

JAFM:
**Journal of Accounting and
Finance Management**

E-ISSN: 2721-3013
P-ISSN: 2721-3005

<https://dinastires.org/JAFM> [✉ dinasti.info@gmail.com](mailto:dinasti.info@gmail.com) [☎ +62 811 7404 455](tel:+628117404455)

DOI: <https://doi.org/10.38035/jafm.v7i2>
<https://creativecommons.org/licenses/by/4.0/>

The Impact of Good Corporate Governance and Profitability on Operational Risk Management at State Owned Banking Companies Listed on the IDX

Sumayyah Sumayyah¹, Muhammad Ilham Pakawaru², Abdul Kahar³, Rika Febby Rhamadhani⁴

¹Department of Accounting, Tadulako University, Palu, Indonesia, summayahalamri10@gmail.com

²Department of Accounting, Tadulako University, Palu, Indonesia, pakawaruilham4@gmail.com

³Department of Accounting, Tadulako University, Palu, Indonesia, kaharabdul987@gmail.com

⁴Department of Accounting, Tadulako University, Palu, Indonesia, rikafebbr@untad.ac.id

Corresponding Author: summayahalamri10@gmail.com¹

Abstract: This research seeks to examine the effect of Good Corporate Governance (GCG) and profitability on operational risk in state-owned banking institutions registered on the Indonesia Stock Exchange during the period 2015–2024. The study employs a quantitative approach using purposive sampling. The data were processed through the SEM-PLS approach utilizing the assistance of WarpPLS 7.0. The results demonstrate that Good Corporate Governance possesses a negative and significant effect on operational risk. Additionally, profitability also has a negative and significant effect on operational risk. These findings suggest that as the application of governance mechanisms improves and profitability increases, operational risk proxied by the BOPO ratio tends to decrease. The research results imply that strengthening GCG practices and increasing profitability are important factors in supporting the effectiveness of operational risk control in state-owned banks.

Keywords: Good Corporate Governance, Profitability, Operational Risk, BOPO, State-Owned Banks

INTRODUCTION

The banking industry represents a key sector within the national economy because it serves as an intermediary institution that collects and channels public funds. The complexity of banking activities which involve various financial transactions, the utilization of digital technology, as well as the management of large sums of money—makes this industry highly vulnerable to various types of risks. Risk is not the same as a problem because it is something that has not yet occurred; therefore, not all risks have a negative impact on a company. However, if a company is able to manage risks effectively, it can avoid those risks (Aisyah & Dahlia, 2022).

The adoption of structured risk management is crucial for preserving organizational resilience and continuity, especially within banking institutions, which is characterized by a high level of operational complexity. accordance with Financial Services Authority Regulation No. 18/POJK.03/2016 concerning Risk Management Implementation for Commercial Banks,

financial institutions must manage eight categories of risk: credit, market, liquidity, operational, legal, reputation, strategic, and compliance risks (Komisioner & Jasa, 2016). Among these various types of risks, operational risk is one of the most frequently encountered by the banking industry since it is closely associated with routine business activities. Operational risk is risk caused by external issues, internal issues, human error, or technological system failures (Sunaryo & Kurnia, 2021).

Operational risk significantly impacts a bank's performance, particularly in terms of operational efficiency. A high level of operational risk is typically reflected in increased operational costs for the bank. If a lower BOPO ratio reflects greater operational efficiency within the bank will improve, thereby contributing favorably to financial outcomes (Agung et al., 2024). Conversely, banks that operate inefficiently will experience a decline in profit margins, which can affect their financial health and their competitiveness in the market (Agung et al., 2024).

One factor believed to influence operational risk is Good Corporate Governance (GCG), which highlights the importance of organizational structures and processes must be transparent, accountable, and responsible in addressing risks arising from a company's operational activities (Karnila, Irsyad, 2025). Effective implementation of GCG is believed to create a robust internal monitoring mechanisms, improve the standard of oversight, and minimize the likelihood of operational errors and irregularities. The importance of implementing GCG in the banking industry is also emphasized according to Article 2 Paragraph (1) of PBI No. 8/4/PBI/2006, all banking institutions must implement Good Corporate Governance principles across business operations and organizational hierarchies, making the implementation of GCG a comprehensive and integrated obligation within banking operations (Bank Indonesia, 2006).

GCG currently has a rating system in Indonesia known as the Corporate Governance Perception Index (CGPI), established as launched in 2001; since then, firms registered on the Indonesia Stock Exchange (IDX) have voluntarily participated in the program (Susanti et al., 2025). The Corporate Governance Perception Index (CGPI) program provides a comprehensive assessment of companies based on governance structure, implementation processes, and the results of applying GCG principles. A high CGPI score indicates that a company is assessed as having a sound governance system and adequate internal controls. The CGPI serves as a recognition platform for companies that are committed to and continuously apply Good Corporate Governance (GCG) practices over time, with evaluations based on three main aspects: Compliance regarding adherence to applicable regulations, Conformance regarding alignment with prevailing business ethics, and Performance regarding the success in improving performance to achieve corporate profitability (Laporan Tahunan Sarinah, 2018).

In addition to aside from good corporate governance, profitability is considered capable of influence operational risk. Profitability refers to a firm's capacity to earn income within a certain timeframe, reflecting the efficiency of its use of all available resources (Widhiyanto & Lubis, 2026). A high level of profitability demonstrates an organization's capacity to manage its assets and operational activities effectively. Companies with high profitability generally have more adequate resources to strengthen internal control systems, improve technology quality, and support the implementation of better risk management, thereby potentially reducing operational risk.

Although the association among Good Corporate Governance, profitability, and operational risk has a strong conceptual foundation, previous research still exhibits several limitations. Most studies on GCG have primarily examined its impact on financial performance, firm value, or risk management in general. Research specifically examining the impact of GCG on operational risk remains relatively limited, particularly studies using the CGPI as an indicator of corporate governance. Conversely hand, most studies on profitability and operational risk treat operational risk as a factor influencing profitability. Research

examining the reverse relationship namely, the impact of profitability on operational risk remains relatively scarce.

Based on these phenomena and research gaps, this study has several unique features. First, this study uses the Corporate Governance Perception Index (CGPI) as an indicator of governance quality, which is still relatively rarely used compared to other governance proxies. Second, this study directly examines operational risk using the BOPO ratio as the outcome variable. Furthermore, this research examines the effect of profitability on operational risk, which has been limited in previous research. Fourth, this study focuses on state-owned banking companies, which possess specific characteristics as government-owned banking institutions and occupy a significant position within the country's financial framework.

