advance environmentally sustainable economic development.

INTRODUCTION

Climate change and environmental degradation have become increasingly urgent global issues to address through effective and sustainable policies. Governments in various countries, including Indonesia, are beginning to direct their fiscal policy focus to support the green development agenda. Previous research indicates that economic activities that do not consider or account for environmental costs can generate significant negative externalities to ecosystem sustainability and public welfare (Pigou, 1920; OECD,

2021). One of the components utilized in a green tax is a fiscal mechanism designed to alter the behavior of economic agents by applying disincentives to activities that can damage the environment (Pearce, 1991; Tietenberg & Lewis, 2018).

In Indonesia, the discourse on implementing a green tax has gained momentum alongside the government's commitment to the Sustainable Development Goals (SDGs) and the Paris Agreement. Several policies under Law Number 7 of 2021 concerning the Harmonization of Tax Regulations, such as the carbon tax, plastic excise, and emission-based vehicle tax, represent the initial forms of environmental tax implementation in the country. Nevertheless, the implementation of these policies still faces various challenges, ranging from regulatory aspects and business readiness to tax accounting and reporting systems.

From a tax accounting perspective, a green tax has important implications for the recognition, measurement, and reporting processes of tax liabilities. To date, there is no accounting standard that specifically regulates the accounting treatment of environmental taxes in Indonesia. This condition potentially leads to inconsistencies in reporting and reduces the transparency of a company's financial information regarding its incurred environmental liabilities.

This study is structured to provide a comprehensive understanding of the green tax concept, particularly within the context of Indonesian taxation and its relationship with tax accounting. Through a literature review of previous research and regulatory developments, this study is expected to serve as a reference for regulators, practitioners, and academics in strengthening their understanding as well as building policy frameworks and accounting standards that support the effective and sustainable implementation of environmental taxes.

LITERATURE REVIEW

Green Tax

A green tax or environmental tax is a fiscal policy instrument aimed at internalizing external costs resulting from economic activities that negatively impact the environment. This concept originates from the externality theory proposed by Pigou (1920) regarding necessary government intervention to correct market failures caused by social costs not being reflected in market prices. The OECD (Organization for Economic Co-operation and Development) defines

the emphasis of a green tax as a tax levied on activities that generate environmental impacts with the aim of altering the behavior of economic agents to be more environmentally friendly.

According to Pearce (1991), the functions of a green tax include:

1. An economic instrument to reduce pollution through price mechanisms; and
2. A fiscal instrument to generate state revenue for financing environmental preservation activities.

According to Tietenberg and Lewis (2018), the effectiveness of an environmental tax heavily depends on a policy design that considers economic efficiency, social equity, and the administrative capacity of the government.

In Indonesia, the concept of a green tax has begun to be implemented through various policies such as the carbon tax, plastic excise, and emission-based vehicle tax. The imposition of this environmental tax is in line with the mandate of Law No. 7 of 2021 concerning the Harmonization of Tax Regulations (UU HPP), which introduces the carbon tax as part of the greenhouse gas emission control strategy.

Green Tax from a Fiscal Policy Perspective

From a fiscal policy perspective, a green tax serves as a tool to balance economic and environmental objectives, where the environmental tax is designed not only to increase state revenue but also to correct market failures resulting from negative externalities generated by economic activities (OECD, 2021; Tietenberg & Lewis, 2018). Through environmental taxation, the government can:

1. Control negative externalities (polluter pays principle).
2. Shift the fiscal burden from factors of production (such as labor) toward environmental factors (ecological tax reform).
3. Support the achievement of the Sustainable Development Goals (SDGs), particularly Goal 13 (Climate Action) and Goal 12 (Responsible Consumption and Production).

According to Tietenberg and Lewis (2018), the effective implementation of a green tax must consider economic efficiency, social equity, and the country's fiscal administrative capacity. In Indonesia, the primary challenge is to ensure that the application of an environmental tax does not merely aim to increase state revenue, but also plays a tangible role in driving behavioral changes among the public and business agents toward a more environmentally friendly economy.

Green Tax from a Tax Accounting Perspective

From a tax accounting perspective, the implementation of a green tax is not only related to fiscal policy but also carries implications for an entity's accounting treatment, particularly regarding the recognition, measurement, presentation, and disclosure of environmental tax liabilities in the financial statements.

According to PSAK 112 concerning Income Taxes, every tax liability arising from economic activities must be reliably recognized and measured. However, for environmental taxes, there is no specific accounting standard that explicitly regulates their treatment in Indonesia. This principle is aligned with the provisions of accounting standards related to income taxes, which emphasize the recognition of tax liabilities based on the economic substance of the transaction rather than merely its legal form. To date, no accounting standard specifically regulates the treatment of green taxes in Indonesia. This condition requires entities to use a principle-based approach, such as substance over form, in determining the most relevant accounting treatment (Lako, 2020).

Several previous studies, such as those by Schaltegger & Burritt (2017) and Lako (2020), emphasize that green taxes must be integrated into the concept of green accounting, where financial reporting reflects not only financial performance but also corporate environmental responsibility. Thus, integrating green taxes into the accounting system demands not only compliance with tax regulations but also an accounting approach that comprehensively reflects the company's environmental responsibility.

Externality Theory as the Foundation of Green Tax

The primary foundation for implementing an environmental tax stems from the externality theory (Pigou, 1920), which explains that economic activities often generate social costs that are not reflected in market prices. An environmental tax (green tax) functions to internalize these negative externalities by imposing a cost burden on economic agents who cause environmental damage.

Fiscal Policy Theory

According to Musgrave (1959), fiscal policy has three primary functions: allocation, distribution, and stabilization. The imposition of a green tax is part of the allocation function, wherein the government allocates resources through tax instruments to

address environmental issues and promote a sustainable balance of economic development.

Environmental Accounting Theory (Green Accounting)

This theory focuses on the measurement and reporting of the environmental impacts of corporate activities. Green accounting emphasizes the importance of transparency and accountability over the use of natural resources, including the recognition of environmental taxes or costs as part of corporate social responsibility (CSR).

According to Gray et al. (2014), the integration of environmental taxes into the accounting system will result in more comprehensive financial reporting, enabling stakeholders to assess the extent to which a company contributes to environmental sustainability.

RESEARCH METHODS

This study utilizes a literature review method with a descriptive qualitative approach developed more systematically by referencing the principles of a Systematic Literature Review (SLR) (Kitchenham, 2004; Snyder, 2019). This approach was selected to obtain a comprehensive understanding of green tax implementation from the perspectives of fiscal policy and tax accounting. Research data were obtained from scientific articles sourced from SINTA-indexed national journals as well as reputable international journals indexed in Scopus and DOAJ. The literature search process was conducted through databases such as Google Scholar, Scopus, and national journal portals using the keywords: "green tax", "environmental tax", "green accounting", and "sustainable fiscal policy". The review process was performed systematically by selecting literature based on thematic relevance, namely green tax, environmental accounting, and sustainable fiscal policy. Each source was critically analyzed to identify the concepts, challenges, and accounting implications of environmental tax implementation in Indonesia. The analysis results were then synthesized narratively to generate a comprehensive understanding of the relationship between green fiscal policy and tax accounting in supporting sustainable development.

RESEARCH FINDINGS

The following is a summary of previous research related to environmental taxes and carbon taxes within both the Indonesian and international contexts:

Table 1
Previous Research

Research Title	Researcher and Year	Research Objective	Research Method	Research Variables	Research Results and Conclusion
<i>Contemporary Environmental Accounting</i>	Schaltegger & Burritt (2017)	To explain the importance of integrating environmental taxes into modern accounting systems.	Conceptual study based on international literature concerning environmental accounting practices..	Environmental tax, environmental accounting, sustainability reporting.	Found that merging environmental accounting and fiscal instruments such as a green tax can enhance corporate transparency and accountability toward environmental issues.
Akuntansi Hijau dan Pembangunan Berkelanjutan	Lako, A. (2020)	To analyze the relationship between the implementation of green accounting and economic and environmental sustainability.	Literature review and policy analysis.	Green accounting, economic sustainability, environmental responsibility.	Green accounting can serve as a tool to internalize environmental impacts within corporate financial statements.
Analisis Kesiapan Implementasi Pajak Karbon di Indonesia	Imam Susanto, Robi Ulpa (2023)	To analyze the readiness of the Indonesian government in implementing a carbon tax as part of sustainable fiscal policy.	Descriptive study with a qualitative approach through the analysis of regulations, policies, and institutional readiness.	Carbon tax, fiscal policy, regulatory readiness.	Indicates that institutional and regulatory readiness is still limited; however, the carbon tax has high potential as a future sustainable fiscal instrument.

Research Title	Researcher and Year	Research Objective	Research Method	Research Variables	Research Results and Conclusion
Urgensi Penerapan <i>Carbon Tax</i> sebagai Upaya Pengendalian Emisi Karbon di Indonesia	Rina Sulistyowati, Tri Winarsi, Mistri Ani, Rachmad Bayu Kurniawan (2024)	To assess the urgency and impact of carbon tax implementation in reducing carbon emissions and its contribution to sustainable development.	Policy literature review and juridical analysis of regulations related to the carbon tax in Indonesia.	Carbon tax, green fiscal policy, sustainable development.	Found that the implementation of a carbon tax can act as an effective economic instrument to reduce carbon emissions while simultaneously supporting green financing.
<i>Green Tax</i> Indonesia Untuk Keberlanjutan Lingkungan Hidup"	Putri, C.P.K. (2025)	To explore the implementation of green tax in Indonesia and compare it with other countries.	Literature review and comparative analysis.	Green tax, environmental sustainability, state revenue.	Implementation is still limited, but there is high potential for sustainability.
The Effect of Tax Accounting, Green Accounting and Carbon Accounting on ESG Performance Moderated by Green Intellectual Capital	Meidijat i, M., dkk (2022)	To examine the effect of tax accounting, green accounting, and carbon accounting on ESG performance, with green intellectual capital as a moderator.	Quantitative survey.	Tax accounting, green accounting, carbon accounting, green intellectual capital, ESG performance.	Tax accounting and green accounting have a significant impact on ESG; carbon accounting is less significant.

Source: Processed Results, 2026

Based on the results of previous studies, it is evident that the issues of green tax and environmental accounting have been widely examined from various perspectives. Schaltegger and Burritt (2017) emphasize the importance of integration between environmental taxes and modern accounting systems, where merging fiscal instruments like a green tax can enhance corporate transparency and accountability toward environmental issues. Meanwhile, Lako (2020) demonstrates that the implementation of green accounting plays a vital role in internalizing environmental impacts into financial statements, thereby promoting economic sustainability.

The studies by Imam Susanto and Robi Ulpa (2023) as well as Rina Sulistyowati et al. (2024) focus more on the readiness and urgency of carbon tax implementation in Indonesia. Both found that despite limited regulatory and institutional readiness, the carbon tax holds great potential as a sustainable fiscal instrument that can reduce emissions and support green development.

Furthermore, Putri (2025) highlights that the implementation of a green tax in Indonesia is still in its early stages, yet it possesses high potential to drive environmental sustainability if integrated with stronger fiscal policies. Conversely, Meidijati et al. (2022) indicate that tax accounting, green accounting, and carbon accounting have a significant influence on ESG (Environmental, Social, and Governance) performance, particularly when strengthened by green intellectual capital.

When compared to the literature review on the Implementation of Green Tax in Indonesia from the Perspective of Tax Accounting and Sustainable Fiscal Policy, these previous studies reinforce that a green tax is not merely a fiscal instrument, but also an integral part of environmental accounting systems and green economic policies. This study serves to deepen the understanding that the successful implementation of a green tax in Indonesia heavily depends on the synergy between fiscal regulations, institutional readiness, and the application of green accounting principles in corporate reporting and governance.

DISCUSSION

The Concept of Green Tax from a Tax Accounting Perspective

A green tax or environmental tax is a fiscal instrument designed to internalize external costs resulting from economic activities on the environment. From a tax accounting perspective, a green tax functions not merely as a source of revenue for the state, but also as an instrument to guide economic behavior to focus more on sustainability. According to Schaltegger and Burritt (2017), the integration between environmental taxes and modern accounting systems is important to enhance transparency and accountability regarding the environmental impacts generated by business entities. Merging environmental accounting reporting with green fiscal instruments can strengthen corporate responsibility toward sustainability. Nevertheless, the absence of an accounting standard that specifically regulates green taxes leads to variations in reporting practices across entities. This condition indicates a gap between

the concept of environmental accounting and its implementation within the taxation context.

From an accounting standpoint, the application of an environmental tax demands recognition, measurement, and reporting that are relevant to the economic impacts of a company's environmental activities. This aligns with the view of Lako (2020), who emphasizes that green accounting can serve as a tool to internalize environmental costs into corporate financial statements, thereby creating transparency and accountability in supporting a green economy.

Implementation of Green Tax in Indonesia and Institutional Readiness

The implementation of environmental taxes in Indonesia is still in the developmental stage. Imam Susanto and Robi Ulpa (2023) found that regulatory and institutional readiness in implementing a carbon tax is still limited, despite the great potential to make it a part of sustainable fiscal policy. Their descriptive analysis indicates that the successful implementation of a green tax in Indonesia requires strong regulatory support, administrative readiness, and alignment between fiscal and environmental policies.

Echoing this sentiment, Rina Sulistyowati et al. (2024) assess that the implementation of a carbon tax carries high urgency given its role in reducing carbon emissions and its contribution to sustainable development. However, their study also highlights that the effectiveness of a green tax heavily depends on the harmonization between fiscal and environmental policies, as well as the active participation of the industrial sector in environmental tax reporting compliance.

Green Tax as a Sustainable Fiscal Policy Instrument

From a fiscal policy perspective, a green tax serves as an important instrument in supporting the sustainable development agenda. Putri (2025) suggests that the implementation of a green tax in Indonesia is still limited, but it has high potential to drive sustainability if executed through an integrated fiscal policy approach. By comparing green tax practices in other countries, this study indicates that successful implementation is heavily influenced by regulatory clarity, incentive mechanisms, and transparent environmental financial reporting.

The research by Meidijati et al. (2022) also reinforces the importance of integrating tax accounting, green accounting, and carbon accounting toward ESG (Environmental,

Social, and Governance) performance. The results of their study show that accounting reporting practices that account for environmental aspects significantly enhance sustainability performance and strengthen responsible fiscal governance.

Tax Accounting Perspective on Environmental Tax Reporting

In the context of tax accounting, environmental tax reporting demands an accounting system capable of accurately recording and reporting environmental costs and liabilities. Environmental taxes do not only affect the calculation of a company's tax expense, but also reflect corporate social responsibility. This is aligned with the green accounting approach, which emphasizes the importance of transparency and disclosure of environmental information within financial statements. Consequently, the implementation of a green tax in Indonesia from a tax accounting perspective must encompass three primary aspects:

1. Fiscal recognition of environmental costs as part of corporate liabilities;
2. Transparent reporting of environmental tax contributions in supporting sustainable development; and
3. Integration of financial and non-financial reporting (sustainability reporting) that reflects the company's environmental responsibility.

From various previous studies, it can be concluded that the implementation of a green tax in Indonesia holds great potential to become a sustainable fiscal policy instrument, yet it faces challenges in terms of regulations, institutional readiness, and the harmonization of tax accounting and environmental reporting. Most studies highlight that the integration between environmental accounting and fiscal policy is the key to the success of a green tax.

Therefore, this literature review reinforces the idea that the implementation and reporting of environmental taxes must be developed within a sustainability-oriented tax accounting framework (sustainable tax accounting). This approach is expected to drive fiscal efficiency, reduce negative environmental externalities, and create a transparent and accountable green economic governance in Indonesia.

CONCLUSION

Based on the results of the literature review, it can be concluded that the implementation of a green tax in Indonesia holds great potential to support sustainable

development through the control of negative externalities and the generation of environmentally oriented state revenue. However, its successful implementation depends on regulatory readiness, inter-institutional coordination, and integration with a transparent tax accounting system. From an accounting perspective, the absence of a specific standard regarding environmental tax treatment necessitates a substance over form approach to ensure that the recognition and reporting of environmental tax liabilities can be reliably presented. The integration between green accounting and fiscal policy will enhance business entities' accountability toward environmental impacts. Therefore, the implementation of environmental taxes in Indonesia must be accompanied by the strengthening of the regulatory framework, the development of green accounting standards, and a comprehensive sustainability reporting system. This effort is expected to realize efficient and transparent fiscal governance while making a tangible contribution to the national green economic development agenda.

REFERENCES

- Gray, R., Adams, C., & Owen, D. (2014). *Accountability, Social Responsibility and Sustainability: Accounting for Society and the Environment*. Pearson Education.
- Imam Susanto, I., & Ulpa, R. (2023). Analisis kesiapan implementasi pajak karbon di Indonesia. *Jurnal Kebijakan Fiskal dan Energi*, 5(2), 45–58.
- Lako, A. (2020). Akuntansi hijau dan pembangunan berkelanjutan: Sebuah tinjauan teoretis. *Jurnal Akuntansi dan Keberlanjutan*, 8(1), 1–15.
- Meidijati, M., Andini, F., Wulandari, D., & Pradana, R. (2022). The effect of tax accounting, green accounting and carbon accounting on ESG performance moderated by green intellectual capital. *International Journal of Sustainable Business and Society*, 4(3), 112–128.
- Musgrave, R. A. (1959). *The Theory of Public Finance: A Study in Public Economy*. McGraw-Hill.
- OECD. (2021). *Environmental Taxation and Green Fiscal Reform*. OECD Publishing.
- Pearce, D. W. (1991). The role of carbon taxes in adjusting to global warming. *The Economic Journal*, 101(407), 938–948.
- Pigou, A. C. (1920). *The Economics of Welfare*. Macmillan.
- Putri, C. P. K. (2025). Green tax Indonesia untuk keberlanjutan lingkungan hidup. *Jurnal Ekonomi Lingkungan Indonesia*, 7(1), 25–40.

- Rina Sulistyowati, R., Winarsih, T., Ani, M., & Kurniawan, R. B. (2024). Urgensi penerapan carbon tax sebagai upaya pengendalian emisi karbon di Indonesia. *Jurnal Ilmu Lingkungan dan Kebijakan Publik*, 3(1), 55–67.
- Schaltegger, S., & Burritt, R. (2017). *Contemporary Environmental Accounting: Issues, Concepts, and Practice*. Routledge.
- Tietenberg, T. H., & Lewis, L. (2018). *Environmental and Natural Resource Economics* (11th ed.). Routledge.
- Undang-Undang Republik Indonesia Nomor 7 Tahun 2021 tentang Harmonisasi Peraturan Perpajakan.



CHALLENGES AND SOLUTIONS OF TECHNOLOGY IN FINANCIAL RECORDING SMEs: SYSTEMATIC LITERATURE REVIEW

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Abstract:

This study aims to identify the difficulties faced by SMEs in financial record-keeping and to explain the role of technology as a solution. The method used is a Systematic Literature Review (SLR) by examining Scopus-indexed articles from 1957-2023. The synthesis results reveal six main obstacles, namely technical-operational, resource-based, regulatory and standards, management and strategy, technology and innovation, as well as financial-economic. The most prominent technological solutions include standard training and education, implementation of accounting information systems and IT support, adoption of cloud accounting, use of accounting software or applications, and integration of technology into accounting management strategies. Another significant finding is the still limited discussion of financial data security strategies for SMEs, even though digitalization of financial records increases the risk of data breaches, cyberattacks, and loss of business information. This study concludes that SMEs need to adopt financial record-keeping technology that is efficient, affordable, user-friendly, and secure, accompanied by increased accounting literacy and relevant policy support.

INTRODUCTION

Small and Medium Enterprises (SMEs) make a significant contribution to economic growth, job creation, and the resilience of the national economy. In Indonesia, MSMEs contribute more than 60% of Gross Domestic Product and absorb over 97% of the workforce (Hastutik, 2021). However, this substantial contribution is not always matched by adequate financial record-keeping capacity. Many SME actors still use manual recording, notebooks, or simple spreadsheets, resulting in financial data that is often incomplete, inconsistent, difficult to trace, and less supportive of decision-making (Yulianto et al., 2024).

Obstacles to financial recordkeeping for SMEs are not only technical in nature, but also relate to limited accounting literacy, system implementation costs, human resource constraints, understanding of standards, as well as managerial readiness (Rosanti et al., 2025). Previous studies show that SME owners and managers often experience difficulties preparing financial statements (Ramadhani & Hermawan, 2022), separating personal and business finances (Ezeagba, 2017), applying accounting standards (Yanto et al., 2016), and making optimal use of accounting information systems (Saputra et al., 2022). As a result, the financial information produced has not been fully able to support planning, performance evaluation, access to financing, or tax compliance (Mogendi et al., 2016). The development of technology offers opportunities to improve financial record-keeping practices for SMEs. Accounting information systems, accounting software, mobile applications, Enterprise Resource Planning (ERP), cloud accounting, big data, and artificial intelligence can assist in automating transactions, preparing reports, data integration, and enhancing information accuracy. However, technology adoption does not always proceed smoothly because SMEs face application complexity, costs, limited training, data security risks, and feature suitability for business needs (Zulqarnain et al., 2023).

Although many studies have discussed accounting technology, financial literacy, and SME record keeping, a systematic review integrating the challenges and technological solutions is still needed (Amin et al., 2025). Some research only focuses on a single technology or specific context. Therefore, this article uses a Systematic Literature Review approach to synthesize scientific evidence on the main financial record-keeping issues faced by SMEs and practical technological solutions that can be applied. This study addresses two questions: (1) what difficulties do SMEs encounter in financial recordkeeping? and (2) how does technology provide solutions to these difficulties? The answers to these questions are expected to contribute theoretically to the study of SME accounting as well as practically to business practitioners, SME advisors, application developers, and policymakers.

LITERATURE REVIEW

Technological Challenges in SME Financial Recordkeeping

The challenges of financial recordkeeping technology for SMEs can be understood through four main issues. First, software complexity causes SME operators without

backgrounds in accounting or technology to have difficulty operating features, managing transaction data, and reading reports (Li, 2021). This complexity increases the risk of input errors, misinterpretation of reports, and low utilization of analytical functions (Seethamraju, 2015). Second, system integration becomes an obstacle when SMEs use multiple separate applications for sales, inventory, payments, and accounting (Andarwati et al., 2020). Disconnected data leads to duplication of work, inconsistencies in reports, and low operational efficiency.

Third, data security has become a crucial issue because digitalization stores sensitive information such as transactions, accounts, receivables, payables, and customer data. Without encryption, authentication, backups, and access policies, SMEs are vulnerable to data loss and cyberattacks (Qubbaja, 2020). Fourth, implementation costs are an important consideration. Technology investment not only includes purchasing software or hardware, but also training, maintenance, technical support, and adaptation time (Bachtiar et al., 2023). For SMEs with limited capital, upfront costs and hidden costs are often reasons for delaying technology adoption. Thus, technology solutions must be selected based on suitability to needs, ease of use, security, and affordability (Kamal et al., 2023).

Technology Solutions for SME Financial Recordkeeping

Effective technological solutions need to consider the capacity of SMEs as organizations with limited resources. User-friendly software becomes an essential prerequisite because a simple interface, clear navigation, and relevant features can lower the barriers to use (Hayati & Fitriani, 2023). Applications that are overly complex actually have the potential to not be used consistently.

In addition to application design, training, workshops, online tutorials, and technical assistance are needed to improve digital accounting literacy. Flexible learning helps SME owners and staff understand transaction recording, report preparation, data backup, and the utilization of reports for business decisions. Cloud accounting also becomes a solution because it offers real-time access, relatively affordable subscription costs, automatic updates, and scalability. (Kamal et al., 2023). From a security perspective, the use of encryption, strong authentication, regular backups, and data recovery procedures needs to be part of a digital financial record-keeping strategy. Low-cost solutions or free versions can serve as an entry point for SMEs, but must still be

evaluated based on reliability, security, and integration capabilities. The framework illustrating the relationship between challenges and technological solutions is shown in Figure 1.

Figure 1
Framework



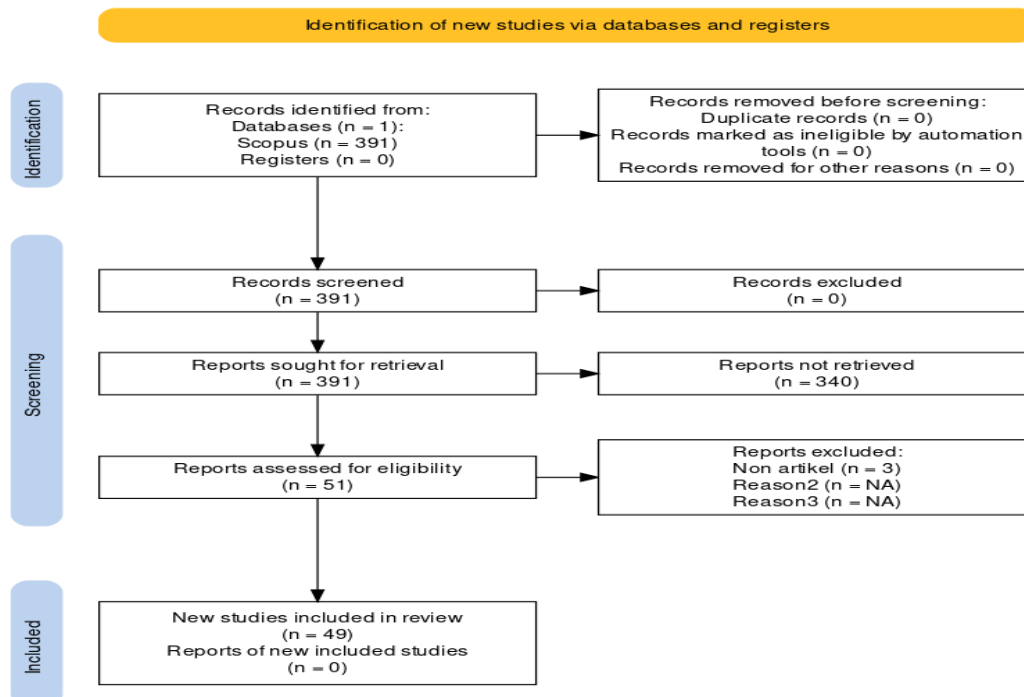
Source: Processed by the Author, 2024

RESEARCH METHODS

This study employs the Systematic Literature Review (SLR) method to identify, evaluate, and synthesize previous research on the challenges and solutions of financial record-keeping technology for SMEs. SLR was chosen because it enables the production of a transparent, replicable, and evidence-based synthesis through the stages of searching, selection, extraction, and analysis of literature data (Hastutik et al., 2022; Singh & Kumar, 2014).

Literature search was conducted on the Scopus database using the string: TITLE-ABS (("SMEs" OR "MSME" OR "Small Businesses" OR "Small Firms") AND ("Bookkeeping" OR "Accounting" OR "Financial Reporting" OR "Transaction Recording") AND ("challenge" OR "Difficulty" OR "Problem" OR "Constraints" OR "Limitations" OR "Obstacle")). The literature management process was assisted by Parsif.ai and followed the PRISMA flow. Inclusion criteria emphasized the relevance of articles to MSMEs, financial recording, accounting, financial reporting, technology, challenges, or solutions. Articles not relevant to these focuses were excluded from analysis. The literature selection flow is presented in Figure 2.

