The Role of APIP and Capital Expenditures in Achieving SDGs 9 in Indonesia

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Abstract

In line with the government's performance priorities which are currently focused on accelerating and continuing infrastructure development. This research aims to explore the achievement of SDG 9 sustainable development goals. One of the important factors in supporting economic growth and improving community welfare. Focusing on building strong infrastructure, supporting inclusive and sustainable industrialization, as well as innovation, on the capabilities of the Government Internal Monitoring Apparatus (APIP) and budget control for the achievement of SDGs in Indonesia. This research uses quantitative methods with data from local governments in Indonesia from 34 provinces, 98 cities, and 416 districts during 2018 - 2021 with a total of 548 local governments with a final sample of 1,680 observations. The results of this research show that APIP and capital expenditure have contributed to achieving the SDGs. However, when moderated APIP weakens the influence of capital expenditure in achieving SDG 9. The implication of this research is the need for regional governments to ensure that capital expenditure funds are allocated strategically to achieve SDGs 9, which includes industry, innovation, and infrastructure. It is hoped that further research can expand the scope of research by analyzing the impact of the role of APIP and capital expenditure on achieving other SDGs pillars.

Keywords: ***Infrastructure; industry (SDGs 9); capital expenditures; government internal supervisory apparatus (APIP)*****.**

INTRODUCTION

Adequate infrastructure development is one of the important factors in supporting economic growth and improving people's welfare. In line with sustainable development goals, Indonesia also adopted the Sustainable Development Goals (SDGs), where one of the goals is to emphasize the development of resilient infrastructure, encourage inclusive and sustainable industrialization, and facilitate innovation. In September 2015, through a UN session, 190 countries including Indonesia agreed on the SDGs, this agreement contains a new development agenda that encourages change towards sustainable development based on human rights and equality, to support social, economic, environmental, legal, and good governance development. The universal principles applied to the SDGs ensure that no one will be left behind, per the motto "No One Left Behind". Simeon & Odior, (2014) The SDGs consist of 17 goals, 169 targets, and 319 indicators designed to continue the efforts to achieve the Millennium Development Goals (MDGs). (Bappenas.go.id, 2023) To improve understanding of the specific national contexts in which global goals are expected to generate political change, and explain the potential and limits of global goal-setting initiatives, it is no longer the MDGs that are of interest. Hickmann et al., (2023) ; Thomas et al., 2023 ; (Nauli, 2022). Quality infrastructure can create a favorable environment for economic activity and increase productivity (Alsayegh et al., 2023). In addition, increasing the amount of infrastructure can reduce income inequality and promote inclusive economic growth. (Utama, 2019); Furqan, et al., (2021); The development of adequate

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infrastructure also contributes significantly to achieving various Sustainable Development Goals (SDGs), ranging from inclusive economic growth, and improved access to basic services, to sustainable industrialization. Investment in infrastructure development is key to realizing sustainable development and improving the overall welfare of society. Quality infrastructure not only improves transportation and logistics efficiency but also ensures a more equitable distribution of economic benefits to all levels of society. With the solid infrastructure in place, access to education, health, and employment opportunities are also more widely available, which in turn will reduce social and economic inequality. Overall, strategic and sustainable infrastructure development plays a crucial role in strengthening a country's competitiveness, improving people's quality of life, and achieving shared prosperity. Therefore, continuous and prudent investment in this sector should be a top priority for the government and various stakeholders. In this regard, there has been a growing body of research analyzing how infrastructure development can achieve the SDGs Aminda and Aminda, (2024); Putri, (2022); Sephanie et al., (2022); Furqan, et al., (2023) and (Patiung, 2019). Although there have been several studies examining this issue, the analysis of key managerial aspects is still lacking especially in the context of local government in Indonesia. Therefore, this study aims to explore the role of internal control apparatus (APIP) and capital expenditure in supporting the achievement of sustainable development SDGs. Focusing on resilient infrastructure development, supporting inclusive and sustainable industrialization, and innovation.

