



Does Financial Efficiency Reflect Government Performance? Evidence from Indonesian Provinces

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ABSTRACT

Purpose : The study critically examines whether financial efficiency ratios in local government financial reports genuinely reflect government performance or primarily indicate fiscal compliance. Within Indonesia's decentralized governance framework, we investigate the relationship between expenditure realization, environmental outcomes, and reported financial efficiency.

Method : An explanatory quantitative approach was utilized, employing balanced panel data from 34 provinces in Indonesia from 2020 to 2023. Financial performance was measured using the efficiency ratio. Regional expenditure was assessed using the expenditure realization ratio, and environmental performance was evaluated using the Environmental Quality Index (EQI). Total revenue was accounted for as a control variable. Panel regression analysis was conducted, and the appropriate estimation model was identified using the Chow and Hausman tests.

Findings : Regional expenditure significantly predicts financial efficiency, confirming the ratio's mechanical sensitivity to budget execution. However, environmental performance shows no significant association with financial efficiency, while fiscal capacity demonstrates a strong negative relationship. The limited explanatory power suggests efficiency ratios primarily capture fiscal compliance rather than substantive policy outcomes.

Novelty : The study provides empirical evidence by comparing accounting-based financial efficiency indicators with outcome-based environmental performance measures, demonstrating that financial efficiency ratios primarily reflect fiscal compliance rather than substantive policy outcomes.

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INTRODUCTION

The evaluation of local government performance is generally based on financial indicators derived from budget realization reports (Republic of Indonesia, 2010). The efficiency ratio, which compares actual expenditures to total revenues, is employed to assess the government's ability to manage fiscal resources (Mardiasmo, 2018). In the context of public expenditure theory, a government is deemed effective if it can realize its budget according to plan, as the primary function of the public sector is to allocate resources in a stable and controlled manner (Musgrave & Musgrave, 1989). Thus, the budget absorption rate is viewed as an indicator of fiscal administration success (Bastian, 2006). As a result, financial performance indicators play a crucial role in accountability and evaluations between governmental tiers. Hence, efficiency ratios are often treated as proxies for overall governmental performance (Murthi et al., 2021).

Contradictory phenomena are encountered in regional environmental performance. In recent years, increases in regional spending and environmental expenditure have not consistently been accompanied by improvements in environmental quality. Under certain conditions, environmental quality may remain stable even as budget allocations increase, and it may improve when expenditures decrease (World Bank, 2020). The gap between fiscal growth and environmental results suggests that the link between financial investments and policy successes may not be straightforward or immediate.

Previous research on local government financial performance predominantly focuses on financial indicators derived from budget realization reports. Juliarti et al. (2022) demonstrate how differences in expenditure realization

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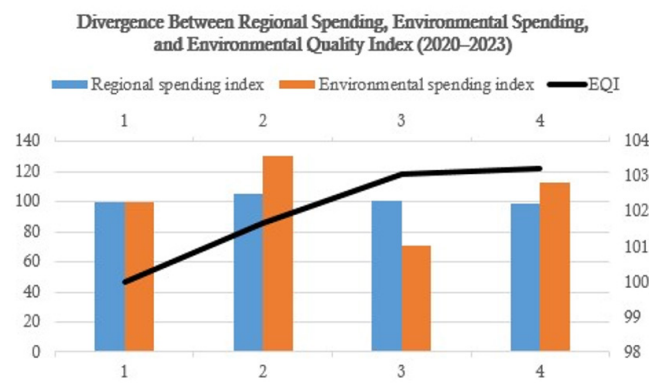


Figure 1. Divergence Between Regional Spending, Environmental Spending, and Environmental Quality Index

affect financial efficiency, while Allolayuk et al. (2025) highlight the importance of fiscal capacity in determining reported financial outcomes. In these analyses, financial indicators are treated as dependent variables that mirror managerial or fiscal conditions.

In a contrasting research stream, the success of development is increasingly appraised through ecological outcomes. Zeraibi et al. (2021) and Latifa & Saraswati (2023) examine the intersection of fiscal health and environmental quality, treating ecological metrics as essential proxies for evaluating public policy efficacy. While these inquiries offer significant contributions, they have largely evolved in isolation from accounting-driven financial performance literature.

This separation creates a critical research gap. Regarding regional expenditure, prior studies consistently document its association with financial efficiency but tend to interpret this relationship as substantively meaningful without questioning its mechanical construction. Regarding environmental performance, existing studies position environmental quality as an outcome indicator. However, limited empirical work investigates whether such outcome-based measures systematically correspond with accounting-based financial efficiency indicators.