Figure 2
SLRS Procedure



Source: Data Processing, 2024

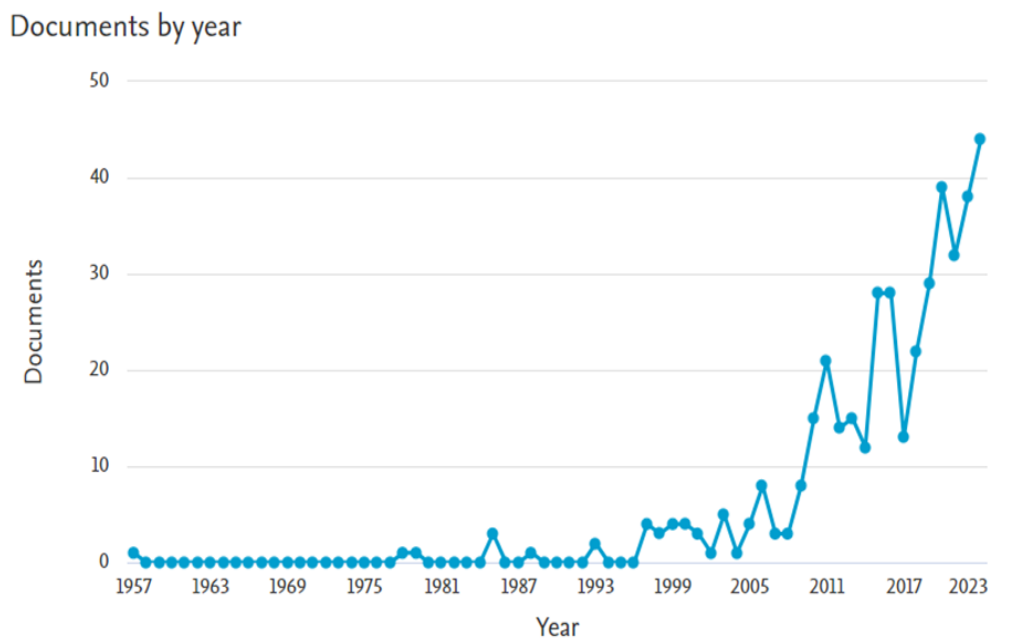
At the screening and retrieval stage, a total of 391 articles were identified from the Scopus database. Following the initial selection process based on the relevance of the title, abstract, keywords, as well as the inclusion and exclusion criteria of the study, a total of 340 articles were not advanced to the full-text review stage due to irrelevance to the research focus, not specifically discussing SME financial record-keeping, not addressing technological solutions, or lack of access to the complete document. Subsequently, 51 articles proceeded to the eligibility assessment stage and underwent quality evaluation. From this process, 49 articles met the criteria and were used in the Systematic Literature Review (SLR) analysis.

RESEARCH FINDINGS

Publication Trends and Article Sources

As part of the Systematic Literature Review analysis, this study also conducts a bibliometric analysis of relevant scientific publications. This analysis is used to observe the trends in the number of publications related to SME financial record-keeping and technology adoption from year to year. The visualization of annual publication trends is presented in Figure 3 to illustrate the growth in research on this topic.

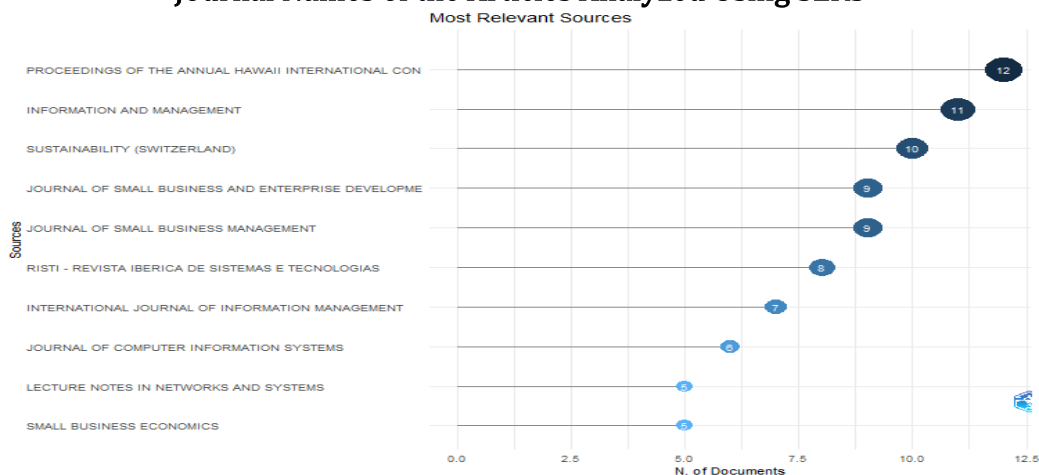
Figure 3
Annual Scientific Production



Source: Processed by Researchers, 2024

Figure 3 shows that publications on SME financial record-keeping have experienced a notable increase, especially since 2019. The 2019–2023 period represents increasingly robust research growth, in line with the acceleration of digitalization, heightened attention to accounting technology, and the need for SMEs to have more accurate and integrated recording systems.

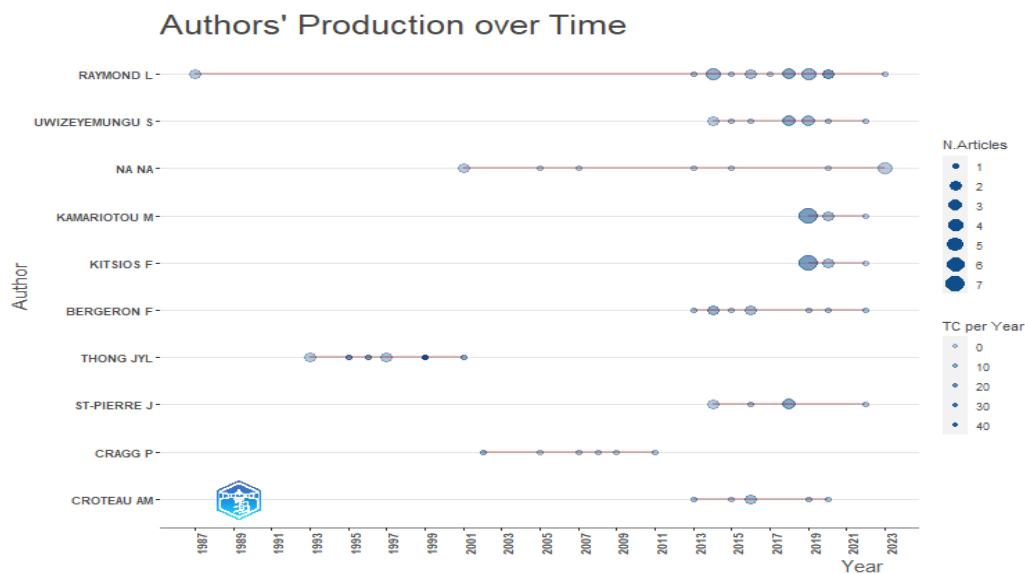
Figure 4
Journal Names of the Articles Analyzed Using SLRS



Source: Processed by the Author, 2024

The articles analyzed are distributed across various scientific outlets, indicating that the issue of SME financial record-keeping is multidisciplinary, encompassing accounting, management, information systems, entrepreneurship, and business technology. Several journals and proceedings make greater contributions, including Proceedings of the Annual Hawaii International Conference on System Sciences, Information and Management, Sustainability, Journal of Small Business and Enterprise Development, and Journal of Small Business Management.

Figure 5
Number of Productions per Author



Source: Processed by the Author, 2024

Figure 5 shows that Raymond L. is one of the dominant authors on topics related to technology, ERP, and SMEs. This dominance indicates a concentration of academic contributions on issues of information technology adoption and accounting systems in the small and medium enterprise sector.

Challenges in SME Financial Record-Keeping

Synthesis of 49 studies reveals six main challenges in SME financial recordkeeping. These six constraints do not stand alone, but are interconnected: limited resources weaken the ability to understand standards, low management capacity hinders system integration, and financial constraints limit investment in safer and more efficient technology. The six constraints are presented in the table below.

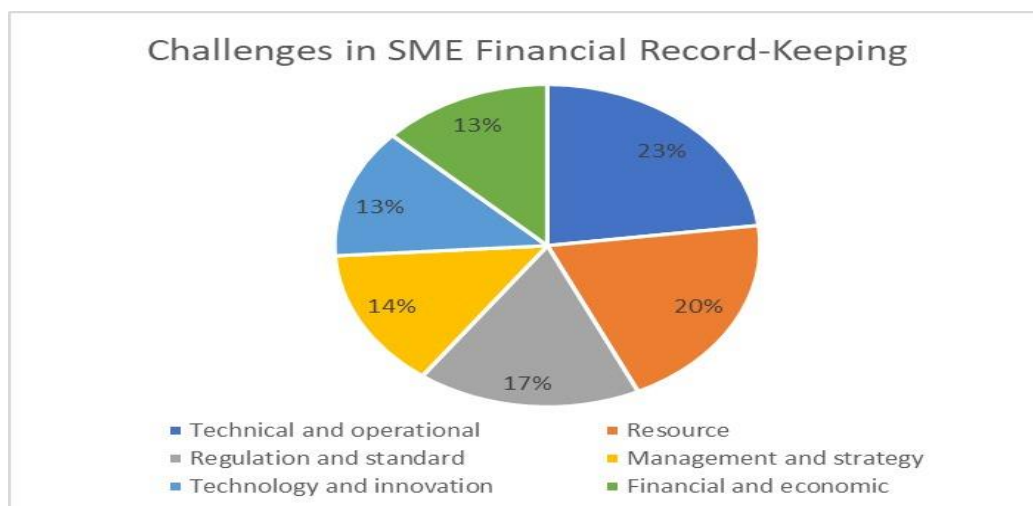
Table 1
Six Main Obstacles to SME Financial Record-Keeping

No	Obstacle	Summary of Findings
1	Technical and operational	Difficulties in preparing consistent financial statements; confusion over the recognition of liabilities, assets, and contingent considerations; limitations in separating personal and business finances; complexity of the accounting information system.
2	Resources	Low levels of education and accounting knowledge; limited accounting human resources; accountant turnover; training costs and system support; limited capital and financial access.
3	Regulations and standards	Difficulties in applying IFRS principles/SME accounting standards; regulatory variations between countries; the need to simplify standards while complying with tax requirements.
4	Management and strategy	Lack of management awareness; limited budgeting skills; resistance to change; dependence on manual systems or third parties.
5	Technology and innovation	Low understanding of cloud accounting, big data, ICT, and management accounting information; barriers to technology diffusion in SME business processes.
6	Financial dan ekonomi	Low understanding of cloud accounting, big data, ICT, and management accounting information; barriers to technology diffusion in SME business processes.

Source: Data Processing, 2024

This challenge is illustrated in the following diagram.

Figure 6
Obstacles in Recording SME Finances



Source: Author Own Work, 2024

Technology Solutions for SME Financial Record-Keeping

The synthesis results also indicate five categories of technological solutions. These solutions highlight that digitizing financial record-keeping requires more than simply providing an application; it must also be accompanied by training, IT support, process

integration, and management strategies tailored to the capacity of SMEs. These five categories of technological solutions are presented in the following table.

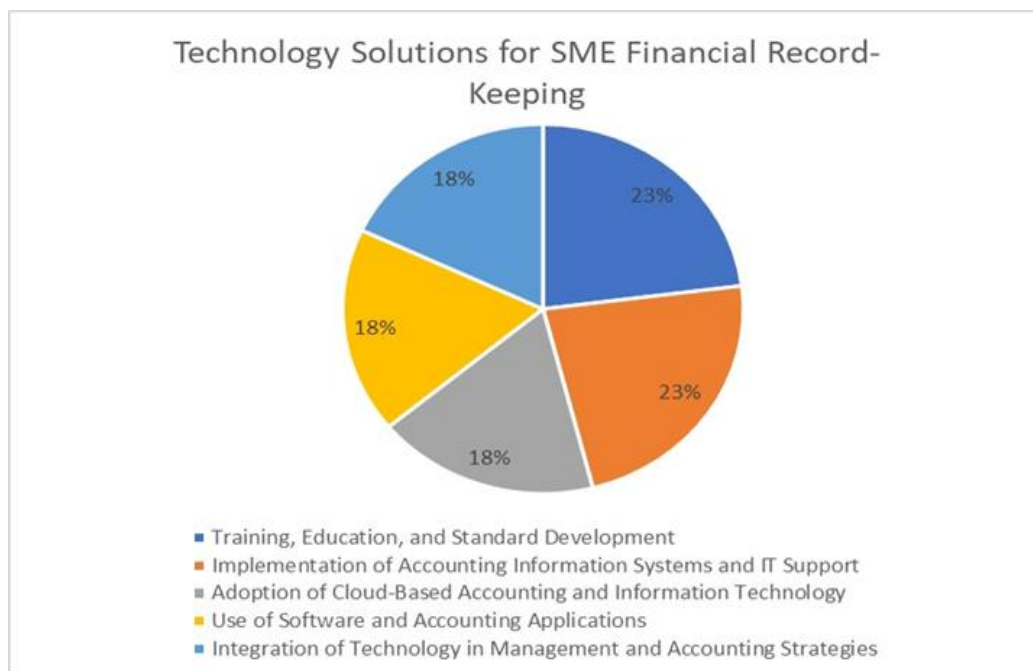
Table 2
Five Categories of Technology Solutions for SME Financial Record-Keeping

No	Solution	Summary of Findings
1	Training, education, and standard development	Staff training, IFRS/SME standards courses, accounting education from higher education institutions, standards harmonization, and development of guidelines such as SAK-ETAP.
2	Accounting information system and IT support	The implementation of an accounting information system that is user-friendly, affordable, computerized, mobile/cloud-based, and capable of generating real-time reports.
3	Cloud accounting and information technology	The use of cloud accounting for operational efficiency, remote data access, automatic updates, and scalability in line with business growth.
4	Accounting software and applications	The use of web-based software, online accounting applications, integrated financial management systems, and SaaS-based ERP.
5	Integration of technology in accounting management	Strengthening management accounting, new measurement and reporting, integration of inventory/finance, and the development of a uniform accounting framework.

Source: Processed data, 2024

This technology solution is illustrated in the following diagram.

Figure 7
SME Financial Recording Technology Solutions



Source: Author Own Work, 2024

DISCUSSION

Research findings indicate that SME financial recordkeeping is a multidimensional issue. Technical barriers such as software complexity are only one part of the problem (Aladejebi & Oladimeji, 2019). More fundamental obstacles lie in low accounting literacy, limited human resources, the underdeveloped culture of recordkeeping, and management capabilities that do not yet fully utilize financial information as the basis for business decisions (Halim, 2023). Accordingly, technological solutions should be viewed as organizational interventions, not merely the provision of applications.

From a technological perspective, simple, relevant software that is accessible via the cloud has the potential to improve record-keeping efficiency (Yani et al., 2025). However, the success of adoption is highly dependent on perceived usefulness and ease of use. SMEs tend to accept technology if the system supports daily tasks, reduces errors, speeds up reporting, and does not add to the administrative burden (Mosbah, 2024). Therefore, application design for SMEs must be oriented toward practical needs, such as transaction recording, invoicing, expenses, revenue, simple reports, payment integration, and automatic backup.

An important finding of this review is the still limited discussion specifically regarding financial data security strategies for SMEs (Kumar, 2021). In fact, digitization of financial record-keeping expands the risks of data breaches, transaction manipulation, identity theft, and loss of archives (Emmanuel, 2025). Data security must not be viewed solely as a technical issue, but as a prerequisite for business sustainability. SMEs require access policies, authentication, encryption, regular backups, simple audits, and cybersecurity education for owners and staff.

In practical terms, the most realistic solution model is a stepwise approach. The first stage is to improve basic record-keeping literacy and the separation of personal and business finances. The second stage is to use simple applications that match the scale of the business. The third stage is to integrate sales, inventory, and financial data. The fourth stage is to strengthen data security and report analytics (Sihler et al., 2004). This stepwise approach is better suited for SMEs than costly and overly complex digital transformation from the outset.

Theoretically, the research findings reinforce the view that the adoption of accounting technology by SMEs is influenced by the interaction between technological, organizational, environmental factors, and resource capacity (Dinanti et al., 2025).

Technology can be a solution when it aligns with organizational readiness. Conversely, technology can become a new obstacle if it is not supported by training, user-friendly design, affordable financing, and adequate security policies (Mazurkiewicz et al., 2021).

The practical implication of these findings is the need for SME mentoring programs that integrate accounting literacy, application selection, and data governance. Training should not simply introduce software, but must focus on the ability to record daily transactions, read income statements, manage cash flow, and separate personal finances from business finances. In this way, technology does not stop at being an administrative tool, but becomes the foundation for decision-making.

For application developers, the review results highlight the importance of system designs that are lightweight, low-cost, secure, and aligned with MSME business processes. The main features that need to be prioritized include simple transaction input, financial dashboards, automated reports, payment integration, inventory management, regular backups, and access rights management. Applications that are too complex risk being abandoned by users, while those that are too simple may fail to support business growth. For policymakers, the research findings underscore the need for a supportive ecosystem for SME accounting digitalization. Such support may include training subsidies, simplified record-keeping standards, collaboration with universities, provision of data security modules, and partnerships with technology providers. Sound policies should connect aspects of literacy, financing, digital infrastructure, data protection, and tax compliance requirements.

For future research, the main gap lies in strategies for securing SME financial data. Subsequent studies may examine cloud-based security models, the cybersecurity preparedness of SME actors, the effectiveness of automatic backups, as well as the relationships between digital literacy, trust in technology, and the sustainability of accounting application use. Empirical research in the Indonesian context is also important because local SMEs have different business scales, technology access, and levels of financial literacy.

CONCLUSION

This study concludes that SMEs face six main challenges in financial record-keeping, namely technical-operational, human resources, regulations and standards, management and strategy, technology and innovation, as well as financial-economic. These challenges

result in financial records that are inconsistent, lack accuracy, are difficult to use for business decision-making, and do not yet optimally support compliance.

Technology solutions that can be implemented include training and education, implementation of accounting information systems, adoption of cloud accounting, use of accounting software or applications, and integration of technology in accounting management. These solutions need to be designed to be user-friendly, relevant to the needs of SMEs, affordable, scalable, and secure. Further research needs to delve deeper into SME financial data security strategies, including encryption models, backup, access governance, and cybersecurity literacy appropriate to the capacity of small and medium enterprises.

REFERENCES

- Aladejebi, O., & Oladimeji, J. A. (2019). The Impact of Record Keeping On the Performance of Selected Small and Medium Enterprises in Lagos Metropolis. *Journal of Small Business and Entrepreneurship Development*, 7(1), 28–40. <https://doi.org/10.15640/jsbed.v7n1a3>
- Amin, M. F., Fudhaili, A., & Yanto, R. (2025). Analisis Pengaruh Implementasi Teknologi Akuntansi Terhadap Efisiensi Pencatatan Keuangan Pada UMKM. *JURNAL ILMIAH MULTIDISIPLIN ILMU*, 2(4), 147–152. <https://doi.org/https://doi.org/10.69714/2ms0x93>
- Andarwati, M., Zuhroh, D., & Amrullah, F. (2020). Determinants of perceived usefulness and end-user accounting information system in SMEs. *International Journal of Advanced Science and Technology*, 29(8 Special Issue), 46–61.
- Bachtiar, J. F., Kristin, D. M., & Riantono, I. E. (2023). Considering Factors for Cloud Accounting Adoption in SME: A Systematic Literature Review. *Proceedings of 2023 International Conference on Information Management and Technology, ICIMTech 2023*, 137–142. <https://doi.org/10.1109/ICIMTech59029.2023.10277930>
- Dinanti, A., Januarti, I., & Handayani, R. S. (2025). From Awareness to Adoption: Behavioral of ICT Adoption to Quality Reporting. *Jurnal Akuntansi*, 29(02), 269–292. <https://doi.org/http://dx.doi.org/10.24912/ja.v29i2.2824>
- Emmanuel, A. A. (2025). The impact of cybersecurity on financial reporting: Strengthening data integrity and regulatory compliance. *International Journal of Science and Research Archive*, 14(02), 626–637. <https://doi.org/https://doi.org/10.30574/ijsra.2025.14.2.0427> Abstract
- Ezeagba, C. (2017). Financial Reporting in Small and Medium Enterprises (SMEs) in Nigeria. Challenges and Options. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7, 1–10. <https://doi.org/10.6007/IJARAFMS/V7-I1/2534>

- Halim, P. A. (2023). Evaluation of Technical and Cultural Barriers to Digital Accounting System Implementation in Modern Organizations. *ATESTASI: JURNAL ILMIAH AKUNTANSI*, 6(2), 916–930. <https://doi.org/DOI : https://doi.org/10.57178/atestasi.v6i2.1001>
- Hastutik, S. (2021). Digital Transformation of Service Business SME Financial Report. *Proceedings of the BISTIC Business Innovation Sustainability and Technology International Conference (BISTIC 2021)*, 193(Bistic), 297–306. <https://doi.org/https://doi.org/10.2991/aebmr.k.211115.044>
- Hastutik, S., Soetjipto, B. E., Wadoyo, C., & Winarno, A. (2022). Trade-Off and Pecking Order Theory of Capital Structure in Indonesia: Systematic Literature Review. *Journal of Positive School Psychology*, 6(5), 5585–5597. <https://journalppw.com/index.php/jpsp/article/view/7624>
- Hayati, N., & Fitriani, A. P. (2023). Pengaruh Kredibilitas Bank, Persepsi Kemanfaatan Dan Persepsi Kemudahan Aplikasi Perbankan Terhadap Minat Nasabah Menggunakan Layanan Bsi Mobile Di Bank Syariah Indonesia KCP Ponorogo Soetta. *RISTANSI: Riset Akuntansi*, 4(1), 84–110. <https://doi.org/10.32815/ristansi.v4i1.1720>
- Kamal, L. N., Jasni, N. S., Razali, F. M., & Shah, S. Z. O. (2023). Factors Influencing the Intention to Adopt Cloud Accounting Among Malaysian North Borneo SMEs: A TOE Model Approach. *Economic Affairs (New Delhi)*, 68(2), 1027–1040. <https://doi.org/10.46852/0424-2513.2.2023.6>
- Kumar, A. (2021). Cyber Security Solutions for Businesses in Financial Services: *International Journal of Business Intelligence Research*, 12(1), 82–97. <https://doi.org/10.4018/IJBIR.20210101.0a5>
- Li, Q. (2021). Research on the Impact Mechanism and Application of Financial Digitization and Optimization on Small- And Medium-Sized Enterprises. *Scientific Programming*. <https://doi.org/10.1155/2021/9534976>
- Mazurkiewicz, A., Giesko, T., Poteralska, B., & Tan, K. H. (2021). Technology Analysis & Strategic Management Crossing the chasm: overcoming technology transfer barriers resulting from changing technical requirements in the process of innovation development in R & D organisations. *Technology Analysis & Strategic Management*, 0(0), 1–15. <https://doi.org/10.1080/09537325.2021.1950673>
- Mogendi, T. A., Wafula, M., Harold, C., & Ochieng, B. (2016). An Assesment on the Impacts of Financial Records on Financial Performance of Small and Medium Enterprises in Kisii Town, Kenya. *Business and Management Research*, 2. <https://consensus.app/papers/assesment-impacts-financial-records-financial-mogendi/93d7c1a8df3c5cb2afbc8f0c4c32f6ce/>
- Mosbah, A. (2024). Technology Adoption Among SMEs : How Is It ? And What Can Be Done to Strengthen It? *Jurnal Kejuruteraan*, 36(4), 1519–1528. [https://doi.org/https://doi.org/10.17576/jkukm-2024-36\(4\)-171519](https://doi.org/https://doi.org/10.17576/jkukm-2024-36(4)-171519)
- Qubbaja, A. (2020). A Challenge of Accounting Practices on Small and Medium Enterprises (SMEs): Case Study of Palestine. *INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS*. <https://doi.org/10.47191/ijmra/v3-i12-07>

- Ramadhani, F. A., & Hermawan, S. (2022). Implementation of SAK-ETAP-Based Accounting on the Quality of Financial Reports in Micro, Small and Medium Enterprises Batik Tulis in Sidoarjo Regency. *Academia Open*. <https://doi.org/10.21070/acopen.7.2022.3422>
- Rosanti, N. O., Dura, J., & Bukhori, M. (2025). Analisis Penguatan Ekonomi Halal Sebagai Pilar Utama Dalam Peningkatan Kinerja UKM Sektor Halal. *RISTANSI: Riset Akuntansi*, 6(1), 143–172. <https://doi.org/10.32815/ristansi.v6i1.2689>
- Saputra, N., Rahmat, A., & Fasmadhi, D. (2022). The Effect of Leadership and Collaborations on SME Adaptability. In *Jurnal Manajemen Dan Organisasi*. <https://doi.org/10.29244/jmo.v13i2.40635>
- Seethamraju, R. (2015). Adoption of Software as a Service (SaaS) Enterprise Resource Planning (ERP) Systems in Small and Medium Sized Enterprises (SMEs). *Information Systems Frontiers*, 17(3), 475–492. <https://doi.org/10.1007/s10796-014-9506-5>
- Sihler, W. W., Crawford, R., & Davis, H. A. (2004). Smart financial management: The essential reference for the successful small business. (*No Title*).
- Singh, P. H., & Kumar, S. (2014). Working capital management: a literature review and research agenda. *Qualitative Research in Financial Markets*, 6(2), 173–197. <https://doi.org/10.1108/QRFM-04-2013-0010>
- Yani, A. R. A., Asma'Mokhtar, U., Franks, P., & Othman, S. R. S. (2025). Electronic Records Management in Cloud Computing: Challenges, Solutions, Emerging Trends and Future Perspectives. *2025 3rd International Conference on Cyber Resilience (ICCR)*, 1–6.
- Yanto, H., Handayani, B., Solikhah, B., & Mula, J. (2016). The Behavior of Indonesian SMEs in Accepting Financial Accounting Standards without Public Accountability. *The International Journal of Business and Management*, 6, 43. <https://consensus.app/papers/behavior-indonesian-smes-accepting-financial-accounting-yanto/28d693bce7605717ae9a1308f8113d14/>
- Yulianto, T. S., Astuti, D. D., & Ningsih, W. F. (2024). Analisis penerapan sistem informasi akuntansi penjualan pada ud mandiri karya teknik cabang jember. *RISTANSI: Riset Akuntansi*, 5(2), 167–180. <https://doi.org/10.32815/ristansi.v5i2.1898>
- Zulqarnain, M., Mustehsan, M., Balouch, U. K., & Munir, S. (2023). Assessing The Influence Of Financial Inclusion And Digital Finance On SMEs Performance: The Moderating Role Of Technological Adaptation. *Journal of Management: Small and Medium Enterprises (SMEs)*. <https://doi.org/10.35508/jom.v16i3.11943>



ANALYSIS OF PROFIT INCREASE THROUGH OPTIMISATION OF PRODUCTION COSTS AND SELLING PRICE OF EUCHEMA COTTONII SEAWEED

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Abstract:

This study aims to analyze financial statements and evaluate the financial performance of PT Sebatik Jaya Mandiri, a seaweed (*Eucheuma cottonii*) export company, using financial ratio analysis. This research employs a descriptive quantitative approach with financial statement analysis techniques including horizontal analysis, vertical analysis, and financial ratio calculations. Data were obtained from the company's 2025 financial reports, encompassing the statement of financial position, income statement, and operational data. The analysis results indicate that the company demonstrates healthy financial performance with a gross profit margin of 39% relative to sales revenue. Profitability ratio analysis reveals that the company is capable of generating adequate profits from total assets and equity, with competitive return rates. The company's financial structure shows a good balance between the use of equity and external financing in supporting operational activities. These findings support signaling theory, which emphasizes the importance of accurate financial information in stakeholder decision-making. The company is recommended to maintain financial reporting transparency and enhance operational efficiency through more optimal production cost control. This study contributes by integrating financial ratio-based financial statement analysis in the seaweed industry, which has rarely been examined from a financial accounting perspective.

INTRODUCTION

The business world is closely related to the provision of business needs, primarily the products produced or the optimal management of raw materials in line with. This ensures that the business will continue to run for the sake of the company's continuity (going concern). Basically, companies must have targets in achieving their objectives. A small portion of the targets are, of course, to obtain maximum profits by minimising the production process in terms of cost expenditure. Profit/loss is used as a measure to assess company performance. The factors that determine profit are revenue and costs. The profit earned by a company is inseparable from pricing that is in line with production costs while still paying attention to the quality and quantity of the products produced.