Research related to the exploration of the relationship between APIP, capital expenditure, and the achievement of SDGs, especially in local governments, has been the focus of proposers so far such as Jannah et al., (2021); Duanti and Arifin, (2020); & Martínez-Ferrero and García-Meca, (2020) found that there is a positive and significant correlation between capital expenditure and the achievement of Sustainable Development Goals (SDGs). This means that the greater the capital expenditure incurred by the government for the development of infrastructure and public facilities, the more it will support the achievement of SDG targets. This finding relates to the importance of investment in quality infrastructure and public services to encourage sustainable development. It shows that the role of government capital expenditure is crucial in supporting the development of quality infrastructure and public services, which in turn will support the achievement of various SDG goals in a comprehensive and integrated manner. Still, it is different from the findings obtained by Duanti and Arifin, (2020) revealed that capital expenditure does not affect the achievement of Sustainable Development Goals (SDGs), this means that the size of the capital expenditure allocation issued by the government does not necessarily guarantee the achievement of SDG targets, and indicates that capital expenditure alone is not sufficient to ensure the success of sustainable development. A more comprehensive and integrated approach is needed, where capital expenditure must be optimized by paying attention to the effectiveness and efficiency of its use and synergized with other efforts in achieving the SDGs targets as a whole. Meanwhile, specifically regarding APIP, Martínez-Ferrero and García-Meca, (2020) argue that APIP has a negative influence on the achievement of SDGs, in this case, the focus of supervision does not yet cover aspects of sustainability Supervision carried out by APIP often only focuses on financial aspects and compliance with regulations, but has not yet fully covered aspects of sustainability such as environmental, social, and good governance. This causes APIP to not be able to make the maximum contribution in encouraging the achievement of SDGs. Nevertheless, the results of this study do not mean that APIP has no role in achieving the SDGs. Instead, these findings can be used as material for the evaluation and improvement of APIP to increase capacity, expand the scope of supervision, and coordinate better with other stakeholders to achieve sustainable development goals.

Based on the data used in 2018-2021 with a total sample of 1,680 observations consisting of provincial/district/city local governments, in general, it shows that APIP and capital expenditure have an impact on efforts to achieve SDGs 9. **First,** capital expenditure has a positive effect on SDGs 9, the results of this study are in line with research conducted by Jannah et al., (2021) where there is a positive and significant correlation between capital expenditure and the achievement of Sustainable Development Goals (SDGs), but the results of this study are also inversely proportional to the results of this study. Duanti and Arifin, (2020) revealed that capital expenditure does not affect the achievement of Sustainable Development Goals (SDGs). So that there are inconsistencies in research findings related to the effect of capital expenditure on the achievement of SDGs, the relationship between capital expenditure and the achievement of SDGs still requires further study. More comprehensive research is needed by considering various contextual factors, using more accurate measurements, and involving other variables that can influence the effectiveness of capital expenditure in supporting the achievement of SDG targets. **Second,** this study also found that APIP has a positive effect on the achievement of SDGs. This finding supports research by Sari, et al. (2022) and Furqan et al., (2021)APIP plays a role in ensuring accountability and transparency of government financial management, which is crucial to achieving SDGs 9, but in contrast to research conducted by Martínez-Ferrero and García-Meca, (2020) which analyzes internal governance's influence on sustainable development and the results state that APIP has a negative effect on achieving SDGs. **Third,** this study also found that there was a negative moderating effect of APIP and capital expenditure on SDGs, Research by the organization Widhi, et al., (2014) and Prihartono et al., (2019) also support these findings, suggesting that internal control can have a negative influence if not managed properly. This is in line with research by Martínez-Ferrero and García-Meca, (2020), Liu and Lin, (2012) which found that ineffective internal control can be an obstacle. Therefore, the role of APIP should be a driving force in overseeing the use of capital expenditure in Indonesia as well as being a flexible government apparatus to ensure effectiveness and efficiency in achieving sustainable development goals.

The limitations of this study are that it only measures the achievement of SDG 9, and only focuses on the role of APIP and capital expenditure in the achievement of SDG 9, this study also uses data and information available up to a certain period. The dynamics and recent developments related to the influence of APIP, capital expenditure, and the achievement of SDGs 9 have not been fully covered in this study. Therefore, opportunities remain for future research to explore other factors that may influence the relationship between APIP, capital expenditure, and achievement of SDGs 9, such as human resource capacity, governance, and local social and economic conditions. The remainder of this article will be divided into 4 sections, namely the second section will discuss the literature review and the basis for hypothesis development, the third section on the research methods used, the fourth section will discuss the results of hypothesis testing, and finally, the fifth section will discuss the conclusions and implications of the research results as well as limitations and suggestions for future research.

