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The Influence of Work Stress and Workload on Work Motivation and Its Impact on the Performance of Class II Land Transportation Management Center Employees in South Sumatra

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Abstract

This study provides valuable insights into the impact of work stress and workload on work motivation and subsequent employee performance at the Class II Land Transportation Management Center in South Sumatra. Employing a quantitative approach with a descriptive research design, the survey method is used to collect data, aligning with the positivist philosophy. Data is gathered through a structured questionnaire administered at the Office of Class II South Sumatra Land Transportation Management Hall from January to February. Results reveal a negative influence of work stress and workload on employee performance, although work motivation shows no significant correlation. Nevertheless, work motivation positively affects employee performance, independent of work stress and workload. These findings have practical implications for improving workplace conditions and enhancing employee productivity and job satisfaction. Recommendations for future research include further exploration of potential mediating factors, in-depth investigations into strategies for reducing work stress and workload, longitudinal studies to track changes in work motivation and performance, and comparative analyses with similar offices to gain insights into transportation sector dynamics.

Keywords: Workload, Work Stress, Motivation, Performance

JEL Code: H63, J24, J53, 015

How to Cite:

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1. Introduction

The Land Transportation Management Agency (BPTD) is a Technical Implementation Unit within the Ministry of Transportation that the government developed to facilitate the land transportation sector's rapid expansion. The Class II South Sumatra Land Transportation Management Agency and other BPTD entities oversee the carrying out duties and obligations to raise the standard of land transportation services. This covers road transportation, rivers, lakes, crossings, ports, and traffic management. The establishment of BPTD is intended to improve the general performance, efficacy, and efficiency of land transportation services provided to the public.

Ensuring dependable, comfortable, safe, and secure land transportation is one of the primary responsibilities of the Class II South Sumatra Land Transportation Management Agency. However, the agency has several obstacles in its responsibilities, especially when managing its human resources. An efficient and well-thought-out human resource management is essential to overcoming these obstacles. (Adebowale et al., 2020). The effectiveness of an organization in accomplishing its objectives is correlated with the significance of human resources management. (Yuen et al., 2018). Planning for the requirements of qualified staff in the execution of land transportation is a component of human resources management at the Class II South Sumatra Land Transportation Management Agency. As a result, the management's capacity to manage human resources well and promote active engagement and contribution is critical to the organization's success.

Like many other businesses, Class II South Sumatra Land Transportation Management Agency has difficulties with human resources management. These obstacles might come from specific workers or internal work settings, which can affect output and general performance. (Carson & Bedeian, 1994). Some of the challenges include an overwhelming workload, inadequate human resource expertise, and short turnaround times. (Heslina & Syahrani, 2021). Within the context of Class II South Sumatra Land Transportation Management Agency, these problems include inadequate human resource competency, impeding job execution, an overwhelming workload, and assignment deadlines. Employee performance may suffer because of this phenomenon, and stress at work may result. (Brown & Reilly, 2013). Previous studies show the relationship between employee performance, remuneration, work conflict, and workplace stress. (Mamminanga et al., 2023; Nurhaiyati & Tresani, 2021) More study is necessary to fully grasp the phenomena and problems arising in Class II South Sumatra Land Transportation Management Agency and the effects of job stress, workload, and work motivation on employee performance.

Therefore, critical concerns about the impact of job stress, workload, and work motivation on employee performance in the organization are included in the study issue formulation at the outset. Therefore, given the context of the Class II South Sumatra Land Transportation Management Agency, this research is anticipated to offer a thorough knowledge of the dynamic interactions between these elements and employee performance. Based on the description above, this research aims to analyze the influence of work stress and workload on work motivation and its impact on employee performance at the Class II South Sumatra Land Transportation Management Center.

2. Literature Review

2.1 Human Resource Management

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In human resource management, several components come together as a unified entity. Firstly, the management of employees encompasses mental, emotional, and physical strength. Secondly, the existence of human potential prompts individuals to be aware of their presence. Lastly, human potential is the most valuable asset and capital of an organization. The utilization of human resources to achieve organizational goals is the fifth component, according to Dessler. Human resource management also involves executing, planning, developing, motivating, and retaining employees to enhance workplace performance. Recruiting, hiring, training, compensating, evaluating, and developing employees constitute the six components of human resource management. (Matthews, 2018) Finally, according to Robbins & Coulter, human resources management involves planning, recruitment, selection, training and development, motivation, and maintenance to ensure longevity in an organization.

Human resources are the most important resource for attaining competitive success. They serve as the cornerstone of all systems, methods, and technology employed. A competitive hiring process is the first step towards effective human resource management, which also includes systematic training, improved employee satisfaction, education, and empowerment, and, in the end, suitable retirement assurance.

2.2 Working Stress

According to stress is one of the tense circumstances that has an impact on a person's feelings, mental processes, and physical health (Yuen et al., 2018). As described by stress is a condition that affects workers at work and interferes with their physiology and behavior. As stated by there are two different kinds of stress: constructive and pleasant eustress and negative and destructive distress. (Milinga et al., 2022) Employees may experience behavioral, psychological, and bodily effects from stress. The surrounding environment may be the source of stress due to several variables, including loudness, excessive tension, exhaustion, uncomfortable temperature and humidity, heavy workload, unclear nature of the task, and others.

2.3 Workload

Workload is defined as an assortment of responsibilities that fall under an organizational unit's or individual employee's purview. Physical and psychological environmental variables have an impact on workload, which may lead to a decline in job quality, an increase in customer complaints, and a rise in absenteeism rates. (Aronsson et al., 2017) . Workplace settings, how working time is used, goals to be met, physical variables, temperature and humidity, an excessive workload, the nature of the profession, independence, and personal challenges are all indicators of workload.

2.4 Work Motivation

In Swaminathan's view, work motivation is influenced by internal and external factors. Work motivation indicators involve responsibility, work achievement, opportunity to advance, recognition of performance, and challenging work.

2.5 Performance

Each individual has needs that must be fulfilled, and work becomes necessary to achieve them. Employee performance encompasses job outcomes in terms of quality and quantity, in line with the assigned tasks and responsibilities. Classifies performance into individual and organizational, with individual performance involving employee work outcomes based on

predetermined standards. According to Haryanto et al. (2023), factors influencing performance include abilities and skills, knowledge, job design, and personality. Performance measurement involves indicators such as job quantity, job quality, timeliness, attendance, and teamwork ability (AM et al., 2022). Employees may exhibit positive or negative reactions when facing stress, and appropriate stress management is crucial to ensure that they can function effectively in the workplace. Performance appraisal serves essential purposes, such as making human resource management decisions, identifying training needs, providing employee feedback, and determining remuneration and compensation policies.

2.5 Relationship Between Research Variables

2.5.1 The Interconnection between Work Stress and Performance

Stress is a crucial aspect in the context of a company as it is interconnected with employee performance. Stress can be positive or negative, depending on how the body responds. Positive stress can enhance employee performance, while negative stress can hinder it. Research by Lambert et al., (2020) Supports the view that work stress negatively and significantly impacts employee performance. Conversely, the study by indicates that work stress has a positive and significant effect on employee performance. These differing research findings highlight the complexity of the relationship between work stress and performance, which may be influenced by context and other factors.

2.5.2 The Interconnection between Workload and Performance

A workload that aligns with employees' capabilities is considered to enhance performance. Providing a workload that exceeds or falls short of employees' capabilities can lead to boredom or fatigue. Allocating a workload that aligns with employees' capabilities will improve employee performance.

2.5.3 The Interconnection between Work Motivation and Performance

It is believed that increasing job motivation is essential to improving work effectiveness. High job motivation motivates employees to work harder and more passionately, which enhances performance. One definition of work motivation is the force behind employees' pursuit of company objectives. The results of this study support the widespread belief that increased motivation might encourage an improvement in worker performance in the workplace.

2.6 Framework of Thought

To describe in a broad way this research on “The Impact of Work Stress, Work Loads and Work Motivation on the Performance of BPTD Officers of Class II South Sumatra” can be seen in the following figure 1.

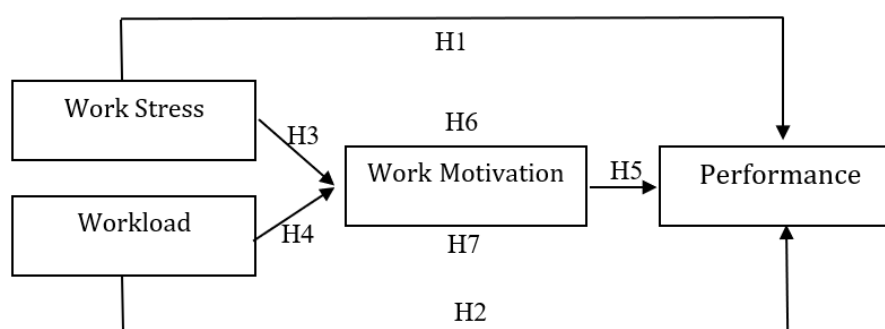


Figure 1. Research Conceptual Model

Source: Author's thoughts

2.7 Hypothesis development

- H1: It is suspected that there is an influence of work stress on employee performance at the South Sumatra Class II Land Transportation Management Office.
- H2: It is suspected that there is an influence of workload on employee performance at the South Sumatra Class II Land Transportation Management Office.
- H3: It is suspected that there is an influence of work stress on employee work motivation at the Class II Land Transportation Management Office, South Sumatra.
- H4: It is suspected that there is an influence of workload on employee work motivation at the South Sumatra Class II Land Transportation Management Office
- H5: It is suspected that there is an influence of work motivation on employee performance at the South Sumatra Class II Land Transportation Management Office
- H6: It is suspected that there is an influence of work stress on performance through employee work motivation at the Class II Land Transportation Management Office, South Sumatra
- H7: It is suspected that there is an influence of workload on performance through employee work motivation at the Class II Land Transportation Management Office, South Sumatra.

3. Research Method

3.1 Method

This research uses a quantitative approach with descriptive research design, applying survey methods as a means of data collection. This quantitative approach is consistent with the philosophy of positivism and aims to explore a particular population or sample. Data is obtained through a specifically designed questionnaire to gain an in-depth understanding of the related variables.

The use of the survey method is aimed at collecting natural data from the location of the research, namely, the Office of Class II South Sumatra Land Transportation Management Hall located in Jalan Bypass Alang-Alang Bharar, Talang Kelapa, district of Alang-Alan Bhar, Palembang City. The duration of the study lasted about two months, starting in January to February. Approaches and methods are expected to provide a comprehensive picture of the impact of work stress, workload, and work motivation on staff performance in the environment.

3.2 Participant and procedure

3.2.1 Data Type

Primary data is information obtained directly from a research object or subject through the distribution of a questionnaire to a South Sumatra Class II BPTD officer, which includes questions related to Impact of Work Stress, Workload, and Work Motivation on Officer Performance. Meanwhile, Secondary Data is data taken from previous research or other sources, such as books, journals, and relevant documents.

3.2.2 The Population and Population

Samples study included 202 ASN staff in the Class II Land Transport Management Room of

South Sumatra. Samples of 80 people were selected using purposive sampling techniques, with samples being determined based on specific considerations in accordance with the purposes of the study.

3.2.3 Operational Definitions of Variables

- **Workload:** The number of tasks or activities that a team or individual needs to complete within a specific period.
- **Job Stress:** The sense of pressure experienced by employees in completing job tasks.
- **Work Motivation:** The level of an individual's readiness to exert maximum effort to achieve organizational goals, aligning with the individual's ability to fulfill personal needs.
- **Performance:** The comparison of outcomes obtained with the contribution of a worker within a specific period, usually calculated per hour.

3.3 Measure

In this research, the data collection method applied is a questionnaire. The questionnaire is chosen as the tool to gather data from respondents, in this case, the employees of Class II South Sumatra Land Transportation Management Agency (BPTD). The use of a questionnaire is considered an effective way to gain a deeper understanding of respondents' views and opinions (The Likert Scale is employed in the questionnaire, where each indicator is measured with values ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) (AM et al., 2023) This approach provides a clear assessment framework for the variables under investigation, aligning with the quantitative measurement goals of this research.

- Strongly Disagree (SD) with a value of 1
- Disagree (D) with a value of 2
- Neutral (N) with a value of 3
- Agree (A) with a value of 4
- Strongly Agree (SA) with a value of 5.

3.4 Data analysis procedures

PLS, as a second-generation structural equation model, emerged as a popular alternative in the 1980s to replace the Ordinary Least Squares (OLS) regression method that dominated in. Analysis stages of PLS involve:

3.4.1 Evaluation of Reflective Measurement Model

- **Convergent Validity Test:** Convergent validity is assessed through Loading Factor (LF) and Average Variance Extracted (AVE), with values above 0.70 indicating adequate validity.
- **Discriminant Validity Test:** Fornell-Larcker criteria are used to verify discriminant validity, with the square root of AVE needing to be greater than the correlation with other variables.
- **Reliability Test:** Reliability testing is conducted with Cronbach's Alpha and Composite reliability, with values above 0.70 indicating good accuracy and consistency.

3.4.2 Evaluation of Structural Model

- **R Square Value:** To determine how much variation in independent variables affects dependent variables, the R-Square value is used.

- Effect Size (f^2): Indicates the impact of predictor variables at the structural level, with f^2 values interpreted as weak (0.02), moderate (0.15), or large (0.35).
- Predictive Relevance (Q^2): The Q^2 test is conducted to validate the predictive relevance fit of the model.
- Goodness of Fit (GOF) Index: Used to validate the overall structural model, with small (0.1), moderate (0.25), or large (0.36) GOF values (Am & Setiawati, 2023).

3.4.3 Hypothesis Testing

- Significance Weight Test: Significance weight values are used in hypothesis testing, with a t-statistic > 1.96 or P Value < 0.05 indicating that the independent variable significantly influences the dependent variable (Anwar et al., 2024).