Figure 1 indicates that increases in regional expenditures and environmental spending do not always correspond with improvements in environmental quality. At times, a rise in the environmental budget did not lead to an increase in the Environmental Quality Index (EQI), whereas at other times, environmental quality improved despite a decrease in budget allocation. Environmental quality is influenced by structural and regulatory factors beyond fiscal control (Badewin et al., 2025). This misalignment indicates that budget-based indicators may not capture outcome-based performance (Kolk, 2022). These descriptive findings serve as an initial indication that performance indicators based on budget realization may differ dimensionally from those based on policy outcomes.

Within the framework of public expenditure theory, the efficiency ratio assesses the government's capability to execute budget plans (Musgrave & Musgrave, 1989). According to this viewpoint, a government's efficacy in public administration is demonstrated by its capacity to execute planned spending in accordance with an approved budgetary structure. Therefore, the utilization of the budget and the actualization of expenditures are widely regarded as metrics for successful administration and fiscal responsibility. This leads to the prevalent use of efficiency metrics rooted in accounting principles to assess both the financial performance and regulatory adherence of government entities (Mardiasmo, 2018).

However, the effectiveness of policy execution is not necessarily correlated with the success of resource allocation. According to stakeholder theory, governments serve as both budget administrators and providers of benefits that the general public perceives (Freeman, 2010). According to this viewpoint, visible improvements in public conditions rather than just administrative compliance should be the basis for evaluating public sector success. Therefore, fiscal improvements do not necessarily translate into improvements in public conditions (Pollitt & Bouckaert, 2017). This distinction highlights a crucial conceptual tension between following administrative procedures and delivering results. An efficiency ratio may not always indicate improvements in social welfare or policy outcomes, even though it may indicate adherence to financial standards.

In the context of Agency Theory, local governments serve as agents who are assessed by principals such as central authorities and oversight bodies using quantifiable and verifiable indicators (Jensen & Meckling, 1976). Consequently, performance measurement systems establish incentive structures that influence administrative behavior. Since financial ratios, including efficiency metrics, are easily observable, measurable, and frequently monitored, local officials are likely to focus on enhancing these quantifiable objectives. On the other hand, outcome-based indicators, such as environmental quality, are complex, long-term, and only partially under local administrators' control. This disparity in measurability may encourage administrators to prioritize easily observable financial indicators over broader policy outcomes.

From an institutional standpoint, this situation may illustrate a disconnection between formal evaluation frameworks and genuine policy results. Administrative indicators prioritize fiscal stability, whereas environmental outcomes are shaped by complex socioeconomic and ecological factors. When these domains evolve separately, performance evaluations tend to favor quantifiable administrative results over long-term developmental achievements.

Thus, it becomes crucial to examine the interplay among local government expenditures, environmental performance, and financial performance to determine whether metrics of administrative performance truly correspond to meaningful policy outcomes. Analyzing the effects of expenditure realization, environmental performance, and fiscal capacity on reported financial efficiency helps assess whether the indicator denotes administrative adherence or substantial performance. This study therefore aims to analyze provincial panel data from 2020 to 2023 to assess whether reported financial efficiency serves as a valid indicator of government performance or primarily reflects structural fiscal dynamics.

This research draws upon public expenditure theory, stakeholder theory, and agency theory to explore whether accounting-based financial efficiency serves as a meaningful indicator of actual government performance. Public expenditure theory elucidates how the execution of budgets influences reported financial efficiency through the allocation of fiscal resources. Stakeholder theory posits that government effectiveness ought to be ultimately reflected in tangible societal benefits, including improvements in environmental quality. In parallel, agency theory suggests that public officials may prioritize metrics emphasized in formal accountability frameworks, thereby creating a potential divergence between reported financial figures and genuine policy outcomes. Collectively, these theoretical perspectives form a coherent lens for evaluating whether financial efficiency ratios capture substantive governmental achievements or merely signify compliance with fiscal procedures.

Specifically, expenditure realization serves as a proxy for the administrative facet of fiscal oversight, illustrating a government's proficiency in implementing its budgetary plans. Scholarly work consistently shows that how governments manage and realize their budgets is a key driver of their reported financial success. For instance, Rahmasari & Wuryani (2021) correlate higher government financial performance with efficient, effective, and harmonious spending, pointing to budget management quality as a critical factor. Similarly, Sofyan et al. (2025) affirm that improvements in spending efficiency and budget realization boost performance by stabilizing finances and optimizing resource use. However, a significant methodological issue arises because the efficiency metric is calculated from the very expenditure figures it evaluates. This creates the possibility that the perceived relationship is partly a construct of the accounting model itself rather than a reflection of actual performance gains. Therefore, the relationship between expenditure realization and reported financial performance requires further empirical examination.

On the other hand, environmental performance serves as an outcome-focused measure of success, directly linked to improvements in public welfare. Consequently, research increasingly treats environmental quality as a key gauge of policy effectiveness, as it reflects concrete benefits to society (Zeraibi et al., 2021; Latifa & Saraswati, 2023). However, since environmental outcomes are shaped by wider socioeconomic and regulatory factors beyond direct fiscal control, enhancements in this area do not always align with traditional financial efficiency metrics. This disconnect underscores an incomplete understanding of how administrative performance indicators relate to real-world policy results.

