

## DYNAMICS OF CORPORATE FINANCIAL PERFORMANCE IN IDX CARBON INITIAL TRADING PARTICIPATION: A DUPONT FIVE-STEP APPROACH

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### Abstract

Global warming and increasing greenhouse gas emissions are driving various countries to develop carbon trading mechanisms as an instrument for emission control, including in Indonesia through the launch of IDX Carbon on September 26, 2023. This research aims to examine the dynamics of companies' financial performance before, during, and after participation in the inaugural carbon trading transaction via IDX Carbon using the DuPont Five-Step Analysis approach. The research population includes 16 companies participating in the inaugural IDX Carbon transaction, with a sample of seven companies selected using purposive sampling based on the availability of financial statements and annual reports. The data used consists of quarterly financial statements for the 2022-2024 period. The research problem focuses on the differences in Return On Equity (ROE) before, during, and after participation, as well as changes in DuPont components and their correlation to ROE. The analysis methods include descriptive analysis, comparative analysis, and correlation testing of DuPont components, consisting of tax burden, interest burden, operating profit margin, asset turnover, and financial leverage. The research results indicate that companies' participation in the inaugural IDX Carbon transaction was not followed by a significant change in ROE in the short term. However, there were adjustments in the ROE-forming structure, especially an increase in interest burden pressure and the important role of operational efficiency and asset utilization in maintaining profitability. This research concludes that the impact of carbon trading on companies' financial performance is transitional and is more reflected through the dynamics of DuPont components than through aggregate changes in ROE.

**Keywords:** DuPont Analysis, Financial Performance, IDX Carbon, Return on Equity

## INTRODUCTION

Global warming in recent decades has developed into a serious global environmental issue (Chen et al., 2023). The increase in Earth's surface and ocean temperatures due to the accumulation of greenhouse gas (GHG) emissions strengthens the greenhouse effect and triggers climate change (Forster et al., 2024). This phenomenon not only impacts environmental aspects but also poses increasingly significant economic and social risks for various countries (Singh, 2025). Along with the increasing intensity of climate change impacts, awareness of the importance of maintaining global climate stability continues to grow (Haanurat, 2025; Shrestha et al., 2025). The World Resources Institute reports that global carbon emissions are still projected to increase, mainly due to industrial and manufacturing sector activities that produce large amounts of emissions (Schumer et al., 2025). This condition indicates that the role of the corporate sector is very crucial in climate change mitigation efforts (Jiang et al., 2025).

In response to high carbon emission levels, many countries have begun to implement emission reduction policies through quota setting and developing carbon trading mechanisms as a market instrument to control emissions (Feng et al., 2024). Empirically, carbon trading policies show varying impacts on corporate performance. On one hand, carbon trading has the potential to drive efficiency and improve financial performance, but on the other hand, it can also create pressure on profitability, especially for companies with relatively high emission levels (Yan & Shi, 2024).

In Indonesia, the commitment to controlling greenhouse gas emissions is realized through the launch of IDX Carbon on September 26, 2023, as the nation's first carbon trading exchange. IDX Carbon serves as an official platform for trading carbon permits and credits, involving various sectors as sellers and buyers of carbon units. The presence of this carbon exchange is expected to support the achievement of emission reduction targets in accordance with the Nationally Determined Contribution (NDC), while also enhancing the transparency and credibility of Indonesia's carbon market at the international level (Askandar & Putro, 2025).

A number of previous studies have examined the impact of carbon trading through IDX Carbon on companies' financial performance. Asiah & Munandar (2025), for example, found that carbon purchase activities in the banking sector have the potential to positively impact long-term financial performance, especially Return on Assets (ROA), although Earnings per Share (EPS) showed fluctuations. These findings are consistent with signaling theory, which states that the implementation of sustainability practices can be a positive signal for investors and increase company value in the capital market.

Nevertheless, empirical studies on the impact of carbon trading on corporate profitability structures, especially using an analytical approach that can comprehensively break down the sources of financial performance, are still relatively limited in Indonesia (Kuncoro et al., 2025). Most research still focuses on aggregate financial performance indicators, thus not fully explaining how internal company changes occur after involvement in carbon trading mechanisms. This condition raises the question of whether a company's participation in the inaugural carbon trading transaction on IDX Carbon is followed by differences in financial performance measured by Return On Equity (ROE) before, during, and after participation, and how the components forming that ROE change.