Based on the above discussion, this research seeks to examine how governance quality and profitability affect operational risk among state-owned banks listed on the Indonesia Stock Exchange. It is expected to enrich existing theoretical discussions on the determinants of operational risk while offering empirical findings concerning the effectiveness of governance practices and profitability in mitigating operational risk in the banking sector.

The original theory of Agency Theory came from Michael C. Jensen and William H. Meckling (1976). It describes the legal arrangement between an owner (the principle) and a manager (the agent), where the owner grants the agent the power to make decisions on the owner's behalf. The theory provides an explanation for the connection between an owner (the principle) and a manager (the agent), where the owner grants the agent the power to make decisions on the owner's behalf.

According to (Raharjo, E. 2007), referenced in (Widodo, 2023), agency theory describes the process by which agents are given the power to run a firm for the benefit of shareholders. Agency theory gives rise to approaches to corporate management that conflict with the interests of shareholders and create obstacles to the progress of the company or organization. Because management's decisions don't always line up with the shareholders' initial goals, many firms under their watch fall flat.

To lessen the occurrence of such agency conflicts, steps are made to establish GCG. In order to increase internal control systems and decrease the possibility for anomalies that might lead to operational hazards, the concepts of openness, accountability, responsibility, independence, and fairness are used.

To guarantee that a corporation is run in an open, responsible, and accountable way, GCG establishes rules and regulations that control the interactions between shareholders, managers, and other interested parties. The decision-making process in a well-governed corporation is more organized and structured, with operational procedures that follow predetermined business rules and are ready to face consequences for rule violations (Fahmi, 2017). Jill Solomon and Aris (2005) in the book "Corporate Governance and Accountability define corporate governance as a system that regulates the relationship between the company and its shareholders (Hendi, 2020)". Furthermore, corporate governance also governs the company's relationships and accountability to non-shareholder stakeholders (Hendi, 2020).

The purpose of implementing the Corporate Governance Code (GCG) as stipulated in "Article 4 of Minister of State-Owned Enterprises Decree No. 117/M-MBU/2002" is:

"To maximize the value of state-owned enterprises by promoting the principles of openness, accountability, trustworthiness, responsibility, and fairness, so that these companies possess strong competitiveness both nationally and internationally, as well as to encourage the professional, transparent, and efficient management of state-owned enterprises by strengthening their functions and enhancing the autonomy of their governing bodies. Furthermore, GCG aims to encourage corporate bodies to make decisions and take actions grounded in high moral values, compliance with applicable laws and regulations, and an awareness of social responsibility toward stakeholders and the environmental sustainability of the areas surrounding SOEs, while simultaneously increasing SOEs' contribution to the

national economy, improving the national investment climate, and ensuring the success of privatization programs.”

Good corporate governance often adheres to five guiding principles (Hendi, 2020).

Openness and honesty in making decisions and sharing important firm information is what we mean when we talk about transparency. Accountability, in the context of corporate management, is that the roles, duties, authority, and procedures of the company's top executives are well-defined and understood. Corporate responsibility is adhering to established rules and regulations as well as good business practices. When a business is properly run and free from conflicts of interest and excessive pressure from upper management that goes against established policies and legal requirements, experts say that the business is independent. Treating all parties fairly in order to enforce their rights as outlined in contracts and relevant statutes and regulations is the meaning of fairness. A key component of good corporate governance is holding managers to account for their actions and ensuring that they adhere to relevant regulations in order to boost the company's success.

Research and rating program known as the CGPI evaluates how well corporations in Indonesia practice effective corporate governance. Companies are encouraged to continuously improve their corporate governance procedures via assessments and benchmarking, as part of the program's research design. The CGPI has been organized by IICG in collaboration with SWA Magazine as an annual program since 2001 to recognize companies’ initiatives and efforts in fostering ethical and dignified business practices (Arizka, n.d.).

According to the IICG (2013) as cited in (Qurrotul, 2014) the stages or sequence of the research process in the GCG implementation ranking are as follows: (1) Self-assessment, consisting of the results of a self-assessment questionnaire regarding the implementation of corporate governance concepts; (2) Documentation System, the completeness of documents and evidence supporting the implementation of corporate governance within the company; (3) Paper, an explanation of the company’s activities in applying GCG principles in the form of a paper; (4) Direct observation, going to the office to see whether GCG principles are being fully implemented.

A study and rating tool developed to evaluate the level of corporate governance implementation inside organizations is the CGPI (Bank, n.d.). There are several steps to the evaluation procedure. Performing self-evaluations and reviewing relevant documents constitute the first phase of the instrument and document analysis stage. At this point, businesses assess their own governance procedures and provide paperwork to back up their claims. Executive presentations and meetings with corporate organizations constitute the second step of observation, which include clarifying assessment tools and verifying document completeness.

Table 1. Corporate Governance Perceptions Index Ranking Score

Score	Category
85-100	Highly Trusted
70-84	Trusted
55-69	Quite Reliable

Source: (Qurrotul, 2014)

Table 2. Corporate Governance Perceptions Index Score for State Owned Banks

Bank Name	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Bank Negara Indonesia (Persero)	87.46	87.73	88.38	88.94	89.74	90.74	91.6	91.66	92.26	92.45
Bank Rakyat Indonesia (Persero)	86.92	87.74	88.48	89.06	90.75	93.25	95.1	95.18	95.21	95.31
Bank Tabungan Negara (Persero)	85.75	86.59	86.85	87.97	88.62	88.62	89.62	89.83	90.52	91.52
Bank Mandiri (Persero), Tbk.	92.88	93.2+	93.32	93.86	94.86	94.94	95.01	95.11	95.22	95.3

Source: Indonesia Stock Exchange

Based on CGPI scores for the 2015–2024 period, Bank Negara Indonesia (Persero) showed a consistent upward trend, rising from 87.46 in 2015 to 92.45 in 2024. All scores obtained fall within the 85–100 range, meaning that overall, BNI falls into the “highly trustworthy” category. The relatively stable annual increase in scores reflects that the implementation of GCG at BNI continues to improve. This indicates a strengthening of internal control systems, transparency, and the effectiveness of oversight, all of which contribute to the development of ever-improving corporate governance.