Similarly, Studies show that regional financial performance is influenced by fiscal capacity and the ability of local governments to generate and manage revenue effectively (Harahap & Nasution, 2019). Moreover, a region's ability to generate revenue has a direct positive impact on its financial metrics (Atmoko & Khairudin, 2022). Critically, because revenue directly affects the calculation of expenditure realization ratios, fiscal capacity can structurally bias efficiency measurements (Zamzami & Rakhman, 2023). Therefore, this variable is controlled for in the analysis to isolate the true relationship between expenditure realization, environmental performance, and financial efficiency from these underlying economic disparities.

This research offers both theoretical and empirical contributions to the study of public sector performance evaluation. Theoretically, it challenges the validity of efficiency ratios as a metric of governmental performance by examining whether financial efficiency aligns with policy outcomes, particularly in environmental performance. Empirically, through a panel data analysis of provincial data from 2020 to 2023, the study integrates administrative and substantive indicators to assess whether fiscal efficiency truly reflects policy success or merely indicates structural fiscal conditions. Consequently, this study enhances the understanding of performance evaluation systems within the context of decentralized governance.

Public sector financial performance is conventionally appraised through accounting-based metrics derived from budgetary execution reports. Public sector financial performance can be assessed through a variety of indicators, such as effectiveness ratios, fiscal independence ratios, and efficiency ratios. This study applies the efficiency ratio, as it is one of the most commonly utilized accounting-based indicators in evaluating Indonesian public sector entities, reflecting the alignment between expenditure realization and available fiscal resources (Mardiasmo, 2018). In contrast to effectiveness measures, which emphasize the achievement of revenue targets, or fiscal independence indicators, which capture the degree of revenue autonomy, the efficiency ratio directly examines how well government spending corresponds to available revenues. However, since this ratio is derived from accounting data, it tends to be more reflective of fiscal compliance rather than substantive policy outcomes, making it especially pertinent to the objectives of this research.

In this study, financial performance is defined operationally through the efficiency ratio, which assesses the stewardship of fiscal resources by comparing actual expenditures with available revenues. Accordingly, regional expenditure realization is employed as a proxy for a government's ability to execute planned spending within the limits of an authorized budget framework. Within the context of regional governance in Indonesia, the realization

of budget expenditures is commonly employed as a benchmark for evaluating budget implementation performance. This is primarily because expenditure realization indicates the degree to which approved public programs have been converted into concrete spending activities.

Drawing on public expenditure theory, government spending fulfills three essential roles resource allocation, income redistribution, and economic stabilization (Musgrave & Musgrave, 1989). Within this theoretical lens, the efficacy of public administration hinges on the state's capacity to allocate in accordance with approved plans and policy priorities. Budget execution thus emerges as a critical gauge of administrative performance, since realized expenditures embody the actual implementation of planned public programs. As a result, higher levels of expenditure realization are frequently interpreted as evidence that governments are effectively discharging their fiscal duties and converting budgetary commitments into concrete policy actions. However, because the efficiency ratio is inherently linked to actual spending, any rise in budget absorption mechanically elevates the reported efficiency level. This mechanical link stems from the ratio's direct derivation from expenditure and revenue figures. When expenditure realization while revenues remain comparatively constant, the ratio automatically increases by design. Consequently, a positive correlation between expenditure realization and reported financial performance can arise even in the absence of genuine improvements in policy effectiveness or public service delivery. This association may therefore be more a product of the ratio's accounting structure than a reflection of substantive governance effectiveness.

Consequently, the proposed hypothesis does not presuppose that increased expenditure realization leads to genuine improvements in governmental performance. Rather, it anticipates a positive statistical association, given that expenditure realization is inherently integral to the composition of the efficiency ratio. The hypothesis is designed to examine whether observable financial performance predominantly mirrors the dynamics of budget execution, as opposed to reflecting wider policy effectiveness. Empirically, Juliarti et al. (2022) demonstrate that fluctuations in budgetary implementation directly sway reported fiscal efficiency. Similarly, Zuhri & Soleh (2022) find that expenditure execution is a key determinant of efficiency ratios in local government financial reporting. Based on these theoretical and empirical foundations, we propose:

H₁: Regional expenditure realization is positively associated with reported financial performance

Environmental performance functions as an outcome-based indicator, reflecting tangible improvements in ecological quality that directly benefit society. In this study, environmental performance is operationalized through the Environmental Quality Index (EQI), a composite metric published by the Ministry of Environment and Forestry. The EQI integrates three key dimensions of environmental quality water quality, air quality, and land cover quality. By synthesizing these components, the index offers a holistic evaluation of environmental conditions and is commonly employed as an official benchmark for assessing environmental performance across Indonesia. These dimensions collectively capture the environmental conditions most directly influenced by regional environmental policies.