Based on these problems, this research aims to analyze the dynamics of a company's financial performance before, during, and after participation in the inaugural carbon trading transaction through IDX Carbon using the DuPont Analysis approach. Specifically, this research assesses the differences in ROE between periods and analyzes the changes in DuPont components, including tax burden, interest burden, operating profit margin, asset turnover, and financial leverage, on ROE. This approach allows for the decomposition of ROE into its fundamental components, providing a deeper understanding of the mechanisms of corporate profitability adjustment in response to carbon trading policies. Thus, the results of this research are expected to enrich the sustainable finance literature in Indonesia and serve as a practical reference for companies, investors, and regulators in formulating sustainability strategies aligned with efforts to control greenhouse gas emissions.

## REVIEW OF LITERATURE

The Resource-Based View (RBV) is a strategic management theory that explains that a company's competitive advantage depends on its internal resources and capabilities. This theory was introduced by Barney in 1991 through an article titled Firm Resources and Sustained Competitive Advantage, published in the Journal of Management. Essentially, companies that possess valuable, rare, inimitable, and non-substitutable resources will have a competitive edge (Barney, 1991). In the context of this research, transactions on IDX Carbon indicate that companies have environmental capability to manage emissions. This capability can be a strategic resource because it can reduce operational costs, mitigate sanction risks, or open up incentive opportunities. The impact will be seen in internal efficiency, such as increased profit margins, improved asset turnover, and controlled leverage. All these components are part of the DuPont Analysis measurement (Sari et al., 2025).

Sustainability Theory is used as a support. This sustainability theory explains that companies, in carrying out their business, should not only pursue profit, but also pay attention to social aspects (people) and environmental aspects (planet). This concept is known as the Triple Bottom Line, introduced by John Elkington in 1997 through his book *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. Carbon transactions through IDX Carbon are a sustainability practice that can affect a company's cost structure, both in the form of additional compliance costs and potential savings from energy efficiency. These changes will directly impact financial performance (Porter & Linde, 1995).

## RESEARCH METHOD

This research is a quantitative descriptive comparative study to examine the comparison of companies' financial performance before, during, and after participating in IDX Carbon. The population in this study consists of all companies that participated in the inaugural carbon trading transaction on IDX Carbon (September 26, 2023), totaling 16 companies. Sample selection was conducted using the purposive sampling method, with the aim of obtaining a sample that matches the research characteristics and has adequate data for analysis, with the following criteria:

1. The company is a participant in the inaugural IDX Carbon transaction (September 26, 2023).
2. The company is listed as a public company on the Indonesia Stock Exchange (IDX).
3. The company has complete and accessible financial reports and annual reports.
4. If the company participating in the transaction is a subsidiary and does not have its own public reports, the research uses the consolidated reports of the parent company listed on the IDX to reflect overall financial performance.

Based on these criteria, a number of companies that meet the requirements were obtained as research samples;

**Table 1.**  
**Research sample**

No	Company Name	Ticker Code	Sector
1	PT Pertamina Geothermal Energy Tbk	PGEO	Energy
2	PT United Tractors Tbk	UNTR	Industry
3	PT Bank Central Asia Tbk	BBCA	Banking
4	PT Bank Rakyat Indonesia (Persero) Tbk	BBRI	Banking
5	PT Bank Negara Indonesia (Persero) Tbk	BBNI	Banking
6	PT Bank Mandiri (Persero) Tbk	BMRI	Banking
7	PT Bank CIMB Niaga Tbk	BNGA	Banking

Information regarding the company's involvement in carbon trading was obtained from various relevant official sources. The main data related to the company's participation in carbon trading mechanisms originated from official IDX Carbon publications, which were further confirmed through supporting documents issued by the Financial Services Authority (OJK), to ensure the accuracy and consistency of the information used in the research.

The data used is secondary data in the form of financial reports and annual reports of sample companies published by the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)). This study uses quarterly financial reports for the 2022-2024 period, which allows for a more detailed observation of companies' financial performance before, during, and after participation in initial carbon trading transactions on IDX Carbon.