LITERATURE REVIEW

Agency Theory

Agency theory addresses the principal-agent relationship, where the agent acts on behalf of the principal in carrying out tasks or making decisions. The core of this theory lies in identifying agency problems caused by differences in interests and information between the principal and the agent. The principal, who is focused on outcomes, often lacks full control over the agent's actions,

while the agent may prioritize personal interests over those of the principal. These conflicts can lead to agency costs, including monitoring costs, incentive costs, and losses from misaligned behaviors.

Monitoring costs arise from the principal's efforts to oversee the agent's actions, requiring significant time and resources. Incentive costs involve providing rewards to align the agent's behavior with the principal's interests, such as financial incentives (bonuses or shares) or non-financial incentives (recognition and career opportunities). To resolve agency problems, the theory emphasizes the need for well-designed incentives and effective monitoring to align the agent's actions with the principal's goals. Beyond the principal-agent relationship, agency theory extends to organizational contexts, where organizations are expected to serve the interests of various stakeholders. These stakeholders include employees, customers, suppliers, local communities, and shareholders. Gilbert dan Rasche, (2008) argue that the primary goal of an organization is to meet stakeholder needs and expectations. (Phillips, 2003) highlights the importance of building strong, mutually beneficial relationships with stakeholders to achieve long-term success. By addressing stakeholder interests in decision-making and operations, organizations can pursue sustainable and harmonious goals.

Sustainable Development Theory

Sustainable development is essential for ensuring the continuity of human life and the environment. It seeks to balance economic, social, and environmental needs to ensure a good quality of life for both present and future generations (Utama, 2019). Governments play a crucial role in formulating policies aligned with "good governance," which emphasizes participation, transparency, accountability, and the rule of law. This involves creating frameworks for stakeholder participation, ensuring transparency, and implementing accountable policies to support sustainable development. For advanced economies, sustainable development fosters international relations based on mutual interests and humanity (Furqan, et al., 2023). These nations can support developing countries through technology transfer, financial aid, and cooperation while serving as examples of innovative practices. Developing countries can use sustainable development principles to address challenges like poverty, inequality, and environmental degradation, integrating economic growth with social and environmental goals.

Sustainable Development Goals

The Sustainable Development Goals (SDGs) program that was launched (Presidential Regulation Number 11 of 2022,) is a continuation of the Millennium Development Goals (MDGs) that have been successfully achieved. The SDGs are designed to address a range of complex and interconnected global challenges, with a primary focus on eradicating poverty, achieving equality, and combating climate change. Based on these guidelines, 17 global goals have been set, namely:

1. No Poverty: End poverty in all its forms everywhere.
2. No Hunger: End hunger, achieve food security and good nutrition, and promote sustainable agriculture.
3. Healthy and Prosperous Lives: Ensure universal access to quality health services and promote well-being at all ages.
4. Quality Education: Ensure inclusive and equitable access to quality education for all.
5. Gender Equality: Achieve gender equality and empower all women and girls.
6. Clean Water and Sanitation: Ensure universal access to safe and affordable clean water and sanitation.
7. Clean and Affordable Energy: Ensure universal access to affordable, reliable, sustainable and modern energy.

8. Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, provide full and productive employment, and ensure decent work for all.
9. Industry, Innovation and Infrastructure: Build robust infrastructure, promote inclusive and sustainable industries, and facilitate innovation.
10. Reducing Inequality: Reduce inequality within and between countries.
11. Sustainable Cities and Human Settlements: Develop inclusive, safe, resilient and sustainable cities and human settlements.
12. Responsible Consumption and Production: Ensure sustainable consumption and production patterns.
13. Addressing Climate Change: Take immediate action to address climate change and its impacts.
14. Undersea Life: Protecting and sustainably using the seas, oceans and marine resources for sustainable development.
15. Life on Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.
16. Peace, Justice and Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels.
17. Partnerships for the Goals: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

In Indonesia, the main focus of Sustainable Development Goal (SDGs) 9 is; Resilient Infrastructure Development: Improving the quality and quantity of physical infrastructure such as roads, bridges, ports, and airports to support economic growth and connectivity between regions, Inclusive and Sustainable Industrialization:

1. Encourage the development of an industrial sector that not only contributes to economic growth but is also inclusive, involving various community groups and preserving the environment.
2. Innovation Promotion: Enhance national innovation capacity through support for research and development, and adoption of new technologies to improve industrial competitiveness and production efficiency.
3. Reducing Regional Disparities: Address the development gap between urban and rural areas by ensuring equitable distribution of infrastructure and economic opportunities.
4. Environmental Quality Improvement: Ensure that infrastructure development and industrialization do not harm the environment, by implementing sustainable and environmentally friendly practices.
5. Institutional Capacity Strengthening: Strengthen the capacity of public and private institutions in planning, managing, and supervising infrastructure development and industrialization projects.
6. By focusing on these areas, Indonesia seeks to create an enabling environment for sustainable and inclusive economic growth, under the principles of the SDGs.