4. Findings and Discussions

The present study commences its investigation by outlining the attributes of the participants who serve as the study's subjects. An overview of the respondents' age, gender, length of employment, and educational attainment is given in Tables 1 to 4 for the Class II South Sumatra Land Transportation Management Agency office. The bulk of research participants—59% are men—have a bachelor's degree (52%), have worked for 11–20 years (36%), and are between the ages of 31 and 40 (48%). These qualities serve as the cornerstone for comprehending the variety of responses that might affect the findings of the study.

Furthermore, Tables 4.5 to 4.8 detail the responses of the participants regarding the variables under investigation, such as Workload, Job Stress, Work Motivation, and Employee Performance. The average responses of the participants for each variable provide insights into their perceptions of workload, stress levels, motivation, and performance. This information serves as the basis for analysis to evaluate the influence of these variables on employee performance in the Class II South Sumatra Land Transportation Management Agency office. The data on respondent characteristics and their responses will support a deeper understanding of the research findings

4.1 Respondent Description

The description of the respondent includes gender, age, years of work, and the respondent's last education.

Table 1. Respondent's Gender

Information	Amount	Percentage
Man	47	59%
Woman	33	41%
Total	80	100%

Table 1 describes the gender of the respondents, showing that of the 80 total respondents, 47 were men (59%), while 33 were women (41%).

Table 2. Respondent's Work Period

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Information	Amount	Percentage
1 – 10 Years	25	31%
11 – 20 Years	29	36%
21 – 30 Years	12	15%
> 30 Years	14	18%
Total	80	100%

Table 2 provides an overview of the respondents' work period, showing that the majority of respondents have a work period of 11-20 years (36%), followed by 1-10 years (31%), 21-30 years (15%), and more than 30 years (18 %).

Table 3. Response Age

Information	Amount	Percentage
21 – 30 Years	25	31%
31 – 40 Years	38	48%
41 – 50 Years	17	21%
Total	80	100%

Table 3 provides information about the ages of respondents, showing that the majority of respondents were aged 31-40 years (48%), followed by 21-30 years (31%) and 41-50 years (21%).

Table 4. Respondent's Work Period

Information	Amount	Percentage
Stratum II	7	9%
Stratum I	42	52%
Diploma III	22	28%
Senior High School	9	11%
Total	80	100%

Table 4 provides data on respondents' education, showing that most respondents have a bachelor's degree (52%), followed by Diploma III (28%), High School (11%), and Level II (9%).

4.2 Description of Respondents' Answers

In this research, the variables analyzed include Workload, Work Stress, Work Motivation, and Employee Performance. Evaluation is carried out quantitatively by applying an interval scale, where the average score is integrated according to the assessment category.

Table 5. Description of Respondents' Answers Workload Variables

Indicator	SD		D		N		A		SA		Amount		Average
	F	%	F	%	F	%	F	%	F	%	F	%	
BK1	0	0%	0	0%	8	10%	47	59%	25	31%	80	100%	4.13
BK2	0	0%	1	1%	16	20%	39	49%	24	30%	80	100%	
BK3	0	0%	3	4%	8	10%	46	58%	23	29%	80	100%	

Table 5 describes respondents' answers regarding the Workload variable. The average

respondent answer was 4.13, indicating a high level of agreement with the workload.

Table 6. Description of Respondents' Answers Job Stress Variable

Indicator	SD		D		N		A		SA		Amount		Average
	F	%	F	%	F	%	F	%	F	%	F	%	
SK1	0	0%	0	0%	13	16%	45	56%	22	28%	80	100%	4.05
SK2	0	0%	0	0%	11	14%	54	68%	15	19%	80	100%	
SK3	0	0%	3	4%	16	20%	40	50%	21	26%	80	100%	
SK4	0	0%	1	1%	12	15%	49	61%	18	23%	80	100%	

Table 6 provides an overview of respondents' answers regarding the Job Stress variable. The average respondent's answer was 4.05, indicating a high level of agreement regarding work stress.

Table 7. Description of Respondents' Answers Work Motivation Variables

Indicator	SD		D		N		A		SA		Amount		Average
	F	%	F	%	F	%	F	%	F	%	F	%	
MK1	0	0%	3	4%	16	20%	52	65%	9	11%	80	100%	3.83
MK2	0	0%	0	0%	21	26%	50	63%	9	11%	80	100%	
MK3	0	0%	2	3%	12	15%	59	74%	7	9%	80	100%	
MK4	0	0%	1	1%	25	31%	44	55%	10	13%	80	100%	
MK5	0	0%	3	4%	17	21%	53	66%	7	9%	80	100%	

Table 7 provides an overview of respondents' answers regarding the Work Motivation variable. The average respondent's answer was 3.38, indicating a sufficient level of agreement with work motivation.

Table 8. Description of Respondents' Answers Employee Performance Variables

Indicator	SD		D		N		A		SA		Amount		Average
	F	%	F	%	F	%	F	%	F	%	F	%	
KK1	0	0%	2	3%	27	34%	40	50%	11	14%	80	100%	3.77
KK2	0	0%	0	0%	30	38%	47	59%	3	4%	80	100%	
KK3	0	0%	4	5%	16	20%	54	68%	6	8%	80	100%	
KK4	0	0%	3	4%	16	20%	47	59%	14	18%	80	100%	

Table 8 describes respondents' answers regarding the Employee Performance variable. The average respondent's answer was 3.77, indicating a high level of agreement with employee performance.

4.3 Research result

4.3.1 Measurement Model Evaluation Results

Testing the reflective indicator model includes assessing convergent validity, discriminant validity, and reliability.

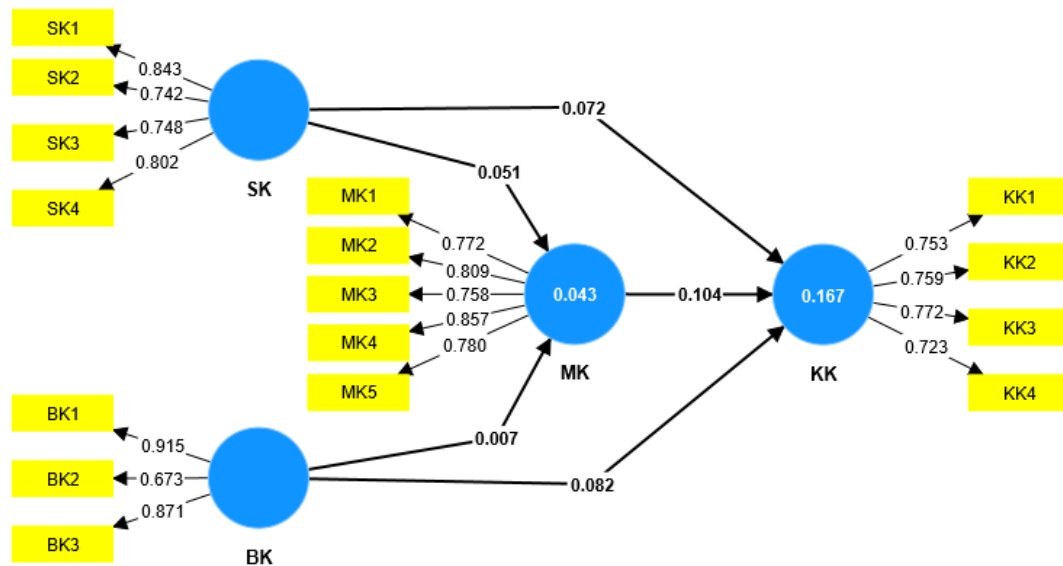


Figure 1. Measurement Model

Source: results, 2024

4.3.2 Convergent Validity Test Results

The loading factor (LF) value needs to be > 0.70 , and the Average Variance Extracted (AVE) value > 0.50 . If the factor loading value is < 0.70 , it must be eliminated or removed from the research model.

Table 9. Convergent Validity Test Results

Variabel	Indicator	Loading Factor	AVE
Work Stress (SK)	SK1	0,843	0,616
	SK2	0,742	
	SK3	0,748	
	SK4	0,802	
Work Load (BK)	BK1	0,915	0,682
	BK2	0,673	
	BK3	0,871	
Work Motivation (MK)	MK1	0,772	0,634
	MK2	0,809	
	MK3	0,758	
	MK4	0,857	
	MK5	0,780	
Employee Performance	KK1	0,753	0,566
	KK2	0,759	
	KK3	0,772	
	KK4	0,723	

Based on table 9, all indicators for each variable have a loading factor value > 0.70 , except for the BK2 indicator which has a loading factor value < 0.70 , namely 0.673. A loading factor value ≥ 0.7 is said to be ideal, meaning that the indicator is valid to measure the construct it forms. In

empirical research experience, a loading factor value of ≥ 0.5 is still acceptable, some experts even tolerate a figure of 0.40. The AVE value of all variables is > 0.50 , then all statement items are declared convergently valid.

4.3.3 Discriminant Validity Test Results

Discriminant validity checks are carried out using the Fornell-Larcker criterion, where the square root value of the Average Variance Extract (AVE) must be greater than the correlation value between other variables.

Table 10. Discriminant Validity Test Results

	BK	K.K	MK	SK
BK	0,826			
KK	-0,288	0,752		
MK	0,139	0,199	0,796	
SK	0,249	-0,247	0,247	0,785

Looking at Table 10, it can be concluded that the AVE root values for the variables BK (Workload), KK (Employee Performance), MK (Work Motivation), and SK (Work Stress) are 0.831, 0.753, 0.786, and 0.787, respectively. These values are greater than the correlation between the construct and other constructs, indicating that discriminant validity is met.

4.3.4 Reliability Test

Reliability checks can be carried out using two methods, namely through Cronbach's Alpha and Composite Reliability, where the value of both should be greater than 0.70 to be considered reliable.

Table 11. Reliability Validity Test Results

	Cronbach's alpha	Composite reliability (rho_c)
BK	0,796	0,865
KK	0,783	0,864
MK	0,859	0,896
SK	0,749	0,839

By referring to Table 11, the Cronbach's Alpha and Composite Reliability (rho c) values for all variables have values greater than 0.70, indicating that all variables in this study are reliable or reliable.

4.3.5 Structural Model Evaluation Results

Evaluation of the structural model includes assessment of the R Square value, Effect Size (f^2), Relevance of Predictions (Q^2), Gof Index, and hypothesis testing.

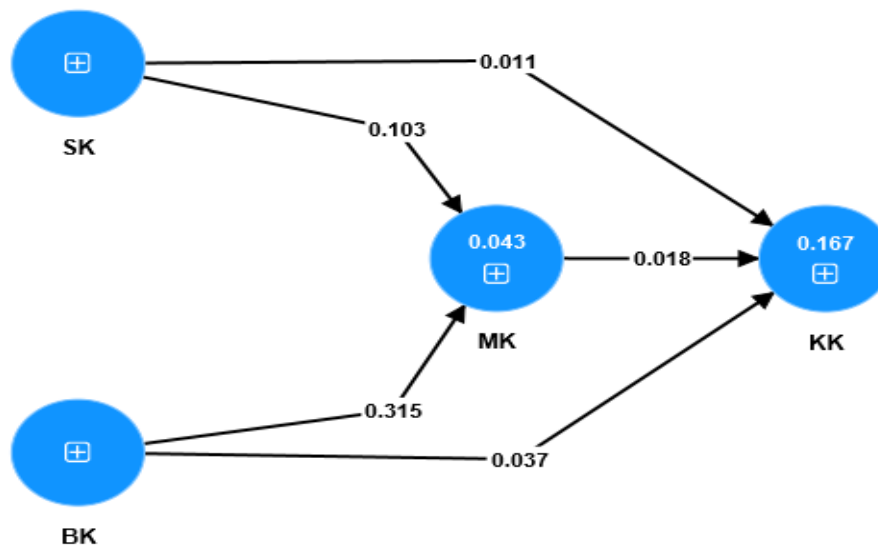


Figure 2. Structural Model

Source: results, 2024

4.3.6 R Square Test Results

The R Square results for the endogenous latent variable in the structural model show a result of 0.67, which can be categorized as vital, 0.33, which is classified as moderate, and 0.19, which is considered weak, as explained by

Table 12. R Square Test Results

	R-square	R-square adjusted
Work Motivation (MK)	0,067	0,043
Employee Performance (KK)	0.208	0.177

Based on table 12, it can be seen that the Adjusted R Square value of the Work Motivation (MK) variable is 0.043, this indicates that the Work Stress (SK) and Workload (BK) variables are able to explain the Work Motivation variable by 4.3%, so it can be concluded that the model considered weak. Meanwhile, the Adjusted R Square value of the Employee Performance (KK) variable is 0.167, this indicates that the Work Stress (SK), Work Load (BK) and Work Motivation (MK) variables are able to explain the Employee Performance variable by 16.7%, so it can be concluded that model is considered weak.

4.3.7 Effect Size Test Results (f²)

The results of the f square (f²) value can indicate the extent to which the predictor variable has an impact, whether it is weak (0.02), moderate (0.15), or significantly large (0.35) at the structural level.

Table 13. Effect Size Test Results

	Work Motivation (MK)	Employee Performance (KK)
Workload (BK)	0,051	0,072
Work Stress (SK)	0,007	0,082
Work Motivation (MK)		0,104

The explanation is as follows:

- The influence of Job Stress (SK) on Work Motivation (MK) of 0.051 is considered weak.
- The influence of Workload (BK) on Work Motivation (MK) of 0.007 is considered weak.
- The influence of Job Stress (SK) on Employee Performance (KK) of 0.072 is considered weak.
- The influence of Workload (BK) on Employee Performance (KK) of 0.082 is considered weak.
- The influence of Work Motivation (MK) on Employee Performance (KK) of 0.104 is considered weak.

4.3.8 Prediction Relevance (Q2)

The Prediction Relevance Test (Q2) was used to evaluate the predictive validity of model fit. A Q2 value of 0.02 was considered a weak prediction, 0.15 a moderate prediction, and 0.35 a strong prediction.