To observe the dynamics of change, the observation period is divided into three periods. The period before participation starts from the first quarter (Q1) of 2022 until the second quarter (Q2) of 2023, the participation period occurs in the third quarter (Q3) financial report of 2023, and the period after participation starts from the fourth quarter (Q4) of 2023 until the fourth quarter (Q4) of 2024, to observe the adjustment process and changes in the company's financial performance structure after involvement in the carbon trading mechanism.

The main variable in this research is the company's financial performance, which is measured using the DuPont Five-Step Analysis approach. This approach was chosen because

it can break down the company's financial performance into its profitability components, which are as follows;

$$ROE = \frac{Net\ Profit}{EBT} \times \frac{EBT}{EBIT} \times \frac{EBIT}{Revenue} \times \frac{Revenue}{Asset} \times \frac{Asset}{Equity}$$

$$ROE = Tax\ burden \times Interest\ Burden \times OPM \times Asset\ Turnover \times Financial\ leverage$$

With DuPont analysis, this research can trace the sources of changes in financial performance in a more structured way, whether related to operational performance, asset utilization efficiency, or the company's capital structure policy.

The data analysis techniques used include descriptive analysis, comparative analysis, and correlation testing. Descriptive analysis is used to describe the characteristics and development of each DuPont component at each observation. Comparative analysis is conducted to compare the financial performance of companies before, during, and after participation in carbon trading on IDX Carbon. Furthermore, correlation testing is used to analyze the relationship between components within the DuPont structure.

## RESULTS AND DISCUSSION

**Table 2.**  
**ROE Data Collection Results**

Stock Code	2022 (YoY)				2023 (YoY)				2024 (YoY)			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
PGEO	2.50%	5.68%	8.87%	10.14%	2.49%	4.89%	6.88%	8.30%	2.35%	4.95%	6.75%	7.98%
UNTR	6.12%	14.00%	20.81%	25.69%	6.39%	16.28%	20.87%	26.33%	5.32%	10.82%	17.88%	20.49%
BBCA	4.14%	8.89%	13.66%	18.43%	5.45%	10.77%	15.45%	20.06%	5.66%	11.16%	16.05%	20.87%
BBRI	4.43%	8.69%	13.09%	16.94%	5.47%	9.90%	14.19%	19.09%	5.35%	9.59%	13.77%	18.76%
BBNI	3.09%	6.80%	10.30%	13.18%	3.63%	7.25%	10.79%	13.64%	3.58%	6.99%	10.13%	12.96%
BMRI	5.11%	9.98%	14.46%	17.82%	5.74%	10.85%	15.92%	20.89%	5.25%	10.37%	15.29%	19.51%
BNGA	2.71%	5.95%	8.94%	11.26%	3.41%	7.09%	13.08%	13.28%	3.30%	6.93%	9.83%	12.97%
<b>Mean</b>	4.01%	8.57%	12.88%	16.21%	4.65%	9.57%	13.88%	17.37%	4.40%	8.69%	12.82%	16.22%
<b>Min</b>	2.50%	5.68%	8.87%	10.14%	2.49%	4.89%	6.88%	8.30%	2.35%	4.95%	6.75%	7.98%
<b>Max</b>	6.12%	14.00%	20.81%	25.69%	6.39%	16.28%	20.87%	26.33%	5.66%	11.16%	17.88%	20.87%
<b>Std.Dev</b>	0.013	0.029	0.042	0.053	0.015	0.037	0.044	0.060	0.013	0.024	0.040	0.049

### Period Before Participation (Q1 2022-Q2 2023)

Before participating in the carbon exchange, the average (mean) ROE increased from 4.01% (Q1 2022) to 8.57% (Q2 2022), then rose again to 12.88% (Q3 2022) and reached 16.21% (Q4 2022). This pattern continued in early 2023 with a mean of 4.65% (Q1 2023) and 9.57% (Q2 2023). This indicates that the average ROE increased both QoQ and YoY. The minimum ROE before participation was relatively low, with the lowest point being 2.49% in PGEO Q1 2023, while the highest maximum recorded was 25.69% in UNTR Q4

2022. The standard deviation increased from 0.013 (Q1 2022) to 0.053 (Q4 2022) and 0.037 (Q2 2023), indicating that the variation in performance among companies widened as the participation period approached.