From 2015 to 2024, BRI (Persero)'s CGPI score increased significantly, going from 86.92 to 95.31. All of these scores fall within the “highly trustworthy” category. A particularly sharp increase occurred after 2019, indicating significant improvements in the implementation of GCG. As its score keeps going up, it shows that BRI is really committed to using excellent corporate governance principles to boost performance and reduce risk.

Bank Tabungan Negara (Persero) has seen its CGPI score rise gradually from 85.75 in 2015 to 91.52 in 2024. All of these scores fall within the “highly trustworthy” category. Although the improvement has not been as rapid as that of other banks, BTN continues to demonstrate a stable positive trend year over year. This reflects that the implementation of GCG at BTN has been proceeding well and continues to improve, especially in regard to the administration of risks, regulatory compliance, and the enhancement of internal oversight.

Bank Mandiri (Persero) Tbk. recorded a high and stable CGPI score throughout the 2015–2024 period, rising from 92.88 in 2015 to 95.30 in 2024. All scores fell within the “highly trustworthy” category, even from the very beginning of the observation period. This proves that Bank Mandiri has always maintained its high standard of corporate governance by using best practices. The consistent high results demonstrate that the supervision system, transparency, and risk management are all running well.

Profitability represents an organization’s capacity to earn returns during a specific period, reflecting the efficiency of its use of all available resources (Widhiyanto & Lubis, 2026). Profitability also indicates the effectiveness of leadership in utilizing organizational resources, capital, and resources to generate profits. Profitability is a key indicator in assessing a bank’s performance, particularly within the context of corporate management aimed at maximizing shareholder value, optimizing return levels, and minimizing risk. One of the primary measures of profitability is Return on Assets (ROA), an indicator evaluating a bank’s success in producing earnings by utilizing its assets (Iyonu, 2022) as cited in (Syaipudin & Luthfi, 2022).

This study uses ROA (Return on Assets) as a profitability ratio because ROA is financial performance indicator used to evaluate earnings generation capacity from its assets (Nainggolan et al., 2022). ROA can be calculated as follows:

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

Table 3. Criteria for Determining Profitability Rankings

Rank	Criteria	Notes
1	ROA > 1,5%	Very Healthy
2	1,25% < ROA ≤ 1,5%	Healthy
3	0,5% < ROA ≤ 1,25%	Fairly Healthy
4	0% < ROA ≤ 0,5%	Not Very Healthy
5	ROA ≤ 0%	Unhealthy

Source: Bank Indonesia Circular Letter No. 6/23/DPNP of 2004 in (Ichwanudin Wawan et al., 2021)

Table 4. ROA Ratios of State-Owned Banks

No	Bank Name	ROA Ratios (%)									
		Year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Bank Negara Indonesia (Persero)	2,6	2,7	2,7	2,8	2,4	0,5	1,4	2,5	2,6	2,5

2	Bank Rakyat Indonesia (Persero)	4,19	3,84	3,69	3,68	3,5	1,98	2,72	3,76	3,93	3,76
3	Bank Tabungan Negara (Persero)	1,61	1,76	1,71	1,34	0,13	0,69	0,81	1,02	1,07	0,83
4	Bank Mandiri (Persero) Tbk.	3,15	1,95	2,72	3,17	3,03	1,64	2,53	3,3	4,03	3,59

Source: Indonesia Stock Exchange

Based on ROA data for the 2015–2024 period, Bank Negara Indonesia (Persero) demonstrated relatively stable profitability, with ROA ranging from 0.5% to 2.8%. During the 2015–2019 period, BNI’s ROA was in the “very healthy” category, as its value exceeded 1.5%. However, in 2020, there was a significant decline to 0.5%, placing the bank within the “underperforming” classification due to economic contraction during the COVID-19 crisis. Subsequently, BNI successfully improved its performance, with ROA rising to 1.4% in 2021 and returning to the 2.5%–2.6% range during the 2022–2024 period. This indicates that BNI’s ability to manage assets to generate profits has improved again and reflects the success of the organizational turnaround initiatives.

Bank Rakyat Indonesia (Persero) recorded the leading ROA performance among government-owned banking institutions during the 2015–2024 period. BRI’s ROA ranged from 1.98% to 4.19%, placing it entirely within the “very healthy” category. Although it declined in 2020 to 1.98%, this figure remained above the threshold for the “very healthy” category. After that period, BRI’s ROA rose again, reaching 3.76% in 2024. The high ROA ratio indicates that BRI possesses excellent capabilities in utilizing income-generating resources to create earnings. This performance reflects the effectiveness of management in running the organization’s business activities together with the success of business strategies focused on the SME sector and a wide range of financial services.

Bank Tabungan Negara (Persero) has shown lower profitability compared to other state-owned banks. During the 2015–2018 period, BTN’s ROA ranged from 1.34% to 1.76%, which falls into the “very healthy” category. However, in 2019, there was a sharp decline to 0.13%, placing it in the “less healthy” category. From 2020 to 2024, BTN’s ROA was in the range of 0.69%–1.07%, which falls into the fairly healthy category. Although this represents an improvement compared to 2019, BTN’s profitability level remains below that of other state-owned banks. This situation indicates that the organization’s capacity to obtain earnings through asset utilization still needs to be improved through enhanced process effectiveness and loan exposure control, and the optimization of productive assets.

Bank Mandiri (Persero) Tbk. has exhibited stable and outstanding profitability throughout the 2015–2024 period. ROA values ranged from 1.64% to 4.03%, all of which fall within the “very healthy” category. Although it experienced a decline in 2020 to 1.64% as a consequence of the health crisis, Bank Mandiri was able to maintain its “very healthy” status and once again improve its profitability in subsequent years. Performance peaked in 2023 with an ROA of 4.03%, before declining slightly to 3.59% in 2024. The stability and high level of the ROA ratio indicate that Bank Mandiri possesses excellent capabilities in managing assets and generating profits, supported by effective management, high-quality assets, and a business strategy capable of adapting to changing economic conditions.

Overall, the ROA ratios among government-owned banking institutions throughout 2015–2024 show that BRI and Bank Mandiri have the highest and most consistent profitability levels, falling into the “very healthy” category. BNI also performed well, despite experiencing a decline during the pandemic. Meanwhile, BTN has a relatively lower profitability level relative to other government-owned banks, despite it continues to show an improving trend after a decline in 2019. These results indicate that most state-owned banks can utilize their resources efficiently to achieve earnings growth and maintain good financial performance in the long term.

