DETERMINANTS OF PROFITABILITY IN SELECTED ENERGY SECTOR FIRMS OF RCEP MEMBER ECONOMIES: EVIDENCE FROM ENERGY INTENSITY, CARBON EMISSION INTENSITY, LEVERAGE, GDP GROWTH, AND INFLATION (2019-2025)

THESIS

SUBMITTED TO THE FACULTY OF ISLAMIC ECONOMICS AND BUSINESS
SUNAN KALIJAGA STATE ISLAMIC UNIVERSITY YOGYAKARTA
AS ONE OF THE REQUIREMENTS FOR OBTAINING
A BACHELOR'S DEGREE IN ECONOMICS

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SHARIA ECONOMICS STUDY PROGRAM
FACULTY OF ISLAMIC ECONOMICS AND BUSINESS
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SHARIA ECONOMICS STUDY PROGRAM

FACULTY OF ISLAMIC ECONOMICS AND BUSINESS

SUNAN KALIJAGA STATE ISLAMIC UNIVERSITY YOGYAKARTA

2026

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THESIS APPROVAL LETTER

THESIS APPROVAL LETTER

To:
Dear Dean of the Faculty of Islamic Economics and Business
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In Yogyakarta

Assalamualaikum wr.wb.

After reading, researching, providing clues and correcting and making corrections as necessary, I as a supervisor am of the opinionn that your thesis:

Name	:	Estu Chaerul Umam
NIM	:	22108010037
Thesis Title	:	Determinants of Profitability in Indonesian Energy Sector Firms: Evidence from Energy Intensity, Carbon Emission Intensity, Leverage, GDP Growth, and Inflation (2019-2024).

It can be submitted to the Faculty of Islamic Economics and Business, Departmen Sharia Economics Study Program, UIN Sunan Kalijaga Yogyakarta as one of the requirements to obtain a Bachelor of Science degree in the field of Islamic Economics.

With this, I hope that the thesis mentioned above can be submitted soon. I thank you for your attention.

Yogyakarta, 12 Mei 2026

Acknowledged,
Supervisor

Prof. Dr. Misnen Ardiansyah, S.E., M.Si., Ak., CA., ACPA
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STATEMENT OF AUTHENTICITY OF THESIS

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As one of the academic staff of Sunan Kalijaga Yogyakarta State Islamic University, I am the undersigned:

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MOTTO

“INI AKAN BERLALU”

(When things are going well, don’t let it go to your head; when things are tough, don’t lose hope)

-Dr. H. Fahruddin Faiz, M.Ag-

“Kita bergerak dan bersuara , Berjalan jauh, Tumbuh bersama, Sempatkan pulang ke beranda, ’Tuk mencatat hidup dan harganya”

-Hindia-

“Jangan takut kehilangan, karena semuanya milik ALLAH”.

-Aldi Taher -

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In the name of Allah, the Most Gracious, the Most Merciful. All praise is due to Allah SWT, the Most Compassionate and Most Merciful, who has given strength, guidance, and His blessings to the author in completing this thesis. May prayers and peace be upon Prophet Muhammad SAW, a role model for all of humanity. The author expresses gratitude

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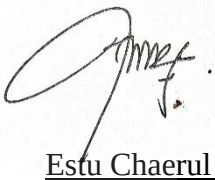
Success is not final, failure is not fatal: It is the courage to continue that counts.

In conclusion, the author realizes that this thesis is still far from perfect. Therefore, the author greatly hopes for constructive criticism and suggestions for improvement in the future. Hopefully, this thesis can provide benefits for the author in particular and for readers in general.

Yogyakarta, 11 Mei 2026



Estu Chaerul Umam
22108010037

LITERACY GUIDELINES

In preparing this thesis, the transliteration of Arabic words follows the guidelines set forth in the Joint Decree of the Minister of Religious Affairs and the Minister of Education and Culture of the Republic of Indonesia No. 158 of 1987 and No. 0543b/U/1987.

A. Single Consonant

Arabic script	Name	Latin script	Explanation
ا	alif	not represented	not represented
ب	bā’	b	be
ت	tā’	t	te
ث	ṡā’	ṡ	es (with a dot above)
ج	jim	j	je
ح	ḥā’	ḥ	ha (with a dot below)
خ	khā’	kh	ka and ha
د	dāl	d	de
ذ	żāl	ż	zet (with a dot above)
ر	rā‘	r	er
ز	zāi	z	zet
س	sīn	s	es
ش	syīn	**sy**	es and ye
ص	ṣād	ṣ	es (with a dot below)
ض	ḍād	ḍ	de (with a dot below)
ط	ṭā’	ṭ	te (with a dot below)

ظ	ẓā’	ẓ	zet (with a dot below)
ع	‘ain	‘	inverted comma above
غ	gain	g	ge
ف	fā‘	f	ef
ق	qāf	q	qi
ك	kāf	k	ka
ل	lām	l	el
م	mīm	m	em
ن	nūn	n	en
و	wāwu	w	w
ه -	hā’	h	ha
ء	hamza h	’	apostrof
ي	yā'	Y	ye

B. Double Consonants due to Syaddah are Written as Double Letters

ممتعّددة	written	*muta’addidah*
عدّة	written	*‘iddah*

C. *Tā' Marbutāh* at the End of a Sentence

a. Written with *h* if pronounced *Sukun.*

حكمة	written	*ḥikmah*
جزية	written	*jizyah*

b. When followed by the definite article *'al'* and the two words are read separately, it is written with an *h.*

كرامة االولياء	written	*karāmah al-auliyā'*

c. When *Tā'marbutāh* is followed by *fathāh, kasrah*, or *dāmah*, it is written as *ny t* or *h*.