### Participation Period (Q3 2023)

In the initial period of the company's participation in carbon trading, the average ROE reached 13.88%, increasing QoQ from 9.57% in Q2 2023 and YoY from 12.88% in Q3 2022. This indicates that at the beginning of participation, the average profitability performance was still on an upward trend.

From the distribution side, the standard deviation increased to 0.044, higher than 0.042 in Q3 2022, approaching the high level of the previous Q4. The minimum value in Q3 2023 decreased to 6.88% (PGEO), while the maximum increased to 20.87% (UNTR).

### Post-Participation Period (Q4 2023-Q4 2024)

After participation, the mean ROE in Q4 2023 reached 17.37%, increasing QoQ from 13.88% in Q3 2023 and also higher YoY compared to 16.21% in Q4 2022. This indicates that at the end of the first year post-participation, average profitability was still maintained. However, in the following year, the mean ROE showed a declining trend YoY and continued to increase QoQ, 4.40% (Q1 2024), 8.69% (Q2 2024), 12.82% (Q3 2024), and 16.22% (Q4 2024).

The minimum value after participation decreased to 2.35% in PGEO Q1 2024, lower than the minimum before participation, which was 2.49% in PGEO Q1 2023, indicating that some companies faced profitability pressure after participation. Meanwhile, the maximum value reached 26.33% in UNTR Q4 2023, higher than the maximum before participation, which was 25.69% in UNTR Q4 2022.

The standard deviation decreased from 0.060 in Q4 2023 to 0.049 in Q4 2024, and from 0.015 (Q1 2023) to 0.013 (Q1 2024). This pattern indicates that although the mean ROE weakened, the variation in performance among companies became smaller.

### Correlation Test Results

**Table 2.**  
**DuPont Component Correlation Test Results with ROE**

<b>Komponen</b>	<b>Sebelum</b>	<b>Partisipasi</b>	<b>Setelah</b>
Tax Burden	0,211331	0,214011	0,26094
Interest Burden	-0,416	-0,67921	-0,29559
Operating Profit Margin	0,350169	0,456511	0,266419
Asset Turnover	0,63818	0,648722	0,49372
Financial Leverage	-0,1433	0,038987	0,04923

#### Tax Burden

The correlation of tax burden to ROE shows a positive and increasing value, from 0.211 before to 0.214 during the participation period, and further increasing to 0.261 after participation.

#### Interest Burden

The interest burden component shows a fairly strong negative correlation with ROE across all periods, namely -0.416 before, increasing negatively to -0.679 during participation, then weakening to -0.296 after participation.

### **Operating Profit Margin (OPM)**

The correlation of OPM to ROE is positive and increased from 0.350 before to 0.457 at participation, but then decreased to 0.266 after participation.

### **Asset Turnover**

The asset turnover component has the strongest positive correlation with ROE across all periods, at 0.638 before, increasing slightly to 0.649 during participation, then decreasing but remaining high at 0.494 after participation.

### **Financial Leverage**

The correlation of Financial Leverage with ROE shows a change in direction, from a negative -0.143 in the period before, to a weakly positive 0.039 during participation, and increasing to a positive 0.049 in the period after.

### **Company ROE Before, During, and After Participation in IDX Carbon**

Research results show that company profitability performance, measured by Return On Equity (ROE), experienced different dynamics between the periods before, during, and after participation in the Indonesian carbon exchange. In the period before participation, the average ROE increased both quarterly (QoQ) and annually (YoY). However, this increase in ROE was followed by an increase in standard deviation, indicating that profitability growth had not occurred evenly across companies. Some companies were able to significantly increase ROE, such as UNTR, which reached a maximum of 25.69% in Q4 2022, while others, such as PGEO, remained at a low ROE level with a minimum of 2.49% in Q1 2023. This condition reflects a widening performance gap approaching the participation period.

During the participation period, the average ROE still showed an increase to 13.88%, higher both QoQ and YoY. This indicates that in the very short term, participation in carbon trading has not directly suppressed company profitability. However, the increasing standard deviation to 0.044 indicates that companies' responses to this new policy are still diverse, so the initial period of participation is marked by uncertainty and uneven adjustments. These results are consistent with the findings of Yan & Shi (2024), where there is heterogeneity in companies' responses to carbon trading policies, and the impact on profitability and adjustment mechanisms can vary depending on industry characteristics and the structure of the carbon market itself.

