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IMPACT OF CLIMATE CHANGE : PROFITABILITY PERSPECTIVE

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ABSTRACT

The purpose of this study is to examine the impact of climate change on the plantation sector, service sector, banking sector, and trade or manufacturing sector from a profitability perspective through net profit margin. The research method is descriptive and qualitative, analyzing 6 companies in 4 sectors over the period of 2019-2023, with a total of 30 samples. The findings show that climate change does not affect the telecommunications sector as it is able to stabilize sales, thus impacting profitability. The banking sector is insignificantly affected by climate change due to its ability to minimize risks when granting loans to creditors effectively. However, climate change significantly impacts the palm oil plantation and trade sectors, especially fertilizer trade, due to supply chain disruptions and price increases caused by environmental effects. This leads to decreased productivity from the pressure of raw material price fluctuations, market demand, and rising operational costs. One way to mitigate this is through adaptation strategies, including the implementation of green technologies and operational efficiency to sustain profitability. Both internal and external factors contribute to the company's ability to generate proportional profits with increased revenue, achieving an optimal net profit margin and supporting the realization of a Gold Indonesia in 2045.

***Keywords*:** Climate Change, Profitability, Net Profit Margin.

INTRODUCTION

Global warming is an important issue because it impacts various sectors of life (Kurniawan et al., 2024). It plays a key role in changes to the Earth's temperature, which is closely linked to other climate elements, such as pressure, wind, humidity, evaporation, and rainfall, which affect the ecosystem directly or indirectly (Yehia et al., in Muhsin et al., 2023). As a global environmental issue, climate change requires serious attention, considering the many challenges that must be faced to reduce its impact (Pratama & Wijayanti, 2022). The Center for Climate and Energy Solutions (C2ES) states that companies must start taking action through various inevitable climate impact strategies. Internally, companies strive to better understand the risks and opportunities of climate change and take steps to ensure the company's stability. The impact of climate change on financial reports is important for investors to know how much impact climate change has on the company's production results (Mahardika, 2022). The sectors most vulnerable to the impacts of climate change are the plantation sector, banking, primary consumer goods, building goods, and telecommunications because changes in temperature, rainfall, and unpredictable weather patterns can affect productivity. Climate change is a drastic change in temperature, rainfall, wind patterns, and various other effects, caused by natural factors such as solar activity that can affect the climate (Erilia, 2022). Handling global warming is becoming increasingly urgent, given the need for immediate and integrated action to mitigate its impacts and adapt to its consequences (Kurniawan et al., 2024). Climate change affects financial stability, strengthening investor confidence, both domestic and international, thus creating a safe and predictable environment for investment (Masduki et al, 2020). This investor confidence is very important to encourage increased investment, which will ultimately increase productivity and stimulate innovation (Safira, et al., 2024). Therefore, financial stability not only plays a role in preventing economic disruption but also supports sustainable long-term economic development (Apriyanti, 2018). Adaptation to climate risk is an important element in maintaining the sustainability of financial stability. To deal with the impact of climate change on financial stability, all parties, including corporations, banks, and financial authorities, need to take mitigation steps (Erdiana, 2024). Corporations and banks must incorporate climate change risks into their business strategies and risk management frameworks (Erdiana, 2024). On the other hand, OJK and Bank Indonesia (BI) need to make climate risk part of the assessment of the bank's risk management system, including supervision of the payment system and management of the rupiah currency (Siregar, 2024). Norges stated that financial stability is a condition where the financial system is robust against all kinds of disturbances in the economy. Indicators for measuring the stability of the financial system in Indonesia are measured through income (Rusydiana et al., 2019). Sartika and Mokodompit. (2024) stated that climate change has quite an impact on decreasing income levels, while according to Bunga and Maradesa (2024), the issues that arise, climate change has an impact on the industrial sector when viewed from a profitability perspective, where the net profit margin is below the standard, as seen in BRI and CIMB (banking sector), PT Unilever (trade or manufacturing sector), PT Sampoerna Agro (plantation sector), and PT Pupuk Indonesia due to weather conditions affecting the production cycle. Based on these issues, this research is important to understand which sectors are most impacted by climate change, measured by the profitability ratio, specifically the net profit margin.