The increasing global demand for seaweed products, driven by their diverse applications in food, pharmaceuticals, and biofuels, underscores the urgency of developing robust and economically sound aquaculture practices Coleman et al., (2022). The exploration of automated cultivation and harvesting techniques also presents a significant opportunity to further enhance efficiency and reduce labor-related expenditures within *Euचेuma cottonii* aquaculture Schmid et al., 2023. Given the rising global population, the aquaculture sector plays an increasingly vital role in food provision while simultaneously delivering economic and social benefits Augyte et al., (2023). However, achieving profitability in this sector, particularly for seaweed cultivation, necessitates a thorough understanding and strategic management of production costs and market dynamics, as both are subject to significant annual and site-specific variations Oort et al., (2022).

According to research conducted by Firmansyah et al. (2023), production costs are also referred to as the cost of goods sold. These costs indicate the potential profits and financial expenditures of tangible resources (raw materials). The calculation of production costs combines all components of the cost of goods manufactured, while to determine the production cost per unit, it is calculated by dividing the total production cost by the number of outputs produced during production. To protect a business from potential losses, it is important to know the production costs and selling prices of products accurately and in a timely manner.

PT Sebatik Jaya Mandiri is a company engaged in the export of seaweed (*Eucheuma cottonii*), where the sales or export system is essentially determined by purchase orders requested based on the buyer's needs and the desired seaweed specifications must be met. On the other hand, if the requirements or requests regarding the seaweed are not met, the agreed selling price will decrease based on the price determined together in the trade contract. Therefore, it is important to determine the cost of production used in determining the most appropriate price to minimise losses in determining the price of seaweed (*Eucheuma cottonii*) export products.

The selling price that has been determined from the production costs must be adjusted again with the existing contract in the sense that the specifications of the demand for goods must be in accordance with the production costs incurred. A specific problem observed in this study is the mismatch between actual moisture content of processed seaweed and buyer-specified moisture tolerance levels. In March and September 2025, the company's shipments exceeded the agreed moisture thresholds, resulting in contractual price reductions of 5%–10% and a net loss of Rp 225,432,150 in export revenue. This problem highlights a critical gap: the absence of a systematic, cost-accounting-based mechanism to align production quality control with export pricing strategy.

Prior studies have examined the relationship between production costs, selling prices, and profits in various Indonesian SME and manufacturing contexts. Firmansyah et al. (2023) established that production cost accuracy is central to determining viable selling prices. Dewi and Mitha Otik (2020) confirmed that profit expectations are a determinant of final product pricing in concrete manufacturing. Tony Agusta et al. (2021) and Muhammad Faiz and Factor Rohman (2021) explored production and distribution cost effects on sales volume, yielding inconsistent results across contexts. Saksono Budi and Siti Asmonah (2023) further examined this relationship in the restaurant industry. However, none of these studies has applied the full costing method to the *Eucheuma cottonii* export sector in a company that operates under international purchase-order contracts with quality-based price clauses. This constitutes the research gap that the present study seeks to fill.

Based on this description, the novelty of this study lies in its application of the full costing method to the seaweed export context, integrating analysis of raw material cost

variability, moisture content driven price penalties, and export selling price determination within a single, coherent financial model. By doing so, this study contributes to the limited body of literature on financial management in Indonesia's seaweed export supply chain.

The objectives of this study are therefore: (1) to classify and calculate total production costs using the full costing method for PT Sebatik Jaya Mandiri during the January–December 2025 period; (2) to determine the cost of goods sold (COGS) per kilogram and analyze its relationship to export selling prices; (3) to evaluate the gross profit margin and identify strategic factors that affect profit optimization; and (4) to provide evidence-based recommendations for improving production cost control and pricing strategy in order to enhance competitiveness and profitability.

LITERATURE REVIEW

Signaling Theory

Signaling theory explains the condition in which companies should and actually do provide signals in the form of information to financial statement users, which can be utilized in decision-making Muhharomi et al., (2021). A company's financial performance can provide positive signals to external parties regarding the company's current condition in order to maximize share value. Maximizing financial performance is critically important in assessing the level of financial performance, as such assessments can enhance shareholder prosperity Kelana and Amanah, (2020). In signaling theory, a well-evaluated company is reflected in the signals it transmits to external parties; the better the signals received by external parties, the more favorable their perception of the company entity. Signaling theory places strong emphasis on the importance of information generated by companies in relation to the financial decision-making of parties outside the company (investors). Financial data constitutes critical information for investors and business actors, as information in its fundamental essence presents descriptions, notes, or illustrations of past, present, and future conditions relevant to a company's sustainability.

Production Cost Theory and the Full Costing Method

Production costs are defined as the aggregate of all expenditures incurred during the transformation of raw materials into marketable finished goods, comprising three

primary components: (1) raw material costs, (2) direct labor costs, and (3) factory overhead costs Lestari and Permana, (2017). Two main costing methods exist in management accounting: the variable costing method, which charges only variable production costs to products, and the full costing method, which allocates both variable and fixed production costs to the cost of goods manufactured.

The full costing (absorption costing) method is considered more appropriate for external financial reporting as it conforms to generally accepted accounting principles (GAAP) and Indonesian Financial Accounting Standards (PSAK). Under this method, the cost of production per unit is calculated as follows:

$$\text{Cost per Unit} = (\text{Raw Material Costs} + \text{Direct Labor Costs} + \text{Fixed FOH} + \text{Variable FOH}) \div \text{Total Production Units}$$

Afif and Rismawati (2019) emphasize that proper cost attribution allocating all direct and indirect production costs to the product is essential for setting selling prices that cover total expenditures and generate target profit margins. Failure to include all overhead components (such as building depreciation, machinery depreciation, and indirect labor) leads to underpricing, which erodes profitability over time.

Selling Price

Cost constitutes the primary component in determining the selling price. The varying components reflect the cost of acquiring production units, requiring businesses to be judicious in establishing costs and prices. As defined by Kotler and Armstrong (2018:321), price is the amount of value exchanged by customers for the benefit of owning or using a product or service, or the sum of money charged to acquire it. The price of a product or service is the amount of money paid for that product or service, or the value provided by consumers in exchange for the benefits of owning or using a product or service. According to Kotler and Armstrong (2018), from a narrower perspective, price is the amount charged for a good or service; more comprehensively, price represents the sum of many relative values that clients exchange to obtain the benefits of purchasing or using a good or service. This is the amount determined by the business owner to be paid for the products they sell. This cost can subsequently be used to determine the value of a finished good, which the buyer ultimately pays to the seller to purchase that finished good. Costs arising from the expenditures incurred will subsequently emerge as a consequence of that price. The approaches that can be employed to determine the selling

price are as follows:

a. Standard Cost Guarantee

The selling price will be determined by adding projected future costs to a markup percentage calculated using a specific formula. This price will be set by incorporating the profit earned above all production and selling costs of the goods.

b. Contract Price Calculation

The production of goods is based on a service contract whereby the customer agrees to pay a predetermined price based on the summation of all costs incurred by the business operator and profit, calculated as a percentage of the actual costs.

c. Margin Cost

This approach is commonly employed by business operators engaged in trading goods, where the traded goods are not self-manufactured in order to reduce costs. Markup is a percentage calculation set above the purchase price of the goods. This percentage comprises two components: the desired profit-sharing portion and operating costs.

Profit

Profit, in the sense of an overall measure of company performance (Ningsih and Epi, 2021), is determined through a process in which the amount of revenue is reduced by expenditure costs. Net profit represents the portion of profit generated within the company through to the end of the month or the end of the financial period, whereby the resulting figure will be distributed as dividends Ningsih and Epi, (2021). In the process of calculating net profit, the value of revenue is higher than the company's expenditure burden. The net profit obtained by a company represents the earnings received collectively, derived by deducting all burdens and costs summarized in the income statement for a given period Zulkarnain, (2020). The income statement, in the sense of a profit and loss report, yields results obtained through the deduction of costs that constitute the company's burden within a specific period, including taxes. The concept of profit is one that juxtaposes the revenue or income earned by the company on one side against the costs that must be borne or expended by the other party.

In manufacturing entities, net profit is significantly influenced by operational efficiency and market performance, where operating costs have a negative impact on

profit margins, whereas increased sales lead to a positive growth in net income. (Rozi & Bahri, 2023) Company profit can be observed from the position of revenue and assets that can influence capital, viewed from the perspective of increasing company earnings.

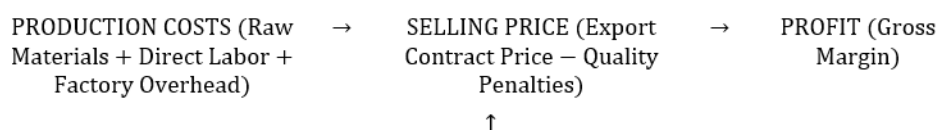
In other words, profit can be seen in the company's ability to generate profit within the course of transactional timeframes. The profit of a business is one of the most appropriate measures for determining whether a company is effectively utilizing its available capital resources. For MSME entrepreneurs, profit is not merely about achieving large financial gains, but rather about maintaining capital turnover to ensure business continuity and development, while simultaneously providing a sense of happiness and improved economic welfare for their families Rohmatunnisa',(2023)

The effect of rising production costs and selling prices on the improvement of company profit constitutes the subject of inquiry in this study. A company will be able to grow through the profit it earns or receives, and such profit will be utilized for various managerial purposes. A business must formulate an effective profit plan, attentive to the factors that can influence profit in order to achieve the desired level of earnings. Production costs, these costs consist of raw material costs, labor costs, and factory overhead costs Lestari and Permana, (2017). This reflects the company's anticipation that the expenditures incurred to produce the finished goods — their value or selling price — will exceed the costs expended in generating profit from the organization's operations. Meanwhile, Sari, Utomo, and Silyastiowati (2018) found that sales volume is positively and significantly correlated with production and distribution costs. Furthermore, these findings are consistent with signaling theory, which illustrates that businesses are obligated to disseminate information to third parties in the form of financial statements. Investors use these reports to make informed investment decisions.

Conceptual Framework

The conceptual framework of this study is illustrated in Figure 1 below, which shows the relationships among the key variables examined.

Figure 1
Conceptual Framework of Research Variables



Signaling Theory (Quality Compliance as Positive Signal to Buyers)

Source: Data Processing, 2026

RESEARCH METHODS

The approach used in this study is quantitative descriptive. The data sources obtained are primary and secondary data. The data analysis techniques used in analysing the data are descriptive analysis and full costing methods. The data collected and obtained from the company in the form of information related to this study was analysed or measured in order to solve problems and at the same time to examine and prove the hypotheses that had been proposed previously. data analysis technique comprises: (1) classification of production costs into raw material costs, direct labor costs, and factory overhead costs using the full costing method; (2) calculation of cost of goods manufactured (COGM) and cost of goods sold (COGS) per production unit; (3) computation of gross profit margin based on actual export selling prices; and (4) CVP analysis to determine break-even point and contribution margin. This research was conducted at PT Sebatik Jaya Mandiri, where the purchasing process is directly from seaweed farmers, specifically in Tarakan and Nunukan, which are some of the locations for seaweed (*Eucheuma cottonii*) commodities, where the raw materials are obtained and then processed in factories for export/resale to various countries, including China and Korea.

RESEARCH FINDINGS

Raw Material Costs

Raw material costs constitute the largest component of total production costs. Table 1 presents the complete monthly raw material procurement data for January–December 2025. The average purchase price of Rp 13,651/kg was calculated by dividing total purchase value (Rp 4,314,022,136) by total quantity (316,020 kg). A seaweed transportation cost of Rp 18,550,000 is added, yielding a total raw material cost of Rp 4,332,572,136.

Table 1
Raw Material Costs for *Eucheuma Cottonii* January to December 2025

Month	Quantity (kg)	Moisture (%)	Price (Rp/kg)	Purchase Value (Rp)	Notes
January	10,745	38%	13,040	140,114,080	
February	16,750	38%	13,040	218,420,000	

Month	Quantity (kg)	Moisture (%)	Price (Rp/kg)	Purchase Value (Rp)	Notes
March	21,011	40%	13,040	273,983,440	
April	33,669	39%	14,233	479,210,877	Price increase
May	13,338	41%	14,233	189,839,754	High moisture
June	27,842	38%	13,040	363,059,680	
July	9,597	39%	15,070	144,626,790	Peak price
August	44,268	40%	13,160	582,566,880	
September	39,447	38%	13,160	519,122,520	
October	17,763	38%	14,115	251,435,265	
November	54,719	40%	14,115	772,358,685	Peak volume
December	26,871	38%	14,115	379,284,165	
TOTAL	316,020 kg	Avg 38.9%	Avg 13,651	4,314,022,136	
Transportation Cost				18,550,000	Buyer-borne
TOTAL RAW MATERIAL COST				4,332,572,136	

Source: PT Sebatik Jaya Mandiri Data processed, 2026

From Table 1, it can be seen that the raw materials for the seaweed export/sales process and ready for resale amount to Rp 4,314,022,136, based on a moisture content of 38%-41% and a total amount of seaweed required in the production process of 316.020 kg for the period January-December 2025. The data in Table 1 reveal that raw material prices fluctuated from Rp 13,040/kg (January–March, June) to Rp 15,070/kg (July), reflecting seasonal supply dynamics and bilateral negotiation with individual farmers. The highest procurement volume occurred in November (54,719 kg), consistent with post-harvest seaweed season patterns in the Nunukan Tarakan corridor. The moisture content range of 38%–41% is a critical variable moisture exceeding the buyer-specified threshold directly triggers contractual price penalties. The raw materials obtained will be processed further through several production stages. Initially, the seaweed will be sun-dried to the specified moisture content, then pressed and packed into bags. these stages are carried out by production workers, specifically the drying and pressing sections, which fall under direct labour costs. The following are the direct labour costs for the raw material production process:

Direct Labor Costs

The seaweed production process involves two primary labor-intensive stages: sun-drying (penjemuran) and pressing (pengepresan). Both activities are compensated on a per-bag (karung/Krg) basis, as shown in Table 2.

Table 2
Direct Labour Costs for Seaweed Production January–December 2025

No	Production Activity	Rate	Total Cost (Rp)
1	Sun Drying	Rp15,000/Krg	Rp 65,745,000
2	Pressing	Rp 16,500/Krg	Rp 61,470,750
Total Direct Labor Cost			Rp 127,215,750

Source: Data processed, 2026

Table 2 shows that the production stage for direct labour costs allocated to drying and pressing activities resulted in a drying rate of Rp 15,000/Krg with a total cost of Rp 65,745,000 by the end of December 2025, while the pressing activity with a rate of Rp 16,500/Krg amounted to Rp 61,470, Direct labor costs totaling Rp 127,215,750 represent approximately 2.8% of total production costs a relatively low proportion compared to raw material costs, reflecting the labor-light nature of seaweed sun-drying and pressing compared to more capital-intensive agro-processing industries. However, the quality of labor execution particularly in the drying stage is disproportionately influential on product quality outcomes, as inadequate drying directly causes the moisture content exceedances that result in export price penalties.

Factory Overhead Costs (FOH)

Factory overhead costs encompass all production-related expenditures other than direct materials and direct labor. These include both cash expenses (indirect labor, telephone/communication, maintenance) and non-cash charges (depreciation). Table 3 presents the complete FOH schedule for 2025.

Table 3
Factory Overhead Costs - January to December 2025

No.	Description	Amount (Rp)	Classification
1	Indirect Labor Costs	37,088,000	Fixed Cost
2	Telephone/Communication Expenses	9,660,000	Fixed Cost
3	Building Maintenance Costs	13,925,000	Semi-Variable
4	Machinery Maintenance Costs	7,428,000	Semi-Variable
5	Building Depreciation	35,720,000	Fixed Cost
6	Machinery Depreciation	15,900,000	Fixed Cost
TOTAL FACTORY OVERHEAD COSTS		119,721,000	
Total Production Units (kg)		372,550	
FOH Rate per kg		321	= Rp 119,721,000 ÷ 372,550

Source: PT Sebatik Jaya Mandiri Data processed, 2026

Based on Table 3, for each production during one allocation period, the overhead costs for each seaweed production are Rp 119,721,000, with a total production of 372,550 kg. The allocation of overhead costs in total production units per year can be calculated at Rp 321/kg by dividing the total overhead costs by the production units. Production units are viewed from the components of indirect wages, telephone (communication) costs, building and machinery maintenance costs, building and machinery depreciation, and the business world of production based on orders, with BOP charged to products at a predetermined price. The FOH rate of Rp 321/kg was calculated by dividing total overhead costs by total production volume (372,550 kg). Depreciation costs (Rp 35,720,000 for buildings + Rp 15,900,000 for machinery = Rp 51,620,000) constitute 43.1% of total FOH — the largest component highlighting the capital-intensive nature of seaweed drying and pressing infrastructure. It is important to note that total production volume (372,550 kg) exceeds total raw material purchased (316,020 kg) due to beginning inventory and inter-period processing of seaweed already in stock.

Total Production Cost Calculation (Full Costing Method)

Using the full costing method, the total cost of goods manufactured (COGM) is the sum of all three cost components.

Table 4
Calculation of Cost of Goods Manufactured (Full Costing Method) 2025

Cost Component	Total Amount (Rp)	Production Units (kg)	Unit Cost (Rp/kg)
Raw Material Costs (incl. transport)	4,332,572,136	372,550	11,631
Direct Labor Costs	127,215,750	372,550	341
Factory Overhead Costs	119,721,000	372,550	321
TOTAL COST OF GOODS MANUFACTURED	4,579,508,886	372,550	12,293
Cost per kg (rounded)			Rp 12,293/kg

Note: Unit cost components: Raw Materials Rp 11,631 + Direct Labor Rp 341 + FOH Rp 321 = Rp 12,293/kg

Source: PT Sebatik Jaya Mandiri Data processed, 2026

The COGS per kilogram of Rp 12,293 (approximately Rp 12,243 as reported by the company, with minor rounding differences due to transport cost allocation) becomes the

baseline for evaluating the profitability of each export shipment. Raw materials dominate at 94.6% of total production cost, followed by direct labor (2.8%) and factory overhead (2.6%), reflecting the commodity-processing nature of the business.

Export Selling Price and Revenue Analysis

The company conducted export shipments in seven months during 2025, priced in USD under purchase order contracts, with conversion to IDR at prevailing exchange rates. Table 5 summarizes export revenues before quality deductions.

Table 5
Export Selling Price of Eucheuma Cottonii 2025

No.	Month	Volume (kg)	Price (USD/tonne)	Revenue (USD)	Revenue (Rp)	USD/kg (equiv.)
1	January	43,000	1,500	64,500	966,145,500	22,468
2	March	47,000	1,500	70,500	1,061,871,000	22,593
3	April	35,000	1,700	59,500	877,684,500	25,077
4	June	37,000	1,700	62,900	947,399,800	25,605
5	July	21,000	1,500	31,500	475,114,500	22,625
6	September	74,000	1,500	111,000	1,723,386,000	23,289
7	November	56,000	1,500	84,000	1,292,256,000	23,076
TOTAL		313,000 kg		484,400	7,343,857,300	Avg 23,463

Source: PT Sebatik Jaya Mandiri — Data processed, 2026

From Table 5, The average export selling price equivalent to Rp 23,463/kg compares favorably against the COGS of Rp 12,293/kg, yielding a preliminary gross margin of Rp 11,170/kg or approximately 47.6% before quality deductions. The price premium in April and June (USD 1,700/tonne vs. USD 1,500/tonne in other months) reflects increased international demand in those periods, demonstrating the role of market demand cycles in revenue optimization. The prices determined by the buyer in *the purchase order* show that the selling price is better than the national average. The proceeds from these sales will be allocated towards reducing costs, thereby increasing company profits. From the data, it can be seen that the selling price of seaweed experienced a price increase of 200 USD in April and June due to increased demand for seaweed in various countries. Therefore, it is necessary to maintain the quality of seaweed orders in accordance with buyer demand. However, during the process, the moisture content required by buyers did not match the purchase requests, resulting in a reduction in total sales of 5%-10% in March and September 2025, as shown in the following data:

Quality Penalty Analysis and Net Revenue

Analysis of Profit Increase Through Optimisation of Production Costs and Selling Price of Eucheuma Cottonii Seaweed | 190

A key finding of this study is the impact of moisture content non-compliance on revenue. Table 6 details the contractual price reductions applied in March and September 2025.

Table 6
Quality Penalty (Price Reduction) Analysis March & September 2025

No.	Month	Revenue Before Penalty (Rp)	Required Moisture (%)	Actual Moisture (%)	Penalty (%)	Deduction (Rp)
1	March	1,061,871,000	34%	35%	5%	53,093,550
2	September	1,723,386,000	35%	37%	10%	172,338,600
Total						225,432,150

Net Export Revenue Calculation:

Gross Export Revenue (7 months)	Rp 7,343,857,300
Less: Quality Penalty Deductions	(Rp 225,432,150)
NET EXPORT REVENUE	Rp 7,118,425,150

Source: PT Sebatik Jaya Mandiri Data processed, 2026

As seen in Table 6, the reason for the decrease in sales value in March and September is that the company could not meet the buyer's criteria for seaweed content at 34% and 35% with export process levels at 35% and 37%. As this aligns with the agreement or *contract*, buyers are entitled to reduce the purchase price by 5%-10%, resulting in a decrease in total export sales from Rp 7,343,857,300 to Rp 7,118,425,150. This necessitates an evaluation of the seaweed production process. The total penalty of Rp 225,432,150 represents 3.07% of gross export revenue a materially significant erosion of profit. Had these two shipments complied with moisture specifications, the company would have retained this full amount as additional gross profit, increasing the gross margin from 39% to approximately 40.5%. This finding strongly supports the argument that production quality control (particularly the drying process) is not merely an operational issue but a direct financial management concern.

Gross Profit Margin Analysis

The comprehensive profitability analysis is presented in Table 7, which reconciles total production costs with net export revenues to derive the gross profit and gross margin percentage.

Table 7
Gross Profit Calculation Fiscal Year 2025

Item	Amount (Rp)
Net Export Revenue (after quality penalties)	7,118,425,150

Less: Cost of Goods Sold (313,000 kg × Rp 12,293/kg)	(3,847,709,000)
GROSS PROFIT	3,270,716,150
Gross Profit Margin = $(3,270,716,150 / 7,118,425,150) \times 100$	45.95%
(Using company's COGS of Rp 12,243/kg as reported)	39% as reported*

The company reports a gross margin of 39% using the average selling price of Rp 20,236/kg across all exported units and a COGS of Rp 12,243/kg. Gross Margin = $(20,236 - 12,243) / 20,236 = 39.5\%$. This study confirms this figure.

Source: PT Sebatik Jaya Mandiri Data processed, 2026

The confirmed gross profit margin of approximately 39% is consistent with industry benchmarks for processed agricultural commodity exporters in Southeast Asia. Research by Dewi and Mitha Otik (2020) found that concrete product manufacturers achieved margins of 25%–35%, while Firmansyah et al. (2023) reported that small-scale manufacturers applying the full costing method typically identified underpricing by 10%–15% compared to variable costing estimates. The 39% margin obtained by PT Sebatik Jaya Mandiri indicates that the company's export pricing strategy benchmarked against international USD denominated contract prices is competitive and financially sound.

Cost Volume Profit (CVP) and Break Even Analysis

To provide a more comprehensive financial analysis, a CVP analysis is presented below. Fixed costs include FOH fixed components and a portion of labor, while variable costs are primarily raw material costs and variable labor.

Table 8
Cost-Volume-Profit Summary Analysis 2025

Parameter	Value	Basis
Average Selling Price per kg	Rp 22,742	Net revenue / 313,000 kg
Variable Cost per kg (Raw Material + Variable Labor)	Rp 11,972	Excl. fixed FOH & depreciation
Contribution Margin per kg	Rp 10,770	Selling Price – Variable Cost
Contribution Margin Ratio	47.4%	$(10,770 / 22,742) \times 100$
Total Fixed Costs (Fixed FOH + Depreciation)	Rp 98,208,000	Table 3 fixed items
Break-Even Point (BEP) in kg	9,117 kg	Fixed Costs / Contribution Margin
Break-Even Point in Revenue	Rp 207,351,114	BEP kg × Selling Price
Actual Sales Volume	313,000 kg	Table 5
Margin of Safety	303,883 kg / 96.8%	Actual – BEP

Source: PT Sebatik Jaya Mandiri Data processed, 2026

The break-even point of 9,117 kg is remarkably low compared to the company's actual export volume of 313,000 kg, indicating an exceptionally large margin of safety of 96.8%. This means the company would need to see a 96.8% drop in sales volume before incurring a loss a testament to the strong contribution margin and relatively modest fixed cost structure. This finding is consistent with signaling theory: the company's robust financial structure sends strong positive signals to both buyers and potential investors regarding business sustainability.

Comparison with Previous Research

The majority of prior studies affirm the central relationship between production costs and selling price determination that this study confirms. However, this study adds a novel dimension by demonstrating that in export industries governed by quality-based contract clauses, production process quality control (specifically moisture content management) functions as a financial variable with direct, quantifiable impact on net revenue and gross profit a linkage not explored in any prior study in the Indonesian seaweed industry. The findings of this study are situated within and compared to the existing body of research in Table 9 below.

Table 9
Comparison of This Study with Prior Research

Researcher (Year)	Industry Context	Method	Key Finding	Consistency with This Study
Firmansyah et al. (2023)	General Manufacturing	Full Costing	COGS accuracy drives optimal pricing	Consistent
Dewi & Otik (2020)	Concrete Products	Cost-Plus Pricing	Desired profit shapes selling price	Consistent
Tony Agusta et al. (2021)	Trading Company	Regression Analysis	Production cost affects sales volume	Partially consistent
Faiz & Rohman (2021)	Furniture SME	Regression Analysis	Production cost → selling price	Consistent
Saksono & Asmonah (2023)	Restaurant Industry	Cost Analysis	Production cost determines price	Consistent
Rozi & Bahri (2023)	Manufacturing	Financial Ratio	Operating costs negatively impact profit	Consistent
This Study (2026)	Seaweed Export	Full Costing + CVP	COGS 39% margin; quality compliance	

Source: Compiled from literature review, 2026

DISCUSSION

There are typically two approaches that can be taken to ensure accurate production cost calculations. The *full costing* approach was used in this study. Production costs consist of all costs related to production, including direct labour costs, raw materials, and factory overhead costs. If a company makes a mistake in calculating the cost of goods manufactured, it may incur losses because the costs incurred are not proportional to the profits earned. You must know the components that must be included in the calculation so that there are no errors when calculating the cost of goods manufactured. Using the *full costing* method, the seaweed factory at PT Sebatik Jaya Mandiri calculates the cost of goods manufactured by calculating all costs incurred during the seaweed production process. Raw material costs, direct labour costs, and factory overhead costs, both variable and fixed, are costs incurred during the production process. The cost of production was calculated at Rp 4,560,958,886 with a production volume of 372,550 kg during 2025.

The cost price of seaweed production per kilogram is 12,293. Based on the number of production units produced, if the demand for seaweed is high, the company can set a higher selling price without significantly reducing sales volume. In other words, the company can sell more units at a higher price if the product is in high demand by buyers. Pricing based on buyer offers is highly dependent on the production volume of PT Sebatik Jaya Mandiri. In this case, production volume may be more flexible, but the selling price will be adjusted based on demand. As seen in Table 4, the selling price of seaweed ranges from £20.236/kg, based on the average sales value of over 7 months, with the highest selling price of Rp 25,605 in June. This means that if the demand is high and the production capacity is available to meet buyer demand, sales volume will also increase. By calculating the COGS margin against the selling price, the gross margin is obtained from $\text{Selling Price} - \text{COGS} = 20,236 - 12,243 = \text{Rp } 7,993$, the gross margin/selling price $\times 100 = 7,993/20,236 = 39\%$ is obtained. Thus, the COGS margin on the selling price is approximately 39%. This means that the company obtains a profit margin of 39% from the selling price of the product after covering

The cost of goods sold. In line with this, research conducted by Dewi Intan and Mitha Otik (2020) shows that the desired profit affects the selling price of concrete products.