The Effect of Capital Expenditure on the Achievement of SDGs

Capital expenditure is used to finance the development of infrastructure such as roads, bridges, government buildings, health facilities, and other public facilities. Adequate infrastructure is a major supporting factor in achieving various SDG goals, such as SDG 9 (Infrastructure, Industrialization, and Innovation), as well as in research conducted by (Etyawan and Sukoco, 2020) shows that capital

expenditure has a positive impact on the Human Development Index (HDI) in districts/cities in Indonesia, HDI is one of the main indicators in measuring the achievement of SDGs, research by Maryati and Endrawati, (2018) also shows that capital expenditure for infrastructure development has a positive effect on sustainable economic growth, which is one of the main goals in the SDGs.
H1. Capital Expenditure Has a Positive Impact on the Achievement of SDGs

APIP's influence on SDGs

The Government Internal Audit Apparatus (APIP) has a significant influence in supporting the achievement of the Sustainable Development Goals (SDGs), although indirectly (Leal Filho et al., 2021). Regarding the influence of APIP on SDGs, APIP plays a role in ensuring accountability and transparency in government financial management, including in allocating budgets for programs that support the achievement of SDGs. With effective supervision from APIP, the risk of irregularities and corruption in budget management can be minimized, so that funds can be optimally utilized to achieve SDG targets (Dye, 2013). Research conducted by Sari, et al., (2022) found that the presence of effective APIP has a positive effect on local government performance in achieving SDGs in Indonesia. APIP can help identify potential risks and provide recommendations for improvement in the implementation of SDGs-related programs.

APIP also plays a role in ensuring government compliance with rules and regulations related to sustainable development. With good supervision, APIP can ensure that development activities carried out by the government follow the principles of sustainable development and do not have a negative impact on the environment or society, through its role in financial management supervision, APIP can contribute to strengthening good governance, which is one of the important prerequisites for achieving SDGs effectively and sustainably.

Moderating Effect of Capital Expenditure and APIP Capability on Achievement of SDGs

Capital expenditure is one of the important factors in supporting the achievement of the Sustainable Development Goals (SDGs). Capital expenditure used to build infrastructure such as roads, bridges, education and health facilities, and other infrastructure can contribute significantly to efforts to achieve various SDG targets. However, the effectiveness of capital expenditure in supporting the achievement of SDGs can be moderated or influenced by the capability of the Government Internal Audit Agency (APIP). Strong APIP capabilities, including competent human resources, effective supervisory systems, and high independence and integrity, can strengthen the positive influence of capital expenditure on the achievement of SDGs. Several studies have shown the moderating effect of APIP capability in the relationship between capital expenditure and the achievement of SDGs. When APIP capability is high, the use of capital expenditure will be more effective and efficient, and more targeted in supporting the achievement of SDG targets.

Conversely, if APIP capability is low, the positive effect of capital expenditure on achieving the SDGs may be weakened. This is due to the lack of effective supervision and monitoring of the use of capital expenditure, so infrastructure investment does not have a maximum impact on efforts to achieve SDGs.
H2. Moderation of Capital Expenditure and APIP Capability Negatively Affect the Achievement of SDGs

RESEARCH METHOD

Data

Table 1.
Overview of the Research Sample

INFORMATION	SAMPLE	
	Amount	Percent %
A. Removed data panel		
Total District/City/Province	548	100%
Administrative provinces Districts and cities of DKI Jakarta	7	1.28%
No capital expenditure data	109	19.89%
No data Y	12	2.19%
Final Sample Size	420	76.64%
B. Panel data descriptive		
1.Based on Regional Government Status		
Province	28	6.67%
City	77	18.33%
District	315	75.00%
Total	420	100%
The number of local governments depends on their geographical location		0.00%
Java	309	73.57%
Outside Java Island	111	26.43%
Total	420	100%
Final Sample 2018-2021	1680	100%

Source: Processed by Researchers (Afnan, 2024).