Internal problems inside an organization, such as holes in the management control system put in place by employees, are the usual source of operational risk (Fahmi Irham, 2013). The risk of loss due to insufficient internal procedures, failures in internal processes, human mistake, system failures, and/or external events that impact bank operations is known as

operational risk management, according to Rustam (2013) as referenced in the book by (Rianto & Yuke, 2018). Since operational risk is intrinsic to carrying out operational processes or activities, it impacts all aspects of a company's operations (Fahmy, 2020). Loss due to insufficient or malfunctioning internal processes, people, or systems, or external occurrences, is what operational risk is defined as in Basel II. Operational risk is defined as the possibility of loss due to either external events or the inadequacy or failure of internal processes, people, or systems in accordance with the Basel II standard (Rianto & Yuke, 2018).

According to the definition provided by Basel II, operational risk stems from four main categories: internal processes, people, systems, and external events. These four categories reflect the fact that operational risk can arise from various aspects within an organization, whether originating from within or outside the company.

Operating Expenses to Operating Revenue Ratio (BOPO)

One financial statistic that may be used to evaluate a bank's operational efficiency is the BOPO. The BOPO ratio is a measure of a bank's operational efficiency and effectiveness (Dendawijaya, 2009, cited in (Utami & Silaen Uluan, 2018)). A high ratio indicates that the bank is losing money because its management is not keeping costs in check. This ratio indicates how much in operating costs a bank must incur to generate operating revenue.

$$\text{Bopo} = \frac{\text{operating costs}}{\text{operating revenue}} \times 100\%$$

Table 5. Operating Expenses to Operating Revenue Ratio for State Owned Banks

Bank Name	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Bank Negara Indonesia (Persero)	75.5	73.6	71	70.2	73.2	93.3	81.2	68.6	68.4	70
Bank Rakyat Indonesia (Persero)	66.69	68.69	69.14	68.4	70.1	81.22	74.3	64.2	64.35	67.64
Bank Tabungan Negara (Persero)	84.83	82.48	82.06	85.58	98.12	91.61	89.28	86	86.1	88.7
Bank Mandiri (Persero), Tbk.	69.67	80.94	71.78	66.48	67.44	80.03	67.26	57.35	51.88	56.46

Source: Indonesia Stock Exchange

Based on BOPO ratio data for the 2015–2024 period, Bank Negara Indonesia (Persero) showed significant fluctuations. During the 2015–2018 period, the BOPO ratio decreased from 75.5% to 70.20%, indicating improved operational efficiency. However, in 2019 and especially 2020, there was a sharp increase to 93.3%, indicating a decline in operational efficiency, likely influenced by external conditions such as economic pressures. Subsequently, the BOPO ratio declined significantly again, settling in the range of 68–70% during the 2022–2024 period. Overall, this trend demonstrates that BNI was able to recover and restore its operational efficiency following periods of pressure.

Bank Rakyat Indonesia (Persero)'s BOPO ratio during the 2015–2024 period tended to fluctuate but remained relatively efficient. At the beginning of the period, the ratio ranged from 66% to 69%, then increased in 2019–2020 to reach 81.2%, indicating a decline in operational efficiency. However, after 2020, BRI succeeded in bringing the BOPO ratio back down to a low of around 64% in 2022–2023. In 2024, there was a slight increase to 67.64%, but it still falls within the efficient category. This indicates that BRI has strong capabilities in managing operational costs relative to operational income.

Bank Tabungan Negara (Persero) had a relatively higher BOPO ratio compared to other banks during the 2015–2024 period. BTN's BOPO ratio ranged from 82% to 85% at the beginning of the period, then increased significantly to reach 98.12% in 2019, indicating a low level of operational efficiency. Although there was a decline after that year, the BOPO ratio remained at a high level above 85% through 2024. This situation indicates that BTN faces

greater challenges in controlling operational costs compared to other banks, resulting in a relatively lower level of efficiency.

Bank Mandiri (Persero) Tbk.'s BOPO ratio has shown a generally improving trend over the long term, despite experiencing some fluctuations. In 2016, the BOPO ratio rose to 80.94%, but then gradually declined, reaching a low of 51.88% in 2023. In 2024, the ratio increased slightly to 56.46%, yet it still reflects a very high level of efficiency. The declining trend in the BOPO ratio over the last many years is indicative of Bank Mandiri's excellent capacity to enhance operational efficiency.

The Impact of Good Corporate Governance on Operational Risk Management Efforts

When a business does a good job of implementing GCG, it shows that its management is open, responsible, and monitored. The CGPI represents the quality of a company's governance and may be used to assess the application of GCG. If a company's CGPI score is high, it means that GCG is being implemented well. Good governance, when put into place, may improve the efficiency and efficacy of internal controls, which in turn reduces operational mistakes and maximizes efficiency. As a measure of operational efficiency, the BOPO provides a rough approximation of operational risk in banking. When the BOPO ratio is high, it means that operational costs are larger than operating income, which means that the firm is more vulnerable to operational risk.

(Mandani, n.d.) and (Wati, 2018) all came to the same conclusion: GCG hurts risk management. The results show that a company's risk level decreases as a result of an improved internal control system, more transparency, and appropriate oversight mechanisms brought about by a better application of GCG principles.

It is reasonable to expect that GCG's efficient implementation may also help lower operational risk, given prior empirical results and the conceptual relationship between risk management and operational risk. A company's control and oversight systems that are able to minimize operational risk are strengthened by a good GCG implementation. In light of the above, the following is the working hypothesis of this investigation: **H₁**: Good Corporate Governance (GCG) has a negative effect on operational risk.

The Effect of Profitability on Operational Risk Control Efforts

Profitability indicates a organization's capacity to earn returns from its available assets. In this study, profitability is measured using Return on Assets (ROA) represents how effectively a business converts total assets into earnings. An elevated ROA suggests that the organization is more effective in managing its assets to generate profits. High profitability reflects the company's sound financial condition as well as management's ability to manage resources efficiently. These conditions can support the company in strengthening its internal control system and managing various risks arising from operational activities. Operational risk in banking can be proxied by the Operational Return on Assets (ROA) represents how effectively a business converts total assets into earnings. An elevated ROA suggests that the organization costs are greater relative to operational income, meaning the company faces higher operational risks.