This is because if you want to get a large profit, the price of each product must also be high. The findings in this study indicate that companies are recommended to use the full costing approach when calculating production costs. Based on the *full costing* method calculations, all costs related to production have been taken into account. Costs related to direct labour, raw materials, and *factory overheads* are components of the production process. Conversely, using the *full costing* method will provide more accurate results regarding the cost of production so that the ideal selling price for seaweed products can be determined. With the *full costing* technique, sales are more accurately calculated. Companies can set more accurate selling prices to ensure profits by knowing the total production costs. This helps in determining sales with estimates that can cover all costs and provide ideal net income. Because all costs, including raw material costs, labour costs, *factory overhead* costs, equipment maintenance costs, and production equipment maintenance and depreciation costs, are clearly detailed in the *full costing* method, the calculation of the cost of production becomes more accurate. By providing a clear picture of the costs incurred by each unit, *full costing* also helps in evaluating the performance of various divisions or business units. As a result, managers can allocate resources more effectively and make strategic decisions.

The findings of this study are strongly correlated with signaling theory as articulated in the theoretical framework. Signaling theory posits that companies must transmit credible, accurate, and timely financial information to external parties including buyers, investors, and creditors in order to reduce information asymmetry and foster trust Muhharomi et al., (2021). The results of this study demonstrate that PT Sebatik Jaya Mandiri's financial performance, as measured through the full costing method, functions precisely as such a signal to its market stakeholders.

First, the gross profit margin of 39% and the exceptionally low break-even point of 9,117 kg against an actual export volume of 313,000 kg represent strong positive signals to external stakeholders. In signaling theory, a company that consistently demonstrates financial soundness signals its viability and competitiveness to buyers and investors (Kelana and Amanah, 2020). The large margin of safety of 96.8% communicated through transparent financial reporting assures international buyers of the company's operational stability and its capacity to honor long term purchase order contracts. This is particularly significant in the context of export markets, where buyer confidence is a critical determinant of contract renewal and price negotiation outcomes.

Second, the quality penalty incidents in March and September 2025 resulting in revenue deductions of Rp 225,432,150 due to moisture content non compliance illustrate the negative signaling effect of poor operational quality. From a signaling theory perspective, contractual price penalties are not merely financial setbacks; they constitute negative signals transmitted to buyers regarding the company's production reliability and quality management capability. Such signals may erode buyer trust, weaken the company's negotiating position in future contracts, and ultimately damage its reputation in the international seaweed market. Conversely, had the company maintained consistent moisture compliance across all shipments, the absence of penalties would have sent a strong positive signal of operational discipline and quality commitment potentially supporting better contract terms and higher price points in subsequent negotiations.

Third, the application of the full costing method itself functions as a signaling instrument. By adopting a comprehensive and GAAP compliant cost accounting approach that encompasses all direct and indirect production costs, PT Sebatik Jaya Mandiri signals to investors and financial institutions that its financial reporting is accurate, complete, and trustworthy. This aligns with the core proposition of signaling theory: that the quality of financial information determines the quality of signals received by external decision makers Muhharomi et al., (2021). Companies that rely on incomplete or variable only costing methods risk understating their true cost structure, which may temporarily appear profitable but ultimately misleads investors and produces unsustainable pricing strategies. The full costing approach, as demonstrated in this study, ensures that all cost components are visible and accurately attributed, thereby enhancing the informational value of the company's financial statements as a signaling tool.

Finally, the contribution margin ratio of 47.4% and the competitive export pricing strategy benchmarked against USD denominated international contracts signal to potential investors and trade partners that PT Sebatik Jaya Mandiri possesses a sustainable and scalable business model. In line with Kelana and Amanah (2020), who emphasize that maximizing financial performance is critical to enhancing shareholder prosperity, the transparent disclosure of cost structure and profit margins through accurate financial statements enables stakeholders to make informed and confident decisions. This reinforces the central tenet of signaling theory: that the more favorable and credible the signals emitted by a company, the more positively it will be perceived by external parties, ultimately supporting firm value, market competitiveness, and long-

term business continuity.

CONCLUSION

PT Sebatik Jaya Mandiri has established an appropriate, fast, cautious, comparative, and adaptive pricing strategy to maintain the company's value in the eyes of buyers, and the application of the full costing method is very effective in determining the unit price of seaweed (*Eucheuma cottoni*) production in this study to assess the company's profits. The full costing method is informative, where all production cost information is more accurate, consisting of raw material costs, direct labour costs (BTKL) and factory overhead costs, both fixed and variable. These are determined through analysis of production costs and selling prices in order to increase company profits. The margin of production costs on sales value of 39% indicates that competitive selling prices are able to maintain business profits by calculating accurate production costs and taking into account internal and external factors.

The limitations of this study are to a single company and a one year observation period. Future research should: (1) extend the analysis across multiple seaweed export companies in North Kalimantan to test whether the 39% gross margin is representative of the industry; (2) incorporate panel data across 3–5 years to examine how raw material price cycles, currency exchange rate fluctuations, and international demand shifts affect COGS and profitability over time; (3) apply the Activity-Based Costing (ABC) method as a complementary approach to the full costing method to provide more granular cost allocation, particularly for overhead costs; (4) investigate the role of digital traceability and moisture content IoT monitoring systems in reducing quality penalty losses in the seaweed supply chain; and (5) expand the signaling theory framework to include buyer relationship management and supplier certification as financial signaling mechanisms in the agro-export context.

REFERENCES

- Afif, M. N., & Rismawati, R. (2019). Analysis of Production Cost to Determine the Selling Price of Garment Products. *Jurnal Akunida*, 5(1), 10.
- Augytė, S., Sims, N. A., Martin, K. J., Wychen, S. V., Panczak, B., Alt, H., Nelson, R., & Laurens, L. M. L. (2023). Tropical Red Macroalgae Cultivation with a Focus on Compositional Analysis. *Plants*, 12(20), 3524. <https://doi.org/10.3390/plants12203524>

- Coleman, S., Gelais, A. T. St., Fredriksson, D. W., Dewhurst, T., & Brady, D. C. (2022). Identifying Scaling Pathways and Research Priorities for Kelp Aquaculture Nurseries Using a Techno-Economic Modeling Approach. *Frontiers in Marine Science*, 9. <https://doi.org/10.3389/fmars.2022.894461>
- Dewi & Mitha Otik. 2020. The Influence of Production Costs and Desired Profit on Selling Prices at Dua Putri Beton MSMEs. *ecobuss scientific journal of economics and business* Vol. 8 No 2.
- Firmansyah., Hari Mulyadi, & Dwinanto Priyo Susetyo. (2023). Determining Selling Price: Production Cost and Profit Expectations. *Jkbn (Journal of Business and Management Concepts)*, 9(2), 202–215.
- Kelana & Amanah (2020). The Influence of Company Growth and Investment Decisions on the Value of the Company's s with Profitability as an Intervening Variable. *Journal of Accounting Science and Research*, 9(1), 1-22.
- Kotler, P and Amstrong. 2018. *Principles of Marketing Seventh Edition*. Salemba Empat Publishers.Jakarta.
- Lestari, W., & Permana, D. B. (2017). *Cost Accounting from a Managerial Perspective*. PT Raja Grafindo Persada
- Muhharomi, Selame, E.B.S., Suryo, B.C.P. (2021). The influence of debt policy, free cash flow, liquidity and sales growth on financial performance. *Ratio: Indonesian Contemporary Accounting Review*. 2(1), 36–50.
- Muhammad Faiz, Factur Rohman (2021). The Effect of Production and Distribution Costs on Selling Prices in Gendis Furniture SMEs, *Journal of Accounting Recognition*. Vol 5, no. 2, 78–79.
- Ningsih, A. S., & Epi, Y. (2021). Analysis of the Effect of Operational Costs on Revenue and Its Impact on Net Profit at CV. Arif Jaya Motor Medan. *Journal of Business Economics, Management and Accounting (Jebma)*, 1(1).
- Oort, P. A. J. van, Rukminasari, N., Latama, G., Verhagen, A., & Werf, A. K. van der. (2022). The Bio Economic Seaweed Model (BESeM) for modelling tropical seaweed cultivation – experimentation and modelling. *Journal of Applied Phycology*, 34(5), 2627. <https://doi.org/10.1007/s10811-022-02799-8>
- Rohmatunnisa', L. D. (2023). The Meaning of Profit for Micro, Small, and Medium Enterprises (MSMEs). *RISTANSI: Riset Akuntansi*, 4(2), 125-136. <https://doi.org/10.32815/ristansi.v4i2.1680>
- Rozi, A., & Bahri, S. (2023). The Influence of Operating Costs, Production Costs, and Sales on Net Profit]. *RISTANSI: Riset Akuntansi*, 4(2), 176-189. <https://doi.org/10.32815/ristansi.v4i2.2017>
- Saksono, B., Siti Asmonah. The Influence of Production Costs on the Determination of Selling Prices at Restaurant Lewis & Carroll. *Indonesian Tax Accounting Journal* Volume 2 (2) 2025, 82– 97.
- Schmid, M., Biancacci, C., Leal, P. P., & Fernández, P. A. (2023). Editorial: Sustainable seaweed aquaculture: Current advances and its environmental implications. *Frontiers in Marine Science*
- Analysis of Profit Increase Through Optimisation of Production Costs and Selling Price of Eucheuma Cottonii Seaweed* | 198

Science, 10. <https://doi.org/10.3389/fmars.2023.1160656>

Sari, Utomo & Silystiowati. 2018. Analysis of the Effect of Production Costs and Distribution Costs on Sales Volume at UD. Sido Luhur Desa Duren Pilangkenceng. E-Journal Unipma. Vol 06. No. 02.

Tony Agusta, Moh. Afrizal, Widiar, O. (2021). The Effect of Production Costs and Marketing Costs on Sales Volume at PT. Cipta Karya Buana Journal of Sustainability Business Research ISSN: 2746 – 8607

Zulkarnain, (2020). "The Influence of Liquidity and Profitability on Capital Structure." Journal of FEB Unmul, 22 (1) 2020, 49–54.



DESIGNING A FINANCIAL ACCOUNTING INFORMATION SYSTEM SPREADSHEET-BASED

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Abstract:

This study aims to design an integrated accounting information system based on spreadsheets to support the process of recording transactions and preparing financial statements at CV Sukses Maju Jaya. The primary challenge identified is that transaction recording remains manual, resulting in less accurate and unstructured financial information. The research method used is descriptive qualitative with a Research and Development (R&D) approach. The results indicate that the system is able to automate the accounting cycle from journal entries to financial statements, including ledger, trial balance, income statement, statement of changes in equity, and statement of financial position. The system improves efficiency, accuracy, and supports better decision-making.

INTRODUCTION

Rapid technological developments have driven the era of digital transformation, which has fundamentally changed the way businesses operate around the world. This transformation not only touches large corporations, but also requires Micro, Small, and Medium Enterprises (MSMEs) to adapt to remain relevant and competitive. MSMEs are an important pillar of the economy, but often face challenges in efficient operational management, especially in accounting and financial aspects (Khairi, et al., 2025).

Good financial management is the main factor in determining the success of a business, one of which is through the preparation of proper financial reports. Financial statements are the result of the process of recording and processing financial transactions that are systematically compiled to provide information about the financial position, performance, and cash flow of a business in a certain period. Financial statements function as an important communication tool for internal and external parties

in assessing the condition and performance of a business (Aprisyah & Yuliati, 2021). However, in reality, there are still many business actors who do not have an adequate financial recording system. Transaction recording is still done manually, simply, and even only relies on memory, so that the financial information produced becomes less accurate, unsystematic, and difficult to analyze (Pratiwi et al., 2025).

The limitations in financial management are caused by several factors, including the low understanding of business actors in accounting, limited human resources, and the lack of use of technology in the financial recording process. This condition results in the financial statements produced not in accordance with applicable accounting standards. The use of non-optimal financial statements can have an impact on errors in decision-making and increase the risk of financial problems (Asa Bakti & Anton, 2021). To overcome these problems, the implementation of an accounting information system (AIS) is needed that is able to help the process of recording, processing, and presenting financial information more effectively and efficiently. In addition, the application of accounting information systems can help financial management and facilitate decision-making (Yulianto et al., 2024).

Along with the development of information technology, the application of computer-based accounting information systems is one of the solutions that can be used to improve the quality of financial management in business actors. A wide range of accounting applications have been developed, ranging from simple to complex. However, the use of accounting applications such as Accurate and Zahir Accounting is still an obstacle for some MSMEs because they require relatively high costs and special skills in their operation (Sulistyo Aji et al., 2019).

Spreadsheets are one of the applications that can be used as a solution in building a simple accounting information system. With various features such as functions and formulas (SUM, IF, VLOOKUP, INDEX, and MATCH), it is able to automate the process of recording and compiling financial statements. The use of spreadsheets has also been proven to increase efficiency and accuracy in financial data processing (Tezar, 2022; Acopen, 2024).

However, in practice, the use of spreadsheets is still often limited to simple recording and has not been developed into an integrated accounting information system. This also happens with CV Sukses Maju Jaya Semarang, where transaction recording is still done manually and has not been optimally computerized. This condition causes the

process of preparing financial statements to be longer, less accurate, and difficult to use in decision-making.

Based on these problems, it is necessary to design a spreadsheet-based accounting information system for CV Sukses Maju Jaya that is able to integrate the process of recording transactions to the preparation of financial statements automatically. The designed system is expected to improve the efficiency, accuracy, and quality of financial information produced, so as to support more effective decision-making.

LITERATURE REVIEW

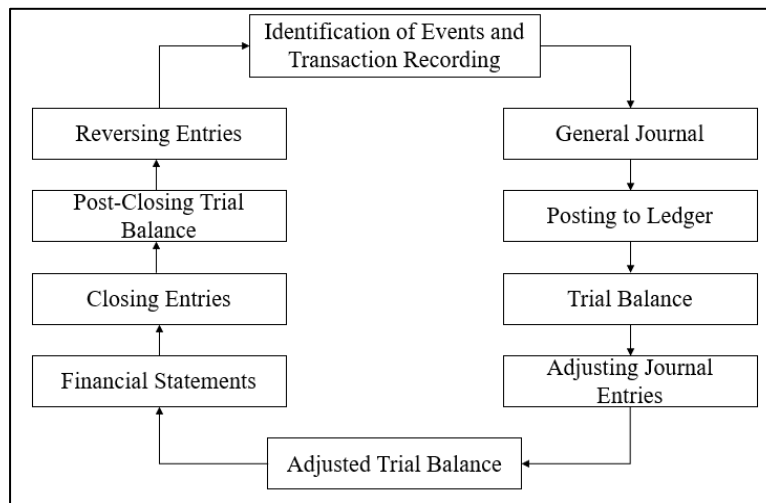
Accounting Information System (AIS)

An Accounting Information System (AIS) is a set of procedures, documents, records, and human resources used to identify, record, and process financial data in order to produce information that is relevant to managerial decision-making (Nabilhajid & Ahalik, 2023). The purpose of an accounting information system is to be able to collect and store data on the company's financial activities or transactions, carry out effective and appropriate control over the company's assets, be able to process financial data into information in making management decisions about business planning and control that will be cost-efficient and time efficient for financial performance, as well as being able to supervise all financial activities of the company, as well as in the presentation of systematic and accurate financial data in the right accounting period (Darmayanti et al., 2021).

Accounting Cycle

A period of activity begins with collecting transaction data until the preparation of financial statements, followed by the closing process so that a balance sheet will be obtained after closing. The balance sheet after the next closure becomes the initial balance sheet of the next period. And so on, the process runs from one period to the period of the brick. This activity is referred to as the accounting cycle as seen in figure 1.

Figure 1
Accounting Cycle



Source: Author, 2026

Spreadsheets in Accounting

Spreadsheet is a table-based data processing application that is used to systematically calculate, analyze, and manage data. In the field of accounting, spreadsheets are widely used as an aid in the process of recording and compiling financial reports (Romney & Steinbart, 2018). Commonly used spreadsheet applications include Microsoft Excel and Google Sheets. Both apps have almost the same function in managing data, but they have differences in terms of access and additional features.

Spreadsheets have advantages in terms of ease of use, flexibility, and the ability to perform automated calculations through various functions such as SUM, IF, and VLOOKUP. With this feature, the data processing process becomes faster and more efficient compared to manual methods (Tezar, 2022).

In the context of accounting, spreadsheets can be used to compile general journals, ledgers, balance sheets, and financial statements in an integrated manner. This makes spreadsheets one of the effective tools in supporting accounting information systems.

Financial Statements

A financial statement is a company document that reports a company in monetary terms that provides information to help people make business decisions based on that information (Horngren & Horison, 2017:25). In other words, financial statements describe the company's performance in a period. Performance information is needed to

assess potential changes in economic resources that may be controlled in the future and is used to predict a company's ability to generate cash from its resources.

The results of the financial statements can be used as an analysis of where the company is currently standing. Therefore, the analysis of the financial statements of a company or organization must be carried out carefully and carefully using the right tools, methods and techniques so that useful results can be obtained in helping decision-making. The company can obtain financial statements from the results of the accounting process so that it produces 5 types of reports, namely: balance sheet, capital change, profit/loss statements, cash flows and records related to financial statements (Ningtiyas, 2017). The analysis of the financial statements is an interpretation for the managerial ranks about the position, condition and performance of the company to creditors and investors. Apart from being an overview of the past, financial statements can also be used as targets and projections of the organization/company's achievements in the future (Denny Erica, 2018).

RESEARCH METHODS

This study uses a descriptive qualitative approach with the aim of designing, implementing, and testing a spreadsheet-based accounting system using Google Spreadsheet Online on CV Sukses Maju Jaya. This approach is commonly used in the development of simple accounting information systems for MSMEs (Aji et al., 2019; Satria et al., 2021). The research method used in this study is *Research and Development (R&D)*. *Research and Development* is research that is able to be a link between basic and applied research. This research is also interpreted as a process to develop new products or improve existing products. The intended products can be in the form of hardware such as books, modules, classroom learning tools, laboratories, or software such as programs for data management, learning training, etc. The stages of research carried out include needs analysis, system design, system development, testing, and evaluation referring to the Research and Development method (Sugiyono, 2017).

1. Needs Analysis

This stage is carried out to identify system needs based on the problem of recording transactions that are still done manually. The analysis includes the system's input, process, and output needs.

2. System Design

Designing the architecture of the spreadsheet-based system, including general journals, ledgers, trial balances, and financial statements, as well as mapping the system flow through flowcharts.

3. System Development

The core process of building the system in Google Sheets by utilizing advanced formulas such as SUM, IF, IFERROR, VLOOKUP, INDEX, MATCH, and QUERY to automate data processing.

4. System Testing

Testing is done by entering transaction data into the system to ensure that the system can run properly and generate financial reports automatically.

5. System Evaluation

The evaluation stage is carried out to assess the performance of the system that has been developed and identify shortcomings that are still present in the system.

The object of this research is CV Sukses Maju Jaya which is located in Semarang City, Central Java, which is one of the growing MSME companies. This research uses company transaction data in the September 2025 period as the basis for testing the developed system. Data collection was carried out through direct interviews with company management, field observations, and literature studies from previous research. This data collection technique is in line with the recommendations of accounting information system research methods for MSMEs which emphasize a combination of observation, interviews, and literature studies (Anna, 2022).

RESEARCH FINDINGS

Requirement Analysis

Based on field observations, interviews with business owners, and examination of transaction documents, it was found that CV Sukses Maju Jaya still implements a manual financial recording system. Some transactions are recorded conventionally, while the rest are kept as a pile of transaction evidence without systematic recapitulation. This condition causes crucial information such as cash position, accounts receivable, debt, inventory, and profit/loss to be difficult to access in real-time. Furthermore, the preparation of financial statements at the end of the period is time-consuming and prone to human error risks, such as data duplication or loss of physical documents. Therefore,

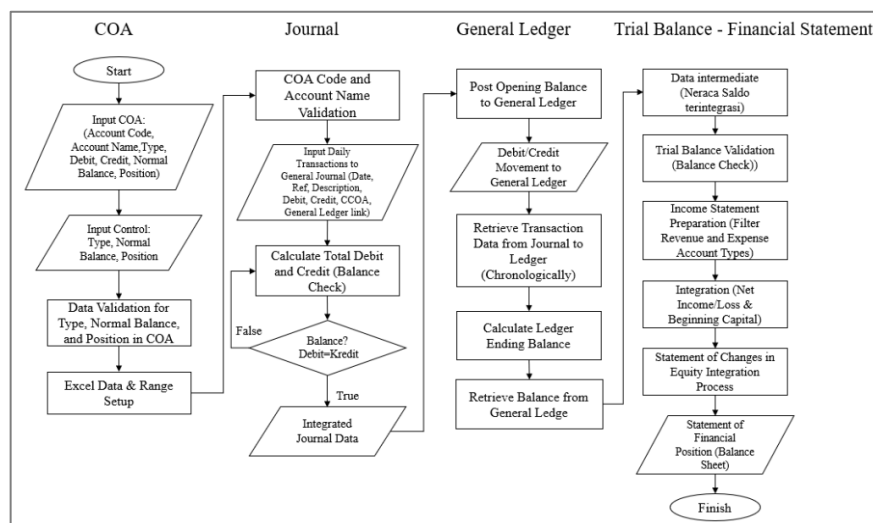
companies need a digital-based accounting information system that is able to effectively automate business processes. The key functional needs identified include:

- a. Designing a Chart of Accounts (COA): Compiling a list of accounts that are in accordance with the accounting standards of trade MSMEs but remain flexible according to the specific operational needs of CV Sukses Maju Jaya.
- b. Automated Data Integration: Building data connectivity from general journal entries to the statement of financial position to improve the accuracy and efficiency of financial information, ultimately supporting better managerial decision-making.

Accounting System Design

The results of this research consist of a spreadsheet-based accounting information system design on CV Sukses Maju Jaya integrates the transaction recording process with automated financial statement preparation. The design of the system is carried out based on proof of transactions obtained from the company, then adjusted to the needs of the company's accounts and business processes based on the results of interviews with the company's manager. The system designed consists of several main sheets that are interconnected, namely Chart of Accounts (COA), control, general journal, general ledger, trial balance, income statement, statement of changes in equity, and statement of financial position. With this design, the process of processing financial data can be carried out in a more systematic, structured, and already understood by users. The flow of the design of the financial statement preparation system can be seen in the figure 2.

Figure 2
Sistem Flowchart



Source: Author, 2026

Several stages in designing the Financial Statement Accounting Information system:

a. Creating a *Chart of Account*

A COA sheet is a sheet to accommodate the list of accounts and initial balances. The account list consists of the account code, account name, type, initial debit balance, initial credit balance, normal balance and position. In this study, the chart of accounts is compiled based on the needs of CV Sukses Maju Jaya by adjusting the type of transactions that occur in the company's operational activities.

Figure 3
Chart of Account

CV SUKSES MAJU JAYA						
NERACA AWAL						
PERIODE 1-31 SEPTEMBER 2025						
Kode Akun	Nama Akun	Tipe	Debit	Kredit	Saldo Normal	Pos
1-1101	Kas Besar	Kas	70.690.000		DEBIT	NRC
1-1201	Bank BCA	Bank	95.747.400		DEBIT	NRC
1-1301	Piutang Usaha	Piutang			DEBIT	NRC
1-1302	Piutang Karyawan	Piutang			DEBIT	NRC
1-1303	Persediaan Barang Dagangan	Persediaan	52.521.203		DEBIT	NRC
1-1304	Uang Muka Pembelian	Uang Muka			DEBIT	NRC
1-1305	Sewa Dibayar Dimuka	Uang Muka			DEBIT	NRC
1-1306	Asuransi Dibayar Dimuka	Uang Muka			DEBIT	NRC
1-1307	Pajak Dibayar Dimuka	Uang Muka			DEBIT	NRC
1-1401	Investasi Saham	Investasi			DEBIT	NRC
1-1402	Investasi Jangka Panjang	Investasi			DEBIT	NRC
1-2100	Tanah	Aktiva Tetap			DEBIT	NRC
1-2200	AT Kelompok I	Aktiva Tetap	25.288.000		DEBIT	NRC
1-2300	AT Kelompok II	Aktiva Tetap	17.761.300		DEBIT	NRC
1-2400	AT Kelompok III	Aktiva Tetap			DEBIT	NRC
1-2500	Bangunan	Aktiva Tetap			DEBIT	NRC
1-2600	Akumulasi Penyusutan AT Kelompok I	Akumulasi Penyusutan AT		1.103.083	KREDIT	NRC
1-2700	Akumulasi Penyusutan AT Kelompok II	Akumulasi Penyusutan AT		84.820	KREDIT	NRC
1-2800	Akumulasi Penyusutan AT Kelompok III	Akumulasi Penyusutan AT			KREDIT	NRC
1-2900	Akumulasi Penyusutan Bangunan	Akumulasi Penyusutan AT			KREDIT	NRC
2-1101	Hutang Usaha	Hutang Usaha		86.500.000	KREDIT	NRC
2-1102	Hutang Gaji	Hutang Usaha			KREDIT	NRC
2-1103	Hutang Pajak	Hutang Pajak			KREDIT	NRC
2-2101	Hutang Bank	Hutang Bank			KREDIT	NRC
2-2102	Hutang Leasing	Hutang Lainnya			KREDIT	NRC
3-1000	Modal Pemilik	Modal		100.000.000	KREDIT	NRC
3-2000	Prive	Modal		-	KREDIT	NRC
3-3000	Laba Ditahan	Modal		74.320.000	KREDIT	NRC
3-4000	Laba Periode Berjalan	Modal			KREDIT	NRC
4-1000	Penjualan	Pendapatan			KREDIT	LR
4-2000	Return Penjualan	Pendapatan			KREDIT	LR
4-3000	Potongan Penjualan	Pendapatan			KREDIT	LR
5-1001	Pembelian	Pembelian			DEBIT	LR
5-1002	Return Pembelian	Return Pembelian			KREDIT	LR
5-1003	Potongan Pembelian	Potongan Pembelian			KREDIT	LR
5-1004	Biaya Angkut Pembelian	HPP			DEBIT	LR
5-2000	Harga Pokok Penjualan	HPP			DEBIT	LR
6-1000	Gaji, Tunjangan, Bonus, Honorarium, Lainnya	Biaya			DEBIT	LR
6-2001	Beban Transportasi	Biaya			DEBIT	LR
6-2002	Beban Listrik	Biaya			DEBIT	LR
6-2003	Beban Sewa	Biaya			DEBIT	LR
6-2004	Beban Bunga	Biaya			DEBIT	LR
6-2005	Beban Penyusutan dan Amortisasi	Biaya			DEBIT	LR
6-2006	Beban Administrasi Bank	Biaya			DEBIT	LR
6-2007	Beban Perawatan aktiva dan Service	Biaya			DEBIT	LR
6-2008	Beban Pajak	Biaya			DEBIT	LR
6-2009	Beban Pemasaran atau Promosi	Biaya			DEBIT	LR
6-2010	Beban Entertainment	Biaya			DEBIT	LR
6-2011	Beban Umum dan Administrasi	Biaya			DEBIT	LR
6-2012	Biaya Kerugian Piutang	Biaya			DEBIT	LR
6-2013	Beban Lain-lain	Biaya			DEBIT	LR
7-1002	Pendapatan Lain-lain	Pendapatan Lainnya			KREDIT	LR
8-1003	Laba Penjualan Aktiva	Pendapatan Lainnya			KREDIT	LR
Jumlah			262.007.903	262.007.903		