Table 14. Prediction Relevance Test Results (Q2)

	SSO	SSE	Q ² (=1-SSE/SSO)
Work Motivation (MK)	400,000	389,630	0,026
Employee Performance (KK)	320,000	294,368	0.080

Based on Table 14, the Q Square value of the Work Motivation (MK) variable is $0.026 > 0$, so it can be concluded that the model has predictive relevance in the weak prediction accuracy category. Meanwhile, the Q Square value of the Employee Performance (KK) variable is $0.078 > 0$, so it can be concluded that the model has predictive relevance in the weak prediction accuracy category.

4.3.9 Gof Index results

GOF Index, as a single indicator to validate the joint performance between the measurement model and the structural model, can be categorized as small GOF (0.1), moderate GOF (0.25), or large GOF (0.36)

Table 15. Gof Index results

Variable	AVE	R Square
BK	0,616	
SK	0,682	
MK	0,634	0,067
KK	0,566	0,199
Average	0,625	0,133

The data in Table 15 obtained a Goodness of Fit (GoF) score of 0.288, suggesting that the overall performance of the study's outer (measurement model) and inner (structural model) models may be classified as moderate GoF.

4.3.10 Hypothesis testing

Hypothesis testing is carried out to evaluate the impact of the independent variable on the dependent variable. If the P value < 0.05 , it can be concluded that the independent variable has

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a significant influence on the dependent variable.

Table 16. Hypothesis Test Results

Hypothesis	T statistics	P values	Description
SK → MK	1,267	0,103	Not significant
BK → MK	0,483	0,315	Not significant
SK → KK	2,296	0,011	Significant
BK → KK	1,783	0,037	Significant
MK → KK	2,109	0,018	Significant
SK → MK → KK	1,000	0,159	Not significant
BK → MK → KK	0,415	0,339	Not significant

Explanation of the results of the hypothesis test as follows:

1. The original sample/path coefficient value of the SK → MK path is 0.226, which is positive, meaning that if the work stress variable (BK) increases, Work Motivation (MK) will increase. The P value is $0.103 > 0.05$, so H1 is rejected, meaning that work stress has no effect on work motivation at the South Sumatra Class II Land Transportation Management Office.
2. The original sample/path coefficient value of the BK → MK path is 0.083, which is positive, meaning that if the workload variable (BK) increases, Work Motivation (MK) will increase. The P value is $0.315 > 0.05$, so H2 is rejected, meaning that workload has no effect on work motivation at the South Sumatra Class II Land Transportation Management Office.
3. The original sample/path coefficient value of the SK → KK path is -0.254, which is negative, meaning that if the work stress variable (BK) increases, employee performance (KK) will decrease. The P value is $0.011 < 0.05$, so H3 is accepted, meaning that work stress influences employee performance at the Class II Land Transportation Management Office, South Sumatra.
4. The original sample/path coefficient value of the BK → KK path is -0.266, which is negative, meaning that if the workload variable (BK) increases, employee performance (KK) will decrease. The P value is $0.037 < 0.05$, so H4 is accepted, meaning that workload influences employee performance at the South Sumatra Class II Land Transportation Management Office.
5. The original sample/path coefficient value of the MK → KK path is 0.299, which is positive, meaning that if the work motivation variable (BK) increases, employee performance (KK) will also increase. The P value is $0.018 < 0.05$, so H5 is accepted, meaning that work motivation influences employee performance at the Class II Land Transportation Management Office, South Sumatra.
6. The original sample/path coefficient value for the SK → MK → KK path is 0.068, which is positive, meaning that if the work stress variable (BK) increases, work motivation (MK) will increase so that employee performance (KK) will increase. The P value is $0.159 > 0.05$, so H6 is rejected, meaning that work motivation does not mediate the effect of work stress on employee performance at the South Sumatra Class II Land Transportation Management Office.
7. The original sample/path coefficient value of the path BK → MK → KK is 0.025, which is positive, meaning that if the workload variable (BK) increases, Work Motivation (MK) will increase so that employee performance (KK) will increase. The

P value is $0.339 > 0.05$, so H_7 is rejected, meaning that work motivation does not mediate the influence of workload on employee performance at the Class II Land Transportation Management Office, South Sumatra.

4.4 Discussion

4.4.1 The Effect of Job Stress on Employee Performance

The research results show that work stress hurts employee performance at the Class II Land Transportation Management Office in South Sumatra. This indicates that the higher the work stress, the employee performance will decrease. Likewise, the lower the work stress, the higher the employee's performance will be. The results of this research are in line with research conducted by Ariansy & Kurnia (2022), which states that work stress significantly negatively affects employee performance. This indicates that when employees experience work stress, employee performance decreases, so employee performance is not considered optimal. According to Putri & Damayanti (2019), Several factors that cause work stress include pressure or intimidation and time pressures from leaders or fellow employees, which can indicate a decline in performance. Work pressure causes employees to feel uncomfortable in the work environment, often absent or even not coming to work. Intimidation from superiors who provide a heavy workload and a short time to complete it can also hinder employees in carrying out their duties. In addition, personal problems such as emotionality and aggressiveness can also affect employee performance, creating conflicts with coworkers. Incompatibility between individuals in one division can also reduce work morale and cause distrust and lack of respect for fellow colleagues, which ultimately results in decreased performance. The research results are not in line with research conducted by Widiarian (2017), which states that work stress does not affect employee performance. This is because employees are forced to meet specified targets, but on average, employees say that they are more concerned with meeting work targets than the quality of their results so that they do not receive reprimands from their superiors. Therefore, there is a need for measuring work results to maintain work quality.

H_1 : Job stress negatively and significantly affects employee performance at the South Sumatra Class II Land Transportation Management Office.

4.4.2 The Effect of Workload on Employee Performance

The research results show that workload hurts employee performance at the Class II Land Transportation Management Office in South Sumatra. This indicates that the higher the workload, the employee performance will decrease. Likewise, the lower the workload, the higher the employee's performance. The results of this research align with research conducted by Alfian & Rahmana (2023), which states that workload has a negative and significant influence on employee performance. These results show that workload can be a very important factor in improving employee performance. These negative results indicate an inverse relationship between workload and employee performance, meaning that increasing workload can reduce employee performance in terms of quality. A negative coefficient indicates that if the workload given is high it will make employees feel more stressed so they cannot work optimally. A high workload can make an employee unable to provide high quality work, with a high workload they try to just "just get it done" without paying attention to the quality of their work. The research results are not in line with research conducted by Surijadi & Musa (2020), which states that workload has a positive and significant effect on employee performance. This means the higher the workload, the better the employee's performance. Even though the daily

workload in the office is quite large, employee performance remains excellent. This is proven by the commitment to continue completing the workload that must be completed.

H2: Workload negatively and significantly affects employee performance at the South Sumatra Class II Land Transportation Management Office.

4.4.3 The Effect of Job Stress on Work Motivation

The research results show that work stress does not affect work motivation at the Class II Land Transportation Management Office in South Sumatra. This indicates that a higher or lower level of work stress does not impact work motivation, meaning that work motivation does not change. The results of this research are in line with research conducted by Novianti (2016) and Saptomo et al (2022), which states that Job Stress does not affect Work Motivation. This is because the work stress experienced by employees does not cause low motivation because motivation is obtained from other things, such as compensation provided by the company, and has been adjusted to the job description (position description/task description).

The research results are not in line with research conducted by Hartanto et al (2022), which states that work stress hurts work motivation; this means that if work stress increases, work motivation will decrease. The research results are not in line with research conducted by Andriani et al (2020) Andriani et al. (2020) state that Job Stress has a positive effect on Work Motivation. This is because, with job stress, employees have quite high work motivation, which is due to the demands or targets that have been set by the company, which keeps them motivated to achieve work targets.

H3: Job stress negatively and significantly affects employee work motivation at the Class II Land Transportation Management Office, South Sumatra.

4.4.4 The Effect of Workload on Work Motivation

The research results show that workload does not affect work motivation at the Class II Land Transportation Management Office in South Sumatra. This indicates that the higher or lower the workload does not impact work motivation, meaning that work motivation does not change. The results of this research are in line with research conducted by Salmawati et al (2023), which states that Workload has no effect on Work Motivation, this is due to the workload experienced by employees in accordance with the job description (position description/task description) and also has according to the compensation received by the employee. The research results are not in line with research conducted by Layuk et al (2019), which states that workload has a negative effect on work motivation. This is due to several factors, namely: first, if employees are under time pressure in completing work, it will reduce employee work motivation in the office. Second, if an employee's work schedule becomes busier, it will cause stress, which will result in a decrease in motivation to work. Third, if the work given is not excessive and is in accordance with the main tasks and functions. Fourth, if very high work pressure is given to employees in the office, it will reduce employee work motivation.

H4: Workload has a negative and significant effect on employee work motivation at the Class II Land Transportation Management Office, South Sumatra

4.4.5 The Effect of Work Motivation on Employee Performance

The research results show that work motivation positively affects employee performance at the Class II Land Transportation Management Office in South Sumatra. This indicates that the higher the work motivation, the employee performance will increase. Likewise, the lower the

work motivation, the lower the employee's performance will be. The results of this research are in line with research conducted by Wulandari & Bagia (2021), which states that work motivation has a positive effect on employee performance. This indicates that the more motivated a person is to do a job, the more his performance will increase. Employees who have high work motivation will tend to perform better than employees who have low motivation. The existence of motivation in each employee is able to produce good performance in the organization where they work. The characteristics of employees who have high work motivation include liking challenges at work, being responsible for their work, always trying to produce the quantity and quality of work results that exceed the set targets, having initiative, appreciating the opportunity to get a promotion and obtain education and training. The research results are not in line with research conducted by Nurwin & Frianto (2021), which states that work motivation has no effect on employee performance. This is because employees are aware of the obligations that must be carried out so that employees carry out their obligations with self-awareness. On the other hand, employees also feel that the salary and benefits they receive from the company are sufficient so that their needs are met and the motivation provided does not affect employee performance.

H5: Work Motivation has a positive and significant effect on Employee Performance at the Class II Land Transportation Management Office, South Sumatra

4.4.6 The Effect of Job Stress on Employee Performance Through Work Motivation

The research results show that work motivation does not mediate the effect of work stress on employee performance at the Class II Land Transportation Management Office, South Sumatra. This indicates that the higher or lower the level of work stress does not have any impact on work motivation, so that employee performance does not experience any changes. This is because employees have high work motivation, one of the factors that motivates work is obtained by employees from increasing career levels for employees who have the ability and awards for employees who excel and have good performance, so that with high work motivation they can control stress. work experienced by employees and does not have an impact on employee performance, which means that even if employees experience work stress or do not experience work stress it does not have an impact on employee performance through work motivation.

The results of this study are not in line with research conducted by Sugiarto & Nanda (2020) and Novianti (2016), which states that work motivation can mediate the effect of work stress on employee performance. Work stress indirectly has a negative effect on employee performance through work motivation as an intervening variable. Work motivation can reduce the influence of work stress and can improve employee performance. The motivation provided by this company can cover the stress that occurs in each employee so that employee performance can be stable or even increase.

H6: Work Motivation mediates the influence of Job Stress on Employee Performance at the Class II Land Transportation Management Office, South Sumatra.

4.4.7 The Effect of Workload on Employee Performance Through Work Motivation

The results of the research show that work motivation does not mediate the effect of work stress on employee performance at the Class II Land Transportation Management Office, South Sumatra. This indicates that the higher or lower the level of workload does not have any impact on work motivation, so that employee performance does not experience any changes. Each

employee has their own rights and obligations which are different for each employee, where employees who have a large workload will also have large compensation. The workload experienced by employees is in accordance with the job description (position description/task description) and is also in accordance with the compensation received by the employee. The greater the workload experienced by the employee, the greater the compensation. Due to the workload experienced by employees with the compensation provided, employees have high work motivation, so that with high work motivation they still fulfill their obligations, namely carrying out all their duties, meaning that even though employees experience workload or do not experience work stress, it does not have an impact on performance. employees through work motivation.

The results of this study are not in line with research conducted by Dewi et al (2023), which states that work motivation mediates the effect of work stress on employee performance. High workload mediated by low work motivation results in less than optimal performance. On the other hand, low workload mediated by high work motivation supports work targets to be carried out well and produces optimal performance for the company.

H7: Work Motivation mediates the influence of Workload on Employee Performance at the Class II Land Transportation Management Office, South Sumatra.

5. Conclusion

Based on the findings from research carried out at the Class II Land Transportation Management Office in South Sumatra, it can be concluded that workload and work stress hurt employee performance. At the same time, they do not affect work motivation. On the other hand, work motivation is proven to have a positive effect on employee performance, although it does not mediate the relationship between workload and work stress and performance. From this analysis, several research recommendations for the future can be drawn. First, further research could explore the mediating factors between these variables. Second, in-depth research needs to be carried out to assess the effectiveness of the proposed workload and work stress reduction strategies, including in terms of training, position placement and improving the work environment. Third, longitudinal research can provide a better understanding of changes in employee work motivation and performance over time. Finally, a comparative study between the South Sumatra Class II Land Transportation Management Office and similar offices in other regions can provide additional insight into the dynamics involved in improving employee performance in the land transportation sector. The hope is that this research can make a significant contribution to increasing employee productivity and job satisfaction and improving the overall work environment.