زكاة الفطرة	written	*ẓakatā al-fitrāh*

D. Short Vowels and Their Application

Every *tā' marbūṭah* letter is transliterated into the letter 'h', both when it is at the end of a single word and when it is in the middle of a series of words (for example, when followed by the article 'al-'). However, this rule does not apply to words borrowed from Arabic that have become part of the Indonesian vocabulary, such as shalat, zakat, and so on, unless the original spelling is explicitly desired.

---َ---	fatḥah	written	a
---ِ---	kasrah	written	i
---ُ---	ḍammah	written	u
فعَل	fatḥah	written	fa'ala
ذكِر	kasrah	written	ẓukira
يذهبُ	ḍammah	written	yaẓhabu

E. Long Vowels

1	fatḥah + alif جاهلية	written	ā *jāhiliyah*
2	fatḥah + yā'mati تنسى	written	ā *tans* ā
3	kasrah + yā'mati كريم	written	*i* *karim*
4	ḍammah + wāwu mati فروض	written	*ū* *furūḍ*

F. Double Vowels

1	fatḥah + yā'mati بينكم	written	*ai* *bainakum*
2	fatḥah + wāwu mati قول	written	*au* *qaul*

G. Consecutive short vowels in a single word are separated by an apostrophe

أأنتم	written	*a'antum*
أعدّت	written	*u'iddat*
لئن شكرتم	written	*la'in syakartum*

H. The definite article alif + Lam

a. If followed by a *Qamariyyah* letter, it can be written using the initial letter "al".

القرآن	written	*al-Qur'ān*
القياس	written	*al-Qiyās*

b. If followed by a *Syamsiyyah* letter, it is written according to the first letter of that *Syamsiyyah.*

السماء	written	*al-Samā'*
الشمس	written	*al-Syams*

I. Writing Words in Sentences

Written according to their spelling

ذوى الفروض	written	*ẑawi al-furūḍ*
أهل السّنّة	written	*ahl as-sunnah*

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

ABSTRACT

This study examines energy sector firms operating in selected member economies of the Regional Comprehensive Economic Partnership (RCEP), namely Indonesia, Malaysia, Singapore, Thailand, the Philippines, and Australia. This subject is becoming increasingly pertinent due to rising concerns regarding climate change, environmental degradation, and the global transition towards a green economy, particularly in the context of Indonesia's ongoing reliance on fossil fuels and increasing industrial emissions. The present research employs a quantitative approach, utilising secondary data that has been processed through panel data regression analysis. Profitability is measured using Return on Assets (ROA). The findings demonstrate that both company-specific and macroeconomic factors exert an influence on profitability. The examination of the variables revealed that energy intensity, carbon emission intensity, and leverage have the strongest influence on company performance during the study period.

Keywoards : profitability, energy intensity, carbon emission intensity, leverage, energy sector firms.

ABSTRAK

Studi ini mengkaji perusahaan-perusahaan di sektor energi yang beroperasi di negara-negara anggota terpilih dari Regional Comprehensive Economic Partnership (RCEP), yaitu Indonesia, Malaysia, Singapura, Thailand, Filipina, dan Australia. Topik ini semakin relevan seiring meningkatnya kekhawatiran terkait perubahan iklim, degradasi lingkungan, dan transisi global menuju ekonomi hijau, terutama dalam konteks ketergantungan Indonesia yang masih tinggi terhadap bahan bakar fosil serta meningkatnya emisi industri. Penelitian ini menggunakan pendekatan kuantitatif, dengan memanfaatkan data sekunder yang diolah melalui analisis regresi data panel. Profitabilitas diukur menggunakan Return on Assets (ROA). Temuan menunjukkan bahwa faktor-faktor spesifik perusahaan dan makroekonomi sama-sama memberikan pengaruh terhadap profitabilitas. Pemeriksaan terhadap variabel-variabel tersebut mengungkapkan bahwa intensitas energi, intensitas emisi karbon, dan leverage memiliki pengaruh terkuat terhadap kinerja perusahaan selama periode penelitian.

Kata kunci: profitabilitas, intensitas energi, intensitas emisi karbon, leverage, perusahaan energi.