Source: Author, 2026

b. Creating a General Journal

A general journal is a worksheet that is used to record all financial transactions that occur in the company, such as sales transactions, cash receipts, purchases, and operational costs. This sheet consists of several columns, namely date, reference (ref), description, account code, account name, and debit and credit columns. In addition, there is a feature for calculating total debits and credits as well as balance checks. The following is a figure from the journal that has been designed:

Figure 4
General Journal

JURNAL UMUM									
PERIODE 1-31 SEPTEMBER 2025									
KETERANGAN					BALANCE				
TOTAL					145.448.882	145.448.882			
TANGGAL	REFF	KETERANGAN	KODE	NAMA AKUN	DEBIT	KREDIT	CCOA	KB	BB
01-09-25	JU-001	Penjualan Tunai tanggal 01-09-2025	1-1101	Kas Besar	1.200.000			1	11-1101
01-09-25	JU-001	Penjualan Tunai tanggal 01-09-2025	4-1000	Penjualan		1.200.000		1	14-1000
01-09-25	JU-001	Pembayaran Biaya Etalase Toko	1-2200	AT Kelompok I	1.020.000			1	11-2200
01-09-25	JU-002	Pembayaran Biaya Etalase Toko	1-1101	Kas Besar		1.020.000		2	21-1101
01-09-25	JU-001	Pembelian ke Toko Oren	1-1303	Persediaan Barang Dagangan	6.701.760			1	11-1303
01-09-25	JU-003	Pembelian ke Toko Oren	1-1101	Kas Besar		6.701.760		3	31-1101
01-09-25	JU-002	Pembelian ke Sakura Fashion	1-1303	Persediaan Barang Dagangan	1.885.270			2	21-1303
01-09-25	JU-001	Pembelian ke Sakura Fashion	1-1201	Bank BCA		1.885.270		1	11-1201
01-09-25	JU-001	Pelunasan Utang ke Toko Nike	2-1101	Hutang Usaha	180.000			1	12-1101
01-09-25	JU-002	Pelunasan Utang ke Toko Nike	1-1201	Bank BCA		180.000		2	21-1201
02-09-25	JU-004	Penjualan Tunai tanggal 02-09-2025	1-1101	Kas Besar	1.320.000			4	41-1101
02-09-25	JU-002	Penjualan Tunai tanggal 02-09-2025	4-1000	Penjualan		1.320.000		2	24-1000
02-09-25	JU-001	Pembayaran Biaya Promosi	6-2009	Beban Pemasaran atau Promosi	630.000			1	16-2009
02-09-25	JU-005	Pembayaran Biaya Promosi	1-1101	Kas Besar		630.000		5	51-1101
03-09-25	JU-006	Penjualan Tunai tanggal 03-09-2025	1-1101	Kas Besar	1.250.000			6	61-1101
03-09-25	JU-003	Penjualan Tunai tanggal 03-09-2025	4-1000	Penjualan		1.250.000		3	34-1000
04-09-25	JU-007	Penjualan Tunai tanggal 04-09-2025	1-1101	Kas Besar	885.200			7	71-1101
04-09-25	JU-004	Penjualan Tunai tanggal 04-09-2025	4-1000	Penjualan		885.200		4	44-1000

Source: Author, 2026

c. Creating a Ledger

This automation provides advantages in the form of reducing repetitive work and minimizing the risk of errors in recording. In addition, users can easily monitor changes in account balances in real-time based on inputted transactions. The final balance of each account can be checked from the search based on the Account Number in the upper right corner, then the final balance will be automatically displayed.

d. Creating a Trial Balance

Trial balance is a report that contains all types of account names along with the total balance of each account that is systematically compiled according to the account code sourced from the company's general ledger in a certain period. Basically, a trial balance is a worksheet prepared manually or automated by an accounting system that lists all accounts from the general ledger at the end of the accounting period (end of the month, end of quarter or end of year). You can use this report as a benchmark so that you don't

make mistakes when posting or transferring books to the debit and credit columns of the ledger.

e. **Creating an Income Statement**

The income statement is one of the parts of the company's financial statements that contains the company's income and expenses and provides information about the company's net profit/loss in a certain accounting period.

f. **Creating an Equity Change Report**

This report shows the factors that cause changes in equity, both additions such as operating profit and subtraction such as capital withdrawals by owners. With this report, users can find out the development of the company's capital value from the beginning to the end of the accounting period.

g. **Creating a Statement of Financial Position (Balance Sheet)**

The Statement of Financial Position (formerly known as the Balance Sheet) presents comprehensive information regarding the company's assets, liabilities, and equity at a specific point in time. This report provides a structured overview of the company's overall financial health, enabling stakeholders to evaluate the company's liquidity, solvency, and its capability to manage resources effectively in fulfilling long-term obligations.

System Development

After the design is completed, the next stage is system development. This system was developed using the Google Sheets platform to take advantage of cloud-based computing features. In addition to using standard formulas such as SUM, VLOOKUP, and QUERY, this system development maximizes the data validation feature for creating account code dropdown menus to minimize input errors. The advantage of using Google Sheets in this study is the version history feature that allows tracking of every data change, so that the transparency of financial data is maintained. The following is an example of a detailed description of the main components and formulas implemented in the development of this system, especially those used in the ledger:

**Figure 5
General Ledger**

CV SUKSES MAJU JAYA						AKUN	1-1201
BUKU BESAR						DEBIT	95.747.400
PERIODE 1-32 AGUSTUS 2025						KREDIT	-
KODE	1-1201			SALDO AWAL	95.747.400		
NAMA AKUN	Bank BCA			SALDO AKHIR	110.816.466		
				SALDO NORMAL	DEBIT		
TANGGAL	REF	KETERANGAN	DEBIT	KREDIT	SALDO		
1	01-09-25	JU-001	Pembelian ke Sakura Fashion	-	1.885.270	93.862.130	
2	01-09-25	JU-002	Pelunasan Utang ke Toko Nike	-	180.000	93.682.130	
3	09-09-25	JU-003	Setor Tunai	8.560.000	-	102.242.130	
4	10-09-25	JU-004	Pembayaran PPh Final	-	-	102.242.130	
5	15-09-25	JU-005	Setor Tunai	2.764.000	-	105.006.130	
6	20-09-25	JU-006	Pelunasan Utang ke Toko Baru	-	1.599.000	103.407.130	
7	20-09-25	JU-007	Pembayaran Biaya Internet Toko	-	444.000	102.963.130	
8	22-09-25	JU-008	Setor Tunai	6.124.000	-	109.087.130	
9	24-09-25	JU-009	Pembelian ke Toko Strawberry	-	-	109.087.130	
10	28-09-25	JU-010	Uang masuk Penj 27	536.330	-	109.623.460	
11	28-09-25	JU-011	By. MDR Penj Non Tunai Tgl 27	-	3.754	109.619.706	
12	29-09-25	JU-012	Uang masuk Penj Non Tunai 28	1.125.540	-	110.745.246	
13	29-09-25	JU-013	MDR Penjualan Non Tunai 28/09/20	-	8.854	110.736.392	
14	30-11-24	JU-014	Uang Masuk Penj Non Tunai 29	110.850	-	110.847.242	
15	30-11-24	JU-015	By. MDR Penj Non Tunai Tgl 29	-	776	110.846.466	
16	30-11-24	JU-016	By. Admin Bank	-	30.000	110.816.466	

Source: Author, 2026

**Table 1
Ledger Formula**

Table Columns	Formula
Account Name	=INDEX(nama_coa; MATCH(C6; kode_coa; 0))
Initial Balance	=IF(C6=""; ""; IF(G8="DEBIT"; INDEX(debit_coa; MATCH(C6; kode_coa; 0)); INDEX(kredit_coa; MATCH(C6; kode_coa; 0))))
Final Balance	=INDEX(saldo_bb; LARGE(A:A; 2))
Normal Balance	=INDEX(SN_coa; MATCH(C7; nama_coa; 0))
Date	=IFERROR(INDEX(tanggal_ju; MATCH(A10&\$C\$6; kbbb_ju; 0)); "")
Ref	=IFERROR(INDEX(ref_ju; MATCH(A10&\$C\$6; kbbb_ju; 0)); "")
Remarks	=IFERROR(INDEX(keterangan_ju; MATCH(A10&\$C\$6; kbbb_ju; 0)); "")
Debit	=IFERROR(INDEX(debit_ju; MATCH(A10&\$C\$6; kbbb_ju; 0)); "")
Credit	=IFERROR(INDEX(kredit_ju; MATCH(A10&\$C\$6; kbbb_ju; 0)); "")
Balance	=IF(B10=""; ""; IF(\$G\$8="DEBIT"; \$G\$6+SUM(\$E\$10:E10)-SUM(\$F\$10:F10); \$G\$6+SUM(\$F\$10:F10)-SUM(\$E\$10:E10)))

Source: Author, 2026

System Testing

The system was tested using real transaction data from the company for the September 2025 period. The tested transactions included cash receipts from sales, purchase of goods, payment of operating expenses, payment of debts, and adjustment transactions at the end of the period. All data was entered into a general journal sheet to ensure that the system ran according to the planned flow.

The test results show that the system is able to process transaction data into a ledger and balance sheet automatically. Furthermore, the system can also generate income statements, capital change reports, and financial position reports faster than

manual methods. In terms of accuracy, total debits and credits can be controlled, making it easier to check recording errors.

Figure 6
Integrated Income Statement

CV SUKSES MAJU JAYA			
LAPORAN LABA RUGI			
PERIODE 1-31 DESEMBER 2025			
Pendapatan			
4-1000	Penjualan	63.109.870	
			63.109.870
4-2000	Return Penjualan	-	-
4-3000	Potongan Penjualan	-	-
	Pendapatan kotor		63.109.870
Harga Pokok Penjualan			
	Persediaan Awal	52.521.203	
	Pembelian Awal	10.186.030	
5-1004	Biaya Angkut Pembelian	-	
		10.186.030	
5-1002	Return Pembelian	-	
5-1003	Potongan Pembelian	-	
	Pembelian Bersih	10.186.030	
	Barang yang Tersedia untuk di jual		62.707.233
	Persediaan Akhir	26.989.865	
	Harga Pokok Penjualan	35.717.368	
	Laba kotor		27.392.502
Beban Operasi			
6-1000	Gaji, Tunjangan, Bonus, Honorarium, Lainnya	5.320.000	
6-2001	Beban Transportasi	-	
6-2002	Beban Listrik	4.944.000	
6-2003	Beban Sewa	-	
6-2004	Beban Bunga	2.314.000	
6-2005	Beban Penyusutan dan Amortisasi	-	
6-2006	Beban Administrasi Bank	43.384	
6-2007	Beban Perawatan aktiva dan Service	-	
6-2008	Beban Pajak	-	
6-2009	Beban Pemasaran atau Promosi	630.000	
6-2010	Beban Entertainment	-	
6-2011	Beban Umum dan Administrasi	-	
6-2012	Biaya Kerugian Piutang	-	
6-2013	Beban Lain-lain	-	
		13.251.384	
7-1002	Pendapatan Lain-lain	25.010	
8-1003	Laba Penjualan Aktiva	-	
		25.010	
	Laba (Rugi) Bersih		14.166.128

Source: Author, 2026

System Evaluation

Based on the test results, this spreadsheet-based accounting information system is considered feasible to be applied to CV Sukses Maju Jaya. This system is able to provide benefits in the form of time efficiency in the preparation of financial statements, increased calculation accuracy, ease of tracking transaction data, and faster provision of financial information to support managerial decision-making.

The effectiveness of the system can be seen from the difference compared to the previous method. In the manual system, the journaling process, posting to the ledger per account, and the preparation of financial statements are carried out separately so that it takes longer and is prone to recording errors. Through the developed system, users only need to input transactions in public journals, then the data will be processed automatically to produce financial reports.

In addition, the system provides easy access because business owners can monitor financial statements anytime and anywhere through internet-connected devices without the need to manually send files. However, from a data security aspect, user access rights settings are still limited. Therefore, companies are advised to backup data regularly, limit file access only to authorized parties, and provide continuous training to employees so that the system can be used optimally.

DISCUSSION

Based on the results of the research, the spreadsheet-based accounting information system designed and developed at CV Sukses Maju Jaya has been proven to be able to increase efficiency and accuracy in financial management. This is evidenced by the process of recording transactions that are only carried out in public journals, then the system automatically processes the data to produce a ledger, balance sheet, and report.

This automation occurs through the use of spreadsheet formulas such as SUM, IF, VLOOKUP, INDEX, and MATCH that are integrated between sheets. With this system, the data input process becomes simpler, reduces repetitive work, and minimizes calculation errors that often occur in manual methods. This research is in line with the research of Tezar (2022) which states that the use of spreadsheets in accounting information systems can be a simple, efficient, and economical solution in supporting the preparation of financial statements in MSME companies. In addition, research by Yulianto et al. (2024) shows that the application of accounting information systems, even in a simple form, can help improve the quality of financial management and simplify the decision-making process.

System Advantages

Some of the advantages of a spreadsheet-based accounting information system include:

1. Time efficiency, as transactions are only recorded once and are immediately integrated into reports.
2. Accuracy is higher, as the calculation and transfer of balances is carried out automatically by the system.
3. Low cost, without the need to purchase special accounting software, simply take advantage of a free cloud-based application.
4. Flexibility and Accessibility Financial data can be accessed anytime and anywhere as long as connected to the internet.

5. Real-time access, financial data can be updated and accessed directly by multiple users simultaneously.
6. Good financial statements so as to support managerial decision-making.

System Limitations

Although the system developed has various advantages, there are several system limitations that need to be considered:

1. The system is not yet web-based, so it still relies on manual data input, as a result of which potential input errors can still occur.
2. The system is not equipped with advanced security features.
3. Limited data processing capacity for large-scale use.

Thus, the system developed can be an alternative solution for business actors such as MSMEs in improving the quality of financial management in a simple but integrated manner with relatively low costs. However, as businesses develop and transaction complexity increases, the use of spreadsheet-based accounting information systems can be further developed or integrated with web-based systems that have more complete features, such as internal controls, data security, and greater processing capacity.

CONCLUSION

Based on the results of the research that has been conducted on CV Sukses Maju Jaya, it can be concluded that the design and development of a spreadsheet-based accounting information system is able to integrate the process of recording transactions to the preparation of financial statements automatically. The system designed includes general journals, ledgers, balance sheets, and financial statements in the form of income statements and financial position reports, so that the process of processing financial data becomes more efficient, accurate, and structured.

In addition, the use of online-based spreadsheets provides advantages in terms of accessibility and flexibility, where users can access data in real-time as well as perform data processing collaboratively. This makes the system more effective in supporting modern financial management and helping managerial decision-making based on accurate and up-to-date information.

This research also provides a practical contribution in the form of designing a simple spreadsheet-based accounting information system that can be applied by business

actors such as MSMEs as an alternative solution in improving the quality of financial management without requiring large costs. However, for further development, it is recommended that the system be developed to be more complex, such as web-based or integrated with databases, to improve data security, processing capacity, and support the needs of companies with higher transaction rates. In addition, the addition of internal control features is also needed to minimize input errors and improve system reliability in the long run.

REFERENCES

- Aji, R. S Aji, R. S., Nugroho, A., & Wijaya, T. (2019). Implementasi sistem informasi akuntansi berbasis komputer dalam penyusunan laporan keuangan. *Jurnal Sistem Informasi*, 7(2), 85–95.
- Anna, M. (2022). Metode Penelitian Sistem Informasi Akuntansi: Studi Kasus pada UMKM. *Jurnal Sistem dan Teknologi Informasi*, 10(1), 33–45.
- Asa Bakti, C., & Anton. (2021). Perancangan sistem kebangkrutan menggunakan metode Altman Z-Score. *Jurnal Akuntansi dan Sistem Informasi*, 3(1), 45–55.
- Darmayanti, Sulistiani, H., & Umpu, E. F. G. S. (2021). Analisis dan Perancangan Sistem Informasi Akuntansi Pengelolaan Tabungan Siswa pada SD Ar-Raudah Bandar lampung. *Jurnal Teknologi Dan Informasi (JATI)*, 11(1), 123.
- Denny Erica. (2018). Analisa Rasio Laporan Keuangan Untuk Menilai Kinerja Perusahaan PT Kino Indonesia Tbk. *Jurnal Ecodemica*, 2 no 1(1), 9.
- Feasibility Study. (2024). Integrasi formula dalam spreadsheet untuk laporan keuangan. *Jurnal Sistem Informasi Bisnis*, 6(1), 75–85.
- Horngren, Charles T. Dan Walter T. Harrison Jr. Akuntansi Jilid 1. Jakarta: Erlangga. 2017
- Martani, Dwi. Dan kawan-kawan. Akuntansi Keuangan Menengah Berbasis PSAK. Jakarta: Salemba Empat. 2016.
- Khairi, M., Rianto, B., Jalil, M., Juita, H., & Sudeska, E. (2025). Pengaruh Teknologi Dalam Transformasi Ekonomi Dan Bisnis Di Era Digital. *Jurnal Perangkat Lunak*, 7(1), 71-78. <https://doi.org/10.32520/jupel.v7i1.3947>
- Laudon, K. C., & Laudon, J. P. (2016). *Management Information Systems: Managing the Digital Firm* (14th ed.). Pearson Education Limited.
- Nabilhajid, H. P., & Ahalik, A. (2023). Perbandingan Teori dan Praktek Sistem Pembelian dan Persediaan Perpetual pada PT. XYZ. *Journal of Emerging Business Management and Entrepreneurship Studies*, 3(1), 16–32. <https://doi.org/10.34149/jebmes.v3i1.97>
- Ningtiyas, J. D. A. (2017). Penyusunan Laporan Keuangan UMKM Berdasarkan Standar Akuntansi Keuangan Entitas Mikro, Kecil dan Menengah (SAK-EMKM) (Study Kasus Di UMKM Bintang Malam Pekalongan). *Riset & Jurnal Akuntansi*, 2(1), 11–17.

- Pratiwi, D., Sari, R., & Putra, A. (2025). Analisis permasalahan pencatatan keuangan pada UMKM. *Jurnal Ekonomi dan Bisnis Indonesia*, 10(1), 15–25.
- Putri, E. Y., & Sundari, S. (2025). Studi Kuantitatif Pemanfaatan Sistem Informasi Keuangan Daerah dan Good Governance Terhadap Kualitas Laporan Keuangan Pemerintah Daerah. *RISTANSI: Riset Akuntansi*, 6(2), 299-314.
- Romney, M. B., & Steinbart, P. J. (2018). *Accounting Information Systems* (14th ed.). Harlow, United Kingdom: Pearson Education Limited.
- Satria, D., Prasetyo, E., & Ramadhan, R. (2021). Pengembangan sistem informasi akuntansi sederhana berbasis spreadsheet. *Jurnal Teknologi Informasi dan Akuntansi*, 8(1), 45–55.
- Sugiyono. (2017). *Metode penelitian dan pengembangan (Research and Development/R&D)*. Bandung: Alfabeta.
- Sulistyo Aji, R., Nugroho, A., & Wibowo, T. (2019). Implementasi aplikasi akuntansi pada UMKM. *Jurnal Sistem Informasi*, 8(2), 100–110.
- Tezar, M. (2022). Rancangan Aplikasi Sistem Pelaporan Keuangan Berbasis Google Spreadsheet Untuk Usaha Mikro Kecil Dan Menengah (UMKM) CV Wira Gemilang. *Jurnal Sistem Informasi*, 7(3), 67-80.
- Thomas Sumarsan. 2013. Sistem Pengendalian Manajemen, Edisi 2, PT Indeks, Jakarta. www.jurnal.id, 2025
- Yulianto, T. S., Astuti, D. D., & Ningsih, W. F. (2024). Analisis penerapan sistem informasi akuntansi penjualan pada UD Mandiri Karya Teknik Cabang Jember. *RISTANSI: Riset Akuntansi*, 5(2), 167-180.



MORAL AND SPIRITUAL DETERMINANTS OF WHISTLEBLOWING INTENTION AMONG ISLAMIC ACCOUNTING STUDENTS

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Abstract:

This study aims to analyze the moral and spiritual determinants of whistleblowing intention among sharia accounting students by examining the influence of the bystander effect, individual morality, and religiosity. This research employed a quantitative approach with an associative design. Primary data were collected through Likert-scale questionnaires distributed to 2021 cohort students of the Sharia Accounting Study Program at Universitas Islam Negeri Kiai Haji Achmad Siddiq Jember. The sample consisted of 136 respondents selected using simple random sampling. Data were analyzed using multiple linear regression. The findings reveal that the bystander effect has a negative and significant effect on whistleblowing intention, indicating that situational factors still influence ethical decision-making related to reporting behavior. In contrast, individual morality and religiosity have a positive and significant effect on whistleblowing intention, with religiosity emerging as the most dominant variable. These findings indicate that whistleblowing intention is influenced by both situational factors and internal moral-spiritual values. The study concludes that morality and religiosity play important roles in strengthening students' ethical courage to report wrongdoing in academic and professional environments.

INTRODUCTION

Fraud remains a serious issue and continues to pose significant challenges across various sectors, including business organizations, government institutions, and higher education environments. In universities, academic misconduct such as plagiarism, cheating during examinations, data manipulation, and attendance falsification are still frequently encountered, reflecting weak student integrity in maintaining academic honesty and accountability. A survey conducted by the International Center for Academic

Integrity reported that more than 60% of students admitted to committing at least one form of academic dishonesty during their studies (McCabe et al., 2021). In Indonesia, cases of academic misconduct have also increased alongside the rapid development of digital technology, which facilitates plagiarism and academic task manipulation (Cotton et al., 2024). This phenomenon indicates that formal monitoring mechanisms are often unable to effectively detect all forms of violations. Therefore, whistleblowing is considered a strategic mechanism for detecting and preventing fraudulent behavior through individuals' willingness to report wrongdoing to authorized parties for further investigation and action (Near & Miceli, 2016; Sudjono, 2023). Previous studies also indicate that individual reporting is often more effective than formal supervisory mechanisms in uncovering misconduct (Aryanti & Hasanati, 2024).

The urgency of this issue is further reinforced by empirical findings showing high levels of academic misconduct within educational institutions. The 2024 Education Integrity Assessment Survey (SPI) reveals that cheating remains prevalent across most educational institutions, reaching particularly high levels in higher education. In addition, plagiarism continues to occur at a significant rate within university settings (KPK, 2025). This phenomenon highlights a gap between the ethical values taught and students' actual behavior, indicating that the internalization of integrity values has not been optimal, particularly in fostering moral courage to resist and report misconduct.

The impact of plagiarism is not limited to individuals but also has broader implications for the overall quality of education. Such practices can diminish the quality of learning, hinder the development of critical thinking skills, and undermine academic evaluation systems that are meant to reflect students' true competencies. In the long term, plagiarism may damage individual reputations and limit future career opportunities, making it a serious threat to the development of ethical and professional integrity (Mulenga & Shilongo, 2024).

Within the framework of good governance, whistleblowing is considered a strategic mechanism for detecting and preventing fraud (Widyadhana & Kirana Dp, 2025). Whistleblowing refers to the act of reporting illegal or unethical practices to authorized parties for further action (Sudjono, 2023). Research indicates that individual reports are often more effective than formal monitoring mechanisms in uncovering violations (Aryanti & Hasanati, 2024). Moreover, whistleblowing serves as a form of social control

that enhances transparency and accountability, particularly in academic environments that demand high levels of integrity (Near & Miceli, 2016).

However, the decision to engage in whistleblowing is complex. The intention to report wrongdoing is shaped by various individual and organizational factors, including ethical culture and support for reporting (Latan et al., 2023). In addition, risk considerations including social pressure and conflicts of loyalty also affect this decision, making whistleblowing behavior a complex phenomenon (Wiradharma et al., 2025).

One commonly examined factor is the bystander effect, which describes the tendency of individuals to withhold action when others are present (Kumar, 2025). However, previous studies have produced inconsistent findings, suggesting that situational factors alone are insufficient to explain whistleblowing intentions.

Although research on whistleblowing intention has developed, most studies still focus on psychological and organizational factors in isolation, and thus have not provided a comprehensive understanding. Moreover, limited research has specifically explored the role of internal values such as morality and religiosity in shaping whistleblowing intention, particularly among Islamic accounting students. This highlights the existence of a research gap that warrants further investigation. The gap is particularly relevant given that sharia-based education embodies distinct value characteristics compared to conventional approaches, thus requiring a more contextual and integrative analytical framework.

In the perspective of Islamic accounting, the integration of morality and religiosity is essential in shaping ethical behavior. Spiritual values not only strengthen individuals' awareness of moral responsibility but also encourage the courage to uphold truth and prevent wrongdoing. Recent empirical evidence indicates that religiosity significantly influences the development of ethical behavior and enhances individuals' sensitivity in moral decision-making (Chan et al., 2022). Furthermore, recent research confirms that morality and religiosity play an important role in promoting ethical behavior within organizational and professional contexts (Rialdy et al., 2023). Therefore, an internal value-based approach is highly relevant in explaining whistleblowing behavior, particularly among students with a sharia-based educational background. Thus, the moral-spiritual approach is not merely normative but also has an empirical foundation in explaining individual ethical behavior.

Based on the preceding discussion, this study aims to examine the moral and spiritual determinants of whistleblowing intention among sharia accounting students by analyzing the roles of the bystander effect, individual morality, and religiosity in shaping the courage to report wrongdoing. The focus on sharia accounting students is based on the characteristics of the accounting discipline, which is closely related to issues of integrity, transparency, accountability, and fraud prevention. Accounting students are regarded as future professionals who will be directly involved in the preparation, supervision, and reporting of financial information, making them more likely to encounter ethical dilemmas in professional settings compared to students from other disciplines. In the context of sharia accounting, such ethical responsibility becomes more complex because it is associated not only with professional aspects but also with spiritual values and Islamic principles such as honesty (*shiddiq*), trustworthiness (*amanah*), and justice. Recent studies also indicate that religiosity not only influences individual attitudes but also encourages prosocial behavior and ethical responsibility within organizations (Moh. Z. Arifin et al., 2024). Therefore, sharia accounting students provide a relevant context for examining how moral and spiritual values influence whistleblowing intention. The novelty of this study lies in the development of a moral spiritual framework that emphasizes the importance of internal values in explaining ethical behavior more comprehensively. Specifically, this study seeks to analyze the influence of the bystander effect, individual morality, and religiosity on whistleblowing intention, as well as to identify the most dominant variable in shaping the ethical courage of sharia accounting students.

LITERATURE REVIEW

Theory of Planned Behavior

The Theory of Planned Behavior (TPB), developed by Icek Ajzen, explains that individual behavior is influenced by intention, which is formed through three main components: attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude toward the behavior refers to an individual's evaluation of whether a behavior is considered favorable or unfavorable. Subjective norms relate to perceived social pressure or expectations from surrounding individuals or groups. Meanwhile, perceived behavioral control refers to an individual's perception regarding the ease or difficulty of performing a particular behavior. These three components

collectively influence an individual's intention to engage in a certain behavior (Ajzen, 1991).

In this study, TPB is employed as the theoretical framework to explain sharia accounting students' whistleblowing intention. Individual morality is mapped to attitude toward the behavior because it reflects ethical evaluations regarding reporting misconduct. Religiosity is associated with subjective norms because religious values and spiritual environments shape moral standards and social expectations related to ethical behavior. Meanwhile, the bystander effect is related to perceived behavioral control because the diffusion of responsibility may influence individuals' perceptions of their ability and courage to report wrongdoing. Therefore, TPB is considered relevant for explaining how psychological, social, moral, and spiritual factors influence whistleblowing intention among sharia accounting students.