It is important to consider the many constraints that this research has. First off, since the information was gathered via a survey based on self-report, respondent bias might exist and skew the results. Additionally, because the research mainly focuses on the South Sumatra Class II Land Transportation Management Office, extra caution must be taken when extrapolating the findings to other organizational contexts. Furthermore, this study does not consider a number of outside variables that might affect employee performance, such as changes in policy or the state of the economy. It is advised that, in light of these constraints, future researchers think about utilizing a wider range of study techniques, such as in-depth interviews or direct observation, in order to obtain a better understanding. A deeper knowledge of the dynamics of the link between workload, job stress, work motivation, and employee performance may also be attained by including differences in organizational context and investigating additional

factors that impact employee performance

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Factors Affecting Stock Price and Firm Value as Intervening Variable: The Case of Consumer Sector Firm-Listed at Indonesian Stock Exchange

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Abstract

The object of this research is primary consumer sector companies registered on the IDX, where the data is in the form of financial reports for the 2019-2023 period. The research method that is appropriate for this research is associative research because the author wants to know the influence of the Current Ratio, debt-to-asset ratio, and Net Profit Margin variables on stock prices with company value as an intervening variable. In this research, the operational variable is the stock price. (Z) as the dependent variable, company value (Y) as the intervening variable, while the independent variables are Current Ratio (X1), Debt to Asset Ratio (X2), and Net Profit Margin (X3). The indicators for share prices are closing prices; company value is price to book value; current ratio is current assets and current liabilities; debt to asset ratio is total debt and total assets; net profit is profit after taxes and sales. Based on the criteria for determining the sample size, 59 primary consumer sector companies meet these criteria. The following conclusions can be obtained: 1. The Current Ratio and net profit margin have a negative and insignificant effect on company value; 2. The Debt-to-Asset Ratio positively and significantly affects company value; 3. Net Profit Margin has a negative and insignificant effect on company value; 4. The Current Ratio has a positive but insignificant effect on share prices; 5. The Debt-to-Asset Ratio negatively and significantly affects share prices; 6. Net Profit Margin has a negative and insignificant effect on share prices, 7. Company value has a positive and significant effect on share prices,

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1. Introduction

The increasingly rapid development of industry in Indonesia means that every industrial player is trying to develop their company. This development is marked by the increasing ease of transaction activities, which can be carried out anytime and anywhere, including making investments. This investment activity is available and can be carried out through the capital market by offering various securities with a validity period of more than one year.

As Tandelilin (2017) explains, the capital market is a platform where parties with surplus funds meet those in need of funds, trading various financial instruments (securities) such as bonds, shares, mutual funds, and derivative instruments. Shares, in particular, are highly sought after by investors due to their potential for generating profits.

This is because profits are more significant than the capital invested or saved in industries that optimize share value. Based on the opinion of Jefferson and Naning (2013), shares are securities that show ownership of a company. Shares are in the form of a piece of paper which states that the paper's owner is the owner of the company that issued the securities. When making stock investment decisions, the important thing that investors must pay attention to is the share price. Jogiyanto (2017) stated that the share price is the price that occurs on the stock market at a particular time, as determined by market players.

High and low share prices are determined by the capital market's demand for and supply of shares. Share prices will rise if more investors want to buy shares. Conversely, share prices will fall if more investors want to sell shares. According to Yudistira and Adiputra (2020), share price fluctuations occur because there are factors that influence them, both internal and external factors.

Stock prices in the capital market are influenced by a variety of factors. Internal factors, which originate from within the company, include earnings per share, interest rates, cash dividends, and profit from investments. External factors, on the other hand, are influenced by the political and security situation, inflation rate, tax rate, and the level of capital market efficiency. Understanding these factors can help investors anticipate stock price movements.

Astutik (2020) believes that there are two analyses that investors usually use when choosing shares that are suitable for investment: technical analysis and fundamental analysis. Technical analysis uses stock market data such as price and volume of stock transactions to determine stock value. Meanwhile, fundamental analysis is an approach to stock price analysis oriented towards the company's financial performance and economic analysis that influences the company's future. The financial performance of a company can be analyzed from financial reports. According to Kasmir (2017), a financial report is a report that shows the company's financial condition at the moment or in a certain period.

Company value can be measured through the value of the market share price based on the formation of the company's share price in the market, which reflects the public's assessment of the company's actual performance. It is said to be in real terms because the formation of prices in the market is the meeting of points of stability in the forces of demand and price supply that occur during securities buying and selling transactions in the capital market between sellers (issuers) and investors (Harmono, 2015). In this research, company value is proxied by price to book value, which provides information on how much people value the company. Hence, people are interested in buying shares at a price higher than their book value.

According to Husnan and Pudjiastuti (2015), Price to Book Value is the ratio of the market price of a share to the book value per share of a company. Price to Book Value shows how far a company can create value relative to the capital invested. The higher the price to book value, the higher the market's confidence in the company's prospects, so share prices will increase. On the other hand, a decrease in Price to Book Value will impact lower market confidence in the company, thereby potentially reducing share prices. In general, the first thing a financial analyst pays attention to is the level of liquidity the company has and whether it can pay its debts as they come due.

In this case, liquidity, as proxied by the Current Ratio, shows that a high Current Ratio level reflects the company's good performance in using its current assets to meet its short-term liabilities due soon. This will improve the company's image in the eyes of investors who invest their funds in it, and as a result, it can affect the company's value.

This theory aligns with research by Putra and Lestari (2016), which found that the current ratio influences company value. However, this differs from the research results of Ardiana and Chabachib (2018), which state that the current ratio does not affect company value. A company with a high Current Ratio will make it attractive for investors to invest their capital in the company. The more investors invest their capital, the higher the company's share price.

In line with Wardani's (2018) research, the Current Ratio affects stock prices. However, research conducted by Siampa, Murni, and Rogi (2020), Cendy et al. (2019), Ismail (2017), Widodo and Puspita (2015), and Pratiwi et al. (2020) shows that the Current Ratio has no effect on stock prices. Please note that a company must have a policy regarding how to meet its funding needs.

Leverage or solvency, which is proxied by the Debt-to-Asset Ratio, shows the company's ability to fulfill its obligations. Mistakes in using debt can cause a company to go bankrupt, so investors tend to be wary of companies with high levels of debt. Companies with high levels of debt will produce suboptimal company value.

This statement aligns with research by Sutama and Lisa (2018), which shows that the debt-to-asset ratio influences company value. However, Chaidir's (2015) research states that the Debt to Asset Ratio does not affect company value. Apart from impacting company value, a high debt-to-asset ratio will also impact share prices. Investors can only invest if the company has a high debt-to-asset ratio. This aligns with research by Pane et al. (2021), which shows that the debt-to-asset ratio affects stock prices. Meanwhile, research conducted by Wijaya (2017) and Sunotowira et al. (2019) indicates that the Debt to Asset Ratio does not affect share prices.

This company value shows the company's success in carrying out its company performance, one of which can be seen from profitability. In this case, Net Profit Margin proxies profitability, showing the company's ability to generate profits. Therefore, the greater the Net Profit Margin value, the better the company's value. In line with research by Sari and Mus (2021), Net Profit Margin influences company value. In contrast to research by Thaib and Dewantoro (2017), it is revealed that Net Profit Margin does not influence company value.

A high Net Profit Margin signals investors to invest. As a result, share prices will increase due to the large demand and supply for shares in the capital market. This is in line with research by Hendri (2015), which shows that Net Profit Margin influences share prices. Meanwhile, Ariani's (2021) study indicates that the Net Profit Margin does not affect share prices.

Company value is a form of company success reflected in the share price. So, if the company

value increases, the share price will also increase. This aligns with research conducted by Martha and Yanti (2019), which found that company value influences share prices. However, research conducted by Putri (2018), Angga and Hadi (2017), and Yuliana and Maharani (2022) explains that company value does not affect share prices.

This research is necessary because investing in shares in the capital market carries high risk even though it promises large profits. Investors need information about share price dynamics to make the right decisions about the company shares they will choose to minimize risks while helping investors gain profits. Investors will only invest their funds in companies with a good reputation regarding company performance and company value.

This research was conducted at primary consumer sector companies (consumer non-cyclical). Primary consumer goods sector companies produce or distribute products and services generally used by consumers, such as food and beverages, cigarettes, pharmaceuticals, cosmetics, household appliances, and others. Companies in the primary consumer sector are important for the growth of the Indonesian economy, which will experience growth in line with population growth and increased income.

In this case, the number of primary consumers they need will increase with an increase in people's income levels. The increasing growth from the primary consumer sector can also reflect the company's sound financial performance. Where increasing financial performance is something that is a necessity that can make company shares remain attractive to investors to invest in company shares (Januri & Kartika, 2021)

This aligns with the opinion of Dewi (2018), who said that the primary consumer sector is still the biggest supporter of the economy. In contrast, the primary consumer sector is defensive and resistant to crises such as the Covid-19 pandemic. However, based on data from the Indonesian Stock Exchange (BEI), at the beginning of 2020, there was a decline in share prices due to the Covid-19 pandemic. This share price fluctuation is interesting to study because it relates to company value in the primary consumer sector. The following data on average share prices, Current Ratio, Asset Ratio, Net Profit Margin, and company value in the primary consumer sector for the 2019-2023 period were used as research samples.

Based on the data, share price movements in primary consumer sector companies experience fluctuation or instability yearly. At the beginning of 2020, the share price of the primary consumer sector decreased by 19.17% and continued until the beginning of 2021. The IDX noted that the primary consumer sector experienced a decline of 11.29%. This was caused by the decline experienced by extensive cap stocks in this sector, where UNVR experienced a drop of up to 30.95%, and HMSP experienced a decrease of 23.26% (Hadi and Budiman, 2023). Changes in share prices depend on the size of investors' supply and demand for these shares, with the relationship between supply and price being inverse.

Investor supply and demand are influenced by several indicators, including external indicators, such as a country's macroeconomic conditions, and internal indicators, such as company fundamental information. Due to the COVID-19 pandemic, investors prefer to invest in sectors that have the potential to experience performance recovery under current conditions. With the decline in share prices, company value is another phenomenon in the spotlight.

Then, data on the movement of primary consumer sector company values also fluctuates yearly. However, changes in company value do not follow changes in share prices. In 2020, share prices decreased, but company value increased.

Conversely, in 2023, when share prices increase, company value will decrease. This indicates that changes in share prices up and down are not solely a reference for determining company value.

Apart from company value, changes in share prices can be influenced by the Current Ratio. The position of the Current Ratio can affect stock prices because it can determine the strength of a company to cover its financial obligations in less than a year or on time; this information guarantees good investment information for investors or potential investors. So, it can affect the price of shares in circulation because the higher the Current Ratio, the more it shows that the availability of current assets to pay current debt is also increasing.

Based on the data, the Current Ratio in primary consumer sector companies shows a fluctuating trend. The lowest value in 2023 is 1.99, and the highest value in 2022 is 2.15. This shows that in 2022, the amount of current assets will be 2.15 times the current debt, which indicates that the company is able to pay its short-term obligations. However, the lowest average share price will also occur in 2022.

Likewise, the debt-to-asset ratio describes the extent to which the company's assets are financed by debt. A high Asset Ratio indicates that the more foreign capital is used in company operations, the more investors will take more significant risks, which can reduce share prices.

Based on the data, the debt-to-asset ratio in primary consumer sector companies is experiencing fluctuations. The lowest value was 0.50 in 2019, and the highest value was 0.55 in 2022. This shows that in 2022, 55% of the company's funding will be financed by debt, and the remaining 45% will be provided by shareholders. The share price level in 2022 could reach a low of 2225.53.

Furthermore, the company's net profit margin can influence share prices because of the higher percentage of net income received from each sale. So, the more significant the net profit margin ratio, the better because share prices will also increase. Companies that generate high net income will have more value for investors and are more guaranteed to encourage investors' interest.

Based on the data, there is a fluctuating trend in the size of the Net Profit Margin in primary consumer sector companies in 2019-2023. The lowest value was 9.44 in 2023, and the highest value in 2019 was 15.26; this shows that in 2019, the company's condition was good, and the company was able to reduce the costs incurred by the company in its company operational activities so that it could maximize company profits, Increasing profits tend to make the value of a company high. On the other hand, the average level of share prices in 2023 will increase when the Net Profit Margin is at its lowest position. Based on GAP research and the phenomena previously stated, researchers are interested in researching the factors that influence share prices and company value.

2. Literature Review

Users of financial reports use financial reports to make economic decisions, such as investment decisions. Analyzing financial ratios is one way to obtain information from a company's financial reports. Kasmir's (2017) opinion is that financial ratios are comparing the numbers in financial reports by dividing one number by another. Comparisons can be made between one component and another in one financial report or between components in financial reports. According to J Fred Weston in Kasmir (2017), there are 6 forms of financial ratios: liquidity,

solvency, activity, profitability, growth, and valuation.

The liquidity ratio is one of the ratios used to see a company's financial performance and affects share prices. According to Fred Weston in Kasmir (2017), the liquidity ratio is a ratio that describes a company's ability to fulfill short-term obligations. The higher the company's liquidity ratio, the higher the level of security the company has in fulfilling its liquidity obligations. According to Ridwan and Inge (2003), several types of liquidity ratios can be used, including the Current Ratio, Quick Ratio, Cash Ratio, and Cash Turnover Ratio. However, the liquidity ratio that is the focus of this research is the Current Ratio.

According to Kasmir (2017), the Current ratio measures a company's ability to pay short-term obligations or debts that are immediately due when they are collected in full. The higher the Current Ratio, the greater the company's ability to pay short-term obligations. Vice versa, the lower the current ratio, the lower the company's ability to pay short-term obligations, so its debt will continue to increase because it cannot be paid on time.

However, the company may be in better condition if the Current Ratio results are too high and exceed the optimal limit. This may indicate a problem in managing company funds, such that there are idle funds. In other words, the company is not running effectively, and of course, this will be a consideration for investors, thus affecting investors' interest in shares, which then affects share prices (Kasmir, 2017). The higher the company's Current Ratio level will encourage an increase in the quality of share prices. The lower the company's current ratio level, the more likely it is to reduce the quality of the company's share prices.

The solvency ratio can also be used to assess a company's financial performance, which influences share prices. Kasmir (2017) believes that the solvency ratio measures the extent to which a company's assets are financed with debt, meaning how much debt the company bears compared to its assets.