Previous studies have generally concluded that operational exposure influences organizational earnings. Elevated operational risk may increase operating costs and reduce a company's profits. Findings from studies by (Aji & Putri, 2025), (Tamara et al., 2025), and (Purwanti & Manda, 2024) support the existence of a association between operational exposure and financial performance. On this basis relationship, this study examines a different direction of the relationship, namely the effect of profitability on operational risk. Firms demonstrating strong profitability generally possess more adequate resources to strengthen operational control and management systems, thereby reducing operational risk. Consequently, this research was undertaken to expand understanding of the relationship between profitability and operational

risk from a different perspective. Referring to the preceding explanation, the research hypotheses are stated as follows: **H₂: Profitability has a negative effect on operational risk.**

METHOD

This research adopts a quantitative methodology to examine variable interrelationships and evaluate the impact of predictor variables on the outcome variable. Secondary information was obtained from annual reports and financial disclosures of banking firms listed on the IDX during the observation period 2015–2024. The data were obtained from the official IDX website (www.idx.co.id) and the official websites of each banking company.

The independent variables the variables examined include Good Corporate Governance assessed through CGPI and profitability evaluated using the ROA indicator. The CGPI is used because it provides a comprehensive evaluation of governance practice effectiveness according to several dimensions of governance structure, process, and outcomes. ROA is used as a proxy for profitability because it demonstrates a bank’s ability to generate profit from its total assets. The dependent variable in this study is operational risk, proxied through the BOPO indicator, which compares operating costs with operating revenues. The BOPO ratio is used as an indicator because it reflects the bank’s level of operational efficiency. An increase in the BOPO value reflects a larger proportion of operating costs compared with operating revenue, indicating an increase in operational risk. Conversely, a lower BOPO ratio indicates more efficient operational management and better-controlled operational risk.

The research population includes every banking institution listed on the IDX from 2015 to 2024. Samples were selected through purposive sampling according to predetermined requirements relevant to the study goals.

Table 6. Criteria and Total of Companies Included in the Research Sample

Criteria	Total
Banking companies listed on the Indonesia Stock Exchange (IDX) consecutively during the 2015–2024 period.	48
Companies that did not have BOPO ratio data for the study period.	(2)
Companies with ROA data for the study period	46
Companies for which no CGPI score data was available during the study period.	(42)
Sample x 10 Years	40

Source: Data Compiled by the Researchers (2026)

The research population includes every banking institution listed on the IDX from 2015 to 2024. Samples were selected through purposive sampling according to predetermined requirements relevant to the study goals 2015–2024 period, only 4 companies had complete data for all research variables, particularly the Corporate Governance Perception Index (CGPI) scores. Over a ten-year observation horizon, a total of 40 observations were collected (4 companies × 10 years). Therefore, this study uses panel data consisting of 4 sample companies and a 10-year observation period.

The research data were analyzed through SEM employing the Partial Least Squares technique, while the structural framework was processed and tested using WarpPLS 7.0 software. The research data were analyzed through SEM employing the Partial Least Squares technique, while the structural framework was strictly require a normal data distribution, and can be used with relatively small sample sizes.

RESULTS AND DISCUSSION

Results

Model Fit Test

In this study, the assessment of Good Corporate Governance (GCG) employed the CGPI score as an indicator of governance effectiveness within the organization. Based on the data obtained, the CGPI scores of state-owned banking companies during the study period

showed an upward trend and fell into the “highly trustworthy” category. This indicates that, in general, these companies have implemented GCG principles effectively.

This research assessed profitability through Return on Assets (ROA), indicating how efficiently corporate resources produce earnings. Based on the data obtained, the ROA values of state-owned banking companies during the study period indicate a relatively good level of profitability despite fluctuations from year to year. This suggests that, in general, the companies were able to manage their assets effectively to generate profits and maintain positive financial performance throughout the study period.

Meanwhile, operational risk, as proxied by the BOPO ratio, shows fluctuating conditions across banks, with an increase in the BOPO ratio reflecting high operating costs and low operational efficiency.

Considering the attributes and circumstances of the research constructs, an additional evaluation was necessary to verify model adequacy. Accordingly, a model fit assessment was carried out to assess the degree of fit between the constructed model and the research data used. In the WarpPLS 7.0 application, the outcomes obtained from the model evaluation may be found in the General Results output, which presents various indicators for evaluating the overall suitability of the model.

Table 7. Model Fit Test Results

Model fit and quality indices	Indeks	P-Value	Criteria	Description
Average path coefficient (APC)	0.519	< 0.001	P<0.05	Significant
Average R-squared (ARS)	0.900	< 0.001	P<0.05	Significant
Average Adjusted R-squared (AARS)	0.895	< 0.001	P<0.05	Significant
Average Block VIF (AVIF)	1.273	≤ 5 ideally ≤ 3,3		Free of Multicollinearity
Average Full Collinearity VIF (AFVIF)	6.363	≤ 5 ideally ≤ 3,3		There are indications of multicollinearity
Tenenhaus Gof (GoF)	0.949	Small ≥ 0,1, Medium ≥0,25, Large ≥0,36		Large
Simpson's Paradox Ratio (SPR)	1.000	≥ 0.7 (ideal = 1)		Very good
R-squared Contribution Ratio (RSCR)	1.000	≥ 0.9 (ideal = 1)		Very good
Statistical Suppression Ratio (SSR)	1.000	≥ 0.7		Very good
Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	1.000	≥ 0.7		Very good

Source: WarPLS 7.0, Data processed by the researcher, 2026

During the model evaluation stage, the test results showed that the AFVIF value remained above the recommended threshold, indicating the presence of multicollinearity in the model. To address this issue, an outlier detection analysis was performed on all observed data. The detection results showed that there was one observation with an extreme value (outlier) that had the potential to affect the model estimation results. Therefore, that observation was excluded from the analysis.