After participation, the average ROE at the end of 2023 still reached 17.37%, higher than the same period in the previous year. However, throughout 2024, the average ROE showed a downward trend YoY, although it continued to increase QoQ from Q1 to Q4. Research results Zha et al. (2022) show that participation in carbon trading mechanisms increases carbon reduction initiatives, thereby suppressing short-term performance.

Concurrently, the standard deviation decreased, indicating that although the average profitability level weakened, the variation in performance among companies narrowed, suggesting a process of performance convergence after companies began to adapt to the carbon trading mechanism.

### **DuPont Components**

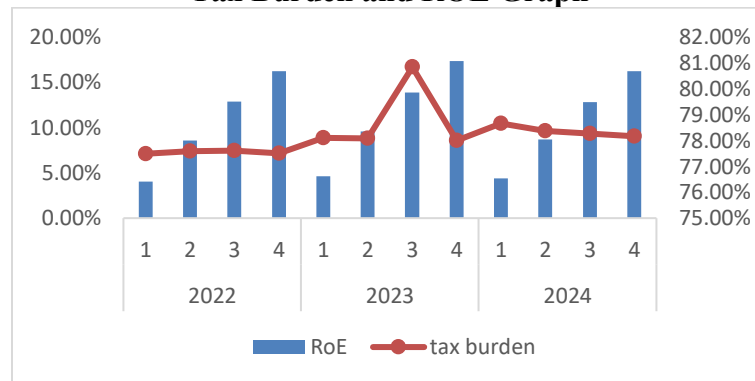
#### **Tax Burden**

The correlation of tax burden to ROE shows a positive relationship that tends to strengthen, from 0.211 before, to 0.214 during the participation period, and increasing to 0.261 after participation. This increase in correlation indicates that after companies are

involved in carbon trading, the efficiency of managing tax burden plays an increasingly important role in determining profitability. Conceptually, this condition may reflect the increasing importance of tax planning with the emergence of new cost components related to carbon activities, both in the form of fiscal obligations and potential incentives. Thus, tax burden becomes one of the company's adjustment mechanisms in maintaining net profit amidst the cost pressures of transitioning to more sustainable practices.

This pattern is clearly reflected in the graph in Figure 1, where the tax burden experienced a sharp increase during the participation period (Q3 2023), along with an increase in the mean ROE to 13.88%, higher QoQ from 9.57% (Q2 2023) and also higher YoY from 12.88% (Q3 2022).

**Figure 1.**  
**Tax Burden and ROE Graph**



Source: Data Processed

The surge in tax burden in Q3 2023 indicates that, at the beginning of participation in the carbon exchange, companies were relatively more able to maintain the proportion of net income to pre-tax income. Based on the research by (Feng et al., 2024), companies implementing carbon reduction strategies tend to reduce their tax burden, which positively impacts the company's financial performance.

**Interest Burden**

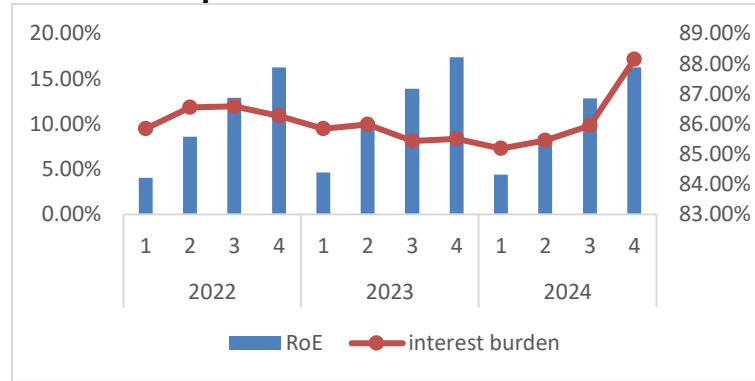
The interest burden component shows a fairly strong negative correlation with ROE across all periods, specifically -0.416 before, increasing negatively to -0.679 during participation, then weakening to -0.296 after participation. This pattern indicates that during the period of the company's involvement in carbon trading, interest burden became an increasingly dominant factor in suppressing company profitability.