CHAPTER I

INTRODUCTION

A. Background

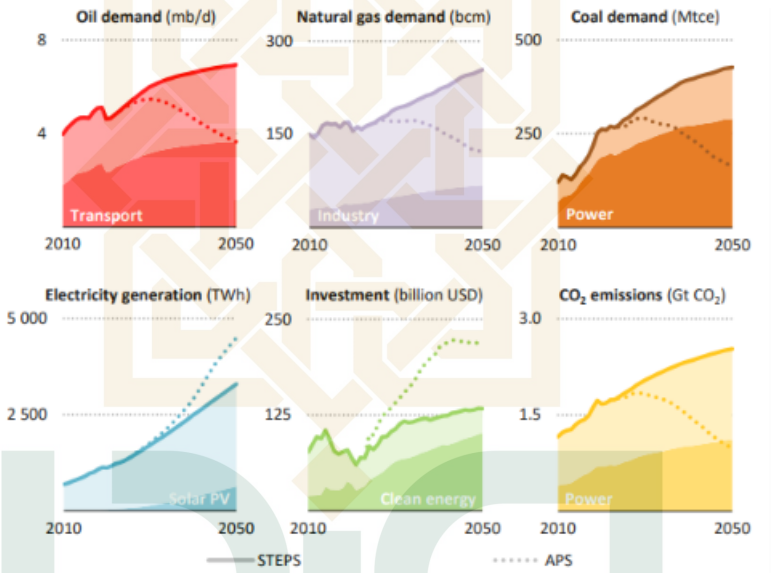
A considerable number of international institutions have identified climate change as one of the most significant challenges to the global economy. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR6, 2023) states that anthropogenic greenhouse gas emissions have accelerated global warming and increased the frequency of extreme weather events, which may disrupt supply chains, production systems, and international economic activities. According to the Stern Review (2007), this issue largely arises from the market's inability to internalize the external costs associated with carbon emissions, resulting in inefficient pricing and investment decisions. This concern is further reinforced by the Global Risks Report 2024 published by the World Economic Forum, which identifies inadequate climate change mitigation as one of the most critical global risks over the coming decade. Consequently, climate change has evolved from a purely environmental issue into a broader economic challenge that affects business operations, investment decisions, and long-term economic growth. For energy sector firms in particular, increasing climate-related risks and environmental pressures may influence operational efficiency, cost structures, and ultimately corporate profitability, making the examination of profitability determinants increasingly relevant in the context of the global energy transition.

The relevance of these challenges is particularly evident in members of the Regional Comprehensive Economic Partnership (RCEP), the world's largest regional trade agreement. RCEP promotes regional economic integration through trade liberalization, investment facilitation, and supply chain connectivity, making its member economies increasingly interconnected. Within this regional framework, the energy sector plays a strategic role in supporting economic growth, industrial development, and energy security. According to the World Energy Outlook 2023 published by the International Energy Agency, the energy sector remains one of the largest contributors to global greenhouse gas emissions while simultaneously facing increasing pressure to transition toward low-carbon energy systems. In addition, the World Bank's State and Trends of Carbon Pricing 2024 report highlights that economies with substantial dependence on fossil fuels are more vulnerable to production cost volatility arising from fluctuations in energy prices and evolving climate-related regulations. The World Economic Forum (2024) further emphasizes that climate-related risks may undermine investment stability, particularly in sectors that are highly exposed to global market dynamics and regulatory changes. These conditions suggest that energy firms operating in ASEAN countries and Australia as a RCEP member economies face growing operational, financial, and environmental challenges that may influence their profitability. Therefore, understanding the determinants of profitability within the energy sector has become increasingly important amid the ongoing energy transition and changing economic environment.

In response to increasing environmental challenges and the acceleration of the global energy transition, energy companies are under growing pressure to improve operational efficiency and reduce their environmental footprint. This pressure has shifted the attention of policymakers, investors, and stakeholders toward firm-level environmental performance indicators that reflect the sustainability of business operations. Among these indicators, energy intensity and carbon emission intensity have emerged as important measures of how efficiently companies utilize energy resources and manage carbon-related impacts. Firms with lower energy intensity are generally considered more operationally efficient, while lower carbon emission intensity reflects a company's ability to reduce environmental burdens associated with its activities. Consequently, both indicators are increasingly viewed not only as measures of environmental performance but also as strategic factors that may influence corporate profitability and long-term competitiveness (Lin & Jia, 2019).

The growing energy demand in ASEAN countries and Australia has increased the importance of energy efficiency within the energy sector. As energy companies operate in a highly energy-intensive environment, the ability to utilize energy resources efficiently has become a critical determinant of operational performance. Energy intensity, which reflects the amount of energy required to generate a certain level of economic output, is widely recognized as an indicator of operational efficiency. Higher energy intensity generally indicates greater energy consumption relative to output, leading to increased operating costs and reduced cost

competitiveness. In addition to its environmental implications, empirical studies have demonstrated that inefficient energy utilization is associated with higher carbon emissions and weaker financial performance, highlighting the strategic importance of energy intensity in supporting both sustainability objectives and corporate profitability (Lismiyah et al., 2024).



Source: International Energy Agency (IEA), Southeast Asia Energy Outlook 2024

Figure 1. Key Trends in Southeast Asia, 2010-2050

Alongside energy efficiency, increasing regulatory pressure and stakeholder expectations regarding environmental sustainability have heightened the importance of carbon emission management within the energy sector. Governments, investors, and international institutions are increasingly encouraging energy companies to reduce greenhouse gas emissions and improve environmental transparency as part of broader decarbonization efforts. Consequently, carbon

emission intensity has emerged as a key indicator of environmental performance, reflecting the amount of carbon emissions generated relative to a firm's economic output. Companies with higher carbon emission intensity may face greater exposure to regulatory risks, compliance costs, and reputational challenges, which can ultimately affect their financial performance. Therefore, carbon emission intensity is increasingly regarded not only as an environmental metric but also as an economic factor that may influence corporate profitability and long-term competitiveness (World Bank, 2023; International Energy Agency, 2022).