Based on stakeholder theory, governments bear a responsibility to generate value not solely for fiscal authorities but also for a wider range of stakeholders, particularly local communities who directly encounter environmental conditions (Freeman, 2010). Within this framework, enhancements in environmental quality represent tangible policy results that deliver public benefits, thereby constituting a critical dimension of governmental effectiveness.

From an agency theory standpoint, local governments function as agents who are accountable to principals, including citizens, legislative bodies, and oversight institutions (Jensen & Meckling, 1976). Systems of performance measurement shape administrative incentives, as officials tend to focus on indicators that are formally tracked and evaluated. Accordingly, if accounting-based efficiency ratios serve as valid proxies for governmental effectiveness, then regions that achieve superior environmental outcomes should also demonstrate stronger reported financial performance.

Recent scholarship increasingly utilizes environmental quality as a benchmark for policy success (Zeraibi et al., 2021; Claudia et al., 2025). However, Safitri et al. (2025) note that ecological fiscal transfers have struggled to improve environmental outcomes due to institutional bottlenecks, suggesting potential decoupling. Notwithstanding the presence of inconclusive empirical findings, a positive association between financial efficiency and environmental performance remains theoretically reasonable. Should financial efficiency ratios genuinely reflect the effectiveness of government operations, provinces attaining outcomes would logically exhibit stronger financial performance as well. Accordingly, a hypothesis has been formulated to empirically assess whether accounting-based financial indicators correspond with outcome-oriented measures of public sector performance. Accordingly, we propose:

H₂: Environmental performance is positively associated with reported financial performance

RESEARCH METHODS

This study employs a quantitative explanatory approach using panel data regression analysis to examine the relationship between regional expenditure realization, environmental performance, fiscal capacity, and financial performance across Indonesian provinces during 2020–2023. Panel data analysis is selected because it enables the

control of unobservable provincial characteristics that remain constant over time while capturing longitudinal variation within provinces thereby improving estimation accuracy compared to cross-sectional methods (Wooldridge, 2023). Secondary data were obtained from provincial government reports and official environmental statistics.

The final sample comprises 34 provincial governments observed over four years, resulting in 136 balanced panel observations (Table 1). Secondary data were obtained from official Indonesian government repositories (Table 2). Financial metrics (total expenditure, total revenue, spending budget, expenditure realization) were downloaded from the audited provincial budget realization reports disseminated by the Ministry of Finance of the Republic of Indonesia (<https://djpk.kemenkeu.go.id>). Environmental performance data (Environmental Quality Index/EQI) were sourced from the Ministry of Environment and Forestry's official statistics portal (<https://menlhk.go.id>). The data extraction was performed in January 2025 using audited provincial financial reports and official environmental statistics for the period 2020–2023.

Equation 1 presents the empirical model used to investigate the determinants of provincial financial performance (Y_{it}). Specifically, the model estimates the influence of regional expenditure realization (X_{1it}), environmental performance (X_{2it}), and fiscal capacity (Z_{it}) on the financial performance of province i in year t , where α denotes the constant term, β_1 , β_2 , and β_3 represent the regression coefficients, μ_i represents the unobserved province-specific effects, and ε_{it} denotes the error term.

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 Z_{it} + \mu_i + \varepsilon_{it} \quad \dots\dots\dots 1$$

Data analysis proceeded in five stages. First, descriptive statistics were calculated to understand the distribution of all variables. Second, panel model selection was performed using the Chow test (choosing between common and fixed effects) and the Hausman test (choosing between fixed and random effects). Third, classical assumption tests were conducted including normality (Jarque-Bera), multicollinearity (correlation matrix), heteroskedasticity (Glejser test), serial correlation (Breusch-Pagan LM), and cross-sectional dependence (Pesaran CD test) to ensure statistical reliability (Ghozali & Ratmono, 2017). Fourth, fixed effects panel regression was estimated with clustered standard errors at the provincial level. Fifth, Because the data collection timeframe (2020–2023) overlaps with the COVID-19 crisis, the results may reflect temporary fiscal anomalies. Consequently, applying these conclusions to broader or more standard economic periods should be done with care.

RESULTS AND DISCUSSIONS

Descriptive statistics (Table 3) provide insights into the distribution of variables across 34 provinces from 2020 to 2023, totaling 136 observations. The efficiency ratio shows relatively minor fluctuations compared to environmental quality and fiscal capacity. While there are significant differences in environmental conditions and revenue generation across provinces, the financial efficiency assessed remains closely clustered. This initial finding indicates that the efficiency ratio may not adequately capture differences in substantive developmental outcomes.

The coefficient of variation, calculated as the standard deviation divided by the mean, indicates that financial efficiency ($CV = 0.075$) exhibits considerably less relative variability than environmental performance ($CV = 0.129$) and regional spending ($CV = 0.119$). This implies that financial efficiency is generally more uniform among provinces. The efficiency ratio may not be as responsive to reflecting the wider disparities in environmental performance due to its limited variance.