This study uses local government data in Indonesia totaling 34 provinces, 98 cities, and 416 districts in 2018-2021. However, because 7 districts/cities and DKI Jakarta Province are administrative regions, the data was excluded from the sample. In addition, out of a total of 548 local governments, 12 local governments do not have SDGSI achievement data, and 109 local governments do not have capital expenditure data, so the final total sample is 420 observations because this study examines four years so that 1680 observations are obtained. All data used in this study were sourced from local government agencies, namely from BPKP in performance reports for APIP capability data and BPS for capital expenditure data. Meanwhile, data on SDGSI is accessed through the SDGs dashboard on the official website of Bappenas https://sdgs.bappenas.go.id/dashboard. The data were

obtained from the National Development Bank for population and gross domestic product, and from the Human Development Report for human development index.

Operationalization of Variables and Empirical Model

Table 2.
Operational Variables
Variable Operationalization and Data Source

Name	Variable Operationalization	Data source
$SDGSI_{it}$	A metric developed and published regularly by the Sustainable Development Solutions Network (SDSN) and Bertelsmann Stiftung to measure the achievement of Sustainable Development Goals (SDGs) in each country, or Percentage of households with access to decent and affordable housing.	National Development Planning Agency (BAPPENAS).
$LNTOTAL_i$	Total capital expenditure is measured by natural logarithm (Ln).	Central Bureau of Statistics (BPS).
$LNTOTAL*APIP_{IT}$	Total capital expenditure is measured by natural logarithm (Ln), moderated by APIP.	Central Bureau of Statistics (BPS).
$APIP_{it}$	APIP Capability, measured using the Government Internal Control Apparatus (APIP) Capability score which reflects the ability of APIP to carry out the internal control function effectively and efficiently.	Financial and Development Supervisory Agency (BPKP).
MUN_{it}	Local Government Status, measured by a dummy of Local Government status, namely "2" Provincial Government, "1" Municipal Government and "0" other.	Ministry of Home Affairs.
$AGES_{it}$	Age of Local Government in 2021-2022 is measured by the number of years since the formation of the local government until 2021-2022.	Ministry of Home Affairs.
$ISLAND_{it}$	The geographical location of the Local Government as measured by dummy islands, i.e. "1" is Java, "0" is other.	Ministry of Home Affairs.

Source: Processed by Researchers (Afnan, 2024).

An operational table of variables is an important tool in research that provides clear,

measurable, and objective definitions for each variable under study. The main function of this table is to reduce the risk of error and ensure that the data collected is consistent and valid. By defining variables in detail, this table guides researchers in measuring those variables in a standardized way, which eases the process of data analysis and interpretation. In addition, variable operational tables improve communication among researchers and readers, minimizing misunderstandings about how variables are measured and analyzed. Overall, this table is a key element in producing credible and accountable research, as it ensures that all aspects of the research are described and measured transparently and consistently.

Descriptive Table

Table 3.
Statistical Description of Variables

Information	Mean	Standard Deviation	Minimal	Max
$SDGSI_{it}$	93.64	15.01	0.62	100
$LNTOTAL_{it}$	28.87	0.65	25.21	32.43
APIPit	2.21	0.57	1.00	3.00
LNTOTAL*APIP	63.93	16.813	25.39	93.84
$AGES_{it}$	45.04	23.69	4.00	71.00
MUN_{it}	0.32	0.59	0.00	2.00
$ISLAND_{it}$	0.26	0.44	0.00	1.00
Number of Observations = 1,680				
Explanation of variable operationalization in table 1.				
*) In billions of rupiah				

Source: Secondary data, STATA-17 output (Afnan (2024).

The mean total $LNTOTAL_{it}$ is 28.87 with a standard deviation of 0.65, a minimum value of 25.21, and a maximum of 32.43, indicating a relatively consistent distribution of capital expenditure across regions. APIP capability has an average of 2.21 with a standard deviation of 0.57, a minimum value of 1.00, and a maximum of 3.00. Moderation between capital expenditure and APIP capability shows an average of 63.93 with a standard deviation of 16.813, a minimum value of 25.39, and a maximum of 93.84, indicating that most regions have fairly good supervisory capabilities. Age has an average of 45.04 years with a standard deviation of 23.69, a minimum value of 4.00 years, and a maximum of 71.00 years. which reflects the diverse age distribution of the population in various regions. Urban status had a mean of 0.32 with a standard deviation of 0.59, with a minimum value of 0 and a maximum of 2. indicating that most of the areas studied were non-urban. Finally, the island location has a mean of 0.26 with a standard deviation of 0.44, a minimum value of 0, and a maximum of 1. indicating that most of the studied areas are on the mainland. This information provides an overview of the characteristics of the data used in the analysis and shows the variation that exists among local governments in terms of SDGSI achievement and its influencing factors.