The growing adoption of environmental regulations and carbon reduction initiatives has increased the pressure on energy companies to integrate environmental considerations into their operational and financial decision-making processes. As governments continue to strengthen climate-related policies and sustainability standards, firms are required to improve energy efficiency, reduce carbon emissions, and enhance environmental transparency. Failure to adapt to these evolving requirements may result in higher compliance costs and regulatory risks, particularly in developing economies where institutional and policy frameworks are still evolving (Narassimhan et al., 2018). Furthermore, regulatory uncertainty and limited administrative capacity may hinder the effectiveness of environmental policies and increase adjustment costs for firms (Zhang & Wang, 2021). Consequently, the ability of energy companies to manage energy consumption and carbon emissions effectively has become increasingly important

for maintaining competitiveness, profitability, and long-term business sustainability.

From a financial perspective, the energy sector is widely recognized as a capital-intensive industry that requires substantial investment in infrastructure, production facilities, and energy transition projects. Consequently, financing decisions play a crucial role in determining a firm's financial performance and long-term sustainability. One of the most important indicators of a company's financing structure is leverage, which reflects the extent to which corporate activities are financed through debt. While debt financing may provide firms with additional resources to support expansion and investment activities, excessive leverage can increase interest obligations and financial risk, thereby reducing profitability (Pandey et al., 2022). Furthermore, highly leveraged firms are generally more vulnerable to economic shocks and market uncertainty because fixed financial commitments may reduce managerial flexibility and increase the likelihood of financial distress (Rizqya et al., 2025). Therefore, leverage is frequently regarded as an important determinant of profitability, particularly in capital-intensive industries such as the energy sector.

Previous studies indicate that internal factors play a substantial role in shaping the profitability of energy companies. Fluctuations in energy costs may increase production expenses and reduce profit margins, particularly for firms with inefficient energy utilization (Mao et al., 2021). Similarly, increasingly stringent environmental regulations may generate additional compliance costs that affect

corporate financial performance (Lin & Jia, 2019). Furthermore, financing decisions reflected through leverage influence a firm's financial risk and ability to support long-term investment activities. These findings suggest that energy intensity, carbon emission intensity, and leverage constitute important firm-specific determinants that may explain variations in profitability within the energy sector. However, the profitability of energy companies is not solely influenced by internal factors, as broader macroeconomic conditions may also affect business performance and market demand.

In addition to firm-specific factors, the profitability of energy companies is also influenced by broader macroeconomic conditions. Economic growth, commonly measured by GDP growth, reflects the overall level of economic activity and plays a crucial role in determining energy demand. During periods of economic expansion, industrial production, transportation activities, and household consumption generally increase, leading to higher demand for energy products and services. As a result, energy companies may experience greater revenue opportunities and improved financial performance. Previous studies have also indicated that sustainable business practices and effective environmental management may strengthen corporate performance within a growing economic environment (Al-Chalid et al., 2024).

The complexity of profitability in the energy sector cannot be explained solely by individual environmental, financial, or macroeconomic factors. Energy companies must simultaneously manage operational efficiency, environmental

performance, financing decisions, and exposure to changing economic conditions. As capital-intensive industries, energy firms require substantial investment to maintain production capacity and support the transition toward cleaner energy systems. At the same time, they remain vulnerable to fluctuations in inflation, financing costs, commodity prices, and regulatory requirements. According to the International Energy Agency (2023), investment needs in the global energy sector continue to increase as countries accelerate the transition toward low-carbon energy systems. Furthermore, previous studies suggest that profitability in the energy sector is influenced by a combination of environmental performance, financial structure, and macroeconomic conditions rather than by a single determinant (Noman et al., 2024). These conditions indicate that profitability is shaped by the interaction of multiple firm-specific and macroeconomic factors, highlighting the need for a comprehensive analysis that integrates environmental, financial, and economic determinants within a single empirical framework.

Previous empirical studies have highlighted the importance of financial structure in determining the profitability of energy companies. Evidence from the energy and mining sectors indicates that leverage may significantly influence a firm's ability to generate returns, particularly in industries characterized by substantial capital requirements and high exposure to risk (Rizqya et al., 2025). However, other studies suggest that profitability cannot be explained solely by financing decisions, as factors such as liquidity, firm size, operational efficiency, and external economic conditions may also influence corporate performance

(Alkadrie, 2023). These findings indicate that the determinants of profitability in the energy sector remain complex and potentially vary across different institutional and economic environments, suggesting the need for further empirical investigation.

Despite the growing body of literature examining the determinants of corporate profitability, existing studies have generally investigated environmental, financial, and macroeconomic factors in isolation, resulting in limited evidence regarding their combined influence on firm performance (Noman et al., 2024). Furthermore, most prior studies have focused on single-country settings, restricting the generalizability of their findings across different economic and institutional environments. This limitation is particularly relevant for the energy sector, where profitability is shaped by diverse regulatory frameworks, energy market structures, and stages of economic development (Alavani et al., 2024). In addition, relatively few studies have examined these relationships during the period 2019-2025, which encompasses the COVID-19 pandemic, post-pandemic economic recovery, global energy price volatility, and the acceleration of the energy transition. In addition, this study focuses on firms operating within member economies of the Regional Comprehensive Economic Partnership (RCEP). The selection of RCEP provides a relevant regional setting because its members are increasingly integrated through trade, investment, and economic cooperation while maintaining heterogeneous energy market structures and regulatory environments. This diversity offers an appropriate context for examining the determinants of profitability across energy

companies operating under comparable regional economic dynamics. Therefore, this study develops an integrated empirical framework to examine the effects of energy intensity, carbon emission intensity, leverage, GDP growth, and inflation on the profitability of energy sector firms in ASEAN countries and Australia. By incorporating environmental, financial, and macroeconomic determinants within a cross-country setting, this study is expected to provide a more comprehensive understanding of the factors influencing profitability in the energy sector (Daud et al., 2023).