Conceptually, the strengthening of the negative correlation during the involvement period indicates that the need for additional funding, whether for low-carbon technology investments, operational adjustments, or fulfilling environmental obligations, increases the company's exposure to interest costs. This condition makes net profit more sensitive to changes in interest burden, thereby directly impacting the decrease in ROE. After the participation period, the weakening negative correlation reflects an adjustment process in the financing structure, where companies begin to optimize funding sources and control interest cost risks, thus relatively reducing the pressure on ROE.

This pattern is reflected in the graph in Figure 2, where during the participation period (Q3 2023), the mean ROE was 13.88%, although higher YoY compared to 12.88% (Q3 2022), it shows pressure from the financing side reflected in the fluctuation of ROE among

companies. This is also evident from the wide variation in ROE during that period, with a minimum value of 6.88% and a maximum of 20.87%, which indicates differences in companies' ability to manage interest burden during the period of participation in the carbon exchange.

**Figure 2.**  
**Graph of Interest Burden and ROE**



Source: Processed Data

The increase in interest burden pressure in Q3 2023 indicates that, at the stage of participation in the carbon market, companies are relatively more vulnerable to interest burden due to increased funding needs. This finding is consistent with research by Jayarathna E W S R (2025), which states that companies making sustainability-oriented investments tend to face increased interest costs in the initial period of implementation, which can depress short-term financial performance before efficiency benefits and financing structure stabilization are achieved.

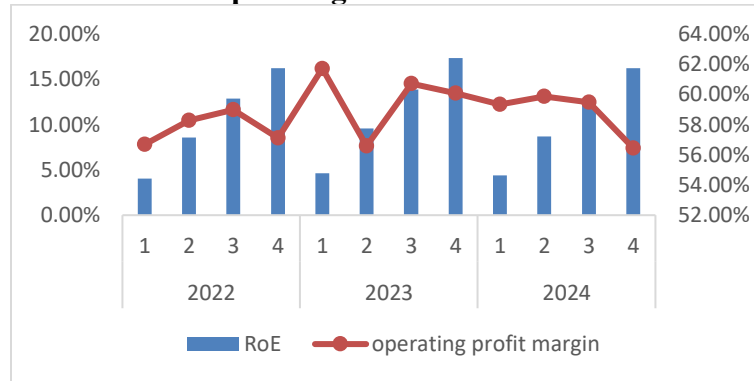
**Operating Profit Margin**

The correlation of operating profit margin to ROE is positive and increased from 0.350 before participation to 0.457 during participation, but then decreased to 0.266 after participation. The increase in correlation during the participation period indicates that in the early period of the company's involvement in carbon trading, operational efficiency became an increasingly decisive factor in driving company profitability.

Conceptually, the strengthening of the positive correlation during the participation period reflects that companies capable of managing operational costs more efficiently—including costs related to the transition to sustainable business practices—can maintain and even increase ROE. This shows that operating profit margin acts as an internal company mechanism to absorb additional cost pressures without sacrificing financial performance. After the participation period, the weakening correlation indicates that the influence of operational efficiency on ROE began to decrease, along with the stabilization of operational processes and the reduced intensity of initial adjustments to carbon trading activities.

This pattern is reflected in Figure 3, where during the participation period (Q3 2023), the mean ROE increased to 13.88%, higher QoQ compared to 9.57% (Q2 2023) and also higher YoY compared to 12.88% (Q3 2022). This increase shows that even though companies faced additional transition costs, the ability to maintain an optimal operating profit margin continued to contribute positively to increased profitability.

**Figure 3.**  
**Operating Profit and ROE**



Source: Data Processed

The strengthening of the operating profit margin in Q3 2023 indicates that during the period of participation in the carbon exchange, companies with efficient operational cost structures were relatively more capable of converting revenue into operating profit. This finding aligns with research by Khanif Nur Fathurohman (2025), which states that increased operational efficiency is a key factor in maintaining a company's financial performance during the initial period of implementing sustainability strategies and carbon emission reduction.