Whistleblowing

Whistleblowing refers to the disclosure of illegal, unethical, or illegitimate practices by current or former organizational members to parties capable of taking corrective action (Near & Miceli, 1985). This action aims to prevent misconduct and maintain organizational integrity and accountability. Furthermore, whistleblowing is considered an ethical behavior oriented toward public interest because individuals attempt to protect organizations and society from the negative consequences of misconduct (Miceli et al., 2008). In academic settings, whistleblowing serves as an important mechanism for uncovering academic fraud such as plagiarism, data manipulation, and cheating. Therefore, whistleblowing intention becomes an important indicator of students' ethical behavior.

The Effect of the Bystander Effect on Whistleblowing Intention

The bystander effect is a psychological phenomenon describing individuals' tendency not to act in situations involving other people due to the diffusion of responsibility. The greater the number of people present in a situation, the lower the likelihood that someone will take action (Darley & Latané, 1968). In the context of whistleblowing, this condition may reduce individuals' intention to report misconduct because they assume that others will take action instead. From the TPB perspective, the bystander effect is associated with perceived behavioral control because individuals who

perceive responsibility as shared among others tend to have lower perceived control over reporting wrongdoing.

A study conducted by Darmawan et al. (2024) found that the bystander effect did not influence students' whistleblowing intention. Similar findings were reported by Karim (2022), who found that the bystander effect had no significant effect on accounting students' whistleblowing intention. However, different results were reported by Christyawan & Hapsari (2021) as well as Asih & Sari (2021), who found that the bystander effect negatively influenced whistleblowing intention. These inconsistent findings indicate the need for further investigation to obtain a more comprehensive understanding of the relationship between the bystander effect and whistleblowing intention among sharia accounting students.

H1: The bystander effect negatively influences whistleblowing intention.

The Effect of Individual Morality on Whistleblowing Intention

Individual morality refers to an individual's ability to distinguish right from wrong and their commitment to acting according to ethical values (Rest, 1986). Individuals with high morality tend to possess stronger ethical awareness in reporting misconduct because they perceive such actions as moral responsibilities. From the TPB perspective, individual morality is associated with attitude toward the behavior because morality reflects individuals' ethical evaluations regarding whether a behavior is considered right or wrong.

Wardani & Farin (2023) found that individual morality positively influences whistleblowing intention regarding academic fraud. Similar findings were reported by Sugani et al. (2024), who argued that individuals with high morality tend to reject fraudulent behavior and demonstrate greater courage in reporting misconduct. In addition, Utami et al. (2023) explained that individual morality plays an important role in shaping students' ethical perceptions of accounting fraud. Therefore, higher individual morality is expected to increase whistleblowing intention.

H2: Individual morality positively influences whistleblowing intention.

The Effect of Religiosity on Whistleblowing Intention

Religiosity refers to the degree to which individuals believe in and practice religious teachings, as reflected in their attitudes and daily behavior (Glock & Stark, 1965). Religiosity is not only related to spiritual aspects but also influences social and ethical

behavior. Individuals with high religiosity tend to possess stronger moral commitments to reject unethical actions and are more encouraged to report misconduct as a form of moral and spiritual responsibility. From the TPB perspective, religiosity is associated with subjective norms because religious values and spiritual environments shape social norms influencing ethical decision-making.

Ningrum & Munari (2024) found that religiosity positively influences accounting students' whistleblowing intention. These findings are consistent with Yudira & Helmy (2024), who reported that individuals with higher religiosity tend to demonstrate stronger whistleblowing intention. Furthermore, Puspitosari (2019) explained that religiosity plays an important role in shaping ethical behavior because religious values encourage individuals to uphold honesty and justice. However, Zullaekha & Nustini (2024) found that religiosity was unable to moderate the relationship between several factors and whistleblowing intention. These inconsistent findings indicate that the influence of religiosity on whistleblowing intention still requires further examination, particularly in the context of sharia accounting students.

H3: Religiosity has an effect on whistleblowing intention.

RESEARCH METHODS

Research Design and Procedures

This study employed a quantitative approach with an associative research design aimed at examining causal relationships among variables. The data used in this study were primary data collected directly from respondents through online questionnaires. The research population consisted of all 2021 cohort students of the Sharia Accounting Study Program at Universitas Islam Negeri Kiai Haji Achmad Shiddiq Jember. From this population, a sample of 136 respondents was selected using a simple random sampling technique to ensure objectivity and data representativeness (Rahmawati, 2025)..

The research process began with the development of research instruments using a 1–5 Likert scale ranging from “Strongly Disagree” to “Strongly Agree.” The bystander effect variable was measured using indicators of diffusion of responsibility, the influence of others' presence, and the tendency to delay reporting actions adapted from Fadillah & Misra (2020). Individual morality was measured through indicators of ethical awareness, the ability to distinguish right from wrong, and moral responsibility adapted from Wardani & Farin (2023). Religiosity was measured using indicators of belief, worship

practices, religious experience, and internalization of religious values based on the concept proposed by Glock & Stark (1965). Meanwhile, whistleblowing intention was measured through indicators of willingness to report, courage to disclose misconduct, and the tendency to act against wrongdoing adapted from Christyawan & Hapsari (2021). Prior to further analysis, the research instruments were tested using validity testing through Pearson Correlation and reliability testing through Cronbach's Alpha to ensure consistency and measurement accuracy (Jalil, 2021).

Table 1
Operational Definition of Variables

Variable	Operational Definition	Indicators	Scale
<i>Bystander Effect</i> (BE)	The tendency of individuals not to act or report wrongdoing due to the presence of others in the same situation	Diffusion of responsibility, influence of others' presence, delay in taking action	Likert 1-5
Individual Morality (IM)	The ability of individuals to distinguish right from wrong based on ethical values	Ethical awareness, moral responsibility, ethical judgment	Likert 1-5
Religiosity (RG)	The level of belief and implementation of religious values in daily life	Belief, worship practices, religious experience, internalization of religious values	Likert 1-5
<i>Whistleblowing Intention</i> (WI)	Individuals' willingness and courage to report wrongdoing or fraud	Willingness to report, courage to report, tendency to take action	Likert 1-5

Source: Processed Data by the Author, 2026

Variables and Data Analysis Techniques

The dependent variable in this study was Whistleblowing Intention (WI), while the independent variables consisted of Bystander Effect (BE), Individual Morality (IM), and Religiosity (RG). The data analysis technique employed was multiple linear regression analysis to examine the influence of independent variables on the dependent variable both partially and simultaneously (Fadillah & Misra, 2020). Regression analysis was conducted using IBM SPSS Statistics because of its capability to provide accurate and comprehensive statistical analysis in behavioral and accounting ethics research.

Before conducting regression analysis, classical assumption tests were performed, including normality, multicollinearity, and heteroscedasticity tests, to ensure that the regression model fulfilled the Best Linear Unbiased Estimator (BLUE) assumptions. The normality test was conducted using the Kolmogorov-Smirnov test, multicollinearity was

tested using Tolerance and Variance Inflation Factor (VIF) values, while heteroscedasticity was examined using the Glejser test.

The multiple linear regression model applied in this study is specified as follows:

$$WI = \alpha + \beta_1 BE + \beta_2 IM + \beta_3 RG + e$$

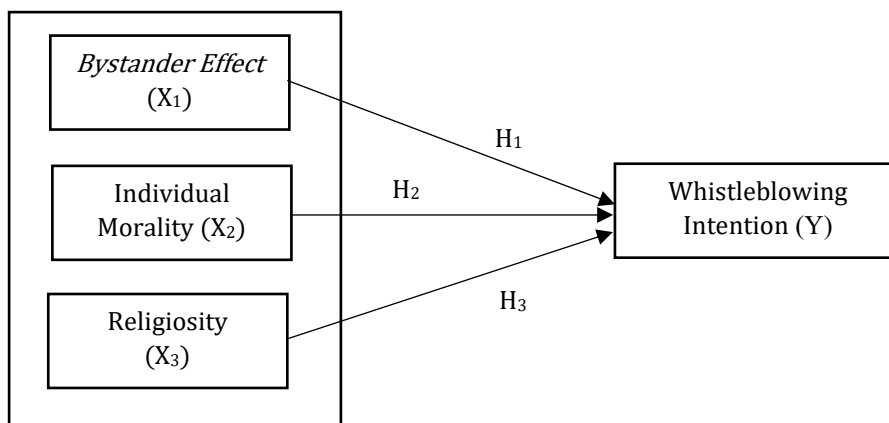
- WI : Whistleblowing Intention
- α : Constant
- $\beta_1 - \beta_3$: Regression coefficients
- BE : Bystander Effect
- IM : Individual Morality
- RG : Religiosity
- e : Error term

Hypothesis Testing

Hypothesis testing was conducted in three stages. First, the coefficient of determination (R^2) analysis was used to measure the model's ability to explain variations in the dependent variable. Second, the F-test was conducted to determine the simultaneous influence of the independent variables on whistleblowing intention. Third, the t-test was performed to determine the partial influence of each independent variable on whistleblowing intention.

The hypotheses formulated in this study are as follows:

Figure 1
Conceptual Framework



Source: Processed Data by the Author, 2026

RESEARCH FINDINGS

Descriptive Statistics Test

Table 2. Descriptive Statistics Results

	N	Min	Max	Mean	Std. Deviation
Bystander Effect	136	1	5	2.55	0.788

	N	Min	Max	Mean	Std. Deviation
Individual Morality	136	2.63	5	4.40	0.524
Religiosity	136	2.43	5	4.36	0.563
Whistleblowing Intention	136	2.25	5	3.90	0.695

Source: Processed Data by the Author, 2026

Based on the descriptive statistical analysis, the study involved 136 respondents. The Bystander Effect variable obtained a minimum value of 1.00 and a maximum value of 5.00, with a mean score of 2.5490 and a standard deviation of 0.78856, indicating a moderate level of bystander effect among respondents. The Individual Morality variable showed a minimum value of 2.63 and a maximum value of 5.00, with a mean score of 4.4000 and a standard deviation of 0.52435, suggesting that respondents generally possessed a high level of individual morality. The Religiosity variable had a minimum value of 2.43 and a maximum value of 5.00, with a mean score of 4.3580 and a standard deviation of 0.56389, indicating a high level of religiosity among respondents. Meanwhile, the Whistleblowing Intention variable obtained a minimum value of 2.25 and a maximum value of 5.00, with a mean score of 3.9081 and a standard deviation of 0.69509, demonstrating that respondents tended to have a relatively high intention to engage in whistleblowing behavior.

Validity Test

Table 3
Validity Test Results

Variable	Item	Corrected Item-Total Correlation	r tabel	Result
Bystander Effect	X1.1	0.599	0.168	Valid
	X1.2	0.583	0.168	Valid
	X1.3	0.578	0.168	Valid
	X1.4	0.553	0.168	Valid
	X1.5	0.561	0.168	Valid
	X1.6	0.553	0.168	Valid
Individual Morality	X2.1	0.687	0.168	Valid
	X2.2	0.591	0.168	Valid
	X2.3	0.673	0.168	Valid
	X2.4	0.665	0.168	Valid
	X2.5	0.761	0.168	Valid
	X2.6	0.706	0.168	Valid
	X2.7	0.704	0.168	Valid
	X2.8	0.663	0.168	Valid
	X3.1	0.709	0.168	Valid
	X3.2	0.733	0.168	Valid

Variable	Item	Corrected Item- Total Correlation	r tabel	Result
Religiosity	X3.3	0.780	0.168	Valid
	X3.4	0.722	0.168	Valid
	X3.5	0.656	0.168	Valid
	X3.6	0.625	0.168	Valid
	X3.7	0.605	0.168	Valid
Whistleblowing Intention	Y1	0.671	0.168	Valid
	Y2	0.773	0.168	Valid
	Y3	0.802	0.168	Valid
	Y4	0.796	0.168	Valid

Source: Processed Data by the Author, 2026

Based on the validity test results. all statement items for the variables of Bystander Effect. Individual Morality. Religiosity. and Whistleblowing Intention obtained Corrected Item-Total Correlation values greater than the r-table value of 0.1684 at a 5% significance level. The lowest correlation value was found in items X1.4 and X1.6 with a value of 0.553. while the highest correlation value was found in item Y3 with a value of 0.802. Therefore. all statement items in this study were declared valid and appropriate for use as research instruments.

Reliability Test

Table 4
Reliability Test Results

Variable	Cronbach's Alpha	Threshold	Result
Bystander effect	0.810	0.70	Reliable
Individual Morality	0.895	0.70	Reliable
Religiosity	0.890	0.70	Reliable
Whistleblowing Intention	0.889	0.70	Reliable

Source: Processed Data by the Author, 2026

Based on the reliability test results. all research variables obtained Cronbach's Alpha values greater than the minimum threshold of 0.70. indicating that the research instruments are reliable and consistent for measuring each variable. The Bystander Effect variable obtained a Cronbach's Alpha value of 0.810. Individual Morality obtained 0.895. Religiosity obtained 0.890. and Whistleblowing Intention obtained 0.889. These findings demonstrate that all questionnaire items used in this study possess a high level of internal consistency and are appropriate for further statistical analysis.

Classical Assumption Test

Normality Test

Table 5
Normality Test Results

Test	N	Test Statistic	Asymp. Sig. (2-tailed)	Result
Kolmogorov-Smirnov	136	0.054	0.200	Normally Distributed

Source: Processed Data by the Author, 2026

The normality test results indicate a significance value of 0.200 (> 0.05). suggesting that the regression model meets the assumption of normality.

Multicollinearity Test

Table 6
Multicollinearity Test Results

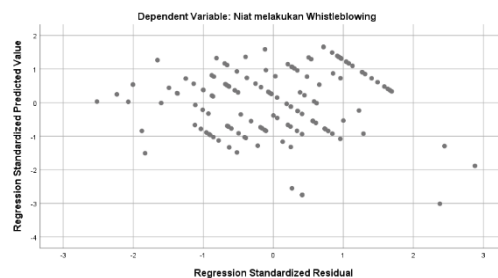
Variable	Tolerance	VIF	Result
Bystander Effect	0.990	1.010	No Multicollinearity
Individual Morality	0.699	1.431	No Multicollinearity
Religiosity	0.696	1.436	No Multicollinearity

Source: Processed Data by the Author, 2026

Based on the multicollinearity test results. all independent variables obtained tolerance values greater than 0.10 and Variance Inflation Factor (VIF) values lower than 10. The Bystander Effect variable obtained a tolerance value of 0.990 and a VIF value of 1.010. while Individual Morality obtained a tolerance value of 0.699 and a VIF value of 1.431. Meanwhile. the Religiosity variable obtained a tolerance value of 0.696 and a VIF value of 1.436. These findings indicate that there is no multicollinearity among the independent variables in the regression model. meaning that the model fulfills the multicollinearity assumption.

Heteroscedasticity Test

Figure 2
Scatterplot of Heteroscedasticity Test Results



Source: Processed Data by the Author, 2026

Based on the heteroscedasticity test using the scatterplot graph. the data points were randomly distributed above and below zero on the Y-axis and did not form any specific pattern. such as a wave-shaped. widening. or narrowing pattern. The irregular distribution of the points indicates that the regression model does not exhibit heteroscedasticity symptoms. Therefore. the regression model in this study can be considered valid and suitable for further hypothesis testing.

Hypothesis Testing

Coefficient of Determination (R²) Test

Table 7
Coefficient of Determination (R²) Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.597	0.356	0.342	0.56390

Source: Processed Data by the Author, 2026

Based on the coefficient of determination test results. the Adjusted R Square value obtained was 0.342 or 34.2%. This result indicates that the variables of Bystander Effect. Individual Morality. and Religiosity are able to explain 34.2% of the variation in Whistleblowing Intention. Meanwhile. the remaining 65.8% is explained by other variables outside the regression model that were not examined in this study. In addition. the R value of 0.597 indicates that the relationship between the independent variables and the dependent variable is categorized as moderate.

Simultaneous Effect Test (F-test)

Table 8
F-test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.252	3	7.751	24.374	0.000
	Residual	41.974	132	0.318		
	Total	65.226	135			

Source: Processed Data by the Author, 2026

Based on the results of the simultaneous test (F-test). the significance value obtained was 0.000. which is smaller than 0.05. In addition. the calculated F value of 24.374 indicates that the regression model is statistically significant. These findings demonstrate that the variables of Bystander Effect. Individual Morality. and Religiosity simultaneously have a significant effect on Whistleblowing Intention. Therefore. the

regression model used in this study is considered feasible and appropriate for explaining the relationship between the independent and dependent variables.

Partial Test Results (t-Test)

Table 9
Partial Test Results (t-Test)

Variable	B	t	Sig.	Result
Constant	0.760	1.546	0.124	
Bystander Effect	-0.122	-1.980	0.050	Significant Negative Effect
Individual Morality	0.242	2.189	0.030	Significant Positive Effect
Religiosity	0.549	5.326	0.000	Significant Positive Effect

Source: Processed Data by the Author, 2026

Based on the results of the multiple linear regression analysis. the regression equation obtained was:

$$WI = 0.760 - 0.122BE + 0.242IM + 0.549RG + e$$

The constant value of 0.760 indicates that when the variables of Bystander Effect. Individual Morality. and Religiosity are assumed to remain constant. the value of Whistleblowing Intention is 0.760. The regression coefficient of the Bystander Effect variable was -0.122. indicating that every one-unit increase in Bystander Effect decreases Whistleblowing Intention by 0.122 units. assuming other variables remain constant. Furthermore. the regression coefficient of the Individual Morality variable was 0.242. indicating that every one-unit increase in Individual Morality increases Whistleblowing Intention by 0.242 units. Meanwhile. the Religiosity variable obtained a regression coefficient of 0.549. meaning that every one-unit increase in Religiosity increases Whistleblowing Intention by 0.549 units. These findings indicate that religiosity is the most dominant variable influencing whistleblowing intention.

DISCUSSION

The Effect of the Bystander Effect on Whistleblowing Intention

Based on the results of the multiple linear regression analysis. the Bystander Effect variable obtained a regression coefficient of -0.122 with a significance value of 0.050. Since this study employed a directional hypothesis using a one-tailed test. the significance value was divided by two. resulting in 0.025. which is lower than 0.05. Therefore. the first hypothesis was accepted. indicating that the Bystander Effect negatively influences the whistleblowing intention of sharia accounting students at UIN KHAS Jember. These

findings suggest that the higher the tendency of individuals to experience the bystander effect. the lower their intention to engage in whistleblowing behavior. This condition occurs because the presence of others in situations involving misconduct may reduce an individual's sense of responsibility to report wrongdoing due to the assumption that others will take action first.

The findings of this study are consistent with the bystander effect theory proposed by Darley & Latané (1968). which explains that individuals tend to experience diffusion of responsibility in group situations. The findings also support the studies conducted by Christyawan & Hapsari (2021) as well as Asih & Sari (2021). which found that the bystander effect negatively influences whistleblowing intention. However. these findings differ from the results reported by Darmawan et al. (2024) and Karim (2022). who found that the bystander effect did not significantly affect whistleblowing intention. These inconsistent findings indicate that the influence of the bystander effect may vary depending on respondents' characteristics. social environment. and level of ethical awareness. In the context of sharia accounting students. ethical values and moral responsibility may still encourage individuals to report misconduct even in group situations.

The Effect of Individual Morality on Whistleblowing Intention

The results of the second hypothesis test indicate that Individual Morality has a positive and significant effect on Whistleblowing Intention. This is demonstrated by the regression coefficient value of 0.242 with a significance value of 0.030. Since this study employed a directional hypothesis using a one-tailed test. the significance value was divided by two. resulting in 0.015. which is lower than 0.05. Therefore. the second hypothesis was accepted. indicating that the higher the level of individual morality. the stronger the intention of sharia accounting students to engage in whistleblowing behavior. The descriptive statistical results also support this finding. as the Individual Morality variable obtained a mean score of 4.4000. indicating that the majority of respondents possessed a high level of morality.

The findings of this study are consistent with the Theory of Planned Behavior (TPB). particularly the attitude toward behavior component. where individual morality reflects ethical evaluations regarding whether reporting misconduct is considered a correct action. Individuals with high morality tend to perceive whistleblowing as a moral

responsibility to maintain integrity and prevent unethical conduct. The findings also support the studies conducted by Wardani & Farin (2023). Sugani et al. (2024). and Utami et al. (2023). which found that individual morality positively influences whistleblowing intention and strengthens ethical awareness toward academic and professional misconduct. These findings indicate that moral commitment and integrity play an important role in encouraging sharia accounting students to report unethical practices in both academic and professional environments.

The Effect of Religiosity on Whistleblowing Intention

The results of the third hypothesis test indicate that Religiosity has a positive and significant effect on Whistleblowing Intention. This is demonstrated by the regression coefficient value of 0.549 with a significance value of 0.000. Since this study employed a directional hypothesis using a one-tailed test, the significance value remained below 0.05, indicating that the third hypothesis was accepted. These findings suggest that the higher the level of religiosity among sharia accounting students, the stronger their intention to engage in whistleblowing behavior. Furthermore, the descriptive statistical results showed that the Religiosity variable obtained a mean score of 4.3580, indicating that the majority of respondents possessed a high level of religiosity.

From the perspective of the Theory of Planned Behavior (TPB), religiosity is associated with the subjective norms component, where religious values and spiritual environments shape moral norms that influence individual behavior. Students with high religiosity tend to perceive reporting misconduct as a form of moral responsibility and an implementation of the values of honesty, trustworthiness, and justice. The findings of this study are consistent with those reported by Ningrum & Munari (2024), Yudira & Helmy (2024), and J. Arifin et al. (2024), who found that religiosity positively influences whistleblowing intention and strengthens ethical responsibility within organizations. However, these findings differ from those reported by Zullaekha & Nustini (2024), who found that religiosity did not significantly influence whistleblowing intention. These inconsistent findings indicate that the influence of religiosity may depend on social context and the degree of individuals' internalization of religious values. Overall, this study demonstrates that religiosity is an important factor in shaping the ethical courage of sharia accounting students to report misconduct in both academic and professional environments.

CONCLUSION

This study concludes that Individual Morality and Religiosity have a positive and significant effect on the Whistleblowing Intention of sharia accounting students. while the Bystander Effect has a negative and significant effect on whistleblowing intention. These findings indicate that the higher the students' levels of morality and religiosity. the stronger their courage to report misconduct. whereas the presence of the bystander effect tends to reduce reporting intention. Theoretically. this study supports the Theory of Planned Behavior (TPB). where Individual Morality is associated with attitude toward behavior. Religiosity is associated with subjective norms. and the Bystander Effect is associated with perceived behavioral control. Practically. the findings highlight the importance of strengthening ethics education. integrity values. and religious character development within sharia accounting programs in order to foster students' courage to engage in whistleblowing regarding academic and professional misconduct.

This study has several limitations because it only involved sharia accounting students from one university and relied on self-reported data. limiting the generalizability of the findings. In addition. this study only examined three independent variables. whereas whistleblowing intention may also be influenced by other factors such as organizational commitment. ethical climate. and perceived retaliation risk. Therefore. future studies are recommended to expand the research sample. include additional research variables. and employ mixed methods or qualitative approaches in order to obtain a more comprehensive understanding of the factors influencing whistleblowing intention.

REFERENCES

- Ajzen. I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*. 50(2). 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Arifin. J., Hasanati. N., & Rahmawati. D. (2024). Religiosity and Ethical Responsibility in Organizational Behavior. *Jurnal Akuntansi Dan Etika Bisnis*. 12(1). 45–58.
- Arifin. Moh. Z., Rahmawati. D., & Hidayah. N. (2024). Religiosity and prosocial behavior in accounting students: The role of ethical responsibility in Islamic perspective. *Journal of Islamic Accounting and Business Research*. 15(4). 512–529. <https://doi.org/10.1108/JIABR-08-2023-0245>

- Aryanti. R.. & Hasanati. N. (2024). Whistleblowing as a strategic tool for fraud detection: A comparative analysis of formal oversight mechanisms. *Journal of Applied Accounting and Business*. 6(1). 12–25.
- Asih. R.. & Sari. R. C. (2021). Pengaruh Identitas Profesional. Komitmen Organisasi. dan Bystander Effect terhadap Niat Pengungkapan Kecurangan Akuntansi. *Jurnal Profita: Kajian Ilmu Akuntansi*. 9(4). 34–48.
- Chan. E.. Wu. S.. & Lin. C. (2022). The influence of religiosity on ethical decision-making and moral sensitivity: An empirical study. *Journal of Business Ethics and Spirituality*. 14(3). 201–218. <https://doi.org/10.1016/j.jbes.2022.05.004>
- Christyawan. A. F.. & Hapsari. A. N. S. (2021). Whistleblowing and the Students' Reasons to Do It. *COSTING: Journal of Economic. Business and Accounting*. 5(1). 423–440.
- Cotton. D. R.. Cotton. P. A.. & Shipway. J. R. (2024). Chatting and cheating? Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*. 61(1). 1–12. <https://doi.org/10.1080/14703297.2023.2190148>
- Darley. J. M.. & Latané. B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology*. 8(4. Pt.1). 377–383. <https://doi.org/10.1037/h0025589>
- Darmawan. Y.. Wiratno. D. H.. & Rahimah. (2024). Pengaruh Faktor Individual dan Situasional terhadap Niat Mahasiswa Melakukan Whistleblowing: Studi pada Mahasiswa Diploma III Akuntansi. *Jurnal Ekonomi & Ekonomi Syariah*. 7(1). 738–749.
- Fadillah. S.. & Misra. F. (2020). Determinan Intensi Whistleblowing Mahasiswa: Perspektif Bystander Effect dan Gender. *Jurnal Akuntansi Dan Auditing*. 17(1). 22–35.
- Glock. C. Y.. & Stark. R. (1965). *Religion and society in tension*. Rand McNally.
- Jalil. M. N. (2021). Religiositas dan Perilaku Etis Mahasiswa Akuntansi Syariah. *Jurnal Ekonomi Syariah Teori Dan Terapan*. 8(4). 501–512.
- Karim. E. Z. (2022). *Intensi Whistleblowing di Kalangan Mahasiswa Akuntansi* [Master's Thesis]. UIN Syarif Hidayatullah Jakarta.
- KPK. (2025). *Laporan Hasil Survei Penilaian Integritas (SPI) Pendidikan 2024: Memotret Integritas di Lingkungan Satuan Pendidikan*. Direktorat Jejaring Pendidikan KPK. <https://vac.kpk.go.id>
- Kumar. S. (2025). The bystander effect in corporate and academic whistleblowing: A situational analysis. *Journal of Behavioral Ethics and Accountability*. 9(2). 112–129. <https://doi.org/10.1017/jbe.2024.45>
- Latan. H.. Chiappetta Jabbour. C. J.. & Lopes de Sousa Jabbour. A. B. (2023). Ethical culture. ethical leadership. and whistleblowing intention: The moderating role of perceived organizational support. *Journal of Business Ethics*. 184(3). 757–778. <https://doi.org/10.1007/s10551-022-05114-1>

- McCabe. D. L., Butterfield. K. D., & Treviño. L. K. (2021). *Cheating in College: Why Students Do It and What Educators Can Do About It* (2nd ed.). Johns Hopkins University Press.
- Miceli. M. P., Near. J. P., & Dworkin. T. M. (2008). *Whistle-blowing in organizations*. Psychology Press.
- Mulenga. I. M., & Shilongo. P. M. (2024). Academic integrity and plagiarism in higher education: A review of the literature. *International Journal of Research in Business and Social Science* (2147-4478). 13(2). 450-461. <https://doi.org/10.20525/ijrbs.v13i2.3213>
- Near. J. P., & Miceli. M. P. (1985). Organizational Dissidence: The Case of Whistle-Blowing. *Journal of Business Ethics*. 4(1). 1-16.
- Near. J. P., & Miceli. M. P. (2016). Whistleblowing in organizations: Theoretical and empirical research. In *Psychology in Organizations: Issues of Theory and Practice* (pp. 71-94). Psychology Press.
- Ningrum. S. S., & Munari. (2024). Determinan Niat Whistleblowing pada Mahasiswa Akuntansi. *Jambura Economic Education Journal*. 6(2). 479-493.
- Puspitosari. I. (2019). Whistleblowing Intention sebagai Bagian dari Etika Islam Ditinjau dari Intensitas Moral. Orientasi Etika Relativisme dan Religiusitas. *Jurnal Iqtisaduna*. 5(2). 139-152.
- Rahmawati. D. (2025). *Pengaruh Bystander Effect, Moralitas, dan Religiusitas terhadap Niat Whistleblowing* [Skripsi]. Universitas Islam Negeri Kiai Haji Achmad Siddiq Jember.
- Rest. J. R. (1986). *Moral Development: Advances in Research and Theory*. Praeger.
- Rialdy. N., Siregar. S. G., & Nasution. A. A. (2023). The role of morality and religiosity in improving individual ethical behavior in professional organizations. *International Journal of Accounting and Financial Management*. 5(2). 142-156.
- Sudjono. S. (2023). *Etika Profesi dan Hukum dalam Pelaporan Praktik Ilegal*. Penerbit Salemba.
- Sugani. G., Mustika. Y., & Audina. B. P. (2024). Pengaruh Moralitas Individu dan Religiusitas terhadap Kecenderungan Kecurangan dalam Pengelolaan Dana Desa. *EKOMA: Jurnal Ekonomi, Manajemen, Akuntansi*. 3(6). 21-30.
- Utami. T. P., Nazaruddin. I., & Pangestu. D. A. (2023). Persepsi Etis Mahasiswa terhadap Kecurangan Akuntansi: Peranan Moralitas Individu, Religiusitas, dan Integritas. *Jurnal Riset Akuntansi Dan Keuangan*. 11(2). 59-68.
- Wardani. D. K., & Farin. I. (2023). Niat Melakukan Whistleblowing Kecurangan Akademik: Moralitas Individu dan Pemahaman Tri Pantangan. *Jurnal Ilmiah Universitas Batanghari Jambi*. 23(1). 276-285.
- Widyadhana. A., & Kirana Dp. A. (2025). Implementasi Sistem Whistleblowing dalam Memperkuat Tata Kelola Organisasi Pendidikan. *Jurnal Akuntansi Dan Auditing*. 21(2). 155-170.