LITERATURE REVIEW

The profitability ratio measures the relationship between net profit after interest and taxes and company sales, through the net profit margin. According to Kasmir (2016), the net profit margin is a financial ratio that measures how efficient a company is in generating net profit from all its business activities. The formula for net profit margin is as follows:

$$Net\ Profit\ Margin = \frac{Net\ Profit\ After\ Interest\ and\ Taxes}{Sales} \text{x } 100 \qquad (1)$$

Previous research on the impact of climate change on profitability was conducted by Bunga and Maradesa (2024), which emphasized that climate fluctuations, such as rising temperatures and extreme rainfall, can affect raw material supplies and product prices, ultimately impacting the company's profitability. Frei & Frei (2024) highlighted the importance of adaptive strategies in managing climate change risks to maintain financial stability. Megeid (2024) stated that companies that are more transparent in disclosing climate risks tend to perform better financially, with more reliable financial reporting and more effective risk management. Sarabdeen (2022) stated that climate change risk management practices have a positive effect on financial performance, meaning that institutions that are more proactive in managing climate risks tend to have better financial performance. The novelty of this research is conducting a study across four sectors: the plantation sector, the service sector, the banking sector, and the trade or manufacturing sector, viewed from the perspective of profitability through net profit margin.

METHODOLOGY

The method used is descriptive with a qualitative approach. The sampling technique chosen is purposive sampling with the criteria of having complete audited financial reports published on the website for the 2019-2023 period. There are 6 companies that have implemented mitigation measures due to climate change. These various sectors were chosen because the researchers wanted to know which sectors were most affected by climate change. Research observations were carried out for 5 years, so the total observations amounted to 30 samples. Furthermore, data analysis was conducted, including data tabulation, presentation, and calculations, to answer the phenomenon of net profit margin and return on assets below standard, using the industry standard average formula as shown below:

Table 1. Industry Average Standards

Net Profit Margin	Criteria
>20%	Very Good (VG)
16 - 20	Good (G)
15	Sufficient (S)
14 - 10	Poor (P)
<10%	Very Poor (VP)

Source: Bunga and Mahadesa, 2024

DISCUSSION

Results

The results of data analysis on 6 companies studied regarding the implementation of climate change in 4 sectors, namely the plantation sector, service sector, banking sector, and trade or manufacturing sector, are reviewed from the profitability perspective through net profit margin, with the average industry standards, as follows:

Table 2. Net Profit Margin

COMPANY NAME	2019		2020		2021		2022		2023	
	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard
PT Sampoerna Agro (Plantation Sector)	12%	P	0,5%	VP	16%	G	18%	G	8%	VP
PT Telecommunications (Service Sector)	20%	G	22%	VG	24%	VG	19%	G	21.5%	VG
PT BRI (Banking Sector)	28%	VG	14%	P	21%	VG	34%	VG	34%	VG
CIMB Niaga Bank (Banking Sector)	17%	G	10%	P	22%	VG	27%	VG	29%	VG
PT. Indonesian Fertilizer	5%	VP	3%	VP	6.5%	VP	18%	G	8%	VP
PT Unilever (Manufacturing/Trade Sector)	17%	G	17%	G	15%	S	13%	P	12%	P

Source: Data processed 2025

Discussion

Based on the results of calculating the net profit margin and return on assets, data analysis was conducted, the data was tabulated, and presented after the calculations, as shown below:

Table 3. Plantation Sector

COMPANY NAME	2019		2020		2021		2022		2023	
	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard
PT Sampoerna Agro (Palm Oil)	12%	P	0,5%	VP	16%	G	18%	G	8%	VP

Source: Data processed 2025

Based on table 3 above, in 2019, PT Sampoerna Agro had a Net Profit Margin of 12%, which indicates a relatively low figure. One of the reasons for this is the disruption in the supply chain, leading to high operational costs that were not offset by increased revenue, reflecting limited operational efficiency. Additionally, the relatively high interest and tax expenses affected the profit generated, resulting in a very thin net profit after tax, causing the company's net profitability to be at a low level. However, in 2020, 2021, 2022, and 2023, PT Sampoerna Agro's Net Profit Margin improved, although it fluctuated, due to increased operational efficiency and management of operating expenses, as well as supported by rising palm oil commodity prices. Furthermore, there were significant non-operating income receipts that also contributed to the profitability ratio.

Table 4. Service Sector

COMPANY NAME	2019		2020		2021		2022		2023	
	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard
PT Telecommunications	20%	G	22%	VG	24%	VG	19%	G	21.5%	VG

Source: Data processed 2025

Based on table 4 above, in 2019-2023, PT Telekomunikasi's Net Profit Margin fluctuated between good and very good categories due to its ability to increase productivity, especially from data and internet services. In addition, the company also managed to make costs more efficient, including network optimization and reducing operational costs, which significantly helped in increasing the company's profitability.