In a broad sense, the solvency ratio measures a company's ability to pay all its short and long-term obligations. According to Ridwan and Inge (2003), several types of solvency ratios can be used: Debt to Asset Ratio, Debt to Equity Ratio, Long Term Debt to Equity Ratio, and Time Interest Earned Ratio. The solvency ratio that is the focus of this research is the debt-to-asset ratio. Rudianto (2021) said that the debt-to-asset ratio is a ratio used to compare the amount of debt and the amount of company assets.

The Debt to Asset Ratio is a crucial indicator of a company's financial health. A higher ratio signifies a larger debt burden, indicating a lower proportion of own capital to finance assets. This can lead to a negative response from investors, resulting in a decrease in share prices. Therefore, it's important for investors to understand this ratio and its potential impact on their investments. As Kasmir (2017) points out, profitability ratios are not just numbers but critical indicators of a company's ability to generate profit. They also provide insights into the effectiveness of a company's management. By understanding and analyzing these ratios, financial analysts can gain a comprehensive view of a company's financial performance, enhancing their confidence in their analysis. Ridwan and Inge (2003) say that several types of profitability ratios can be used, namely Net Profit Margin, Gross Profit Margin, Earning Per Share, Return On Sales Ratio, Return On Capital Employed, Return On Investment, Return On Equity and Return On Assets. The profitability ratio that is the focus of this research is Net Profit Margin. According to Ariani (2021), Net Profit Margin measures a company's net profit at a certain level of sales after considering all costs and income taxes. The greater this ratio

indicates, the better the company's performance will be because the level of return obtained will be greater. The higher the company's profitability, the more the share price will be affected. As profitability increases, share prices tend to rise, whereas share prices also fall when profits decrease. One of a company's goals is to increase its value, which reflects shareholders' welfare. According to Indrarini (2019), company value is investors' perception of the company's level of success, which is often linked to share prices. A high share price also increases the company's value and market confidence not only in the company's current performance but also in the company's prospects for the future. Another opinion Fahmi (2017) expressed is that company value is the company's current value regarding the prospects of making investments.

The influence of the Current Ratio on company value. According to Sawyer (2016), the Current Ratio is the most commonly used measure to determine the ability to fulfill short-term obligations because this ratio shows how far the demands of short-term creditors are met by assets that are expected to become cash in the same period as the debt maturity. Munawir (2019) also put forward another opinion regarding the current ratio, which compares current assets and debt. This ratio shows that the value of current assets (which can immediately be turned into money) is many times the short-term debt. According to Hanafi (2017), the Current Ratio can measure a company's ability to meet its short-term debt using its current assets (assets that will turn into cash within one year or one business cycle). A high Current Ratio level reflects the company's good performance in using its current assets to meet its short-term liabilities, which are due soon. This will improve the company's image in the eyes of investors who invest their funds in a company, which can have a positive effect on company value. Companies with more short-term liabilities than current assets will experience liquidity difficulties when their short-term liabilities mature. This will reduce the confidence of investors and creditors in lending the company funds, and it can hurt the company's value. This statement is in line with research conducted by Putra and Lestari (2016), Aidawati (2018), and Oetomo (2016), which shows research results that the Current Ratio has a positive and significant effect on company value.

The influence of Debt to Asset Ratio on company value. According to Fahmi (2014), the solvency ratio measures how much a company is financed with debt. If the solvency ratio is high, investor confidence will be lower because the risk is high. Therefore, solvency needs to be considered in management. In this research, solvency is measured using the Asset Ratio, which describes the company's use of debt to finance its operational activities. Debt to Asset Ratio is a debt ratio used to measure how much a company's assets are financed by debt or how much company debt influences asset management (Kasmir, 2017). Meanwhile, according to Henry (2017), the debt-to-asset ratio is a ratio that measures how much of a company's assets are financed by debt. In other words, this ratio measures how much the company's assets are financed by debt or how much the company's debt influences asset financing. The higher the debt-to-asset ratio, the greater the possibility that the company will not be able to pay off its obligations. The lower the Debt to Assets Ratio value, the more investors will be interested in investing so that it can affect the value of the company. This is supported by research by Sutama and Lisa (2018) and Widasari and Sumartini (2015), which states that the debt-asset ratio has a negative and significant influence on company value.

The influence of Net Profit Margin on company value. According to Kasmir (2019), the net profit margin is a profitability ratio that compares profits after interest and tax to a company's sales to determine the size of a company's profits. Sukamulja's (2019) opinion is that the net profit margin measures a company's ability to generate net profits from sales generated during one period. Meanwhile, according to Harjito and Martono (2018), the Net Profit Margin is sales

profit after calculating all costs and income tax, which compares net profit after tax with sales. The higher the company's Net Profit Margin level, the higher the profit generated by the company. A company with high profits indicates good prospects for the future. Meanwhile, company value reflects the company's level of success as demonstrated through shareholder welfare. So, high profits will provide a positive signal to investors, and the company's value will increase. This is in line with the research results of Sari and Mus (2021), which state that Net Profit Margin has a positive and significant influence on company value.

The influence of the Current Ratio on stock prices. Alwi (2008) states that the Current Ratio is included in the financial report announcement instrument as an internal factor influencing stock prices. Hery (2018) believes that the current ratio is a ratio that measures a company's ability to fulfill its short-term obligations, which will soon mature using the total available current assets.

According to Harahap (2015), the Current Ratio measures the extent to which current assets cover current liabilities. The higher the value of current assets relative to current liabilities, the higher the company's ability to cover its short-term liabilities. Conversely, the lower the Current Ratio, the lower the company's ability to cover its short-term debt. However, a Current Ratio that is too high does not necessarily indicate that the company is in good condition, as there may be problems managing funds that are not running effectively. Thus, the Current Ratio is an important consideration for investors in assessing company management performance, which will impact share prices. Based on this, it can be concluded that the Current Ratio affects share prices. The higher the company's Current Ratio, the higher the quality of share prices. Vice versa, the lower the level of a company's Current Ratio, the more likely it is to reduce the quality of a company's share price. This is in line with research conducted by Wardani (2018), Ariani (2021), Parmuji et al. (2021), Hangga (2017), Endah and Rishi (2017), Sajiyah (2016), Fitrianiingsih and Budiansyah (2018), Dewi et al. (2017), Rondonuwu et al. (2017) Novalddin et al. (2020), Lutfi and Nardi (2019), Dewi and Dede (2020), Rina (2020), Dian (2020) and Yoris et al. (2021) which shows the results that the Current Ratio positive and significant effect on stock prices.

The influence of Debt to Asset Ratio on stock prices. Debt to Asset Ratio is a ratio that measures the comparison between total debt and total assets. In other words, how much of the company's assets are financed by debt or how much debt the company has affects asset management (Kasmir, 2017). According to Alwi (2008) Debt, the Asset Ratio is a ratio that shows the amount of collateral available to creditors. Meanwhile, the debt-asset ratio, according to Chandra (2021), is a ratio that measures the percentage of funds that come from debt, both short and long-term. Creditors prefer a low total debt-asset ratio because the level of security is better. The higher the debt-to-asset ratio result shows, the worse the company is. Conversely, if the debt-to-asset ratio value is lower, the company will be better at paying off its debt. Therefore, if the company can pay its debts, it will show that its performance is good, making it possible to make significant profits. This will attract investors to invest capital in the company, which will impact increasing share prices. This is supported by research conducted by Pane et al. (2021), Edduar (2015), Stevanus and Sunarmi (2018), Fatmawati and Agus (2017), and Rudianto (2019) showing that the debt-asset ratio has a negative and significant effect on stock prices.

The influence of Net Profit Margin on stock prices. According to Zulfikar (2016), the profitability ratio, as measured by the Net Profit Margin, is one of the factors that can influence share prices. According to Kasmir (2017), net profit margin is a measure of profit that compares

profit after interest and tax compared to sales. This ratio shows the company's net income from sales. Meanwhile, Henry (2018) believes that the net profit margin is a ratio that measures the percentage of net profit on net sales. The Net Profit Margin level has a directly proportional relationship to the share price. The higher the Net Profit Margin level indicates, the better the company's performance in generating profits; high profits will attract investors to invest their capital because it is considered more profitable because of the significant rate of return investors expect. Therefore, it will also increase share prices. In line with research by Hendri (2015), Watung (2016), Manappo et al. (2017), Sevanya et al. (2019), and Wangarry (2019), the results show that Net Profit Margin has a positive and significant effect on stock prices.

The influence of company value on share prices. In this research, company value is measured using the price-to-book value indicator, which describes the extent to which the market appreciates the book value of a company's shares. Hery's (2018) opinion is that Price to Book Value is a ratio that compares the market price per share and the book value per share. According to Fahmi (2015), the price-to-book value describes how much the market appreciates the book value of a company's shares. Price to Book Value shows how far a company can create value relative to the capital invested. Meanwhile, Rivai et al. (2013) stated that Price to Book Value is a ratio to assess whether a stock is undervalued or overvalued. A share is undervalued if the share price is below the company's book value. On the other hand, a stock is said to be overvalued if the share price exceeds the company's book value. Therefore, a high company value will increase demand for shares so that the company's share price increases. This is in line with research by Martha and Yanti (2019), Purwaningsih and Setiawan (2022), Jumhana (2016), Dewi (2013), Arbaningrum and Musmohon (2021), Irnawati and Wirawan (2021), Kirana et al (2019), Surjanto and Sugiharto (2021), Wijanarko (2022) and Girsang (2023) that Price to Book Value has a positive and significant effect on stock prices.

3. Research Method

The object of this research is primary consumer sector companies registered on the IDX, where the data is in the form of financial reports for the 2019-2023 period, which are published and can be accessed on the official BEI website. The research method that is appropriate for this research is associative research because the author wants to know the influence of the Current Ratio, debt-to-asset ratio, and Net Profit Margin variables on stock prices with company value as an intervening variable in primary consumer sector companies listed on the IDX. In this research, the operational variable is the stock price. (Z) as the dependent variable, company value (Y) as the intervening variable, while the independent variables are Current Ratio (X1), Debt to Asset Ratio (X2), and Net Profit Margin (X3). The indicators for share prices are closing prices; company value is price to book value; current ratio is current assets and current liabilities; debt to asset ratio is total debt and total assets; net profit is profit after taxes and sales. The population of this research is all 123 primary consumer sector companies registered on the IDX in 2019-2023. Sampling was done using the purposive sampling method. The sampling criteria that have been determined by the author in this research are as follows: 1. Primary consumer sector companies listed on the IDX consecutively from 2019-2023; 2. Primary consumer sector companies that publish annual financial reports for the 2019-2023 period; 3. Primary consumer sector companies whose financial reports are denominated in Rupiah (Rp); 4. Primary consumer sector companies that have complete data related to the variables used in the research. Based on the criteria for determining the sample size, 59 primary consumer sector companies meet these criteria. The type of data used in this research is secondary data obtained through company financial reports via the official IDX website, namely www.idx.co.id. This

research uses a documentation method, namely in the form of annual data for the 2019-2023 period from company financial reports and journals related to research. The data analysis method in this research uses quantitative analysis techniques, and the analytical tool used is path analysis with intervening variables. Path analysis is an advanced analysis of regression analysis, allowing the analysis of more complex models. Path analysis estimates causal relationships between variables determined based on previously established theories.

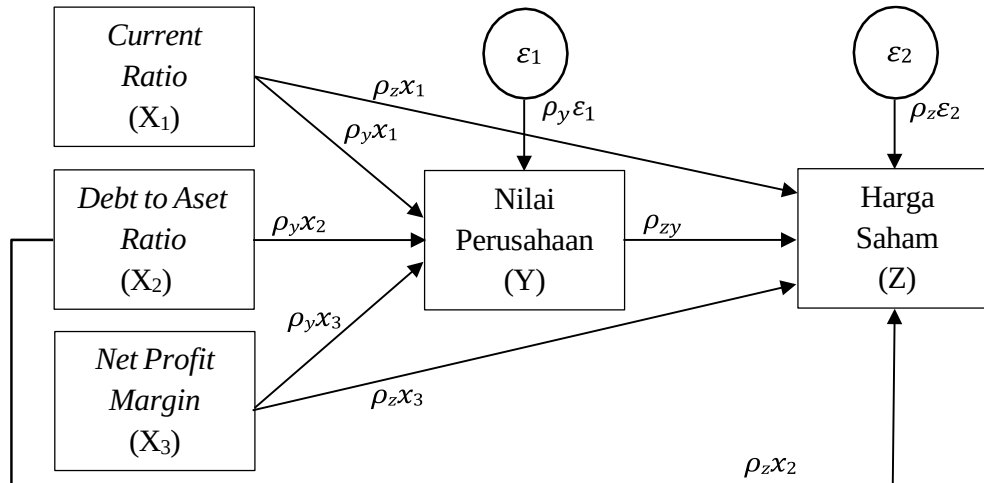


Figure 1. Path Analysis

The path diagram above consists of two structural equations, where the first equation is a regression analysis of the intermediary variable, and the second is a regression analysis of the dependent variable. The following is the structural equation of path analysis in this research:

$$\text{Equation 1: } Y = \rho_{yx_1} X_1 + \rho_{yx_2} X_2 + \rho_{yx_3} X_3 + \epsilon_1$$

$$\text{Equation 2: } Z = \rho_{zx_1} X_1 + \rho_{zx_2} X_2 + \rho_{zx_3} X_3 + \rho_{zy} Y + \epsilon_2$$

Notes:

- Z = Harga Saham
- Y = Nilai Perusahaan
- X_1 = *Current Ratio*
- X_2 = *Debt to Aset Ratio*
- X_3 = *Net Profit Margin*
- ρ = Koefisien Jalur
- $\epsilon_1; \epsilon_2$ = Faktor Residual

4. Findings and Discussions

This research used path analysis to determine the direct and indirect effects between research variables. It has two path analysis models, model 1 and model 2.