The limited variability in the efficiency ratio stands in contrast to the broader dispersion found in environmental performance and fiscal capacity. This pattern indicates that provinces with markedly different environmental conditions and fiscal characteristics may nonetheless exhibit comparable efficiency ratios. As a result, the efficiency ratio seems to reflect a relatively narrow aspect of governmental performance, potentially constraining its capacity to distinguish substantive policy accomplishments across regions.

Before estimating the regression model, specification tests were conducted to identify the most suitable panel estimation method. The sequential outcomes of the Chow and Hausman tests indicate a correlation between unobserved provincial heterogeneity and the explanatory variables, warranting the application of a fixed-effects estimator (Gujarati & Porter, 2013). Panel model specification tests used to determine the most appropriate estimation approach. The Chow test yields a probability value of 0.0005, indicating that the fixed-effects model is preferred over the pooled ordinary least squares model. Furthermore, the Hausman test produces a probability value of 0.0000, confirming that the fixed-effects estimator is more appropriate than the random-effects estimator. The consistent rejection of the null hypotheses in both tests provides empirical support for employing the fixed-effects model in the subsequent regression analysis.

Table 1. Sample Selection Procedures

Step	Description	Provinces	Observations
Initial population	All provinces in Indonesia (2020-2023)	38	152
Exclusion	Newly established provinces with incomplete time-series data	-4	-16
Final sample	Balanced panel data	34	136

Table 2. Operational Definition of Variables

Variable	Definition	Measurement
Financial Performance (Y)	Financial performance is proxied by the efficiency ratio, which reflects the government's capacity to manage fiscal resources. A higher ratio indicates greater expenditure absorption relative to revenue, which conventionally reflects expenditure absorption relative to available revenue.	(Total Expenditure / Total Revenue) x 100%
Regional Expenditure (X ₁)	Expenditure realization reflects the extent to which governments implement planned spending.	(Total Spending Realization / Spending Budget) x 100%
Environmental Performance (X ₂)	Environmental performance reflects environmental outcomes measured through composite environmental indicators.	Environmental Quality Index (EQI)
Fiscal Capacity (SIZE)	Fiscal capacity reflects the financial scale of provincial governments.	Ln (Total Revenue)

The rejection of the random effects assumption implies that time-invariant provincial characteristics are not independent of the explanatory variables (Ghozali & Ratmono, 2017). As such, fixed effects yield consistent parameter estimates by controlling for variation within provinces over time. This methodological approach accounts for structural factors like geography, institutional maturity, and historical fiscal capacity.

To ensure the validity of the statistical inferences, a series of diagnostic evaluations were performed to verify that the model adheres to the necessary classical assumptions (Table 4). These procedures included tests for normality, multicollinearity, heteroskedasticity, serial correlation, and cross-sectional dependence. The normality of the residuals was assessed using the Jarque–Bera statistic, which yielded a probability value of 0.099. Since this figure exceeds the 0.05 significance threshold, it can be concluded that the residuals are normally distributed. Regarding multicollinearity, an analysis of the correlation matrix revealed that the highest correlation among the explanatory variables is 0.29. This is significantly below the 0.80 benchmark, suggesting that multicollinearity does not pose a threat to the model's integrity.

Furthermore, the Glejser test for heteroskedasticity produced probability values for the independent variables X₁ = 0.09, X₂ = 0.59, and SIZE = 0.97) that were consistently above 0.05, indicating that the model is homoskedastic. Similarly, the Breusch–Pagan LM test for serial correlation resulted in a probability value of 0.56, confirming the absence of autocorrelation issues. While most assumptions were satisfied, the Pesaran CD test for cross-sectional dependence yielded a statistic of 4.5107 with a p-value of 0.0000. This result indicates that the panel units are subject to cross-sectional dependence, implying that fiscal or environmental shocks in one province may propagate to others due to national policy coordination.

To address this concern, the study employs Panel Corrected Standard Errors (PCSE) through the cross-section SUR covariance estimator. PCSE is frequently recommended for panel datasets exhibiting contemporaneous correlation across cross-sectional units because it produces consistent standard errors without altering coefficient estimates (Wooldridge, 2023). Given the relatively short time dimension of the dataset (t = 4), PCSE was considered more appropriate than alternative estimators requiring longer time-series observations. Consequently, despite the presence of cross-sectional dependence, the reported coefficient estimates and statistical inferences remain reliable.