Previous empirical evidence has highlighted the potential importance of environmental performance in shaping corporate profitability. Research conducted by Daud et al. (2023) found that firms with lower carbon emission intensity tend to exhibit superior financial performance, indicating that improvements in environmental efficiency may contribute positively to profitability. Similarly, global evidence suggests that enhanced energy efficiency is associated with higher returns on assets and increased firm value, supporting the view that environmental operational factors should be considered important economic determinants of corporate performance (Włodarczyk et al., 2024). Nevertheless, the magnitude and direction of these relationships may vary across countries, industries, and economic conditions, indicating that further investigation is required to obtain a more comprehensive understanding of how environmental factors influence profitability in different contexts.

Furthermore, this study contributes to the existing literature by integrating environmental, financial, and macroeconomic determinants within a single empirical framework, addressing the fragmented nature of previous studies that often examine these factors separately (Noman et al., 2024). Specifically, the study investigates how energy intensity, carbon emission intensity, leverage, GDP growth, and inflation collectively influence the profitability of energy sector firms. This integrated approach enables a more comprehensive understanding of the interactions between operational efficiency, environmental performance, financing decisions, and broader economic conditions. In addition, the study extends existing evidence by focusing on energy companies operating across RCEP member economies, thereby providing insights from different economic and institutional environments where profitability may be influenced by diverse regulatory frameworks and market characteristics (Alavani et al., 2024). The period of analysis, spanning 2019-2025, further enhances the relevance of the study as it captures the effects of the COVID-19 pandemic, post-pandemic economic recovery, global energy price volatility, and the acceleration of the energy transition, all of which have significantly affected the energy sector worldwide (IEA, 2023). Therefore, this study is expected to provide empirical evidence that contributes to the understanding of profitability determinants in the energy sector and offers practical implications for corporate managers and policymakers in developing adaptive and sustainable strategies amid ongoing economic and environmental challenges.

B. Research Questions

1. How does energy intensity affect the profitability of energy sector firms in RCEP member economies during the period 2019-2025?
2. How does carbon emission intensity affect the profitability of energy sector firms in RCEP member economies during the period 2019-2025?
3. How does leverage affect the profitability of energy sector firms in RCEP member economies during the period 2019-2025?
4. How does GDP growth affect the profitability of energy sector firms in RCEP member economies during the period 2019-2025?
5. How does inflation affect the profitability of energy sector firms in RCEP member economies during the period 2019-2025?
6. To what extent do energy intensity, carbon emission intensity, leverage, GDP growth, and inflation simultaneously affect the profitability of energy sector firms in RCEP member economies during the period 2019-2025?

C. Research Objectives

The objectives of this research are as follows:

1. To examine the effect of energy intensity on the profitability of energy sector firms in RCEP member economies during the period 2019-2025.
2. To examine the effect of carbon emission intensity on the profitability of energy sector firms in RCEP member economies during the period 2019-2025.
3. To examine the effect of leverage on the profitability of energy sector firms in RCEP member economies during the period 2019-2025.

4. To examine the effect of GDP growth on the profitability of energy sector firms in RCEP member economies during the period 2019-2025.
5. To examine the effect of inflation on the profitability of energy sector firms in RCEP member economies during the period 2019-2025.
6. To analyze the simultaneous effects of energy intensity, carbon emission intensity, leverage, GDP growth, and inflation on the profitability of energy sector firms in RCEP member economies during the period 2019-2025.

D. Research Contribution

1. Theoretical Contribution

This study contributes to the existing literature by integrating environmental, financial, and macroeconomic variables into a single empirical framework to explain the profitability of energy sector firms. Specifically, the study examines the combined effects of energy intensity, carbon emission intensity, leverage, GDP growth, and inflation on corporate profitability. By incorporating these variables simultaneously, this research extends prior studies that have often analyzed environmental, financial, and macroeconomic determinants separately. Furthermore, the study contributes to the literature on energy economics and corporate finance by emphasizing that energy intensity and carbon emission intensity should not only be viewed as environmental indicators but also as economic factors that may influence operational costs, financial risk, and corporate profitability. In addition, the study provides empirical evidence from energy sector firms operating in RCEP members during the period 2019-2025,

thereby enriching the existing understanding of profitability determinants across different economic and institutional environments.

This study contributes to the literature in several important ways. First, it develops an integrated analytical framework that simultaneously examines environmental (energy intensity and carbon emission intensity), financial (leverage), and macroeconomic (GDP growth and inflation) determinants of corporate profitability, addressing the fragmented approach adopted in much of the previous literature. Second, the study extends the application of the Theory of the Firm by demonstrating that corporate profitability in the energy sector is shaped not only by internal operational and financial decisions but also by environmental efficiency and macroeconomic conditions. Furthermore, the study enriches the empirical discussion surrounding the Porter Hypothesis, Stakeholder Theory, Legitimacy Theory, and Signaling Theory by examining their relevance within the context of energy firms operating across selected RCEP member economies. Finally, by employing cross-country panel data covering the period 2019-2025, this research provides updated empirical evidence that captures the effects of the COVID-19 pandemic, post-pandemic recovery, global energy market disruptions, and the acceleration of energy transition policies, thereby extending existing knowledge on the determinants of corporate profitability under changing economic and environmental conditions.