Based on the test results of the analysis, the Standardized Coefficient Beta Current Ratio value is -0.029, which indicates a negative direction, meaning that the Current Ratio negatively influences company value. In the Debt to Asset Ratio, the Standardized Coefficient Beta value is 0.174, which shows a positive direction, meaning that the Debt to Asset Ratio positively

influences company value.

Table 1. Path Analysis Model 1

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
1 (Constant)	1.356	1.685			.805	.422
Current Ratio	-.125	.309	-.029		-.404	.686
Debt to Asset Ratio	5.372	2.280	.174		2.356	.019
Net Profit Margin	-.014	.022	-.039		-.649	.517

Meanwhile, the Net Profit Margin has a Standardized Coefficient Beta value of -0.039, which shows a negative direction, meaning that the Net Profit Margin negatively influences company value. Therefore, the equation for model 1 path analysis is as follows:

$$Y = \rho_{yx_1} X_1 + \rho_{yx_2} X_2 + \rho_{yx_3} X_3$$

$$Y = -0,029X_1 + 0,174X_2 - 0,039X_3$$

Meanwhile, the results of model 2 path analysis can be seen in the following table:

Table 2. Path Analysis Model 2

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	7.453	.280			26.591	.001
Nilai Perusahaan	.033	.010	.186		3.423	.001
Current Ratio	.051	.051	.065		.996	.320
Debt to Asset Ratio	-1.891	.382	-.341		-4.946	.001
Net Profit Margin	-.004	.004	-.071		-1.253	.211

Based on the test results of the analysis, the Standardized Coefficient Beta Current Ratio value is 0.065, which indicates a positive direction, meaning that the Current Ratio positively influences stock prices. Then, the debt-to-asset ratio Standardized Coefficient Beta value is -0.341, which shows a negative direction, meaning the debt-to-asset ratio negatively influences stock prices. Then, the Net Profit Margin has a Standardized Coefficient Beta value of -0.071, which shows a negative direction, meaning that the Net Profit Margin negatively influences stock prices. Meanwhile, company value has a Standardized Coefficient Beta value of 0.186, which shows a positive direction, meaning that company value positively influences share prices. So, the equation for model 2 path analysis is as follows:

$$Z = \rho_{zx_1} X_1 + \rho_{zx_2} X_2 + \rho_{zx_3} X_3 + \rho_{zy} Y$$

$$Z = 0,065X_1 - 0,341X_2 - 0,071X_3 + 0,186Y$$

From the results of the path analysis, the path diagram is obtained as follows:

The Current Ratio's Impact on Company Value. After carrying out the analysis, it was obtained that the regression coefficient value on the Current Ratio was -0.029 with a significance of $0.686 > 0.05$, and the value of t-value $< t$ -table, namely $-0.404 < -1.968$, so H_0 was accepted, and H_a was rejected, meaning that the Current Ratio had a negative and insignificant effect on company value, in primary consumer sector companies listed on the IDX.

The proposed hypothesis does need to prove that the current ratio has a positive and significant effect on company value. According to Sawir (2016), the Current Ratio is one of the factors that influences a company's value to determine its ability to fulfill short-term obligations, with the indicators being current assets and current liabilities. A high current ratio level reflects the company's good performance in using its current assets to meet its short-term liabilities, which are due soon.

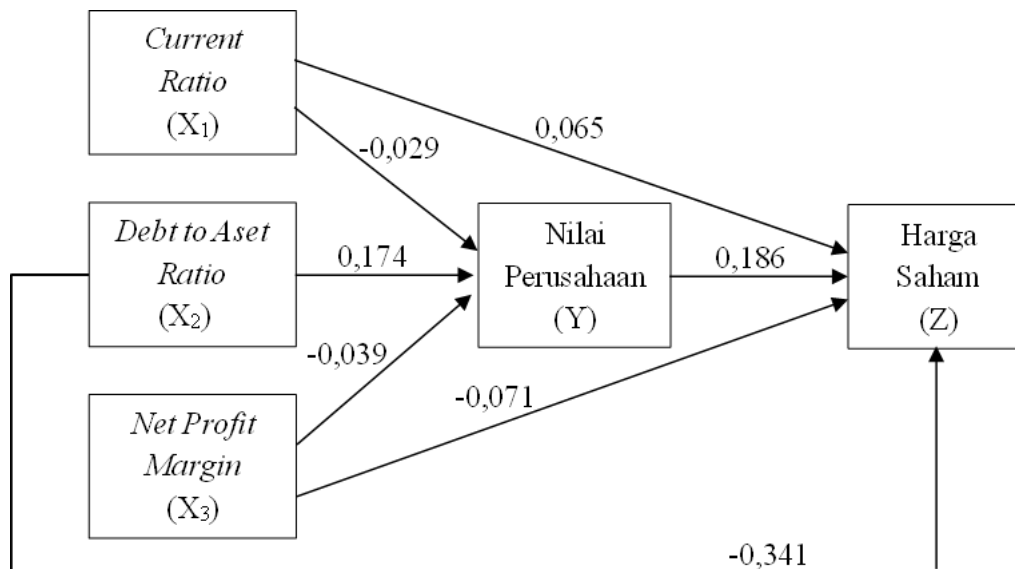


Figure 2. Path Analysis Result

This will improve the company's image in the eyes of investors who invest their funds, which can positively affect company value. Companies with more short-term liabilities than current assets will experience liquidity difficulties when their short-term liabilities mature. This will reduce the confidence of investors and creditors in lending the company funds, and it can hurt the company's value. The higher the Current Ratio indicates, the more significant the availability of current assets that can be used to pay the company's various debts in less than one year; conversely, the lower the company's Current Ratio indicates, the smaller the availability of assets that can be used to pay the company's various debts in less than one year. The research results prove that the Current Ratio's influence on company value in this study is negative. However, this influence is not significant, meaning that the negative influence of the Current Ratio does not have a substantial impact on decreasing company value. These results align with research conducted by Ardiana and Chabachib (2018), which shows that the Current Ratio does not affect company value. However, this research's results differ from those of Putra and Lestari (2016), who show that the current ratio affects company value. Other results from this research may occur because the sample is small, namely 20 companies with a research period of 4 years, namely 2010-2013 in manufacturing companies listed on the IDX, so the number of observations is 80 observations. In contrast, this research uses 59 companies with a research period. 5 years. Apart from that, the difference in research periods also allows this research gap to occur because, in this research, the impact of the COVID-19 pandemic has more or less affected the economy. The magnitude of the influence of the current ratio depends on the number of assets the company has to cover for short-term liabilities that are due, so it is highly recommended that companies' short-term liabilities are not more significant than the number of assets the company owns.

The influence of Debt to Asset Ratio on company value. After carrying out the analysis, it was obtained that the regression coefficient value on the Asset Ratio was 0.174 with a significance of $0.019 < 0.05$ and the value of $t\text{-value} < t\text{-table}$, namely $2.356 > 1.968$, so H_{o2} was rejected, and H_{a2} was accepted, meaning that the Debt to Asset Ratio had a positive and significant effect on company value, in primary consumer sector companies listed on the IDX. The results of this study do not support the hypothesis that the Debt to Asset Ratio has a negative and significant effect on company value. According to Kasmir (2018), Debt to Asset Ratio is one of the factors that can influence company value to measure how much a company's assets are financed by debt or how much company debt influences asset management, with indicators of total debt and total assets, namely if the total value high company debt. Mistakes in using debt can cause a company to go bankrupt, so investors tend to be wary of companies with high debt levels because companies with higher debt levels will produce suboptimal company value. The higher the debt-to-asset ratio, the greater the possibility that the company will be unable to pay off its obligations. The lower the debt-to-assets ratio value, the more investors will be interested in investing, which can affect the company's value. The research results prove that the influence of the debt-asset ratio on company value is positive, with a significant influence, meaning that the positive influence of the debt-to-asset ratio can substantially impact increasing company value. These results align with research conducted by Sutama and Lisa (2018) and Widasari and Sumartini (2015), which shows that the debt-asset ratio affects company value. The results differ from research conducted by Chaidir (2015), which shows that the debt-asset ratio does not affect company value. This can happen because the research period was only 3 years, namely 2012-2014, whereas in this study, the research period was 5 years. Apart from that, the difference in research objects also allows this research gap to occur because the research was conducted in transportation sub-sector companies. In contrast, this research was carried out in primary consumer sector companies.

The influence of Net Profit Margin on company value. After carrying out the analysis, the regression coefficient value for Net Profit Margin was -0.039 with a significance of $0.517 > 0.05$. The $t\text{-value} < t\text{-table}$, namely $-0.649 < -1.968$, then H_{o3} is accepted, and H_{a3} is rejected, meaning that Net Profit Margin has a negative and insignificant effect on company value in primary consumer sector companies listed on the IDX. So, the proposed hypothesis must prove that net profit margin positively and significantly affects company value. Kasmir's opinion (2019) is that Net Profit Margin is one of the factors that influences company value to compare profits after interest and tax to sales of a company so that the size of a company's profits is known, with indicators of profit after tax and sales. Suppose the value of the company's profit after tax is high. In that case, this shows the company's reasonable ability to efficiently reduce the company's operational costs to increase earnings per share. On the other hand, if the value of the company's profit after tax is low, this indicates the company's inability to efficiently reduce its operational costs, which will reduce profits per share. The greater the Net Profit Margin, the more productive the company's performance will be, which will increase investor confidence in investing capital in the company and increase its value. The research results prove that the influence of Net Profit Margin on company value is negative, with the influence not being significant, meaning that the negative influence of Net Profit Margin does not substantially impact decreasing company value. The lack of influence of net profit margin on company value shows that the results of this test do not support the theoretical results of Sari and Musmohon's (2021) research, which shows that net profit margin affects company value. On the other hand, Thaib and Dewantoro (2017) support the research results that show that net

profit margin does not affect company value. The difference in the research results of Sari and Musmohon (2021) could occur because the research sample was more petite, namely 9 companies with a research period of 8 years, namely 2012-2019, so the number of observations was 72 observations. In contrast, this research used 59 companies with a research period of 5 years with the total number of observations was 295. Apart from that, the differences in research objects also allowed this gap research to occur because the research was carried out in coal mining sector companies, so an increase in sales accompanied by an increase in profits would undoubtedly affect the company's value.

The influence of the Current Ratio on stock prices. After carrying out the analysis, it was obtained that the regression coefficient value on the Current Ratio was 0.065 with a significance of $0.320 > 0.05$ and the value of $t\text{-value} < t\text{-table}$, namely $0.996 < 1.968$, so H_0 was accepted, and H_a was rejected, meaning that the Current Ratio had a positive but not significant effect on share prices in sector companies. Primary consumers registered on the IDX. So, the proposed hypothesis does not prove that the current ratio positively and significantly affects stock prices. According to Alwi (2008), the Current Ratio is one of the factors that influence share prices, with its indicators being current assets and current liabilities; namely, if the value of current assets is high, it indicates the company's condition is good, so it will have an impact on increasing the price of shares owned by the company in the capital market. On the other hand, if the value of current assets is low, the company's condition tends to decline, impacting decreasing share prices on the capital market. If the value of current liabilities increases, investors' interest in investing in the capital market will decrease, resulting in the price of shares owned by the company being low. Conversely, a low value of current liabilities will attract investors' interest in investing in the company; this will impact increasing prices. Company shares on the capital market. The results of this research show that the Current Ratio influences share prices positively, but the influence is not significant, meaning that the positive influence of the Current Ratio does not have a strong impact on increasing share prices. A Current Ratio value that is too high is not necessarily good because it shows that a lot of the company's funds are idle, which can ultimately reduce the company's profits. A low Current Ratio will also result in a decrease in the company's share price. This also illustrates that the company has yet to be able to use its excess current assets to invest, where this investment can increase profits. If the company cannot use its excess current assets, investors will see that the company is experiencing losses, and then the demand for share prices in the company will decrease. And, of course, this will not affect the share price. If excess current assets are not idle, they are used to increase working capital and profits to attract investors to buy shares in the company. The lack of influence of the Current Ratio on stock prices shows that the results of this test do not support the theoretical results in research by Wardani (2018), Ariani (2021), Parmuji et al. (2021), Hangga (2017), Endah and Rishi (2017), Sajiya (2016), Fitrianiingsih and Budiansyah (2018), Dewi et al. (2017), Rondonuwu et al. (2017) Novalddin et al. (2020), Lutfi and Nardi (2019), Dewi and Dede (2020), Rina (2020), Dian (2020), and Yoris et al. (2021), whose research results show that the Current Ratio affects stock prices. On the other hand, the research results of Siampa, Murni and Rogi (2020), Cendy et al. (2019), Ismail (2017), Widodo and Puspita (2015), and Pratiwi et al. (2020) in this test support the research results which show that the Current Ratio does not affect prices share. The difference between the research results and research conducted by Parmuji et al. (2021) shows that the Current Ratio affects stock prices. This can happen because the research sample is small, namely 66 observations with an observation period of 3 years, 2015-2017. In contrast, this research uses 295 observations with

an observation period of 5 years. Apart from that, the difference in research objects also allows this gap research to occur because the research was carried out on LQ45 companies listed on the IDX, thus enabling the company to balance the benefits and costs arising from debt so that additional debt could increase share prices.