**Asset Turnover**

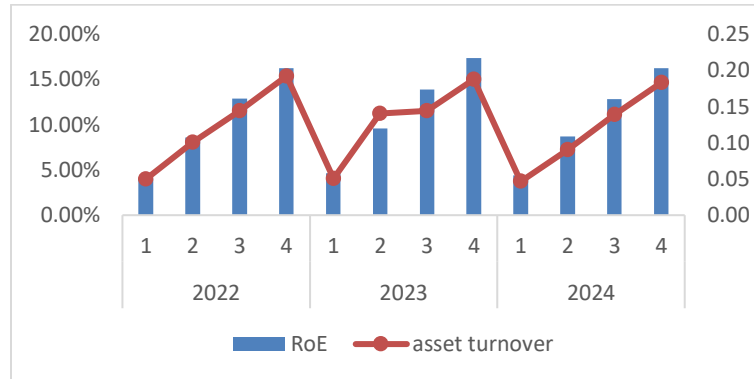
The asset turnover component has the strongest positive correlation with ROE across all periods, at 0.638 before, increasing slightly to 0.649 during participation, then decreasing but remaining high at 0.494 after participation. This pattern indicates that the efficiency of asset utilization plays a crucial role in determining company profitability, especially in the initial period of involvement in carbon trading.

Conceptually, the strengthening of the correlation during the participation period indicates that companies capable of optimizing asset use to generate revenue can maintain profitability performance despite facing additional cost pressures related to carbon activities. This reflects that asset turnover functions as an operational mechanism that supports value creation, especially when companies are in a transition period towards more sustainable business practices.

After the participation period, the weakening positive correlation indicates that the increase in asset base, which typically occurs due to investments in low-carbon technology or infrastructure development, has not been fully offset by an increase in revenue. This condition causes the contribution of asset turnover to ROE to be relatively lower, although it still shows a positive relationship. Thus, the effectiveness of asset utilization becomes a distinct challenge for companies in maintaining a balance between asset expansion and revenue growth.

This pattern is reflected in Figure 4, where in the participation period (Q3 2023), the mean ROE was recorded at 13.88%, higher QoQ compared to 9.57% (Q2 2023) and also higher YoY compared to 12.88% (Q3 2022). This indicates that during that period, the optimization of asset utilization still contributed positively to increased profitability, although efficiency pressures began to emerge after participation.

**Figure 4.**  
**Asset Turnover and ROE Chart**



Source: Processed Data

The strengthening of asset turnover in Q3 2023 indicates that in the early stages of participation in the carbon exchange, companies were relatively able to maximize their assets to generate revenue. This finding is consistent with the research by Sriyono & Rahmadani (2025), which states that the efficiency of asset use is a crucial factor in maintaining a company's financial performance during the initial period of sustainability-oriented investment.

**Financial Leverage**

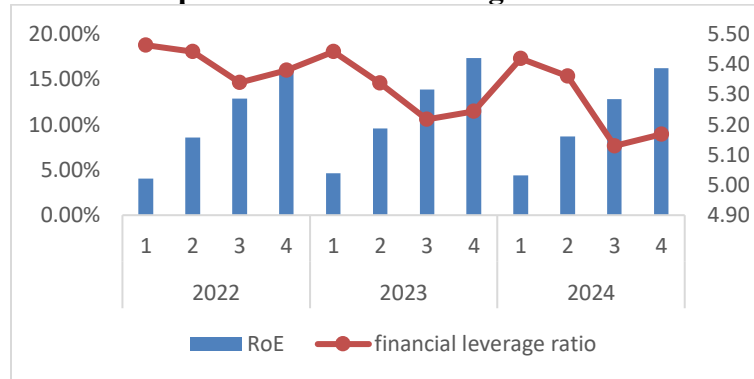
The correlation of financial leverage to ROE shows a change in direction, from a negative -0.143 in the period before, to a weak positive 0.039 during participation, and increasing to a positive 0.049 in the period after. This pattern indicates that the role of financial leverage on company profitability is not dominant, but undergoes adjustment as the company engages in carbon trading.

Conceptually, the negative correlation before participation indicates that an increase in leverage has not been able to effectively drive an increase in ROE, and even tends to suppress profitability due to the accompanying financial burden. During the participation period, the change in correlation to positive, although still weak, shows that companies are beginning to utilize capital structure more cautiously to support operational activities and investments related to the transition towards sustainable business practices.