The standardized coefficients indicate that fiscal capacity ($\beta = -0.429$) has the strongest relative influence on financial efficiency, followed by expenditure realization ($\beta = 0.251$), while environmental performance ($\beta = -0.082$) exhibits a comparatively weaker effect (Table 5). The within R-squared value of 0.075 indicates that approximately 7.5% of the variation in the efficiency ratio within provinces over time is explained by the included explanatory variables. This relatively low explanatory power suggests that the efficiency ratio is influenced by factors beyond those captured in the model, consistent with the interpretation that financial efficiency may primarily reflect fiscal compliance rather than broader policy outcomes. Nevertheless, the F-statistic (2.130, p = 0.002) confirms that the independent variables jointly exert a statistically significant influence on the dependent variable. Although the within R-squared value is modest, this does not invalidate the estimated relationships, as fixed-effects models commonly produce low within R-squared values when the dependent variable exhibits limited variation over time. Therefore,

Table 3. Statistics Descriptive

	Regional Expenditure Realization (X ₁)	Environmental Performance (X ₂)	Y	Size
Mean	0.9538324	68.26493	1.012868	29.55360
Median	0.955000	67.57000	1.010000	29.40500
Maximum	1.440000	85.93000	1.350000	31.89000
Minimum	0.650000	44.76000	0.740000	28.25000
Std. Dev.	0.113327	8.794866	0.075659	0.823990

Table 4. Classical Assumption Test Result

Test	Method	Result	Decision
Normality	Jarque-Bera	Prob = 0.099	Residuals normally distributed
Multicollinearity	Correlation Matrix	Max Corr = 0.29	No multicollinearity
Heteroskedasticity	Glejser Test	$X_1 = 0.09$; $X_2 = 0.59$; SIZE = 0.97	No heteroskedasticity
Serial Correlation	Breusch-Pagan LM	Prob = 0.56	No autocorrelation
Cross-section Dependence	Pesaran CD Test	Statistic = 4.51 Prob = 0.000	Cross-section dependence detected

Notes: Although the residuals are normally distributed ($p = 0.099$), panel regression is generally robust to mild departures from normality, particularly with a sufficient sample size ($N = 136$).

the coefficient estimates remain meaningful for examining within-province relationships despite the model's limited explanatory power. Table 6 shows summary of hypotheses testing.

Regional Expenditure and Financial Efficiency

A positive coefficient was identified for expenditure realization ($\beta = 0.167$; $p = 0.027$), suggesting that greater levels of budget execution correspond with higher efficiency ratios. Given that the efficiency ratio is derived from both expenditure and revenue components, this result implies that financial performance indicators remain closely tied to spending behavior. If a higher efficiency ratio is interpreted as diminished efficiency, the finding indicates that expenditure growth tends to exceed revenue growth, thereby eroding fiscal efficiency. More critically, this outcome suggests that accounting-based financial performance is likely driven more by budget execution mechanisms than by genuine improvements in governmental outcomes (Bracci et al., 2024).

According to public expenditure theory, government outlays achieve optimal results when directed toward productive sectors and maintained in equilibrium with fiscal capacity. However, when the expansion of spending is not matched by enhanced revenue generation or improved allocation quality, the underlying fiscal architecture may lose its efficiency. Under such circumstances, increased outlays do not necessarily enhance financial performance rather, they may exacerbate fiscal strain.

Viewed from an agency theory perspective, these results may reflect the principal-agent dynamics inherent in decentralized fiscal oversight. Within this framework, local officials act as agents responsible for managing public assets on behalf of citizens and central authorities. In such an environment, budget execution may be oriented toward administrative compliance and achieving absorption targets, rather than toward genuine efficiency improvements. Furthermore, performance assessment systems that place heavy emphasis on efficiency ratios may create incentives for administrative officials to prioritize expenditure absorption targets, as suggested by previous studies (Purba et al., 2024). However, the present study does not directly examine expenditure timing patterns.

Nevertheless, a strong association between expenditure realization and the efficiency ratio indicates that financial performance indicators remain closely linked to budget execution processes. This focus may lead to higher efficiency ratios that do not necessarily reflect substantive improvements in fiscal conditions (Höglund et al., 2023). Such patterns suggest that the efficiency ratio may primarily capture procedural adherence in budget execution rather than broader improvements in governmental performance (Antasena et al., 2023). Within this framework, efficiency indicators might prioritize adherence to formal administrative protocols over the optimization of long-term

Table 5. Fixed Effects Regression Results with Clustered Standard Errors

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Std. Coef.
Expenditure Realization (X_1)	0.167**	0.074	2.252	0.027	0.251
Environmental Quality (X_2)	-0.003818	0.005	-0.741	0.460	-0.082
Fiscal Capacity (SIZE)	-0.213***	0.056	-3.817	0.000	-0.429
Constant	7.413***	1.659	4.468	0.000	
R-squared	0.075				
F-statistic	2.130**				
Prob(F-statistic)	0.002				
Observations	136				
Number of Provinces	34				

Notes : *** $p < 0.01$, ** $p < 0.05$ Standard errors clustered at the provincial level.
Within-province R-squared reported. All models include provinces fixed effects.