- Wiradharma. M. G.. Pratama. I. G. S.. & Sujana. E. (2025). Psychological barriers and social pressure in academic whistleblowing: A mixed-methods study. *Journal of Academic Ethics and Governance*. 7(1). 88–104.
- Yudira. G. I.. & Helmy. H. (2024). Pengaruh Machiavellian dan Religiusitas terhadap Niat Melakukan Whistleblowing. *Jurnal Eksplorasi Akuntansi*. 6(3). 1197–1208.
- Zullaekha. R. N.. & Nustini. Y. (2024). Niat Menjadi Whistleblower dengan Religiusitas sebagai Variabel Moderasi. *Jurnal Akuntansi*. 19(1). 67–79.



RISK-DRIVEN PROFITABILITY IN INDONESIAN LISTED BANKS: CAPITAL, LIQUIDITY, AND CREDIT ROLE

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Abstract:

Objective of this study is to investigate the key factors influencing bank profitability. The research utilizes a group of banks listed on the Indonesia Stock Exchange within a defined observation timeframe. employing panel data analysis methods for data processing. According to Ma'aji et al. (2025) The results indicate that various internal bank factors have differing effects on profitability. This study underscores the significance of effective financial management in making sure of the stability and profitability of banking institutions. It aims to evaluate the influence of key determinants, including bank capital, credit risk, liquidity risk, bank size, loan growth, and operational efficiency, on bank profitability. The analysis is based on a sample of banks listed on the Indonesia Stock Exchange over the 2020–2024 period, utilizing a panel data regression model. The empirical findings demonstrate that bank capital exerts a positive and statistically significant effect on profitability, indicating that a stronger capital base enhances a bank's capacity to generate returns. Conversely, efficiency is observed to have a significant negative impact, implying that higher levels of inefficiency adversely affect financial performance. Meanwhile, credit risk, liquidity risk, bank size, and loan growth do not exhibit a statistically significant relationship with bank profitability.

INTRODUCTION

Financial markets comprise various participants are essential in ensuring efficient functioning and regulation within financial activities. These markets also serve as a key source of funding for both economic entities and individuals. In developing countries, banks remain the dominant institutions within the financial system, acting as the primary intermediaries in financial market operations. As profit-oriented entities, banks

are required to generate sufficient income to cover operational costs and sustain profitability.

According to OJK (2025), the profitability of the Indonesian banking sector remains stable despite uncertain economic conditions, with continued growth in recent periods. Credit distribution also shows a positive trend, reflecting sustained banking activity and supporting investor confidence in banking stocks (Cahyaningtyas & Rahayu, 2021). This condition indicates that the banking sector continues to attract investors due to its relatively stable performance and contribution to economic growth.

Bank capital plays a crucial role in supporting banking operations and absorbing potential losses, particularly under conditions of economic uncertainty. Strong capital positions enhance a bank's resilience and financial stability (Fitriani & Maharani, 2024). According to Ma'aji et al. (2025) has a Credit risk is a key concern in banking activities, as poor loan quality can negatively affect financial performance and increase provisions for potential losses. Similarly, liquidity risk demonstrates the bank's capability to meet short-term duties, where poor liquidity management may weaken financial stability and reduce stakeholder confidence (Ekanayake & Wanniarachchige, 2023).

Bank size may also influence profitability, as larger banks benefit from diversification opportunities but may face higher operational costs and management complexity. Loan growth is generally associated with increased interest income, although excessive expansion may lead to higher risk exposure and potential deterioration in asset quality. Meanwhile, The level of operational efficiency significantly affects how profitable a company can be, as effective cost management allows banks to optimize resources and improve financial performance (Cangombe E., Almeida, L., & Tavares, F., 2025).

LITERATURE REVIEW

Research Gap

Despite extensive research on the key factors of bank profitability, the findings remain inconsistent. While certain studies show a positive association between bank capital and profitability, others find insignificant or mixed results. Similar inconsistencies are also found in the role of credit risk and liquidity risk, where some studies identify a negative relationship, whereas others report no significant effect.

In addition, most previous studies are based on earlier observation periods and different economic conditions, which may not fully reflect the current situation of the banking sector in Indonesia. Furthermore, studies that simultaneously incorporate bank capital, credit risk, liquidity risk, bank size, loan growth, and efficiency using a panel data approach on banks included in the Indonesia Stock Exchange remain limited. Therefore, this research is necessary to refresh empirical findings and offer a more comprehensive insight into the determinants of bank profitability in under recent economic conditions.

Research Novelty

The novelty of this research comes from its use of up-to-date data drawn from banks included on the Indonesia Stock Exchange over the most recent period. and integrating several internal bank factors, namely capital, credit risk, liquidity risk, bank size, loan growth, and efficiency within a single analytical model. In addition, this study employs a panel data approach, which enables a more comprehensive analysis of the relationships among variables in determining bank profitability in Indonesia. According to OJK (2025) This study is important for the essential role of banks as financial intermediaries in driving economic expansion, particularly within developing countries such as Indonesia. Considering that profitability represents a fundamental indicator of financial performance and stability, examining its factors is essential to preserve the robustness of the banking sector. In addition, recent economic uncertainties and dynamic financial conditions have increased the need for banks to manage their internal factors effectively, including capital adequacy, risk exposure, asset growth, and operational efficiency (Fitriani & Maharani, 2024). Variations in empirical findings regarding these determinants further highlight the need for updated and comprehensive evidence based on recent data. Therefore, this study is seeks to offer a clearer insight into how internal bank factors affect profitability., which is important for improving managerial decision-making, supporting investor trust, and help maintain the banking industry in Indonesia (Cahyaningtyas & Rahayu, 2021).

Grand Theory

This study is underpinned by a range of core banking and financial theories that collectively provide an explanation of how bank performance is shaped by capital strength, risk exposure, operational efficiency, firm size, and lending activities. The

Financial Intermediation Theory serves as the primary foundation, explaining that banks generate income by channeling funds from depositors to borrowers. This implies that variables related to lending activities, including loan growth, are essential in determining bank performance. Higher loan growth increases interest income and earning assets, thereby supporting profitability. However, this mechanism is closely linked with risk factors, particularly credit risk.

The Risk-Return Trade-Off Theory further explains that while banks aim to maximize returns through lending, higher exposure to risks including credit risk and liquidity risk—can negatively affect achievements if not properly managed. Credit risk, arising from potential loan defaults, directly reduces profitability through non-performing loans. Similarly, liquidity risk reflects the trade-off between holding liquid assets and maximizing returns, where both excessive and insufficient liquidity may reduce efficiency and profitability. These relationships form the basis for the expected negative effects of credit risk and liquidity risk on bank performance.

Additionally, the Capital Buffer Theory emphasizes bank capital acts as a protective cushion against financial shocks. Greater capital levels strengthens a bank's ability to strength in facing risks, improves its ability to manage risks, and enhances market confidence. Consequently, well-capitalized banks are more capable of maintaining stable operations and generating sustainable profits. This theoretical perspective supports the expected positive relationship between bank capital and bank performance.

The Efficiency Structure Theory explains that profitability is largely determined by operational efficiency. Banks that can efficiently regulate costs and utilize resources effectively tend to achieve higher financial performance. However, inefficiency, often reflected in a high cost-to-income ratio, can reduce profitability. Therefore, efficiency is expected to significantly influence bank performance, depending on how well costs are managed relative to income.

Lastly, the Economies of Scale Theory explains the role of bank size in influencing performance. bigger banks may obtain benefits such as cost efficiency, diversification, and enhanced market power, thereby contributing to higher profitability. Meanwhile, beyond a certain point, increased size could also give rise to lead to operational complexity and inefficiencies, as described by the diseconomies of scale concept. This explains why the effect of bank size on performance may vary across contexts.

Overall, these theories provide a comprehensive framework linking capital strength, risk management, efficiency, size, and lending activities to bank performance. Based on these theoretical foundations, this study formulates hypotheses regarding the positive effect of bank capital, the negative effect of credit risk and liquidity risk, and the significant influence of bank size, loan growth, and efficiency on bank performance.

Bank Performance

Bank Performance is measured by Profitability. Profitability is the ability for banks to generate profit for its shareholders, measured by ROAA. (Ma'aji et al., 2025). According to the Indonesian Law of 1998 about banks, banks are institutions that collect public funds and distribute them in the form of credit or other services, must maintain profitability to provide returns for investors and meet obligations to creditors. Banking is an entity that acts as a financial intermediary, collecting money and using its services to benefit the society (Mulyaningtyas & Candra, 2022). As the main indicator in assessing bank performance, profitability reflects the efficiency and effectiveness of the bank in utilising resources to achieve high profits (Hacini et al., 2021). ROAA represents a financial indicator used to assess how effectively a bank leverages its assets to produce earnings. It serves as a tool for analysing the measurement of firm or business unit performance and for financial performance comparison across firms (Keqa, 2021). Based on the literature, bank performance, as proxied by ROAA, represents the effectiveness of asset utilization in generating profits while fulfilling its intermediary role, making profitability a comprehensive indicator of financial efficiency, operational effectiveness, and overall banking stability

Bank Capital

Bank Capital is a collection of monetary capital gathered in a bank for use in payments and other transactions, namely bank funds (Ma'aji et al., 2025). Bank Capital is the initial step that occurs when restructuring the existing capital structure helps protect the banking sector from extensive pressures. In addition, sufficient capital enables the implementation of higher operational standards, facilitates business growth, and contributes to improved performance. Thus, capital plays a role in the recapitalisation process to meet the needs of each bank through the addition of minimum paid-in capital (Saleh & Abu Afifa, 2020). Bank Capital is calculated by total equity to total asset ratio. According to research by Ma'aji et al. (2025) found that Bank

Capital has a positive impact on bank profitability, which is due to banks with higher capitalisation showing an ability to increase business revenue and reduce costs, and a well-capitalised bank faces lower bankruptcy costs, leading to reduced funding costs and higher levels of profitability. Overall, bank capital plays a crucial role in enhancing profitability, as higher capitalisation not only strengthens financial stability and reduces bankruptcy risk but also improves banks' capacity to generate income and operate more efficiently.

Liquidity Risk

Liquidity risk merupakan risiko bahwa kondisi keuangan bank atau keselamatan secara keseluruhan terganggu oleh ketidakmampuan bank untuk memenuhi kewajibannya (Samarasinghe & Lakmal, 2025). Liquidity Risk is measured by liquid asset to total asset ratio, liquid asset is taken from easily liquidated cash such as cash, giro, placements in other banks, securities (Ma'aji et al., 2025). Fang et al. (2019) consistently indicate that a large funding gap, which reflects a high level of liquidity, is associated with declining bank profitability. This implies that while keeping sufficient liquidity is necessary to promote operational stability and meet short-term obligations, having too much liquidity might lead to inefficiency. According to Saleh & Abu Afifa (2020) found that In the bank's industry, large consumer withdrawals lead to huge liquidity risk. By impeding prospective clients and purchasers who ought to be assisted by the bank, this has a detrimental effect on banking performance. Consequently, the bank's advantages and utility both sharply decline. In summary, while maintaining adequate liquidity is essential for ensuring operational stability and meeting short-term obligations, excessive liquidity may lead to inefficiencies that ultimately reduce bank profitability

Credit Risk

Credit risk describes the risk of financial loss encountered by a bank due to events such as borrowers violating their debt repayment obligations (Tran & Phan, 2020). Credit Risk is measured by loan loss provisions to gross loansratio (Ma'aji et al., 2025). Almeida & Sousa (2025) also notes Credit risk adversely affects bank value and profitability, as the need to provision for potential loan losses constrains the bank's ability to generate profits, which can negatively impact the bank's profitability. Credit risk has a negative impact on bank profitability, as banks tend to extend more loans

than the deposits they receive from customers, which can weaken profit levels and asset positions. Elevated credit risk also leads to an increase in non-performing loans, thereby creating financial vulnerability for banks. Increased credit risk contributes to the growth of non-performing loans, resulting in financial fragility to the bank and its customers, so it is necessary to strengthen credit risk management (Jackson & Tamuke, 2022). According to Tran & Phan (2020) shows that there is a lack of management of Credit risk is embedded across the entire portfolio and within specific credit exposures or transactions, thereby reducing profitability. Thus, credit risk negatively affects bank profitability, as higher levels of non-performing loans and inadequate risk management increase financial vulnerability and limit the bank's capacity to produce sustainable returns.

Bank Size

Bank Size is a ratio that measures a bank which is measured by a natural logarithm of total assets (Tran & Phan, 2020). According to research by Ma'aji et al. (2025) Bank size has a negative impact on bank profitability, as larger banks tend to face higher operational costs, greater organisational complexity, and stricter regulatory oversight, which may reduce returns on assets., in contrast to research by Tran & Phan (2020) found that Bank Size has a positive effect on bank's profitability because large Banks will receive good support and more effective operational management, resulting in optimal banking service provision. Research by Mengstie et al. (2024) shows that Bank Size has a positive effect on Bank profitability measured by ROAA because larger banks can obtain capital at a lower cost and generate higher profits. This occurs because the size of the bank is strongly correlated with its capital adequacy level. According to research by Chand et al. (2024) Bank Size has a positive influence because a larger Bank size allows fixed costs to be spread over a wider range of assets, thereby reducing average costs, and Banks with larger sizes generally have stronger bargaining positions. In conclusion, the effect of bank size on profitability remains inconclusive, as larger banks may gain advantages from economies of scale and improved access to capital, yet may also face higher operational complexity and costs that potentially reduce profitability.

Loan Growth

Loan Growth is the rise of bank loans over a period of years (Wu et al., 2022). LG is measured by loan_t reduced by loan_{t-1} , a positive LG shows a growth in credit distribution compared to the previous year, whereas a negative LG value indicates a decline in credit than the previous year (Ma'aji et al., 2025). Loan Growth becomes an indicator that shows the difference between the annual growth rate of a bank's total loans and the growth rate of the relevant aggregate loan amount, Loan Growth can drive the bank's profitability if the expansion is not followed by a decline in loan quality (Rossi et al., 2019). Therefore, loan growth can positively influence bank profitability when credit expansion is accompanied by effective risk management and maintained loan quality, ensuring sustainable income generation.

Efficiency

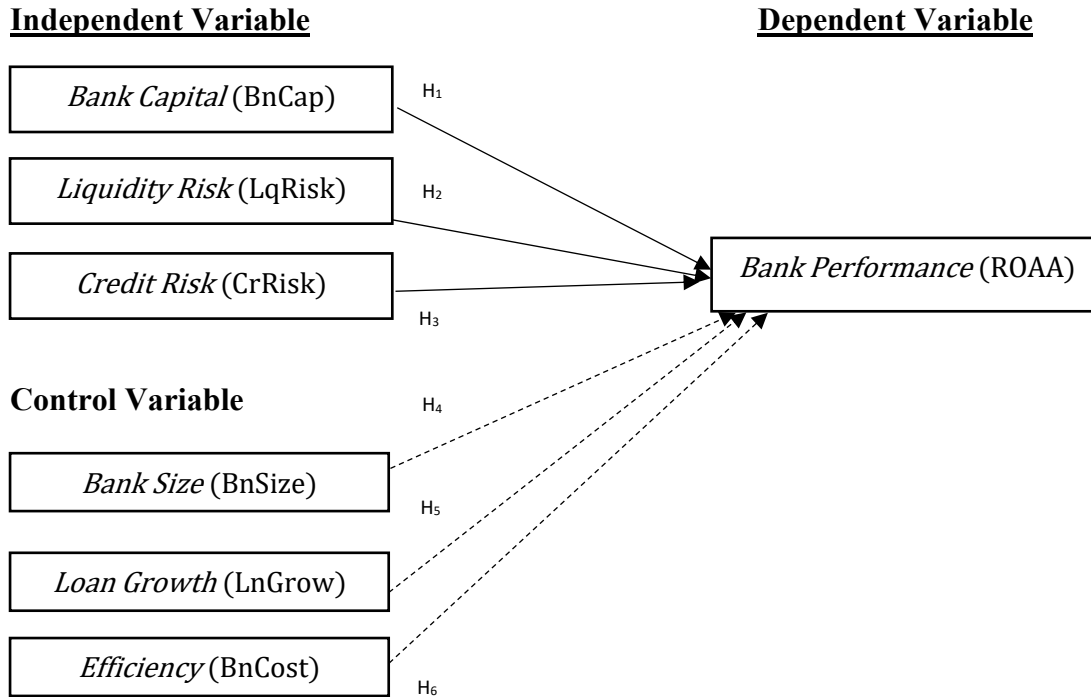
Efficiency is how well the bank can control its operational costs to generate optimal revenue. Efficiency is measured by cost-to-income ratio (Ma'aji et al., 2025). A bank's operational efficiency is gauged by the cost-to-income ratio, which evaluates how well it controls operating expenses. A lower ratio indicates stronger performance and greater profitability (Afriyie & Aidoo, 2022). Effective operational cost management (cost-to-income ratio) is important to maintain profitability in the banking sector (Al Zaidanin & Al Zaidanin, 2021). In essence, operational efficiency is a key determinant of bank profitability, where effective cost management, reflected by a lower cost-to-income ratio, enhances the bank's ability to maximise returns.

Conceptual Framework

According to research by Saleh & Abu Afifa (2020) bank capital positively affects bank profitability because increased capital can raise expected income by reducing costs associated with potential financial difficulties within the bank. According to research by Hacini et al. (2021) liquidity risk has a negative impact on profitability; banks with insufficient liquidity can reduce the bank's profitability. According to research by Jackson & Tamuke (2022) credit risk has a negative impact on bank's profitability due to the banking system's tendency to issue a greater proportion of loans relative to deposits collected. According to research by Ma'aji et al. (2025) bank size negatively impacts bank profitability due to its high operational costs. Nguyen & Le (2022) found that loan growth has a positive impact on Bank Profitability, implying that

loans contribute to higher bank income. According to Trang et al. (2021) efficiency has a positive impact on Bank Profitability due to the high level degree of efficiency which can increase profitability.

Figure 1
Conceptual Framework Diagram



Source: Data processed, 2026

Hypothesis Development

Bank Capital Effect on Bank Performance

According to the Capital Buffer Theory, bank capital acts as a financial buffer that enables banks to handle potential losses and preserve stability amid economic shocks. Additionally, the Risk Absorption Theory explains that higher capital levels reduce the probability of financial distress and enhance market confidence. A well-capitalized bank is therefore more capable of sustaining operations and generating profits. Empirical evidence supports this argument. Using ROAA, research by Saleh & Abu Afifa (2020) discovered that bank capital positively affects profitability. According to their findings, banks can better manage operational risks and withstand financial shocks when they have a higher capital position, which boosts profitability. Equally, Abbas et al. (2019), bank capital has a beneficial influence on profitability for commercial banks in Asia and the US who similarly used ROAA as a measure of profitability. In summary, bank capital

is expected to positively influence bank performance, as stronger capitalisation enhances financial resilience, improves risk management, and increases the bank's capacity to generate sustainable income.

H1: Bank Capital effects Bank Performance

Liquidity Risk Effect Bank Performance

The association between liquidity risk and bank performance is explained by the Liquidity Preference Theory, which highlights the balance between between liquidity and profitability. Holding excessive liquidity leads to idle funds that reduce income generation, while insufficient liquidity increases the risk of financial distress. This trade-off suggests that liquidity risk can negatively affect bank performance when not managed properly. Research by Saleh & Abu Afifa (2020) consistently demonstrates that a higher liquidity level, which is indicated by a larger funding gap, tends to be associated with a decline in bank profitability. As stated by Hacini et al. (2021) Liquidity risk without sufficient liquidity can reduce their profitability. According to Ma'aji et al. (2025) liquidity risk generally decreases profitability because banks facing significant liquidity will miss high investment opportunities, which can lower profitability. Overall, liquidity risk tends to negatively affect bank performance, as excessive or insufficient liquidity can lead to inefficiencies and missed investment opportunities, ultimately reducing profitability.

H2: Liquidity Risk Effects Bank Performance

Credit Risk Effect on Bank Performance

The Risk-Return Trade-Off Theory explains that greater risk is tied to the potential for increased returns, but excessive risk particularly credit risk can lead to financial losses. In banking, credit risk arises from borrowers not meeting their required payments, resulting in non-performing loans. According to research by Tran & Phan (2020) emphasise that banks are required to manage credit risk not only at the portfolio level but also at the level of individual loans or transactions. They further highlight that credit risk does not operate independently, but is closely interconnected with other types of risk. According to Almeida & Sousa (2025) that credit risk reduces bank profitability and value given banks have to spend money to cover loan losses, which in turn constrains their capacity to generate profits. According to Jackson & Tamuke (2022) Credit Risk negatively affects ROAA because the entire banking system

generally extends a greater volume of loans than the deposits it collects from customers. Thus, credit risk is expected to have a negative impact on bank performance, as higher exposure to loan defaults and inadequate risk management reduces profitability and weakens financial stability.

H3: Credit Risk Effects Bank Performance

Bank Size Effect on Bank Performance

The contribution of bank size on performance is explained by the Economies of Scale Theory, which suggests that larger firms can reduce average costs and improve efficiency. Large banks benefit from stronger market power, lower funding costs, and better diversification opportunities. However, the Diseconomies of Scale Theory argues that excessively large institutions may face higher operational complexity and increased costs. Empirical findings are mixed: According to research by Ma'aji et al. (2025) Bank Size negatively affects Bank Profitability because face higher operational costs and stricter regulatory oversight, which in turn reduce returns on assets. This contradicts previous research by Chand et al. (2024) Large banks also have stronger bargaining power to obtain cheap funding, reduce operational costs, and influence interest rates due to their greater market power. All of this strengthens their ability to generate profits. In conclusion, although findings are mixed, bank size is often expected to influence performance since bigger banks tend to gain advantages from economies of scale and stronger market presence despite facing higher operational complexity.

H4: Bank Size Effects Bank Performance

Loan Growth Effect on Bank Performance

The Financial Intermediation Theory explains that banks play an intermediary purpose of distributing financing from savers to borrowers, generating income primarily through lending activities. Increased loan growth expands earning assets and enhances interest income, thereby improving profitability. According to research by Ma'aji et al. (2025) Excessive loan growth can pose risks to banking but positively affects Bank Profitability due to the expansion of the bank's loan portfolio. However, study by Nguyen & Le (2022) found that Loan Growth positively impacts profitability, meaning that by providing more loans, the bank earns more interest income from those loans, resulting in increased bank profitability. However, the bank's capacity to control risk declines as credit demand rises, resulting in an increase in loans that are in default.

Consequently, the bank's profit decreases, and reduced loan growth can negatively affect the bank's Profitability (Obiedallah & Abdelaziz, 2024). Therefore, loan growth is expected to influence bank performance, where increased lending can enhance profitability through higher interest income, provided that credit risk is effectively managed.

H5: Loan Growth Effects Bank Performance

Efficiency Effect on Bank Performance

The Efficiency Structure Theory implies that firms with elevated efficiency are in a better position to minimize costs and maximize output, leading to improved profitability. In banking, efficiency is often evaluated by the cost-to-income ratio. Lower ratios indicate better cost management and higher profitability. Regarding to the study by Ma'aji et al. (2025) efficiency improves bank profitability, meaning that efficiency can optimise expenses and enhance profitability and competitiveness for banks. Banks with a good level of cost efficiency tend to increase profitability because they can optimise the use of their resources(Trang et al., 2021). This deviates from research by Zhao et al. (2025) found that efficiency measured by the cost-to-income ratio has a negative affect on bank profitability. High efficiency weakens the bank's use to utilise capital also makes it more difficult to generate more income for the bank. In essence, efficiency is expected to significantly influence bank performance, as effective cost management improves profitability, although excessive cost-cutting may limit the bank's income-generating capacity.

H6: Efficiency Effects Bank Performance

RESEARCH METHODS

This study uses purposive sampling for group selection in this research. This research is based on quantitative data and employs existing data methods. The dataset utilized in this study come using the Indonesia Stock Exchange website(www.idx.co.id) and the relevant bank websites. This study has a sample of 205 financial statement periods based on 41 banks during a 5-year period (2020-2024). The following are the measurements for each variable. The study employed purposive sampling to draw the group according to the listed criteria:

- (1) Banks included in the Indonesia Stock Exchange throughout 2020–2024

- (2) Banks with complete financial statements
- (3) Banks that report consistent data for all variables

Table 1
Variables and Research Indicators

Variable name	Symbol	Indikator	Source
Return on average assets	ROAA	$\frac{\text{net income}}{\text{average of total assets}}$	Ma'aji et al. (2025)
Bank capital	BnCap	$\frac{\text{Total equity}}{\text{total assets}}$	Ma'aji et al. (2025)
Liquidity risk	LqRisk	$\frac{\text{Liquid Asset}}{\text{Total Assets}}$	Ma'aji et al. (2025)
Credit Risk	CrRisk	$\frac{\text{loans loss provision}}{\text{gross loans}}$	Ma'aji et al. (2025)
Bank size	BnSize	$\text{Ln}(\text{Total Assets})$	Ma'aji et al. (2025)
Loan growth	LnGrow	$\frac{\text{Loan}_t}{\text{Loan}_{t-1}}$	Ma'aji et al. (2025)
Efficiency	Bncost	$\frac{\text{operating expense}}{\text{operating income}}$	Kumar (2024)

Source: Data processed, 2026

This study employs panel data regression technique to examine the effect of independent variables, which are bank capital, credit risk, liquidity risk and control variables which are Bank size, Loan growth, Efficiency towards dependent variable, which is Bank Performance (bank's profitability) measured by Return on average asset. The outcomes of the regression specification in this study are presented as stated below:

$$\text{ROAA} = 0.1978 + 0.058183\text{BnCap} - 0.049965\text{CrRisk} + 0.017220\text{LqRisk} + - 0.014654\text{BnSize} + 0.016011\text{LnGrow} - 0.011216\text{BnCost}$$

By taking into account the corrected R2, the determination coefficient test is used to assess how well independent factors can account for the variation in the dependent variable. Meanwhile, the partial effect of each independent variable on the dependent variable is assessed by the t-test. The following criteria are used to make decisions: the null hypothesis H₀ will be rejected if the t-test's significance value (sig) is less than 0.05, which reveals that the independent variable exerts a significant influence on the dependent variable. Meanwhile, if (sig > 0.05), hipotesis H₀ can be accepted, implying that the independent variable does not significantly influence the dependent variable.