Table 8. Model Fit Test Results After Outlier Removal

Model fit and quality indices	Indeks	P-Value	Criteria	Description
Average path coefficient (APC)	0.516	< 0.001	P<0.05	Significant
Average R-squared (ARS)	0.774	< 0.001	P<0.05	Significant
Average Adjusted R-squared (AARS)	0.762	< 0.001	P<0.05	Significant
Average Block VIF (AVIF)	1.092	≤ 5 ideally ≤ 3,3		Free of Multicollinearity
Average Full Collinearity VIF (AFVIF)	3.171	≤ 5 ideally ≤ 3,3		Free of Multicollinearity
Tenenhaus Gof (GoF)	0.880	Small ≥ 0,1, Medium ≥0,25, Large ≥0,36		Large
Simpson's Paradox Ratio (SPR)	1.000	≥ 0.7 (ideal = 1)		Very good
R-squared Contribution Ratio (RSCR)	1.000	≥ 0.9 (ideal = 1)		Very good
Statistical Suppression Ratio (SSR)	1.000	≥ 0.7		Very good

Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	1.000	≥ 0.7	Very good
--	-------	------------	-----------

Source: WarPLS 7.0, Data processed by the researcher, 2026

Data analysis shows that the average the APC value reached 0.516 with statistical probability below 0.001, demonstrating meaningful associations among the constructs at the 5% threshold ($p < 0.05$). Thus, on average, the path coefficients in the model exhibit a high level of significance and are statistically reliable.

Furthermore, The ARS score of 0.774 and AARS score of 0.762, both accompanied by significance levels below 0.001, confirm robust explanatory capability. This suggests that the predictor variables account for 77.4% of the observed changes in the outcome variable, whereas after adjusting for the number of predictors used, the explanatory power becomes 76.2%. These values indicate indicating substantial forecasting capability in describing the investigated issue.

In terms of multicollinearity, the Average Block VIF (AVIF) value of 1.092 is well below the recommended maximum threshold (≤ 5) and also below the ideal value (≤ 3.3). These results indicate that there are no signs of multicollinearity in the construct blocks used in the model. Furthermore, the Average Full Collinearity VIF (AFVIF) value of 3.171 also remains within the recommended limit, indicating that the relationships between variables in the model do not suffer from multicollinearity issues that could affect the accuracy of parameter estimates.

The Tenenhaus GoF score of 0.880 surpasses the benchmark established for a highly satisfactory model fit (≥ 0.36). These results indicate that the model has an excellent fit and is capable of strongly representing the empirical data, both in terms of the measurement model and the structural model.

Regarding other quality ratios, the Simpson's Paradox Ratio (SPR) of 1.000 meets and even exceeds the ideal value, indicating that the model is free from Simpson's paradox issues. Furthermore, the R-squared Contribution Ratio (RSCR) of 1.000 also reaches the ideal value, indicating that the contribution showing alignment between inter-variable associations and the explanatory capacity of the model.

A The SSR index reached a perfect score of 1.000 indicates that the model does not exhibit suppression effects that could lead to distortions in the interpretation of relationships between variables. Meanwhile, the NLBCDR score of 1.000 satisfies the required criterion (≥ 0.7), meaning that the direction of causality in the model aligns with the direction of the relationship established based on the theory and research hypotheses.

Referring to the obtained findings, the proposed framework met all the required model fit criteria. After removing outliers and retesting the model, the AFVIF value decreased and fell within the recommended range, demonstrating that the framework does not contain multicollinearity and suitable for use in the hypothesis testing phase.

Hypothesis Testing

Demonstrating that the framework does not contain the strength and significance of the relationships among variables in the structural model. A hypothesis is accepted when the probability value does not exceed 0.05, whereas propositions are not supported when it is above 0.05.

When the probability value does not exceed 0.05, whereas propositions are not supported when it is above 0.05 are determined by the path coefficients. These coefficients provide a quantitative measure of how strong the relationships are and in which direction they run among the constructs evaluated within the proposed framework.

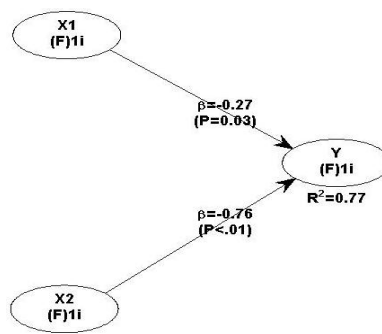


Figure 1. Image of the Test Results Model

Based on the structural model diagram above, the results of the tests of the relationships between variables can be further explained using a table of path coefficients. The following table displays path coefficient estimates together with the significance levels (p-values) used to The following table displays path coefficient estimates together with the:

Table 9. Path Coefficients and P-Values

Variable	Path Coefficient	Status	P-Value	Status
Good Corporate Governance (GCG)	-0.266	Negative	0.035	Significant
Profitability	-0.765	Negative	<0.001	Significant

Good Corporate Governance (GCG) produces a path estimate of -0.266, revealing an inverse association with Operational Risk Control. Accordingly, any enhancement in implementation of Good Corporate Governance will be followed resulting in a reduction of operational risk magnitude by 0.266. On the other hand, when governance implementation decreases, the level of operational risk tends to increase by 0.266. The negative direction of the relationship indicates that changes in Good Corporate Governance are inversely related to changes in operational risk. A significance probability of 0.035 demonstrates that the influence of Good Corporate Governance on Operational Risk Control is statistically significant because it is less below the required threshold of 0.05. Therefore, GCG exerts a statistically meaningful inverse influence on Operational Risk Control, supporting the first proposition.

Profitability records a path estimate of -0.765, showing an inverse connection between Profitability and Operational Risk Control. Accordingly, higher profitability corresponds to a reduction in operational risk amounting to 0.765. Conversely, if profitability decreases, the level of operational risk tends to increase by 0.765. The negative direction of the relationship indicates that profitability and operational risk move in opposite directions. A p-value < 0.001 indicates that the effect of profitability on Operational Risk Control is considered statistically meaningful as the significance value falls below 0.05. Therefore, Profitability exerts a significant inverse influence on Operational Risk Control, so the second hypothesis is accepted.

The values of the path coefficients indicate that Profitability ($\beta = -0.765$) has a stronger influence than Good Corporate Governance ($\beta = -0.266$) in explaining Operational Risk Control. This suggests that a banking institution’s capacity to produce earnings contributes more significantly to the effectiveness of operational risk management than corporate governance mechanisms. Furthermore, all tested relationships have p-values below 0.05, so it can be concluded that the observed effects are not due to chance and possess a high level of confidence.

An R^2 statistic of 0.77 suggests that the explanatory factors account for 77% of changes observed in Operational Risk Control of Good Corporate Governance and Profitability. Although this value is considered strong in PLS-SEM analysis, this result does not mean that the model has accounted for all factors influencing operational risk. There remains 23% of the variation that is attributable to additional determinants not incorporated into the analytical framework.

Discussion

The Impact of Good Corporate Governance on Operational Risk Management Efforts

Research findings reveal that GCG significantly reduces Operational Risk Control, as reflected by a coefficient of -0.266 and significance level of 0.035 (significant at $\alpha = 0.05$). This indicates implying that stronger governance application within state-owned banks leads to lower the level of operational risk faced by the company tends to be.