2. Practical Contribution

a. Researchers and academics

This study provides empirical evidence regarding the effects of energy intensity, carbon emission intensity, leverage, GDP growth, and inflation on the profitability of energy sector firms RCEP member economies. The findings are expected to enrich the literature on energy economics, corporate finance, and sustainability by offering a comprehensive perspective that integrates environmental, financial, and macroeconomic determinants within a single analytical framework. Furthermore, this study may serve as a methodological reference for future researchers interested in applying panel data analysis to examine corporate performance under changing economic and environmental conditions.

b. Internal Company Use

The findings of this study may assist corporate managers in developing strategies related to energy efficiency, carbon emission management, and capital structure optimization. By understanding the factors that influence profitability, energy companies can improve investment planning, allocate resources more effectively, and formulate operational strategies that enhance competitiveness and long-term sustainability. In addition, the findings may support managerial decision-making in responding to fluctuations in energy prices, financing costs, and changing market conditions.

c. Governments and Regulators

This study provides insights for governments and regulatory authorities regarding the relationship between environmental performance, financing decisions, macroeconomic conditions, and corporate profitability in the energy sector. The findings may support the development of policies and regulatory frameworks that encourage energy efficiency improvements and carbon emission reductions while maintaining the competitiveness of energy companies. Moreover, the results may serve as an empirical reference in designing strategies that support sustainable energy development and long-term economic growth.

d. Investors and Capital Market Stakeholders

The findings of this study may provide useful information for investors, financial analysts, and other capital market participants regarding the factors that influence the profitability of energy sector firms. By considering energy intensity, carbon emission intensity, leverage, GDP growth, and inflation, stakeholders can gain a more comprehensive understanding of both financial and non-financial risks associated with investment decisions. Furthermore, the findings may support portfolio evaluation, risk assessment, and investment strategies that are aligned with long-term sustainability objectives.

E. Structure of the Study

The organization of this thesis is structured systematically to facilitate readers' understanding of the research process, the relationships among the research

variables, and the methodological approach employed. The structure of this study is organized as follows:

Chapter I - Introduction

This chapter presents the research background, research questions, research objectives, research contributions, and the organization of the thesis. The discussion focuses on the determinants of profitability in energy sector firms operating in RCEP member economies, particularly the roles of energy intensity, carbon emission intensity, leverage, GDP growth, and inflation during the period 2019-2025.

Chapter II - Literature Review

This chapter discusses the theoretical foundations underlying the study. The primary theoretical framework is based on the Theory of the Firm, supported by the Porter Hypothesis, Stakeholder Theory, Legitimacy Theory, Signaling Theory, and Endogenous Growth Theory. In addition, this chapter reviews previous empirical studies, explains the research variables, develops the conceptual framework, and formulates the research hypotheses.

Chapter III - Research Methodology

Describes the research design, population and sample selection, unit of analysis, research period, data sources, variable measurements, and analytical techniques. It also explains the panel data regression model employed in the study and the use of EViews 13 as the primary analytical software.

Chapter IV - Results and Discussion

The empirical findings and discusses the results in relation to the underlying theories and previous studies. Furthermore, it evaluates the implications of the findings for corporate management, investors, regulators, and other stakeholders within the energy sector.

Chapter V - Closing

Summarizes the major findings of the study, presents the conclusions, discusses theoretical and practical implications, acknowledges research limitations, and provides recommendations for future research. The chapter also highlights the implications of the findings for improving profitability, enhancing energy efficiency, and supporting sustainable business practices in the energy sector.

CHAPTER V

CONCLUSION

A. Conclusion

The present study examines the effect of environmental factors, capital structure, and macroeconomic conditions on the profitability of companies in the energy sector. The dependent variable (Y) in this study is Return on Assets (ROA). The independent variables (X) are energy intensity, carbon emission intensity, leverage, Gross Domestic Product (GDP), and inflation. The data utilized in this study are secondary data obtained from energy sector firms operating in selected member economies of the Regional Comprehensive Economic Partnership (RCEP), namely Indonesia, Malaysia, Singapore, Thailand, the Philippines, and Australia, during the 2019- 2025 observation period. The analysis was conducted using a panel data regression approach. The results of the model selection testing indicated that the final estimation should use the Common Effect Model (CEM). The subsequent section delineates the salient findings :

1. Energy Intensity was found to have a negative and statistically significant effect on Return on Assets (ROA), indicating that Hypothesis 1 (H_1) is accepted. The estimation results suggest that higher Energy Intensity is associated with lower profitability among energy sector companies during the 2019-2025 observation period. This finding implies that firms with relatively greater energy consumption tend to generate lower returns on their assets, reflecting the

importance of improving energy efficiency to support corporate financial performance.