RESEARCH FINDINGS

Statistic Descriptives playing a role in summarising the fundamental data characteristics that is the subject of this study, also this information is organised to provide an initial overview of the variables that are the objects of the research and presented in the following format:

Table 2
Statistic Descriptives

	ROAA	BnCap	LqRisk	CrRisk	BnSize	LnGrow	BnCost
Mean	0.0113	0.2276	0.3382	0.0443	31.545	0.1160	0.8547
Median	0.0149	0.1674	0.2980	0.0340	31.036	0.0820	0.6607
Maximum	0.1930	1.4657	2.2550	0.2441	35.425	2.2944	13.004
Minimum	-0.3606	0.0553	0.0068	0.0014	27.996	-0.4735	0.0404
Std. Dev	0.0489	0.1847	0.2475	0.0362	1.7172	0.2967	1.0597
Skewness	-2.9895	3.2789	2.8349	2.1020	0.4463	3.5401	8.1421
Kurtosis	21.611	16.558	19.750	9.8004	2.3471	22.285	87.479
Jarque-Bera	3264.2	1937.5	2671.2	545.98	10.447	3605.2	63225.
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sum	2.3283	46.674	69.340	9.0842	6466.7	23.792	175.22
Sum Sq. Dev	0.4879	6.9592	12.501	0.2685	601.59	17.969	229.10
Observations	205	205	205	205	205	205	205

Source: Data processed by eviews 9, 2026

Table 3
Coefficient of Determination

Variabel Dependen	Model	R-Squared	Adjusted R-Squared
ROAA	Prob (F Statistic)	0.615735	0.503861

Source: Data processed by eviews 9, 2026

The purpose of the classical assumption test is to ensure that the regression model adheres to its fundamental premises so that the estimation results are valid and unbiased. These tests consisting of the normality test to verify data normality and the multicollinearity test to detect correlations between independent variables, the heteroscedasticity test to assess the equality of residual variances, and the autocorrelation test to detect any correlation among residuals in the model. The results indicate that all classical assumptions have been satisfied, therefore the regression model is appropriate for further analysis.

According to the research findings, the ROAA Model yields an Adjusted R² value of 0.503861. means that the independent variables composed of Bank Capital, Credit Risk, Liquidity risk and control variables consisting of bank size, Loan Growth, Efficiency can

describe the variability of the dependent variable return on average asset sebesar 50.3861% and the remaining 49.6139% , indicates that ROAA is driven by factors not accounted for in this mode

Table 4
T-Test

ROAA			
	COEEF	PROB	Results
BnCap	0.058183	0.0152	Positive effect
LqRisk	0.017220	0.4492	No effect
CrRisk	-0.049965	0.6620	No effect
BnSize	-0.014654	0.1955	No effect
LnGrow	0.016011	0.1189	No effect
BnCost	-0.011216	0.0003	Negative effect

Source: Data processed by eviews 9, 2026

According to the outcomes of Table 4, it shows that bank capital has a positive and substantial impact on the bank's financial results when measured by ROAA, and efficiency has a negative affect on the bank's financial performance. Conversely, Liquidity Risk, Credit Risk, Bank Size, and Loan Growth do not show a substantial impact on the bank's financial performance. These outcomes confirm that bank capital has the potential to drive improvements in bank financial performance, while not statistically impacting the Indonesian banking sector according to the analysed data.

DISCUSSION

Bank Capital Effect on Bank Performance

According to outcomes of this panel data regression analysis, it shows that bank capital significantly positive impact on bank performance measured by ROAA. The regression results demonstrate the independent variable has a positive and statistically impact the dependent variable. This finding implies that an improvement in the independent variable is associated with an improvement in the dependent variable. The outcome supports underlying theoretical framework, suggesting that the variable plays a vital role in enhancing the outcome variable. Furthermore, The result of this study aligns with prior research findings, reinforcing the robustness of the relationship observed in this research This variable obtained a coefficient of 0.058183 with a probability of 0.0152 thus null hypothesis H_0 is not supported and H_1 is supported by the results. This finding implies that higher capital levels enhance bank profitability. From a theoretical standpoint, this is in accordance with with Capital Buffer Theory,

which states strong capital provides protection against financial shocks and enables banks to maintain durability during economic uncertainty. Banks with higher capitalization are more capable of absorbing risks, reducing the likelihood of financial distress, and sustaining their operational activities. In addition, higher capital provides banks to expand lending activities and invest in productive assets, thereby increasing income generation. This supports the Financial Intermediation Theory, where banks utilize their financial resources to generate profits through efficient fund allocation. The findings indicate that linear to the study by Ma'aji et al. (2025) which found that Bank Capital has a positive impact on bank profitability, this is due to banks with higher capitalisation being able to increase business income and reduce costs, thereby enhancing bank profitability. As stated by Adelopo et al. (2022) Supports this study, as Bank Capital positively impact bank profitability because bank capital is primarily obtained from retained earnings or by issuing shares. Thus, profitability and equity are the main factors contributing to bank capital, so with high capital, it can support its operational activities, including an increase in credit distribution and an enhancement of bank service facilities, thereby increasing profitability. According to research by Serly Jennifer (2021) Bank Capital improves bank profitability because high capital banks can easily withstand issues such as debt. The regression outcomes show that the independent variable exerts a positive and statistically significant influence on the dependent variable. This suggests that an increase in the independent variable corresponds to a rise in the dependent variable. The result is in line with the underlying theoretical framework, indicating that the variable plays a key role in improving the outcome variable. In addition, this finding aligns with the results of prior studies, reinforcing the robustness of the relationship observed in this research.

Liquidity Risk Effect on Bank Performance

Regarding to the outcomes of this panel data regression test, it shows that liquidity risk does not impact bank performance measured by ROAA. The results show that the independent variable does not have a statistically significant effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully influence the dependent variable within the context of this study. The finding may indicate that other factors play a more dominant role in determining the outcome variable. Additionally, this result could be attributed to differences in sample

characteristics, measurement approaches, or contextual conditions compared to previous studies. This variable obtained a coefficient of 0.017220 with a probability of 0.4492, thus the null hypothesis H_0 is rejected and H_2 is accepted. This suggests that variations in liquidity risk do not significantly influence profitability within the observed sample. From a theoretical standpoint, although the Liquidity Preference Theory suggests a trade-off between liquidity and profitability, the insignificant result implies that banks in this study may have achieved an optimal level of liquidity management. This finding suggests that banks are able to maintain sufficient liquidity without compromising profitability, possibly due to effective asset-liability management strategies. In other words, liquidity risk may already be well-controlled, reducing its direct effect on performance. The results is inconsistent with the research by Ma'aji et al. (2025). However, it is consistent with the research by Fitriani & Maharani (2024) that liquidity risk does not affect bank profitability, possibly due to the nature of credit distribution, which tends to vary from bank to bank over time. This indicates that changes in liquidity risk values, whether increasing or decreasing, do not always affect financial results. Regarding to the study by Pratiwi et al. (2024) Liquidity risk does not have a significant impact because banks are quite cautious when disbursing funds to maintain their liquidity. The magnitude of liquidity risk is more influenced by management strategies and policies in managing liquid assets. The results show that the independent variable does not have a statistically significant effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully influence the dependent variable within the context of this study. The finding may indicate that other factors play a more dominant role in determining the outcome variable. Additionally, this result could be due to variations in sample characteristics, measurement approaches, or contextual conditions compared to previous studies.

Credit Risk Effect on Bank Performance

Regarding to the outcomes of this panel data regression test, it shows that Credit risk is unable to impact bank performance measured by ROAA. The results show that the independent variable does not significantly effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully influence the dependent variable within the context of this research. The finding may indicate that other factors play a more dominant role in determining the outcome variable.

Additionally, this result could be attributed to differences in sample characteristics, measurement approaches, or contextual conditions compared to previous studies. This variable obtained a coefficient of -0.049965 with probability of 0.6620 thus hypothesis H_0 is accepted and H_3 is rejected. This suggests that fluctuations in credit risk do not directly affect profitability in this study. Although the Risk-Return Trade-Off Theory suggests that higher credit risk should reduce profitability due to potential loan defaults, the insignificant result may indicate that banks have implemented effective credit risk management practices. Banks may mitigate credit risk through mechanisms such as loan screening, diversification, and provisioning policies (e.g., PPAP), which reduce the impact of non-performing loans on profitability. The results indicate that this is not linear to the study by Ma'aji et al. (2025). However, it is consistent with the research by Bintoro & Rahmadhani (2021) that credit risk does not impact the profitability of banks because the bank's sources of income are derived from a variety of additional funding in addition to credit, such as fees and charges associated with the services they provide or charges levied on services provided by the bank. According to research by Sri Apriani et al. (2023) credit risk does not have an effect on profitability because banks are still able to implement a credit management system through adequate Provision for Impairment of Productive Assets (PPAP). Credit risk does not impact the profitability of banks because it is possible to reduce the likelihood that debtors will not fulfill their obligations through the implementation of effective risk management (Silviana & Cahyani Putri, 2025). The results show that the independent variable does not significantly effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully influence the dependent variable within the context of this study. The finding may indicate that other factors have a more dominant role in determining the outcome variable. Additionally, this result could be due to variations in sample characteristics, measurement approaches, or conditions compared to previous studies.

Bank Size Effect on Bank Performance

Regarding to the outcomes of this panel data regression test, it reveals liquidity risk fails to impact bank performance measured by ROAA. The results show that the independent variable does not significantly effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully influence the

dependent variable within the context of this study. The finding may point to the dominance of other factors in determining the outcome variable. Additionally, this result could be due to variations in the group characteristics, measurement approaches, or contextual conditions compared to previous studies. This variable obtained a coefficient -0.014654 with a probability of 0.1955 thus null hypothesis H_0 is accepted and H_4 is rejected. The results indicate that this is linear to the investigation by Ma'aji et al. (2025). According to the Economies of Scale Theory, major banks are expected to achieve cost savings and stronger market power. However, the insignificant result indicates the presence of diseconomies of scale, where increased size leads to higher operational complexity and inefficiencies. Large banks often face higher administrative costs, bureaucratic inefficiencies, and challenges in managing extensive operations, which may offset the benefits of scale. However, it is consistent with study undertaken by Amelia Putri et al. (2022) These findings indicate a larger size does make banks more well-known to the public, but the size of the assets does not automatically reflect the ability to generate higher profits. Large bank size does not guarantee improved performance because large banks face challenges such as higher operational costs, complex organisational structures, and efficiency that is not always optimal. According to research by Syachreza & Mais (2020) bank size does not affect bank profitability due to commercial banks no longer rely solely on asset quality to enhance profitability, but instead require income generated from financing product activities. The results show that the independent variable does not have a significant effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully influence the dependent variable within the context of this study. The finding may indicate that exert a greater effect in a more dominant participation in determining the outcome variable. Additionally, this result could be due to variations in sample characteristics, measurement approaches, or conditions compared to previous studies.

Loan Growth Effect on Bank Performance

Regarding to the outcomes of this panel data regression test, it shows that liquidity risk does not impact bank performance measured by ROAA. The results show that the independent variable does not have a statistically significant effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully influence the dependent variable within the context of this study. The

finding may indicate that other factors play a more dominant role in determining the outcome variable. Additionally, this result could be attributed to differences in sample characteristics, measurement approaches, or contextual conditions compared to previous studies. This variable obtained a coefficient of 0.016011 with a probability of 0.1189 thus hypothesis H_0 is accepted and H_5 is rejected. The outcomes indicate the fact they are not linear to the study by Ma'aji et al. (2025). This suggests that an increase in lending does not automatically lead to higher profitability. Although the Financial Intermediation Theory posits that loan expansion should increase income through interest earnings, the insignificant result implies that the effectiveness of loan utilization is more important than the volume of loans itself. This may occur because not all loans are immediately productive or generate returns within the same period. Additionally, rapid loan growth may be accompanied by increased credit risk, which can offset potential gains. However, they are supported with the research by Nurjanah & Imronudin (2023) that loan growth does not affect bank profitability, meaning that whether loan growth increases or decreases, it does not affect bank profitability because the loans disbursed may not yet be effectively converted into interest income. According to the research by YILDIRIM (2022) that loan growth does not significantly affect bank profitability because other factors such as asset quality, risk control, and operational efficiency have a stronger affect on profitability compared to just the increase in loan volume. The results show that the independent variable does not significantly effect on the dependent variable. This suggests that changes in the independent variable do not meaningfully contribute the dependent variable within the context of this study. The finding may indicate that other factors play a more dominant role in determining the outcome variable. Additionally, this result could be due to variations in sample characteristics, measurement approaches, or contextual conditions compared to previous studies.

Efficiency Effect on Bank Performance

The regression results reveal that the independent variable has a negative and statistically significant effect on the dependent variable. This indicates that an increase in the independent variable leads to a decrease in the dependent variable. The finding suggests that the variable may act as a limiting factor, reducing the performance of the dependent variable. This result aligns with theoretical expectations and prior empirical

evidence, highlighting the inverse relationship between the variables. This variable obtained a coefficient of -0.011216 with a likelihood of 0.0003, thus the null hypothesis H_0 is rejected and H_6 is accepted. From the perspective of the Efficiency Structure Theory, efficient cost management should enhance profitability; however, the negative relationship suggests that the banks in this study experience operational inefficiencies. A high cost-to-income ratio reflects that a large portion of income is used to cover operational expenses, leaving less profit for the bank. This indicates poor cost control and suboptimal resource allocation. The results indicate that these findings are not consistent with the research Ma'aji et al. (2025) but are in accordance with the study by Zhao et al. (2025) that efficiency measured by the cost-to-income ratio negatively impacts bank profitability. Higher efficiency leads to a decrease in bank profitability. Efficiency measured by the cost-to-income ratio negatively affects bank profitability because a high cost-to-income ratio reveals that a significant segment of operational income is to cover costs, which can reduce the overall efficiency and profitability of the bank (Tri Wijayanti et al., 2025). The regression results reveal that the independent variable has a negative and statistically significant effect on the dependent variable. This indicates that growth in the independent variable causes a decrease in the dependent variable. The evidence suggests that the variable may act as a limiting factor, reducing the performance of the dependent variable. This result aligns in theoretical expectations and past empirical evidence, highlighting the inverse relationship between the variables.

CONCLUSION

Many empirical findings demonstrate that bank capital plays a vital positive role in enhancing performance, showing that high capitalized banks are more resilient in absorbing financial shocks and ensure market confidence. This suggests that capital strength serves not merely as a mandated requirement as well as planned resource that supports sustainable profitability. In contrast, the insignificant effects of credit risk, liquidity risk, bank size, and loan growth imply that these variables may not directly influence bank profitability within the observed context. This could indicate that banks have implemented effective risk management practices, thereby mitigating the potential adverse effects of these factors, or that their impact is conditional upon other macroeconomic or institutional variables.

Furthermore, efficiency is found to have a significantly negative effect on bank performance, highlighting that huge cost-to-income ratios reflect operational inefficiencies. This finding implies that excessive operational expenses can erode profitability, emphasizing the importance of cost control and operational optimization. From a managerial perspective, these results underline the need for banks to strengthen their capital structure while simultaneously improving cost efficiency through better resource allocation and streamlined internal processes. Rather than focusing solely on expansion indicators such as size or loan growth, bank managers should prioritize financial discipline and operational effectiveness as key drivers of performance.

However, this research contains several limitations. The exclusion of macroeconomic variables, such as inflation, may limit the comprehensiveness of the analysis. Prior research by El Aboudi et al. (2025), suggests that inflation can positively influence bank performance by increasing interest income and adjusting lending rates, despite its potential to raise operational costs. Therefore, future research is recommended to incorporate macroeconomic factors to enhance understanding of the key determinants of bank performance in a more integrated manner.

REFERENCES

- Abbas, F., Iqbal, S., & Aziz, B. (2019). The impact of bank capital, bank liquidity and credit risk on profitability in postcrisis period: A comparative study of US and Asia. *Cogent Economics and Finance*, 7(1), 1–19. <https://doi.org/10.1080/23322039.2019.1605683>
- Adelopo, I., Vichou, N., & Cheung, K. Y. (2022). Capital, liquidity, and profitability in European banks. *Journal of Corporate Accounting and Finance*, 33(1), 23–35. <https://doi.org/10.1002/jcaf.22522>
- Afriyie, E. Y., & Aidoo, G. K. A. (2022). Cross-Border Banking and Financial Performance in Ghana: A Comparative Analysis of Local and Foreign Commercial Banks. *African Journal of Business and Economic Research*, 17(2), 63–85. <https://doi.org/10.31920/1750-4562/2022/v17n2a3>
- Almeida, L., & Sousa, F. (2025). Determinants of bank profitability in Portugal: Insights from a period of sectoral transformation. *Quantitative Finance and Economics*, 9(2), 425–448. <https://doi.org/10.3934/QFE.2025014>
- Al Zaidanin, J. S., & Al Zaidanin, O. J. (2021). The impact of credit risk management on the financial performance of United Arab Emirates commercial banks. *International Journal of Research in Business and Social Science (2147- 4478)*, 10(3), 303–319. <https://doi.org/10.20525/ijrbs.v10i3.1102>

- Amelia Putri, R., Sanjaya Kusno, H., & Parasi, J. (2022). Pengaruh Ldr_Car_Bopo_Dan_Bank_Size_Terhadap_Roa_P. *Jurnal Riset Manajemen Sains Indonesia (JRMSI)*, 13(1), 1–19.
- Bintoro, M. I., & Rahmadhani, F. (2021). The Influence of Capital Adequacy, Credit Risk, Liquidity, Operational Cost, Income Diversification, Firm Size and Ownership Structure on the Profitability of Bank. *Proceedings of the 4th International Conference on Sustainable Innovation 2020-Accounting and Management (ICoSIAMS 2020)*, 176(ICoSIAMS 2020), 128–132. <https://doi.org/10.2991/aer.k.210121.018>
- Cahyaningtyas, F., & Rahayu, M. Y. (2021). PENGARUH LOAN TO DEPOSIT RATIO, RETURN ON EQUITY, DAN RETURN ON ASSET TERHADAP HARGA SAHAM PADA PERUSAHAAN PERBANKAN YANG TERDAFTAR DI BURSA EFEK INDONESIA. *RISTANSI: Riset Akuntansi*, 2(1), 24–40. <https://doi.org/10.32815/ristansi.v2i1.408>
- Cangombe, E. L., Almeida, L. G., & Tavares, F. O. (2025). Determinants of Banking Profitability in Angola: A Panel Data Analysis with Dynamic GMM Estimation. *Risks*, 13(7), 1–22. <https://doi.org/10.3390/risks13070123>
- Chand, S. A., Kumar, R. R., Stauvermann, P. J., & Shahbaz, M. (2024). Determinants of Bank Profitability—Do Institutions, Globalization, and Global Uncertainty Matter for Banks in Island Economies? The Case of Fiji. *Journal of Risk and Financial Management*, 17(6). <https://doi.org/10.3390/jrfm17060218>
- Ekanayake, W. Y. M. M. N., & Wanniarachchige, M. K. (2023). Effect of Ownership on the Performance of Licensed Commercial Banks in Sri Lanka. *Journal of Management Matters*, 10(1), 67–81. <https://doi.org/10.4038/jmm.v10i1.48>
- El Aboudi, S., Biaz, S., & Aboukinane, M. A. (2025). Interaction between Policy Rates and Inflation: A Panel Analysis of the Effects of Monetary Duality on Bank Profitability in Morocco. *International Journal of Economics and Financial Issues*, 15(5), 96–105. <https://doi.org/10.32479/ijefi.19837>
- Fang, J., Lau, C. K. M., Lu, Z., Tan, Y., & Zhang, H. (2019). Bank performance in China: A Perspective from Bank efficiency, risk-taking and market competition. *Pacific Basin Finance Journal*, 56, 290–309. <https://doi.org/10.1016/j.pacfin.2019.06.011>
- Fitriani, N., & Maharani, N. K. (2024). Pengaruh Risiko Kredit, Risiko Likuiditas, Modal Bank Dan Profitabilitas Bank. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, 8(2), 439–462. <https://doi.org/10.31955/mea.v8i2.3938>
- Hacini, I., Boulenfad, A., & Dahou, K. (2021). The Impact of Liquidity Risk Management on the Financial Performance of Saudi Arabian Banks. *EMAJ: Emerging Markets Journal*, 11(1), 67–75. <https://doi.org/10.5195/emaj.2021.221>
- Jackson, E., & Tamuke, E. (2022). Credit Risk Management and the Financial Performance of Domiciled Banks in Sierra Leone: An Empirical Analysis. *Journal of Economic Policy Researches / İktisat Politikası Araştırmaları Dergisi*, 9(1), 139–164. <https://doi.org/10.26650/jepr1012975>

- Keqa, F. (2021). The determinants of banks' capital adequacy ratio: Evidence from western balkan countries. *Journal of Governance and Regulation*, 10(2 Special Issue), 352–360. <https://doi.org/10.22495/JGRV10I2SIART15>
- Ma'aji, M. M., Barnett, C., Bin-Nashwan, S. A., Roslan, N. H., & Ali, R. A. (2025). Risk-driven profitability: the role of bank capital, liquidity and credit in frontier banking markets. *Journal of Financial Regulation and Compliance*. <https://doi.org/10.1108/JFRC-01-2025-0008>
- Mengstie, B., Mosisa, T., & Mosisa, T. (2024). Impact of working capital management on profitability of private commercial banks in Ethiopia. *Journal of Innovation and Entrepreneurship*, 13(1). <https://doi.org/10.1186/s13731-024-00379-3>
- Mulyaningtyas, M., & Candra, F. D. (2022). Pengaruh Good Corporate Govenance Dan Ukuran Perusahaan Terhadap Kinerja Keuangan Pada Perusahaan Sub Sektor Bank Yang Terdaftar Di Bursa Efek Indonesia. *RISTANSI: Riset Akuntansi*, 2(2), 199–206. <https://doi.org/10.32815/ristansi.v2i2.805>
- Nguyen, D. T., & Le, T. D. Q. (2022). The interrelationships between bank profitability, bank stability and loan growth in Southeast Asia. *Cogent Business and Management*, 9(1), 1–14. <https://doi.org/10.1080/23311975.2022.2084977>
- Nurjanah, I. E., & Imronudin. (2023). Pengaruh Pertumbuhan Kredit terhadap Kinerja Keuangan Bank yang Terdaftar di Bursa Efek Indonesia 2019-2021. *Jurnal Informatika Ekonomi Bisnis*, 5, 364–370. <https://doi.org/10.37034/infeb.v5i2.557>
- Obiedallah, Y. R., & Abdelaziz, A. H. (2024). Financial inclusion and Financial Performance: The interplay role of capital adequacy requirements in Egyptian Banks. *Future Business Journal*, 10(1). <https://doi.org/10.1186/s43093-024-00383-9>
- Otoritas Jasa Keuangan 2025. (2019). Booklet Perbankan Indonesia 2022. *Sustainability (Switzerland)*, 11(1), 1–14. http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI
- Pengaruh Modal Bank, A., Bank, U., Pasar, K., & Terhadap Profitabilitas Bank Serly, I. (2021). *History*. 12(November), 481–490.
- Pratiwi, L., Sihono, A., Likuiditas, R., Pasar, R., & Bank, M. (2024). Tinjauan Risiko, Modal Dan Profitabilitas Perbankan. *Trilogi Accounting and Business Research*, 5(1), 5–6. <https://doi.org/10.31326/tabr.v5i1.1974>
- Rossi, S., Borroni, M., Piva, M., & Lippi, A. (2019). Abnormal Loan Growth and Bank Profitability: Some Evidence from the Recent Crisis. *International Journal of Business and Management*, 14(7), 36. <https://doi.org/10.5539/ijbm.v14n7p36>
- Saleh, I., & Abu Afifa, M. (2020). The effect of credit risk, liquidity risk and bank capital on bank profitability: Evidence from an emerging market. *Cogent Economics and Finance*, 8(1). <https://doi.org/10.1080/23322039.2020.1814509>

- Samarasinghe, M., & Lakmal, W. (2025). The Impact of Liquidity Risk on the Financial Performance of Licensed Commercial Banks in Sri Lanka. *Sri Lankan Journal of Banking and Finance*, 7. <https://doi.org/10.4038/sljbv7i2.58>
- Silviana, S., & Cahyani Putri, W. (2025). Pengaruh Risiko Kredit, Risiko Pasar, dan Risiko Likuiditas terhadap Kinerja Keuangan. *Jurnal Ekonomi, Manajemen, Bisnis Dan Akuntansi Review*, 5(2), 11. <https://doi.org/10.53697/emba.v5i2.2895>
- Sri Apriani, E., Eka Putri, S., & Ramli, R. (2023). The Effect of Credit Risk, Liquidity Risk and Operational Risk to Profitability in Conventional Banks Listed on Indonesia Stock Exchange Period 2019-2021. *MEC-J (Management and Economics Journal)*, 7(1), 63–76. <https://doi.org/10.18860/mec-j.v7i1.20512>
- Syachreza, D., & Mais, R. G. (2020). Syachreza, D., & Mais, R. G. (2020). Analisis Pengaruh CAR, NPF, FDR, Bank Size, BOPO terhadap Kinerja Keuangan Bank Umum Syariah di Indonesia. *Jurnal Akuntansi Dan Manajemen*, 17(01), 25–37. <https://doi.org/10.36406/jam.v17i01.326> Analisis Pengaruh CAR, NP. *Jurnal Akuntansi Dan Manajemen*, 17(01), 25–37.
- Tran, D. T. T., & Phan, H. T. T. (2020). Bank size, credit risk and bank profitability in Vietnam. *Malaysian Journal of Economic Studies*, 57(2), 233–251. <https://doi.org/10.22452/MJES.VOL57NO2.4>
- Trang, L. N. T., Nhan, D. T. T., Hao, N. T. N., & Wong, W. K. (2021). Does Bank Liquidity Risk Lead to Bank's Operational Efficiency? A Study in Vietnam. *Advances in Decision Sciences*, 25(4). <https://doi.org/10.47654/V25Y2021I4P46-88>
- Tri Wijayanti, D., Nuswandari, C., & Stikubank Semarang, U. (2025). *THE EFFECT OF FINANCIAL RATIOS ON THE FINANCIAL PERFORMANCE OF BANKING COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE (IDX) IN 2021-2023 PENGARUH RASIO KEUANGAN TERHADAP KINERJA KEUANGAN PERUSAHAAN PERBANKAN YANG TERDAFTAR DI BURSA EFEK INDONESIA (BEI) TAHUN 2021-2023*.
- Wu, S. W., Nguyen, M. T., & Nguyen, P. H. (2022). Does loan growth impact on bank risk? *Heliyon*, 8(8), e10319. <https://doi.org/10.1016/j.heliyon.2022.e10319>
- YILDIRIM, F. (2022). Analysis of the Relationship between Profitability and Foreign Exchange Positions, Asset Quality, and Loan Growth in the Banking Sector. *Akademik Araştırmalar ve Çalışmalar Dergisi (AKAD)*, 14(26), 137–148. <https://doi.org/10.20990/kilisiibfakademik.1080522>
- Zhao, Y., Mei, Y., & Wang, J. (2025). Bank performance and Non-interest income diversification: Evidence from Chinese commercial banks. *PLoS ONE*, 20(5 May), 1–18. <https://doi.org/10.1371/journal.pone.0321899>