After participation, the limited increase in positive correlation reflects a stabilization of the capital structure, where the use of leverage is no longer a primary source of pressure on net income. This indicates that companies tend to avoid excessive increases in financial risk and prioritize long-term sustainability over ROE optimization through high leverage. Thus, financial leverage acts as a supporting factor, but not a primary determinant in the formation of ROE during the research period.

This pattern is reflected in the graph in Figure 5, where during the participation period (Q3 2023), the mean ROE was recorded at 13.88%, higher QoQ compared to 9.57% (Q2 2023) and also higher YoY compared to 12.88% (Q3 2022). This increase in ROE was driven more by operational and efficiency factors, rather than by an increase in financial leverage.

**Figure 5.**  
**Graph of Financial Leverage and ROE**



Source: Processed Data

The change in the direction of the financial leverage correlation during the participation period indicates that companies tend to implement more conservative capital structure policies in the early stages of participation in the carbon exchange. This finding is consistent with the research by Surya et al. (2023), which emphasizes that an increase in leverage does not always result in an increase in company value, especially when financial risks and costs are primary considerations in managerial decision-making.

**Dynamics of Corporate Financial Performance from the Perspective of Resource-Based View and Sustainability Theory**

Research results indicate that a company's participation in the inaugural carbon trading transaction through IDX Carbon does not directly alter the Return On Equity (ROE) level in the short term, but this involvement triggers adjustments in the internal structure that forms the company's profitability. This finding aligns with the Resource-Based View (RBV) approach, which considers financial performance as a result of the process of developing and utilizing internal capabilities, rather than an instant response to external policies.

Empirically, the DuPont analysis results show that operational efficiency and asset utilization effectiveness remain key factors in maintaining corporate profitability during the participation period. This is reflected in the positive relationship between operating profit margin and asset turnover with ROE across all observation periods. This condition indicates that companies capable of managing operational costs and optimizing asset use are relatively more stable in facing the initial transition period towards sustainable business practices.

On the other hand, the interest burden component shows a strengthening negative relationship with ROE during the participation period, reflecting increased financing pressure. The increased funding needs for investments related to emission management and operational adjustments cause net income to become more sensitive to interest expenses. This finding suggests that in the early stages of carbon trading implementation, companies still face transition costs that could potentially depress short-term financial performance.

These results are consistent with Sustainability Theory, which emphasizes the trade-off between economic goals and environmental commitments. Participation in carbon trading does not automatically increase profitability, but rather places companies in an adaptation period where sustainability costs emerge first before long-term benefits can be realized. Therefore, the tendency for ROE to weaken after participation does not reflect a structural decline in performance, but rather a process of internal company adjustment.

Thus, this research confirms that the impact of carbon trading on corporate financial performance is gradual and not uniform. Evaluation of the effectiveness of carbon trading policies needs to consider the dynamics of internal components forming profitability, not just aggregate ROE changes in the short term. DuPont Analysis proves relevant in explaining these adjustment mechanisms in the context of sustainability policies in Indonesia.

## CONCLUSION

This research analyzes the dynamics of financial performance of companies participating in the inaugural carbon trading transaction on IDX Carbon using the DuPont Analysis approach. The research results show that company involvement in carbon trading is not directly followed by significant descriptive structural changes in the Return On Equity (ROE) level in the short term. However, this participation triggers adjustments in the internal structure that forms the company's profitability.

The DuPont component analysis shows that operational efficiency and asset utilization effectiveness play an important role in maintaining the stability of the company's financial performance during the participation period. Conversely, financing pressure reflected by the increasing role of interest burden indicates that the initial period of carbon trading implementation is still accompanied by transition costs that could potentially depress net income. These findings suggest that the impact of carbon trading on corporate financial performance is gradual and is reflected more through changes in the internal components forming ROE than through direct changes in the aggregate profitability level. Overall, this research concludes that companies' participation in carbon trading through IDX Carbon has not led to significant structural changes descriptively in financial performance in the short term. The emerging impact is more transitional, in line with the company's adaptation process in balancing sustainability commitments with financial performance.

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