These findings are consistent with the Theory of the Firm, which argues that firms seek to maximize profits through the efficient allocation of productive resources. In this context, higher Energy Intensity may indicate less efficient utilization of energy resources, which can reduce firms' ability to generate profits. The results also support the Porter Hypothesis, suggesting that improvements in environmental and operational efficiency may enhance corporate competitiveness and long-term financial performance.

The empirical findings are in line with previous studies conducted by Choi (2022), Alavani et al. (2024), Abam et al. (2024), and Noman et al. (2024), which generally reported that better energy efficiency is associated with stronger corporate performance. Therefore, improving energy efficiency should become a strategic priority for energy sector companies to strengthen profitability while supporting sustainable business practices.

2. Carbon Emission Intensity was found to have a negative and statistically significant effect on Return on Assets (ROA), indicating that Hypothesis 2 (H_2) is accepted. The estimation results suggest that higher Carbon Emission Intensity is associated with lower profitability among energy sector companies during the 2019-2025 observation period. This finding implies that firms with relatively higher carbon emissions tend to generate lower returns on their

assets, highlighting the importance of improving environmental performance as part of long-term business sustainability.

These findings support the Theory of the Firm, which emphasizes that firms maximize profitability through the efficient utilization of productive resources. Higher Carbon Emission Intensity may indicate production processes that rely more heavily on carbon-intensive energy sources or less environmentally efficient technologies, which may adversely affect corporate financial performance. In addition, Stakeholder Theory suggests that increasing attention from regulators, investors, and society toward environmental responsibility encourages firms to improve environmental performance in order to maintain their competitiveness and long-term profitability.

The empirical findings are generally consistent with previous studies by Oestreich and Tsiakas (2024) and Ibishova (2024), which reported that environmental performance and carbon-related risks have become increasingly important determinants of corporate financial performance. However, the results differ from those of Noman et al. (2024), who reported a positive relationship between carbon emission intensity and profitability in certain industrial settings. This difference may reflect variations in industry characteristics, sample composition, regulatory environments, and the measurement of carbon emission intensity. Therefore, reducing carbon emission intensity should become a strategic priority for energy sector

companies to improve profitability while supporting sustainable business development.

3. Leverage was found to have a negative and statistically significant effect on Return on Assets (ROA), indicating that Hypothesis 3 (H_3) is accepted. The estimation results suggest that higher leverage is associated with lower profitability among energy sector companies during the 2019-2025 observation period. This finding implies that greater reliance on debt financing may reduce a firm's ability to generate returns from its assets, particularly when financial obligations increase over time.

These findings are consistent with the Theory of the Firm, which emphasizes the importance of allocating financial resources efficiently to maximize corporate profitability. In addition, the Trade-off Theory explains that although debt financing may provide tax benefits and additional investment capital, excessive reliance on debt may increase financial distress costs and reduce corporate profitability. Therefore, maintaining an optimal capital structure is essential to support sustainable financial performance.

The empirical findings differ from those of Alghifari et al. (2022), who reported that leverage positively affected profitability under certain conditions. However, the present results are more consistent with the view that higher financial leverage may increase financing costs and financial risk, thereby weakening corporate profitability. Accordingly, energy sector companies

should adopt prudent financing policies and maintain an appropriate balance between debt and equity to strengthen their long-term financial performance.

4. Leverage was found to have a negative and statistically significant effect on Return on Assets (ROA), indicating that Hypothesis 3 (H_3) is rejected. The estimation results suggest that higher leverage is associated with lower profitability among energy sector companies during the 2019-2025 observation period. This finding implies that greater reliance on debt financing may reduce firms' ability to generate returns from their assets, particularly when financial obligations increase relative to operating performance.

These findings can be explained through the Theory of the Firm, which argues that firms seek to maximize profitability by allocating financial resources efficiently. Although debt can provide additional funding for business activities, a higher level of leverage may also increase financing obligations and financial risk, thereby reducing corporate profitability. This interpretation is also consistent with the Trade-off Theory, which suggests that debt financing provides benefits only up to an optimal level, after which additional borrowing may generate financial distress costs that outweigh its advantages.

The empirical findings differ from those of Alghifari et al. (2022), who reported that leverage had a positive effect on profitability under certain conditions. However, the present findings are more consistent with the argument that greater dependence on debt financing may weaken financial

performance because of increasing financial obligations and risk exposure. Therefore, energy sector companies should maintain a balanced capital structure and implement prudent debt management to support sustainable profitability while minimizing long-term financial risk.

5. Gross Domestic Product (GDP) was found to have a positive and statistically significant effect on Return on Assets (ROA), indicating that Hypothesis 4 (H_4) is accepted. The estimation results suggest that higher GDP growth is associated with higher profitability among energy sector companies during the 2019-2025 observation period. This finding implies that favorable macroeconomic conditions provide a supportive environment for firms to improve their financial performance.

These findings are consistent with the Endogenous Growth Theory proposed by Paul Romer (1990), which argues that economic growth promotes investment, productivity, and capital accumulation, thereby creating conditions that support long-term business performance. In the context of the energy sector, stronger economic growth may stimulate industrial activities and create greater business opportunities, enabling firms to improve their profitability. The empirical findings are consistent with those reported by Zhang et al. (2022), who found that economic growth positively influences the performance of energy companies. Similarly, Noman et al. (2024) reported that favorable macroeconomic conditions contribute to higher profitability in resource-based industries. Therefore, maintaining sustainable economic growth is important

for supporting the long-term financial performance and competitiveness of energy sector companies.