The Research Model is used to explain and predict how changes in one variable will affect other variables. The following is an empirical research model:

$$SDGSI_{it} = \beta0 + \beta1LNTOTAL_{it} + \beta2APIP_{it} + \beta3(LNTOTAL\ X\ APIP)_{it} + \beta4MUN_{it} + \beta5AGES_{it} +$$

$\beta 5ISLAND_{it} + \varepsilon t$ .....(1).

The main variables in this study are SDGIit, $LNTOTAL_{it}$, and $APIP_{it}$. $SDGSI_{it}$ is a variable of SDG 9 achievement on indicator 9.C.1 proportion of population served by mobile broadband. $LNTOTAL_{it}$ is a variable for the amount of capital expenditure of all local governments in 2018-2021, where the entire value of capital expenditure is measured by using the natural logarithm (LN). $APIP_{it}$ is the APIP capability variable, where (BPKP, 2015) has established five levels of capability that are measured using levels 1-5. Level 1 is called Initial, characterized by the absence of fixed supervisory practices and reliance on individual performance so that it is unable to guarantee governance processes that comply with regulations and is ineffective in preventing corruption. Level 2, Infrastructure, involves audits that are conducted regularly and are partially compliant with standards, provide reasonable assurance, comply with regulations, and can detect corruption. Level 3, Integrated, establishes a uniform and standards-compliant professional internal audit practice, can provide consultation on governance, risk management, and internal controls, and assesses the efficiency, effectiveness, and economics of programs or activities. Level 4, Managed, integrates information across the organization to improve governance and risk management, providing overall assurance on governance, risk management, and internal control. Level 5, Optimizing, demonstrates an internal audit unit that continues to learn for continuous improvement and serves as a change agent within the organization.

$LNTOTAL*APIP_{it}$ is total capital expenditure measured using the natural logarithm (Ln), which helps transform raw data into a scale that is easier to analyze and more compatible with certain statistical assumptions. In the context of this study, the use of natural logarithms allows researchers to explore the relationship between capital expenditure and other variables more precisely. Moderation by the Government Internal Audit Apparatus (APIP) means the effectiveness of capital expenditure in achieving objectives.

MUNit, $AGES_{it}$, and $ISLAND_{it}$ are control variables in this study which are measured using the natural logarithm (Ln) of the total asset value. MUN_{it}, is a variable of Local Government status measured using a dummy, namely "2" if the Local Government has Provincial status, "1" if the Local Government has City status, and "0" otherwise. $AGES_{it}$, is a variable of the age of the Regional Government in 2018-2021 which is measured using the year of establishment of the local government until 2021. $ISLAND_{it}$ is a variable of the geographical location of the local government which is measured using a dummy, namely "1" if the local government is on the island of Java, and "0" otherwise.

FINDINGS AND DISCUSSION

Correlation Analysis of Variables

Table 4
Correlation Analysis of Variables

	$SDGSI_{it}$	$LNTOTAL_{it}$	$APIP_{it}$	$LNTOTALAPIP_{it}$	$AGES_{it}$	MUN_{it}	$ISLAND_{it}$
$SDGSI_{it}$	1.0000						
$LNTOTAL_{it}$	0.154***	1.0000					

	0.0000						
APIP$_{it}$	0.190***	0.165***	1.0000				
	0.0000	0.0000					
LNTOTAL*APIP$_{it}$	0.197***	0.249***	0.996***	1.0000			
	0.0000	0.0000	0.0000				
AGES$_{it}$	0.271***	0.333***	0.151***	0.175***	1.0000		
	0.0000	0.0000	0.0000	0.0000			
MUN$_{it}$	0.123***	0.326***	0.150***	0.175***	0.055**	1.0000	
	0.0000	0.0000	0.0000	0.0000	0.0232		
ISLAND $_{it}$	0.252***	0.270***	0.0251	0.047**	0.467***	0.0352	1.0000
	0.0000	0.0000	0.3030	0.0531	0.0000	0.1498	

Number of observations = 1,680
Explanation of variable operationalization in table 2.
***, **, * = Significant P-value 1%, 5%, 10%.