Table 5. Banking Sector

COMPANY NAME	2019		2020		2021		2022		2023	
	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard
PT BRI	28%	VG	14%	P	21%	VG	34%	VG	34%	VG
CIMB Niaga Bank	17%	G	10%	P	22%	VG	27%	VG	29%	VG

Source: Data processed 2025

Based on table 5 above, in 2019, PT BRI had a Net Profit Margin in the very good category. The cause was the company's efficiency in converting revenue into net profit, also supported by the optimization of interest income and efficiency in managing operational expenses. The main factors influencing this performance were increased credit distribution, which resulted in higher interest income, as well as efficiency strategies in operational expenses and good credit risk management. In 2020, PT BRI's Net Profit Margin decreased from the previous year, falling into the less category due to economic pressure from the COVID-19 pandemic, which impacted interest and sharia income. However, in 2021-2023, BRI's net profit margin increased due to a significant rise in interest and sharia income, as well as efficiency in managing operational expenses. Furthermore, the company's success in managing credit risk and increasing income from non-interest sectors, such as premium income and the recovery of written-off assets, also contributed to higher profitability and better efficiency in managing income and expenses.

Based on table 5 above, in 2019, PT Bank CIMB Niaga Tbk had a Net Profit Margin in the good category due to its ability to optimally distribute credit to SMEs. However, in 2020, a decrease in income occurred due to COVID-19, and conservative provisioning strategies put pressure on profitability. Additionally, the economic conditions and intense competition in the banking industry also affected the efficiency and growth of the company's net profit. In 2021-2023, PT Bank CIMB Niaga Tbk had a Net Profit Margin in the very good category, as it was able to increase income, reduce operational costs, implement cost management strategies to enhance profitability, and maintain significant loan loss provisions.

Table 6. Trade/Manufacturing Sector

COMPANY NAME	2019		2020		2021		2022		2023	
	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard	NPM	Standard
PT. Pupuk Indonesia	5%	SK	3%	SK	6.5%	SK	18%	B	8%	SK
PT Unilever	17%	B	17%	B	15%	C	13%	K	12%	K

Source: Data processed 2025

Based on table 6 above, from 2019-2021, PT Pupuk Indonesia had a net profit margin categorized as very poor due to its inability to manage costs and operational efficiency optimally. However, in 2022, the company showed positive performance, with an increase in net profit after taxes and interest compared to the previous year, which supported its profitability. This indicates that the company was able to capitalize on market opportunities and maintain efficient cost structures. In 2023, the net profit margin declined again, entering the very poor category due to operational costs not being balanced by a corresponding increase in revenue. Rising raw material costs and challenges in the industrial sector also affected the company's profitability. Sales dropped due to higher costs, reflecting the challenges in achieving revenue targets, contributing to the weakening of the net profit margin ratio. This was a combination of stagnant sales, rising production costs, and increasing financial burdens.

Based on table 6 above, from 2019-2021, PT Unilever's Net Profit Margin was classified as good and adequate due to stable revenue, coupled with efficient operational costs, leading to steady profitability. However, in 2022-2023, the net profit margin entered the poor category due to asset sales and high operational expenses, resulting in lower revenue compared to the expenses incurred.

CONCLUSION & RECOMMENDATION

CONCLUSION

After the above discussion, the Net Profit Margin of the 6 companies studied showed that 1 company in the service sector, PT Telekomunikasi Indonesia, was not directly impacted by climate change because the company operates in the communications service sector, which allows it to maintain stable profits and productivity. The three other companies—BRI and CIMB Niaga (banking sector) and PT Unilever (trade or manufacturing sector)—were not significantly affected. This is because the banking sector has relatively stable liquidity and operates with an ESG (Environmental, Social, and Governance) system, allowing it to support SMEs well, thus minimizing financial risks from climate change. Meanwhile, the other two companies, PT Sampoerna Agro (plantation sector) and PT Pupuk Indonesia (trade or manufacturing sector), were directly impacted as extreme weather conditions disrupted transportation and logistics, causing supply chain and price chain disruptions due to operational costs rising without a corresponding increase in profits. An increase in profit shows that the company successfully enhanced its efficiency and profitability, while a decrease indicates that the company could not manage and utilize its costs or assets more effectively and efficiently. The combination of both typically results in an improved net profit margin. Therefore, companies need to develop more adaptive and sustainable business strategies to face the evolving economic and environmental challenges.

RECOMMENDATION

The ongoing climate change, which results in continuously fluctuating revenues, requires companies to implement mitigation strategies. For the banking sector, this includes restructuring and distributing various stimuli to support SMEs, enabling them to survive and operate well. For the plantation sector, it is essential to optimize operational costs to maintain profitability. For the trade/manufacturing sector, product differentiation is necessary to boost income, ensuring that supply chain and price chain disruptions do not occur. Additionally, government policies that support companies and good debt management can play a role in maintaining profitability.

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