Table 6. Summary of Hypothesis Testing

Hypothesis	Relationship	Coefficient	p-value	Decision
H ₁	Expenditure Realization → Financial Efficiency	0.167	0.027	Accepted
H ₂	Environmental Performance → Financial Efficiency	-0.004	0.46	Rejected

policy goals. This dynamic suggests a pervasive lean toward accounting driven optimization in the management of the public sector (Sunarya, 2024). This interpretation is consistent with Wibisono et al. (2025), who argue that public sector performance is not solely determined by fiscal efficiency, but also by transparency, effectiveness, and result-oriented governance in public resource management.

While prior literature indicates that the allocation of expenditures can shift efficiency results Dilliana et al. (2019), this dimension falls outside the scope of the current inquiry. Consequently, investigating specific expenditure components offers a compelling direction for subsequent studies. The 2020–2023 observation window marks a transformative period in Indonesia's fiscal landscape, characterized by significant shifts in expenditure priorities due to national policy adjustments and fiscal reorganization (Kementerian Sekretariat Negara Republik Indonesia, 2022). Throughout this interval, regional spending outpaced revenue growth, driving the efficiency ratio upward. This trend suggests that during periods of fiscal recalibration, the mere expansion of government spending fails to automatically bolster financial performance indicators.

Estimation results using the Fixed Effects Model validate this link, showing that the positive correlation between regional outlays and the efficiency ratio persists even after accounting for provincial heterogeneity. This implies that the fiscal pressure stemming from expenditure growth is a systematic phenomenon rather than a byproduct of structural differences between regions. Ultimately, these findings underscore that the volume of spending is not a primary determinant of financial quality; instead, efficiency is dictated by allocation quality, spending composition, and the balance between expenditure expansion and revenue capacity.

Taken together, these findings demonstrate that the sheer magnitude of spending does not serve as the primary determinant of financial quality. Rather, efficiency is influenced by the quality of resource allocation, the composition of expenditures, and the equilibrium between spending growth and revenue capacity. This interpretation is consistent with earlier empirical evidence presented by reported Juliarti et al. (2022) and Zuhri & Soleh (2022), who similarly reported that expenditure realization exerts a significant effect on reported.

Environmental Performance and Financial Efficiency

The Fixed Effects Model reveals that environmental performance exerts no statistically significant influence on financial efficiency ($\beta = -0.004$, $p = 0.460$). This result indicates that fluctuations in the Environmental Quality Index (EQI) across provinces are not systematically linked to variations in the efficiency ratio. In essence, enhancements in environmental quality do not automatically lead to improvements in reported financial efficiency. This finding supports the distinction between compliance-oriented financial accountability and outcome-oriented public accountability proposed by Bracci et al. (2021), suggesting that accounting-based performance indicators may capture adherence to fiscal procedures more effectively than substantive policy achievements. Consequently, financial efficiency ratios may be more reflective of administrative compliance than of actual policy outcomes (Cordery et al., 2023).

From a stakeholder theory perspective, local governments are expected to reconcile economic, social, and environmental priorities in order to generate societal value (Freeman, 2010). Nevertheless, the lack of a significant association between the EQI and financial efficiency suggests that environmental accomplishments have yet to be incorporated into accounting-based performance metrics. This finding implies that gains in environmental quality, while important for public well-being, may remain unrecognized within conventional fiscal performance evaluation frameworks, which often emphasize financial accountability over sustainability outcomes (He, 2023).

This finding also raises important questions about whether it is appropriate to rely exclusively on accounting-based indicators to assess government performance. Environmental quality is a multidimensional outcome influenced not only by fiscal policies but also by institutional capacity, regulatory enforcement, public engagement, and long-term development strategies. As a result, improvements in environmental conditions may occur gradually and may not be immediately visible in annual financial performance reports. The lack of a significant correlation between environmental performance and financial efficiency does not imply that environmental outcomes are insignificant. Instead, it indicates that accounting-based efficiency measures and outcome-based indicators capture different dimensions of government performance. Efficiency ratios focus on the management and allocation of fiscal resources, whereas environmental indicators measure the real-world effects of public policies on societal well-being and sustainability. This distinction underscores the need for a more comprehensive performance evaluation framework that integrates both financial accountability and substantive policy achievements when assessing public sector effectiveness.

The insignificant coefficient for environmental performance can also be interpreted through the lens of agency theory. In a decentralized governance setting, public officials are predominantly assessed through formal accountability mechanisms that prioritize budget execution and financial reporting. Consequently, administrative

incentives tend to emphasize short-term fiscal compliance over long-term environmental outcomes, reflecting the dominance of formal accountability systems in shaping local government behavior (Salomo & Rahmayanti, 2023). This interpretation aligns with Putri & Hendaris (2025) who contend that accounting accountability frequently receives greater institutional emphasis than broader service accountability. As a result, environmental improvements may remain only weakly associated with accounting-based efficiency indicators.