The influence of Debt to Asset Ratio on stock prices. After carrying out the analysis, it was obtained that the regression coefficient value on the Debt to Asset Ratio was -0.341 with a significance of $0.001 < 0.05$ and the value of $t\text{-value} < t\text{-table}$, namely $-4.946 > -1.968$, so H_05 was rejected, and H_{a5} was accepted, meaning that the Debt to Asset Ratio had a negative and significant effect, on share prices in primary consumer sector companies listed on the IDX. The results of this research support the hypothesis that the Debt to Asset Ratio has a negative and significant effect on stock prices. According to Alwi (2008), Debt Asset Ratio is one of the internal factors that can influence stock prices with indicators of total debt and total assets; namely, if the total value of the company's debt is high, this shows that the risk the company has is high so that it is less attractive to investors—investing capital and causing a decline in share prices on the capital market. If the total value of the company's debt is low, this indicates the company's risk is low, so it will attract investors' interest in buying shares. It will impact and increase the company's share price in the capital market. When the value of the total assets owned by the company is high, this shows the company is in good condition so that it will increase the company's share price in the capital market. Conversely, when the value of the total assets owned by the company is low, the company is in poor condition. Hence, the company's share price in the market capital decreases. The higher the debt-asset ratio of a company, the lower the share price because the more significant debt costs can reduce the company's profitability. Conversely, a low value of the company's debt-asset ratio tends to increase the company's share price. Based on the research results, the influence of the debt-asset ratio on stock prices is negative and significant, meaning that the negative influence of the debt-to-asset ratio strongly impacts the decline in share prices. These results are in line with research conducted by Pane et al. (2021), Edduar (2015), Stevanus and Sunarmi (2018), Fatmawati and Agus (2017), and Rudianto (2019), which shows that the Debt to Asset Ratio effect on stock prices. The results differ from research conducted by Wijaya (2017) and Sunotowira et al. (2019), which shows that the debt-to-asset ratio does not affect stock prices. The difference between the research results and research conducted by Sunotowira et al. (2019) shows that the Debt to Asset Ratio does not affect stock prices. This can happen because the research sample is small, namely 59 companies with an observation period of 3 years, namely 2015-2017. In contrast, this research uses a sample of 59 companies with an observation period of 5 years. The difference in research objects also allows gap research to occur because the research was conducted at Kompas 100 companies, while this research was conducted at primary consumer sector companies. A company's high Debt-to-Asset Ratio can indicate a high risk to the company because the company has a greater responsibility in paying off obligations to third parties. However, if the company uses and utilizes it effectively, a high Debt-to-Asset Ratio value is not a bad thing because the profits earned can pay debts periodically and provide profits.

The influence of Net Profit Margin on stock prices. After carrying out the analysis, it was obtained that the regression coefficient value on Net Profit Margin was -0.071 with a significance of $0.211 > 0.05$ and the value of $t\text{-value} < t\text{-table}$, namely $-1.253 < -1.968$, so H_06 was accepted, and H_{a6} was rejected, meaning that Net Profit Margin had a negative and insignificant effect on share prices in primary consumer sector companies listed on the IDX.

So, the proposed hypothesis needs to prove that net profit margin positively and significantly affects stock prices. The results of this research show a negative influence, meaning that if the Net Profit Margin increases, it will decrease share prices. According to Zulfikar (2016), the net profit margin is an internal factor influencing share prices, profit after tax, and sales indicators. Suppose the value of the company's profit after tax is high. In that case, this shows the company's ability to efficiently reduce operational costs to signal to investors that the company is in good condition, increasing the value of share prices in the capital market. On the other hand, if the value of the company's profit after tax is low, this indicates the company's inability to reduce operational costs efficiently. The company's condition tends to decline, so the value of the share prices on the capital market will also decrease. When a company's sales value increases, it shows its reasonable ability to make a profit, so the value of share prices in the capital market increases; conversely, when the company's sales value decreases, it shows its lack of ability to make a profit, resulting in a decrease in the value of share prices in the capital market. The higher the Net Profit Margin level indicates, the better the company's performance in generating profits. High profits will result in a high company share price and be able to attract investors, whereas a low Net Profit Margin value tends to reduce the company's share price. Based on the research results, the influence of Net Profit Margin on share prices is negative, with an insignificant effect. This means that the negative influence of Net Profit Margin does not have a strong impact on the decline in share prices. These results align with research conducted by Ariani (2021), which shows that Net Profit Margin does not affect stock prices. The results are different from research conducted by Hendri (2015), Watung (2016), Manappo et al. (2017), Sevanya et al. (2019), and Wangarry (2019), which shows that Net Profit Margin has an effect on stock prices. The difference between the research results and research conducted by Wangarry (2019) shows that Net Profit Margin affects stock prices. This can happen because the research sample is more minor, namely 42 companies with an observation period of 3 years, namely 2013-2015, while this research sample uses 59 companies with an observation period of 5 years. Apart from that, differences in research objects also made this gap research possible because it was carried out on banking companies registered on the IDX. An increase in sales accompanied by an increase in profits will not necessarily affect share prices because investors not only see Net Profit Margin as an indicator of company performance when investing in shares but can also be influenced by other indicators.

The influence of company value on share prices. After carrying out the analysis, it was obtained that the regression coefficient value on company value was 0.186 with a significance of $0.001 < 0.05$ and a t-value $< t\text{-table value of } 3.423 > 1.968$, so H_0 was rejected, and H_a was accepted, meaning that company value had a positive and significant effect on share prices in consumer sector companies. Primary listed on the IDX. The results of this study support the hypothesis that company value has a positive and significant effect on share prices. According to Brigham and Houston (2011), company value and the Price Book Value indicator influence share prices. Hery's (2018) opinion is that company value, as proxied by Price to Book Value, is a ratio that shows the results of a comparison between the market price per share and the book value per share. A share is undervalued if the share price is below the company's book value. On the other hand, a stock is said to be overvalued if the share price exceeds the company's book value. It was concluded that price-to-book value is a benchmark for recognizing the market value of a company's shares. The higher the Price to Book Value, the higher the stock return and share price. The higher the stock return, the higher the company's income, thereby increasing the company's ability to generate profits and increasing the share

price. The research results prove that the influence of company value on share prices is positive, with a significant influence, meaning that the positive influence of company value can strongly impact increasing share prices. Company value is a form of company success reflected in the share price. So, if the company value increases, the share price will also increase. This is in line with research conducted by Martha and Yanti (2019), Purwaningsih and Setiawan (2022), Jumhana (2016), Dewi (2013), Arbaningrum and Musmohon (2021), Irnawati and Wirawan (2021), Kirana et al. (2019), Surjanto and Sugiharto (2021), Wijanarko (2022) and Girsang (2023) that company value influences share prices. However, research conducted by Putri (2018), Angga and Hadi (2017), and Yuliana and Maharani (2022) explains that company value does not affect share prices. The difference between the research results and research conducted by Yuliana and Maharani (2022) shows that company value does not affect share prices. This can happen because the research sample is small, namely 24 companies with an observation period of 3 years, namely 2019-2021, while this research sample uses 59 companies with an observation period of 5 years. Apart from that, differences in research objects also make this research gap possible because the research was conducted on consumer goods sector companies listed on the IDX.

5. Conclusion

Based on research conducted on primary consumer sector companies listed on the IDX for the 2019-2023 period regarding the factors that influence share prices with company value as an intervening variable, the following conclusions can be obtained: 1. The Current Ratio has a negative and insignificant effect on company value, meaning that the negative influence of the Current Ratio does not substantially impact decreasing company value; 2. The Debt-to-Asset Ratio has a positive and significant effect on company value, meaning that its positive influence strongly impacts increasing company value; 3. Net Profit Margin has a negative and insignificant effect on company value, meaning that the negative influence of Net Profit Margin does not strongly impact decreasing company value; 4. The Current Ratio has a positive but insignificant effect on share prices, meaning that its positive influence does not strongly impact increasing share prices; 5. The Debt-to-Asset Ratio has a negative and significant effect on share prices, meaning that its negative influence strongly impacts the decline in share prices; 6. Net Profit Margin has a negative and insignificant effect on share prices, meaning that its negative influence does not strongly impact the decline in share prices; 7. Company value has a positive and significant effect on share prices, meaning its positive influence strongly impacts increasing share prices.

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The Financial Performance of the English Football Clubs

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Abstract

The financial performance of twenty English football clubs over the period 2013-22 is examined in this study with correlation and panel data analysis. Three performance measures are used: Return on Assets (ROA), Return on Equity (ROE), and Profit Margin. The size of clubs and their liquidity, leverage, efficiency, cash flow efficiency, and turnover per employee are employed as explanatory variables of performance. Sporting data, including attendance rate, the number of wins, the uncertainty in the Premier League, participation in the Premier League or not, and the presence in UEFA's European club competitions, are also assessed. The empirical findings accentuate a positive relationship between performance and liquidity, efficiency, cash flow efficiency, and revenue per employee. The opposite is the case for leverage. Wins are positively related to ROA, while the opposite relationship is found for the uncertainty factor. Finally, the presence of clubs in the Premier League is positively associated with their financial performance.

Keywords: Financial Performance; Football Clubs; liquidity; leverage; efficiency

JEL Codes: G32, M21, M41

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1. Introduction

Football is one of the most popular, if not the most popular, sports worldwide. Billions of people are interested in football, whether it's a local team they are interested in or an international football game, regardless of their economic, educational, and social status.

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Football is popular because it can offer the players and fans tremendous joy and tears in equal proportions.

Based on this popularity, international professional football has become a multi-billion dollar industry. Football is a game that requires huge investment in the acquisition of talented players, the hiring of competent training staff, and the development of the necessary infrastructure. At the same time, football is an industry that can generate high revenue. According to a survey by Deloitte on European football, the total income of the sector increased by 7% in the period 2021-22 and reached €29.5 billion compared to the season 2020-21, which was significantly affected by the restrictive measures imposed by the European governments due to Covid-19.

Football clubs can make money from several sources, which concern income from tickets, sponsorships, advertising, TV broadcasting rights, income from the sale or the lease of players, income from the sale of products and services under the brand name of the club, income from the presence in European competitions, such as the UEFA's Champions League and Europa League, income from grants and donations, income from the rental of suites and other areas of the clubs' stadiums, and income from the exploitation of their academies. However, clubs outside the top tiers rely heavily on tickets and other matchday revenue.

On the other hand, the costs incurred by the professional football clubs are quite high. The main costs include the salaries and social contributions of footballers, salaries and insurance costs of training and other staff, depreciation of tangible and intangible assets along with the amortization of the rights associated with the various costs of acquiring footballers, the costs of matches, sponsorships, advertising, and other operating costs. With respect to the cash requirements of the professional football clubs, the most significant of them concern the acquisition of players and the respective fees and remunerations paid to managers and other agents involved.

Five leagues are the biggest in the European industry, both financially and from a sporting perspective. These leagues are the German Bundesliga, the Ligue 1 of France, the Spanish La Liga, the English Premier League and the Italian Serie A. In the season 2021-22, these "big-five" leagues held €17.2 billion (or 58%) of total revenue of the entire European football market.

The football market of England has constantly been the leader of the European football industry over recent decades. According to the survey of Deloitte, the Premier League clubs achieved record average crowds of 39,950 in the season 2021-22. This figure corresponds to an average utilization of stadia's capacity by 98%. According to Millward (2013), the English Premier League is a transnational football league given the global mobility of the increasing number of overseas players acquired by the English football clubs. Similar global mobility can be observed in the number of managers and coaches hired by the English clubs.

The intense competition among the Premier League clubs, as well as their big domestic and international fan bases, commercial value, influential ability and social impact, have attracted

the interest of wealthy international investors worldwide.¹ Investors are willing to invest billions in expanding stadiums' capacity, improving training facilities, and acquiring world-class players. Such investments usually upgrade teams' on-field competitive advantage and performance and skyrocket footballers' transfer costs and salaries.² Along with the impact on the English football club, the vast investments made by the foreign owners are beneficial to the local communities of teams too.

The second largest European football market, both from a financial and a competitive perspective, is the Spanish "La Liga". Similar to the English Premier League, foreign interest in the Spanish football clubs has grown exponentially in recent years and big money is being spent by the top Spanish football clubs too.

Overall, within the environment of high operating costs and investment needs, quite often the revenue of clubs is not enough to meet their needs. In fact, as noted by Millward (2013), in season 1995-96, clubs in the top division of England spent, on average, 47% of their income on the salaries of players, while 10 years later, in season 2005-06, the corresponding figure was 63%. As a result of big spending on player wages, investments in footballers and infrastructure, as well as other operating costs, are largely covered by bank lending or liquidity injections by the owners of clubs in the form of share capital increases. As a result from this financial policy, quite often European clubs present significant annual and cumulative losses.

In this study we examine the financial performance of twenty clubs that participated in the Premier League during the season 2021-22 trying to identify financial and sporting factors that can contribute to the financial performance of clubs. The period under study covers ten years from the season 2012-13 to the season 2021-22. Performance is measured in three ways, i.e., return on assets (ROA), return on equity (ROE), and profit margin (profit before tax to turnover). The explanatory variables used in our study regard the size of the clubs, expressed by their total assets, liquidity, leverage, efficiency, cash flow efficiency, and turnover per employee. The sporting factors used are the attendance rate, the number of wins achieved by each club on an annual basis, an uncertainty factor, measured by the ratio of the points each team lags from the champion divided by the total points of the champion, one dummy variable concerning the presence of clubs in the Premier League or not, and one dummy variable regarding the presence in UEFA's European club competitions or not.

Our findings show that most of the examined football clubs face liquidity issues, as the relevant ratio is relatively lower than 100% for 16 out of 20 clubs in the sample. In addition, the examined clubs are highly leveraged, while their average efficiency (asset turnover) is lower than 100%. Their ability to use their assets to generate cash is fragile too. Moreover, clubs' profitability is rather poor as most present average losses before tax over the study period. Average ROA and ROE figures are not that spectacular either.

¹ According to the latest UEFA club benchmarking report, 40% of the Premier League clubs are majority owned by foreign investors. In addition, 35% of the Premier League clubs have foreign investors as minority shareholders (<https://brandfinance.com/insights/foreign-ownership-in-the-premier-league>).

² The most representative example of a club's on-field upgrade after its acquisition by foreign investors, is that of Manchester City, which have won six Premier League titles and numerous FA and League Cups since being taken over by the Abu Dhabi Investment United Group.

Regarding financial performance, the results reveal a positive relationship between performance with liquidity, efficiency, cash flow efficiency, and revenue per employee. On the contrary, the relationship between financial performance and leverage is slightly negative. As far as the sporting variables are concerned, the number of wins achieved by each club is found to be positively related to ROA. The opposite relationship is found between ROA and uncertainty. Finally, the presence of clubs in the Premier League exerts a positive impact on financial performance.