Theoretically, these findings are consistent with the Agency Theory developed by Michael C. Jensen and William H. Meckling, which describes disagreements arising between owners and managers can increase a company's operational risks. The implementation of Good Corporate Governance serves as a monitoring mechanism capable of reducing such conflicts through increased transparency, accountability, and internal controls. Therefore, the stronger the governance practices adopted, the greater the effectiveness of the organization's operational risk management becomes.

The outcomes obtained in this research correspond with the results reported by (Fitrianasari Dewi, 2023) and (Ibrahim & Wisana, 2023), which found a negative association linking Good Corporate Governance (GCG) with risk oversight practices indicating that increased implementation of GCG is associated with a reduction in the level of risk faced by companies.

Although previous investigations specifically exploring the association between GCG and operational risk remain limited, empirical evidence regarding the influence of GCG on risk management in general support these findings. This is because operational risk is one of the types of risk included within the scope of corporate risk management. Based on the initial hypothesis assuming a inverse association between GCG and operational risk, the outcomes of this research correspond with formulated prediction. Therefore, Hypothesis H1 is supported since the identified influence is inverse and demonstrates statistical significance.

The Impact of Profitability on Operational Risk Management Efforts

The research outcomes reveal that profitability exerts a statistically significant inverse influence on operational risk control, accompanied by a structural coefficient of -0.765 and a significance probability of < 0.001 (significant at $\alpha = 0.05$). This suggests that the higher the profitability of state-owned banks, the lower the level of operational risk they face.

Theoretically, these results support the Agency Theory developed by Jensen and Meckling (1976), stating that management (the agent) is empowered by shareholders (the principal) to manage the company and achieve predetermined objectives. A key measure of managerial effectiveness in fulfilling these responsibilities is the firm's capacity to achieve substantial earnings or profitability. A high level of profitability reflects that management is capable of managing the company's resources effectively and efficiently and conducting operational activities in accordance with the interests of shareholders. Conversely, low profitability may indicate operational inefficiencies which may contribute to a rise in operational exposure. Within the banking sector, strong profitability reflects management's effectiveness in maximizing asset utilization and resources, thereby minimizing various potential risks arising from operational processes. Additionally, firms demonstrating strong profitability typically possess greater capacity to support internal control systems, enhance human resource quality, and develop technologies that support operational risk management.

The findings of this study are supported by the research of (Yulio et al., 2024) and (Putri & Pardede, 2023) which found a relationship between profitability and operational risk. However, it should be noted that most previous studies examined the relationship from a different perspective namely, the effect of operational risk on profitability whereas this study examines the effect of profitability on operational risk. Previous studies generally indicate that an increase in operational risk reduces a company's profitability due to rising operational costs, financial losses, and inefficiencies in business operations

Although the direction of the relationship tested differs, the results of previous studies remain relevant in supporting the findings of this study. If high operational risk can reduce profitability, then logically, companies with high profitability demonstrate better management capabilities in controlling and minimizing operational risk. Thus, the association between profitability and operational risk may be interpreted as understood as an interdependent relationship in the process of achieving corporate objectives. Based on the initial hypothesis based on the premise of an inverse association between Profitability and Operational Risk Control, the findings of this research align with the formulated prediction. Therefore, based on the premise of an inverse association between Profitability and Operational Risk Control, the findings of this research.

CONCLUSION

Drawing upon the study results, it may be inferred that Good Corporate Governance (GCG) and profitability exert a statistically significant inverse influence on operational risk among publicly listed state-owned banks in Indonesia during the 2015–2024 period. These findings suggest that improvements in governance standards and increases in the bank's profitability, the lower the operational risk as reflected by the BOPO ratio tends to be.

The results of this research strengthen Agency Theory, suggesting that effective governance practices can reduce conflicts of interest between management and investors through greater transparency, stronger accountability, and the effectiveness of oversight. However, in the context of state-owned banks, the role of GCG is not limited to strengthening internal controls. A strong governance structure also contributes to building more disciplined operational processes, improving regulatory compliance systems, and strengthening organizational accountability. These conditions are important because state-owned banks have specific characteristics, such as bureaucratic complexity, public service demands, the influence of government policy, and higher regulatory pressure compared to private banks.

Furthermore, the adoption of effective governance practices possesses the potential to foster an organizational culture that is more focused on compliance and risk awareness, thereby minimizing operational errors, workflow inefficiencies, and wasteful operational costs. Amid the ongoing digital transformation of the banking sector, effective governance also plays a role in anticipating operational risks stemming from the use of information technology, data security, system disruptions, and increasingly complex cyber risks.

High profitability demonstrates management's ability to effectively manage the company's assets and resources. Banks with higher profitability tend to have greater capacity to invest in technological development, enhance workforce competence, reinforce internal monitoring mechanisms, and establish superior risk management practices. Consequently, profitability does not merely reflect successful financial performance but also serves as an indicator of the company's ability to manage operational risks.

Overall, this study shows that state-owned banks with better governance and high profitability tend to be able to achieve more efficient operations, stronger compliance systems, and more effective risk management. These conditions ultimately lead to a reduction in operational inefficiencies, as reflected in the BOPO ratio. However, there are other factors outside the scope of this study that can influence operational risk, such as human resource quality, digital technology advancements, organizational culture, regulatory pressures, and macroeconomic conditions, which could serve as topics for future research.

REFERENCES

- Agung, I. G., Pramita, A., Pande, P., Dewi, R. A., & Budiadnyani, N. P. (2024). *Peran Efisiensi Operasional Dan Risiko Kredit Dalam Meningkatkan Kinerja Keuangan Bank Perkreditan Rakyat*. 13(4), 1115–1122.
- Aisyah, A. P., & Dahlia, L. (2022). *Enterprise Risk Management Berdasarkan ISO 31000 Dalam Pengukuran Risiko Operasional pada Klinik Spesialis Esti*. 19(02), 78–90.