Source: Secondary data, STATA-17 output (Afnan (2024).

Table 4 explains the results of the correlation analysis of the main variables in this study, namely the results of statistical correlation tests that test variables such as LNTOTAL$_{it}$, APIP$_{it}$, LNTOTAL*APIP$_{it}$, AGES, MUN, and ISLAND show a relationship. LNTOTAL$_{it}$ correlates with SDGSI$_{it}$, indicating that an increase in capital expenditure is related to the achievement of sustainable development goals. The APIP variable also shows a correlation with SDGSI$_{it}$, indicating that better APIP capability is associated with achieving sustainable development goals. In addition, the variable LNTOTAL*APIP$_{it}$ shows a very strong correlation with SDGSI$_{it}$, Other factors such as AGES$_{it}$, MUN$_{it}$, and ISLAND$_{it}$ also show a relationship with SDGSI$_{it}$, indicating that local government age, urban status, and island location affect the achievement of sustainable development goals.

Hypothesis Test

Table 5
Hypothesis Testing Results

Variables	**Expected** sign	**SDGSI $_{it}$**
1	2	3
_Cons		-237.723
		0.000
LNTOTAL$_{it}$	**H1** = (+)	10.960***
		0.000
APIP$_{it}$	(+/-)	144.903***
		0.000
LNTOTAL*APIP$_{it}$	**H2** = (-)	-4.884
		0.000
AGES$_{it}$	(+/-)	0.097***
		0.000
MUN$_{it}$	(+/-)	2.385***
		0.000
ISLAND$_{it}$	(+/-)	5.687***

	0.000
Prob > F = 0.000	
Adj R-Squared = 0.141	
Mean VIF = 668.78	
Number of Observations = 1,680	
Explanation of variable operationalization in table.1	
***,**,* = P-value significant 1%, 5%, 10%.	

Source: Secondary data, STATA-17 output (Afnan (2024)

Table 5 column (2) shows that $LNTOTAL_{it}$ has a significant positive effect on the achievement of SDGSIit with a coefficient value of 10.960 at a significance level of 1%, which means that the data used in this study supports the first hypothesis (H1), meaning that when capital expenditure has played a good role, it will be followed by an increase in the achievement of $SDGSI_{it}$. This shows that the allocation of funds for infrastructure development, industry, and innovation improves the quality and availability of infrastructure, supports inclusive and sustainable economic growth, and encourages innovation. In addition, in Table 5 column (3) the $APIP_{it}$ variable also shows a significant positive effect on the achievement of $SDGSI_{it}$ with a coefficient value of 144.903 at a significance level of 1%. meaning that when APIP has played a good role, it will be followed by an increase in SDGs. In Table 5 column (4) the moderation variable between spending and $APIP_{it}$ capability $(LNTOTAL * APIP)_{it}$ shows a negative effect with a coefficient value of -4.584 but is not significant, so the second hypothesis (H2) is not supported by the data. The results show that in addition to APIP capability and LNTOTAL, other variables such as age, urban status, and island location can achieve $SDGSI_{it}$. there are other variables such as control variables such as age, urban status, and island location also show a significant influence on the achievement of SDGSIit. $AGES_{it}$ has a positive influence with a coefficient value of 0.097 at 1% significance level, MUN_{it} has a positive influence with a coefficient value of 2.385 at 1% significance level, and $ISLAND_{it}$ has a positive influence with a coefficient value of 5.687 at 1% significance level.

Discussion

Positive effect of capital expenditure on SDGSI

The results of the analysis show that capital expenditure has a significant positive influence on the achievement of SDGs with a coefficient value of 10.960 at the 1% significance level. This supports the first hypothesis (H_1), which states that capital expenditure contributes positively to the achievement of SDGs. Study by (Angelina et al., 2020,) also found that capital expenditure positively contributes to the Human Development Index (HDI) in Indonesia, which is an important indicator in achieving the SDGs. These findings suggest that well-targeted capital expenditure allocations can improve public infrastructure and services, which in turn support the achievement of sustainable development goals. In other words, investments made through capital expenditure not only improve the physical quality of infrastructure but also improve people's overall quality of life, which is at the core of sustainable development goals.