A further explanation lies in the inherent nature of the Environmental Quality Index. As a composite metric, the EQI is influenced by structural environmental variables such as geography, demographics, and industrial density that typically evolve gradually. Unlike fiscal indicators, which are highly sensitive to annual budgetary cycles, environmental indicators rarely exhibit significant year-over-year volatility. Consequently, annual changes in the EQI may not sufficiently account for the fluctuations observed in financial efficiency. The Fixed Effects Model estimation also supports this view. By filtering out time-invariant regional traits, the model isolates within-region variations. One possible explanation is that environmental conditions may be influenced by relatively stable structural characteristics such as geography, demographics, and industrial concentration. However, this study does not directly measure these factors.

These results align with extant literature suggesting that ecological improvements do not always yield immediate fiscal or economic advantages. Claudia et al. (2025) noted that the EQI does not significantly impact Indonesian economic growth, while Hawari et al. (2024) argued that fiscal decentralization can trigger a race to the bottom where local authorities prioritize immediate growth over ecological health. Similarly, Safitri et al. (2025) observed that ecological fiscal transfers have struggled to improve environmental outcomes due to institutional bottlenecks. Collectively, these findings indicate that environmental initiatives are frequently treated as long-term sustainability commitments whose benefits are not immediately reflected in conventional financial performance indicators (Rahmawati et al., 2024). Therefore, while ecological progress is vital for long-term welfare, it may not be reflected in short-term financial efficiency indicators. This finding implies that environmental improvements, while crucial for sustainable development, are unlikely to be driven by efficiency-based performance incentives. Policymakers should therefore consider complementary mechanisms, such as ecological fiscal transfers, to better align fiscal incentives with environmental objectives.

Additional Finding: Fiscal Capacity and Financial Efficiency

Beyond the primary explanatory variables, government size which serves as a proxy for fiscal capacity demonstrates a statistically significant correlation with the financial efficiency ratio. Provinces with larger governmental scales typically command more extensive fiscal assets and complex administrative frameworks, both of which can dictate the magnitude and oversight of public spending. This finding implies that structural fiscal capacity plays a role in defining reported efficiency benchmarks, as regions with stronger revenue bases may display more favorable financial indicators regardless of managerial quality (Rahman & Saputra, 2022). Consequently, it supports the premise that efficiency ratios are, in part, a manifestation of inherent fiscal attributes rather than a mirror of policy efficacy alone.

CONCLUSIONS

This research investigates whether the financial efficiency ratio reported by local governments reflects governmental performance or primarily indicates compliance with fiscal procedures. Using panel data from 34 Indonesian provinces during 2020–2023, the findings show that regional expenditure significantly influences the efficiency ratio, whereas environmental performance does not exhibit a statistically significant relationship. Government size, representing fiscal capacity, is also significantly associated with the ratio, suggesting that structural fiscal characteristics partially shape measured financial efficiency.

The findings indicate that budget execution and fiscal capacity, rather than substantive policy outcomes, are the primary determinants of the efficiency ratio. This result supports the distinction between accounting-based performance measures and outcome-based indicators in the public sector. The findings extend agency theory by suggesting that indicators embedded within formal accountability systems tend to reflect compliance-oriented behavior, while also supporting stakeholder theory by demonstrating that public value outcomes, such as environmental quality, are not necessarily captured by accounting-based financial metrics. Consequently, financial efficiency ratios should be interpreted cautiously as indicators of governmental effectiveness.

On a broader scale, these results contribute to the ongoing discourse on how public sector performance should be measured within decentralized governance frameworks. Governments are now increasingly required to demonstrate both adherence to fiscal regulations and the realization of substantive policy outcomes. Consequently, evaluation systems that depend solely on financial metrics risk offering an incomplete view of governmental effectiveness. By incorporating outcome-based indicators alongside traditional accounting measures, policymakers and oversight bodies can develop a more holistic understanding of public sector performance. Such integration also strengthens the alignment between accountability mechanisms and broader developmental goals.

From a policy perspective, government performance evaluation should integrate both fiscal compliance indicators and outcome-based measures such as environmental quality. Reliance on efficiency ratios alone may provide

an incomplete assessment of public sector performance. Therefore, fiscal governance mechanisms, including ecological fiscal transfers, may help align financial incentives with broader environmental and developmental objectives.

This study has several limitations. The observation period includes the COVID-19 pandemic years, which may affect the generalizability of the findings. In addition, the static fixed-effects approach does not capture potential lagged relationships between fiscal management and environmental outcomes, while the relatively low within R^2 (0.075) suggests the existence of other relevant determinants not included in the model. Future research may employ dynamic panel approaches, extend the observation period, and incorporate alternative outcome-based indicators to provide a more comprehensive understanding of the relationship between fiscal management and governmental performance.

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