- Aji, A. G. P., & Putri, W. R. E. (2025). *Pengaruh Tingkat Kecukupan Modal, Risiko Kredit, Risiko Pasar, Risiko Operasional, dan Risiko Likuiditas Terhadap Profitabilitas Perbankan Di Indonesia*. 6(1).
- Arizka, H. A. (n.d.). *Analisis Pengaruh Corporate Governance Perception Index (CGPI) Pada Kinerja Operasional Dan Nilai Pasar Perusahaan*.
- Bank, B. M. (n.d.). *Bank BTN 2024*.
- Bank Indonesia, G. (2006). Pelaksanaan Good Corporate Governance Bagi Bank Umum Syariah dan Unit Usaha Syariah. *Bank Indonesia Nomor 8/4/PBI/2006*, 1–31. https://www.ojk.go.id/id/regulasi/Documents/Pages/PBI-tentang-Pelaksanaan-Good-Corporate-Governance-bagi-Bank-Umum-Syariah-dan-Unit-Usaha-Syariah/penjelasan_pbi113309.pdf
- Fahmi, I. (2017). *Etika Bisnis Teori, Kasus, dan Solusi*. ALFABETA, cv.
- Fahmi Irham. (2013). *MANAJEMEN RISIKO Teori, Kasus, dan Solusi*. ALFABETA, cv.
- Fahmy, E. (2020). *Analisis Pengukuran Beban Modal Risiko Operasional Metode Basic Indikator Approach (BIA) Dan Advance Measurement Approach (AMA) Di Bank EFG*. 21(1), 14–20.
- Fitrianasari Dewi. (2023). Pengaruh Mekanisme Good Corporate Governance Terhadap Kinerja Keuangan Perbankan Dengan Manajemen Risiko Sebagai Variabel Moderasi. *Pengaruh Mekanisme Good Corporate*, 13(1), 1–95.
- Hendi, P. (2020). *Etika Bisnis & Profesi: Sebuah Pencarian* (Monalisa (ed.)). PT RajaGrafindo Persada.
- Ibrahim, M. M., & Wisana, I. D. G. K. (2023). *Jurnal Ekonomi dan Statistik Indonesia*. *Jurnal Ekonomi Dan Statistik Indonesia*, 1(2), 60–68. <https://doi.org/10.11594/jesi.05.03.11>
- Ichwanudin Wawan, Ismail Tubagus, & Ichwanudin Wawan. (2021). *Pengaruh Risiko Bank Terhadap Profitabilitas Pendahuluan*. 5(2), 147–160.
- Ikatan Bankir Indonesia. (2015). *Manajemen Risiko 1* (Edisi Kesa). PT Gramedia Pustaka Utama.
- Karnila, Irsyad, N. T. A. (2025). *JManajemen Risiko Operasional dalam Perspektif Good Corporate Governance dan Good Public Governance*. 02(03), 1098–1101.
- Komisioner, D., & Jasa, O. (2016). *Otoritas jasa keuangan republik indonesia*.
- Laporan Tahunan Sarinah. (2018). *Tata Kelola Perusahaan Good Corporate Governance. Laporan Tahunan Annual Report*.
- Mandani, R. D. (n.d.). *Pengaruh Mekanisme Good Corporate Governance Terhadap Kinerja Perbankan Dengan Manajemen Risiko Sebagai Variabel Intervening*.
- Nainggolan, M. N., Sirait, A., Nasution, O. N., & Astuty, F. (2022). *Pengaruh Ukuran Perusahaan , Pertumbuhan Penjualan , Leverage terhadap Profitabilitas pada sektor Food and Beverage dalam Bursa Efek Indonesia periode 2015-2019*. 6, 948–963.
- Purwanti, T., & Manda, G. S. (2024). *Pengaruh Risiko Kredit dan Risiko Operasional terhadap Profitabilitas pada Perusahaan Bank Tabungan Negara Periode 2016-2020*. 14(1), 398–407.
- Putri, N. A., & Pardede, R. P. (2023). *Pengaruh Risiko Kredit, Risiko Likuiditas Dan Risiko Operasional Terhadap Profitabilitas Bank BUMN Periode 2013-2020*. 11(2). <https://doi.org/10.37641/jiakes.v11i2.1612>
- Qurrotul, U. (2014). *Pengaruh Good Corporate Governance Terhadap Kinerja Keuangan Perbankan Diukur Dengan Nilai EVA Momentum*.
- Rianto, A. A. N., & Yuke, R. (2018). *Manajemen Risiko Perbankan Syariah*. CV PUSTAKA SETIA.
- Sunaryo, D., & Kurnia, D. (2021). *Pada Bank Umum Di Asia Tenggara Periode 2012-2018*. 11(1).
- Susanti, E., Pramurindra, R., Pramono, H., & Hapsari, I. (2025). *Peran Good Corporate Governance Dalam Memoderasi Pengaruh Pengungkapan Corporate Social Responsibility Terhadap Nilai Perusahaan (Studi pada Perusahaan yang Terindeks*

- Pemeringkat CGPI 2018-2023*). 5(6), 1471–1486.
- Syaipudin, L., & Luthfi, A. (2022). *Pengaruh Financing to Debt Ratio dan Net Profit Margin terhadap Profitabilitas Bank Muamalat Indonesia Periode 2013-2022*. 1(1), 10–21.
- Tamara, A., Aini, H., & Rabiulkhri, M. (2025). *Pengaruh Risiko Kredit, Risiko Likuiditas Dan Risiko Operasional Terhadap Profitabilitas (Pada Bank Umum Swasta Nasional Yang Terdaftar Di Bursa Efek Indonesia Periode 2019-2023)*. 4(April), 57–78.
- Utami, & Silaen Uluan. (2018). *Analisis Pengaruh Risiko Kredit dan Risiko Operasional Terhadap Profitabilitas Bank*. 6(3), 123–130.
- Wati, R. (2018). *Pengaruh Manajemen Risiko Dan GCG Terhadap Nilai Perusahaan Dengan Profitabilitas Sebagai Pemediiasi*. *Jurnal Ilmu Dan Riset Akuntansi*.
- Widhiyanto, M., & Lubis, I. (2026). *Pengaruh Profitabilitas , Leverage , Kualitas Audit , dan Intensitas Modal Terhadap Tax Avoidance*. 3(4), 413–423.
- Widodo, H. (2023). *Penerapan Good Corporate Governance : Pendekatan Teori Riset Akuntansi Pada Perusahaan Perbankan Di Indonesia*. 1(1), 66–74.
- Yulio, F. A., Mas'ud, I., & Wardhaningrum, O. A. (2024). *Pengaruh Risiko terhadap Profitabilitas Bank yang Terdaftar di Bursa Efek Indonesia*. 11(1), 47–56.