The positive influence of APIP on SDGSI

The results show that APIP has a positive effect on the achievement of SDGSI. This finding supports research by (Sari, et al., 2022) APIP plays a role in ensuring accountability and transparency in government financial management, which is crucial for achieving SDGs 9. In addition, research by

Wahidi, et al., (2020) and (Refinda, 2021) shows that there is a positive relationship between organizational culture and APIP. This shows that there is a positive relationship between organizational culture and APIP performance. This indicates that to improve its performance, APIP is highly dependent on the organizational culture that exists in its work environment. A supportive organizational culture can strengthen the role of APIP in carrying out its functions, ensuring that capital expenditures are used efficiently and following predetermined objectives. Thus, an effective APIP supported by a good organizational culture can significantly contribute to the achievement of SDG 9.

The negative moderating effect of APIP and capital expenditure on SDGSI

The moderation variable between capital expenditure and APIP capability shows a negative effect with a coefficient value of -4.584 but is not significant. This means that the second hypothesis (H2), which states that moderation between capital expenditure and APIP capability will strengthen the effect of capital expenditure and APIP capability, is not proven to have a significant additional impact on the achievement of SDG 9. However, this finding does not completely negate the potential moderating effect between capital expenditure and APIP capability in achieving other SDG targets. According to (Handayani, 2019) organizational culture has no significant effect on APIP capability. Research by the organization Widhi, et al., (2014) and Prihartono et al., 2019) also support these findings, suggesting that internal control can have a negative influence if not managed properly. This is in line with research by Martínez-Ferrero and García-Meca, (2020), Liu and Lin, (2012)which found that ineffective internal control can be an obstacle. Therefore, the role of APIP should be a driving force in overseeing the use of capital expenditure in Indonesia as well as being a flexible government apparatus to ensure effectiveness and efficiency in achieving sustainable development goals.

CONCLUSIONS

The study concludes that capital expenditure on infrastructure development positively influences the achievement of SDG 9 by driving economic growth, increasing productivity, and supporting industrial activity and innovation. Similarly, the role of APIP as an internal supervisory body also contributes positively by ensuring effective and efficient use of capital expenditure in line with development plans. However, the interaction between capital expenditure and APIP capabilities shows a negative effect, suggesting the need for better coordination and synergy between these two factors. This highlights the importance of improving collaboration and aligning policies to optimize their impact on achieving SDG 9. Additionally, local governments must enhance APIP capabilities and strengthen governance to ensure efficient and sustainable infrastructure development. Integrating support from the private sector and civil society is also crucial for achieving SDG 9 comprehensively. This finding indicates the need for evaluation and improvement in the coordination and synergy between capital expenditure and the role of APIP to optimally contribute to the achievement of SDG targets, and Provincial/Regency/City Governments need to establish supporting policies to ensure the implementation of APIP capability improvement programs, especially SDG 9. However, this finding does not deny the importance of capital expenditure and APIP in supporting the achievement of SDGs as a whole. Well-targeted capital expenditure and quality infrastructure investment remain key factors in realizing sustainable development. Meanwhile, the effective supervisory role of APIP is also needed to ensure accountability and good governance in financial management and development projects. Going forward, local governments need to improve coordination and synergy between capital expenditure planning and the supervisory role of APIP. In addition, it is necessary to evaluate

relevant policies and regulations to create a conducive environment for efficient and sustainable infrastructure development. The involvement of the private sector and civil society is also important to support efforts to achieve SDG 9 in an integrated and comprehensive manner. Local governments need to ensure that capital expenditure funds are strategically allocated to achieve SDG 9, which includes industry, innovation, and infrastructure. Therefore, to realize the achievement of SDGs, the role of APIP must be a driving force in overseeing the use of capital expenditure in Indonesia as well as being a flexible government apparatus.

LIMITATION & FURTHER RESEARCH

This research utilizes data and information available up to a certain period. Recent dynamics and developments related to the influence of APIP, capital expenditure, and the achievement of SDGs 9 have not been fully covered in this study.

Future research can investigate other factors that may affect the relationship between APIP, capital expenditure, and the achievement of SDGs 9, such as human resource capacity, governance, and local social and economic conditions. Local governments are advised to continue to improve the role and effectiveness of APIP, as well as optimize the allocation of capital expenditure for infrastructure development that supports the achievement of SDGs 9 and other sustainable development goals.

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