6. Inflation was found to have a negative and statistically significant effect on Return on Assets (ROA), indicating that Hypothesis 5 (H_5) is rejected. The estimation results suggest that higher inflation is associated with lower profitability among energy sector companies during the 2019-2025 observation period. This finding implies that rising inflation may reduce firms' ability to generate profits by increasing production costs and creating greater uncertainty in the business environment.

These findings are consistent with the Endogenous Growth Theory, which emphasizes that macroeconomic stability plays an important role in supporting sustainable economic growth and corporate performance. Although moderate inflation may accompany economic expansion, persistently high inflation can increase production costs, reduce purchasing power, and create uncertainty that weakens firms' financial performance. Consequently, maintaining price stability is essential for supporting sustainable profitability in the energy sector.

The empirical findings are generally consistent with previous studies by Amelia et al. (2023), Choi (2022), and Abam et al. (2024), which highlight the importance of macroeconomic conditions in shaping corporate financial performance. Therefore, inflation should be viewed as an important external factor that influences corporate profitability, indicating that stable

macroeconomic conditions are essential for maintaining sustainable business performance in the energy sector.

Overall, the findings of this study indicate that Energy Intensity, Carbon Emission Intensity, Leverage, Gross Domestic Product (GDP), and Inflation are significant determinants of the profitability of energy sector companies during the 2019-2025 observation period. The results demonstrate that corporate profitability is influenced not only by internal factors, such as operational efficiency, environmental performance, and capital structure, but also by external macroeconomic conditions, including economic growth and inflation. Therefore, improving financial performance requires an integrated approach that combines efficient resource utilization, responsible environmental management, prudent financing decisions, and continuous adaptation to changing macroeconomic conditions.

These findings are also consistent with the principles of Islamic economics, which emphasize the values of balance (*tawazun*), social responsibility (*mas'uliyyah*), and the efficient utilization of resources while avoiding wastefulness (*israf*). Accordingly, sustainable corporate profitability should be achieved not only through financial performance but also through responsible environmental stewardship and sound business practices that contribute to long-term public welfare (*maslahah*).

B. Research Limitations

The researchers ascertained that there were a number of limitations that needed to be considered in interpreting the results of the study, based on its implementation.

The observation period utilized was comparatively brief, resulting in findings that were significantly influenced by macroeconomic conditions, energy price movements, and policies implemented during that period. Should there be changes in economic conditions or regulations outside the study period, it is likely that the results obtained would also differ.

Furthermore, the study's sample size was not sufficiently large to encompass all companies in the energy sector. This limitation arose due to the stringent data analysis criteria, which required complete and consistently organized data for inclusion in the study. Despite the regulatory framework established by the Financial Services Authority through POJK on sustainable reporting, the level of compliance and completeness of disclosure among companies exhibits variability in practice. This discrepancy has resulted in constrained data availability, particularly concerning environmental variables, necessitating judicious generalizations of research findings.

This study has several limitations that should be considered when interpreting the findings. First, although the study covers the 2019-2025 period, the results may reflect the specific economic, regulatory, and market conditions prevailing during the observation period. Consequently, changes in macroeconomic conditions, environmental regulations, or developments in the energy sector beyond the study period may produce different empirical results.

Second, the study employed purposive sampling, resulting in the inclusion of only energy sector companies that consistently published complete financial and

sustainability data throughout the observation period. As a result, several companies were excluded due to incomplete or unavailable data, particularly for environmental indicators such as energy intensity and carbon emission intensity. This limitation may affect the generalizability of the findings to the broader energy sector.

Finally, this study focused on five explanatory variables, namely Energy Intensity, Carbon Emission Intensity, Leverage, Gross Domestic Product, and Inflation. Although these variables explain a substantial proportion of the variation in corporate profitability, other factors, such as corporate governance, firm size, liquidity, energy prices, technological innovation, and other firm-specific characteristics, were not incorporated into the analysis and may also influence profitability.

C. Recommendations

In light of the research findings, a number of recommendations have been put forth for consideration by relevant government entities and future researchers. These recommendations pertain to the efforts undertaken to sustain and enhance the profitability of energy sector companies in the face of mounting pressure for efficiency, environmental regulations, and macroeconomic dynamics.

1. Governments and relevant regulatory authorities are encouraged to strengthen policies that promote energy efficiency, carbon emission reduction, and sustainable business practices within the energy sector. In addition, maintaining macroeconomic stability, particularly in terms of economic growth and inflation, is essential to create a supportive business environment for energy companies. Regulatory initiatives, financial incentives, and access to

sustainable financing may encourage firms to improve operational efficiency, reduce environmental impacts, and strengthen their long-term financial performance. Furthermore, energy sector companies are encouraged to optimize energy utilization, improve environmental performance, and maintain prudent capital structure management in order to enhance profitability while remaining competitive in an increasingly sustainability-oriented business environment.

2. Future research is encouraged to expand this study by incorporating additional variables that may influence corporate profitability, such as firm size, liquidity, corporate governance, energy prices, technological innovation, and other sustainability-related indicators. Researchers may also consider extending the observation period, increasing the number of sample companies, or employing alternative analytical methods to obtain more comprehensive evidence. In addition, comparative studies involving different industries or broader groups of countries may provide deeper insights into the determinants of profitability across various economic and regulatory environments.

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