Overall, our results indicate that, despite the huge international interest in Premier League football clubs and the big money collected by the top English clubs, most of them are loss-makers with poor financial structures and performance.

The rest of the paper is structured as follows: Chapter 2 summarizes the main findings of previous research on the financial performance of English football clubs and other football markets. Section 3 describes the methodology and the study sample. Section 4 discusses the key financial ratios of the sample. Section 5 provides an analysis of the sample's sporting statistics. Section 6 presents the empirical findings and conclusions are offered in section 7.

2. Literature Review

Several studies have evaluated the financial performance of the English football clubs. Szymanski and Smith (1997) examine the financial performance of 48 English clubs from 1974 to 89, with performance being measured as the pre-tax profit. The determinative factors used are the prices of tickets, attendance rates, income from TV rights, sponsorships and other sources, the net amounts for and from transfers, the non-payroll expenses, the ranking of clubs in the league, promotion or relegation, and the presence of clubs in the country's cup competitions. The empirical findings indicate that promoting a club from one league to the next contributes to temporary excitement, increasing the demand for tickets. However, this excitement does not last for long. Good performance in cup competitions boosts attendance too. The authors conclude that only the top clubs are profitable and that there is a high degree of profit concentration in the top five clubs, which held 20% of earnings during the study period.

Szymanski (1998) examines the on-pitch success of Manchester United during the 90's. During that period, Manchester United won numerous of Premier League championships and FA cups, also being the most successful club from a financial perspective. Between 1992 and 1997 the club generated an income of £249 million, 66 million of which reported as profit. This was a stellar financial performance compared to other clubs in the industry, which reported persistent pre-tax losses. Sporting and financial success could be interpreted as if the on-pitch success and sound financial performance go hand in hand. However, as the author additionally examines the financial performance of forty English clubs over the last twenty years, he concludes that there is no systematic relationship between financial and sporting success. In other words, it seems that when league performance improves or deteriorates, profits can either rise or fall in the same proportions in both cases.

Ozawa et al. (2004) examine the relationship between the market orientation of the English football clubs and their financial performance by using a sample 26 clubs playing in the Premiership (six clubs) and Nationwide Leagues (20 clubs). The empirical results show that there is little correlation between financial performance and the degree of market orientation. It is also found that no financially successful clubs have low market orientation scores. This

means that measures of marketing behavior are necessary, but not sufficient conditions that will boost financial performance.

Hamil and Walters (2010) analyze the financial performance of English football clubs since the creation of the Premier League in 1992, finding that, despite the large increases in revenue, the clubs have failed to achieve a pre-tax profit on an annual basis. On the contrary, many clubs were forced to enter administration due to rising debt levels.

Buraimo et al. (2006) deal with financial distress, which is not rare in English football. The authors highlight that the number of English clubs facing financial difficulties has escalated, while, at the same time, revenue accrued to the English football clubs has reached unprecedented levels. Clubs from the Premier League and the Football League are considered. According to the findings, financial distress primarily concerns clubs in the lower divisions, which engage in the seasonal race to get promoted to higher divisions, where monetary rewards are more significant. In this effort, the examined clubs have tended to apply excessive wage expenditure, which, combined with other unpleasant developments, such as the collapse of a major broadcaster, have threatened the already fragile existence of many clubs.

Wilson et al. (2013) explore the relationship between the financial and on-field performance of the clubs competing in the Premier League. They focus on the effect of different models of club ownership on financial and league performance. This study focuses on 20 clubs and covers the period 2001-2010. Correlation analysis is applied to assess the relationship between clubs' financial structure and league position. The results show that the stock market ownership model contributes to better financial health than the private (domestic or foreign) ownership model.

In the same context, Samagaio et al. (2009) examine the linkages between financial performance, sporting performance and stock market performance for the English football clubs over the period 1995-2007. Based on the empirical results, there is a strong relationship between financial and sporting performance. On the other hand, the analysis shows that financial and sporting factors are statistically correlated with stock returns, but not with risk.

Ika et al. (2020) investigate the financial statements of Arsenal and Manchester City, two of the top clubs in the English Premier League. The study period spans from 2015 to 2017. The authors compare the financial performance of these clubs by using Altman's Z-score and a bankruptcy prediction model. The analysis shows that both clubs were financially sound during the study period. The comparison between Arsenal and Manchester City indicates that Manchester City's finances are better than those of Arsenal.

On the financial performance of football clubs in other countries, Barajas et al. (2005) investigate the effect of the on-field performance on the financial results of 42 clubs in Spain during the period 1998-2002. Net profit is the dependent variable of the analysis. The explanatory factors considered are the position of clubs in the league, the total points gathered by the clubs, and the weighted average of points in each competition. The main conclusion reached by the authors is that sporting variables are not significantly related to the financial performance of the Spanish football clubs.

Ferri et al. (2017) provide the opposite results on the relation between sporting and financial performance. The authors use data for a sample of 29 Italian clubs that participated in the country's top league over the period 2007-08 to 2013-14. The results reveal a positive

relationship between the salary costs of players and the clubs' on-pitch performance, but no significant correlation exists between players' transfer fees and sporting performance. The authors conclude that the most profitable clubs are those with the highest sporting performance too.

Dimitropoulos and Tsagkanos (2012) analyze the impact of the corporate governance quality on the profitability and viability of the European Union's football clubs over the period 2005-2009. Corporate governance quality is captured by the size and the independence of the board, managerial ownership, institutional ownership and the duality in CEO and chairman roles. The results indicate that the quality in corporate governance, expressed by higher managerial and institutional ownership, increased board size and independence, as well as the separation of the CEO and chairman roles, contributes to greater profitability and viability. The analysis also indicates that sound governance mechanisms are more important for clubs facing intense issues of insolvency and poor financial performance.

Fraile et al. (2017) assess the relationship between ownership and financial performance in the five major European leagues from the season 2007-08 to the season 2012-13. They also evaluate the relevant effect of the financial fair play regulation. The study focuses on 94 clubs that compete in the German Bundesliga, the French Ligue 1, the Spanish La Liga, the English Premier League and the Italian Serie A. The results accentuate an inverted U-shaped curve relationship between ownership structure and financial performance. This relationship is attributed to monitoring and expropriation effects. The results also show that after the adoption of rules concerning financial fair play, the monitoring effect disappears and only the expropriation effect remains.

Scafarto and Dimitropoulos (2018) assess the relationship between the investment in human capital and financial performance in the professional football industry. A fixed-effect econometric model is applied on a panel data set of 16 Italian football clubs by controlling for club-level internal governance mechanisms. As the Italian clubs are characterized by a highly concentrated ownership and familial control, the degree of family representation on board and the dual leadership structure are assumed to exert a moderating effect on clubs' decision about spending on talent acquisition. The results reveal that clubs with separated CEO and chairman roles and a high degree of family board representation can profit from investments in player contracts contrary to clubs which lack in such governance mechanisms.

Alaminos et al. (2020) investigate how financial, sporting and corporate factors affect the solvency and viability of the European football clubs over the period 2016-18. The results of the study show that the financial performance of clubs is affected by their liquidity and leverage, as well as by their sporting performance. The reputation of clubs also bears a weak relationship with financial performance.

Kevser and Dogan (2022) compare the financial performance of five major European football clubs. In particular, Manchester City and Manchester United from the English Premier League are selected, along with Barcelona and Real Madrid from the Spanish La Liga, and Juventus from the Italian Serie A. The authors consider the liquidity, leverage and profitability ratios of these clubs over the period 2015-2019 and conclude that Manchester City has the stronger financial performance while Juventus has the poorest. The authors conclude that liquidity and short-term debt to equity ratios are the most important performance indicators for the examined football clubs.

Dimitropoulos (2009) examines the profitability of the Greek football clubs over the period 1994-2004 trying to identify some of the factors that can affect their financial performance. The results show that the profitability of clubs is positively related to their short-run (but not to their long-run) sporting success and their seasonal uncertainty. The size of clubs also affects performance in a positive way. This is also the case for asset turnover and ROA. Similar results are offered by Dimitropoulos and Alexopoulos (2014).

In another study on the Greek football clubs, Dimitropoulos (2010) analyzes the financial performance of the clubs competing in the top football division in Greece over the period 1993-2006. Financial analysis with key accounting ratios is applied. This analysis shows that the Greek football clubs are highly leveraged, face intense liquidity and profitability issues, as well as an increased financial distress risk.

Finally, Dimitropoulos and Limperopoulos (2014) assess the relationship between the sporting and financial performance of Greek football clubs and how the investment in players' contracts affects this relationship. They use data of a sample of twenty clubs participating in the three professional divisions of the country during the period 2004-05 to 2008-09. The results indicate that the higher the investment in players, the more successful a club is. However, as the investment in players' contracts increases, the club becomes more unprofitable and insolvent, suggesting that the decisions about players' contracts are not based on economic standards.

3. Research Methodology

In this section, we define the variables that will be used in our analysis and describe the methodology we apply to assess the factors that affect the financial performance of the English football clubs.

3.1 Definition of Variables

Three types of financial performance are used in our analysis. The first one is the return on assets (ROA), which is computed as the ratio of profit before tax (PBT) to total assets at the end of each year over the study period. The second measure is the return on equity (ROE), calculated as the fraction of PBT to total equity at each year end. The third measure of performance is the profit margin, the fraction of profit before tax to turnover.

The explanatory variables used regard the size of the clubs, which is calculated as the logarithm of assets at the end of each reporting period, liquidity, i.e., the ratio of current assets to current liabilities, leverage, that is, the ratio of total debt (liabilities) to total equity, efficiency, i.e., the fraction of turnover to assets, cash flow efficiency, that is, the ratio of net cash flow/outflow to assets, and the ratio of turnover per employee.

Sporting factors are used as explanatory variables, too. These factors include attendance rate, that is, the logarithm of total tickets sold annually, the number of wins achieved by each club, and the league's uncertainty, which is measured as the fraction of the points each team is lagging behind the champion at the end of each season to the total points gathered by the champion. Each club's participation in the Premier League, Championship, or League One is also considered. Finally, clubs' involvement in UEFA's Champions League or Europe League is also considered.

3.2 Correlation analysis

We apply correlation analysis of the key variables considered in our analysis using the correlation coefficient of Pearson. Correlation analysis can help identify the variables that should be investigated further. Correlation analysis is concerned with finding out whether a relation exists between variables and determining the magnitude and sign of that relation. Nevertheless, correlation does not entail causation as correlation analysis identifies and evaluates a relationship between two variables, but a positive correlation does not automatically mean that one variable affects the other. In addition, this type of correlation reflects a linear correlation of variables ignoring non-linear types of relationships.

3.3 Regression Analysis of Performance

First, we run the following panel regression model on the relationship of financial performance with pure financial factors:

$$PER = \beta_0 + \beta_1 SIZE + \beta_2 LIQ + \beta_4 LEV + \beta_5 EF + \beta_6 CFEF + \beta_7 EMPTUR + u \quad (1)$$

PER is the model's dependent variable and stands alternatively for i) ROA, ii) ROE, and iii) profit margin. Size concerns the logarithm of clubs' assets. LIQ, LEV, and EF regard the liquidity, leverage, and efficiency of the examined clubs, respectively. CFEF is cash flow efficiency, and EMPTUR is the average turnover per employee.

According to Majundar (1997), size is positively related to firm performance as large companies may achieve superior performance by exploiting economies of scale and organizing their activities more efficiently. If this is true in the case of the examined football clubs, the coefficient of size will be positive and significant.

Liquidity indicates a company's ability to meet its short-term obligations without jeopardizing its operation as a going concern. According to Zygmunt (2013), a firm's liquidity might determine its profitability. Based on this analysis, the coefficient of the liquidity ratio in model (1) should be positive.

Leverage is a risk indicator associated with the probability of default, that is, the failure of a firm to meet the legal obligations or conditions of a loan. Penman (2001) argues that the lower the leverage ratio the greater the financial security and, thus, the higher the level of the expected profitability. Several studies show that leverage is related to firm performance in a negative way (e.g., Yameen et al., 2019). According to this analysis, the coefficient of leverage should be negative and statistically significant.

Several studies show that efficiency is positively related to firm performance (e.g., Khan et al., 2021). Generally speaking, efficiency and cash flow efficiency indicate the ability of a company to convert its assets into sales and cash, respectively. If this applies to the English football clubs, the coefficients of efficiency and cash flow efficiency in model (1) will be positive and significant.

Finally, the turnover (revenue) per employee ratio is a critical indicator of a firm's efficiency and profitability used to assess the ability of a company to be highly competitive in its industry. A high turnover-per-employee ratio indicates that the company is generating more revenue per employee than its peers. A high turnover-per-employee ratio can also show that the firm is effectively exploiting its resources and investing in technology and automation to streamline its operations. The latter can lead to cost savings and increased profitability in the long run. According to this discussion, the coefficient of the employee turnover factor in model (1) is expected to be positive.

In order to check whether concurrent financial performance is driven by lagged performance, we apply model (1) by adding the one-year lagged performance of clubs in the explanatory variables. If performance persistence exists, the coefficient of lagged performance will be positive and significant.

Model (1) considers pure financial variables to explain the performance of the English football clubs. As an expansion to this model, along with financial factors, we use sporting variables to assess their possible impact on the financial success of the examined clubs. These factors include attendance rate, winning rate, uncertainty, the participation of clubs in Premier League or other inferior leagues, and the participation of clubs in UEFA's championships. The expanded model applied is the following:

$$\text{PER} = \gamma_0 + \gamma_1\text{SIZE} + \gamma_2\text{LIQ} + \gamma_4\text{LEV} + \gamma_5\text{EF} + \gamma_6\text{CFEF} + \gamma_7\text{EMPTUR} + \gamma_8\text{ATT} + \gamma_9\text{WIN} + \gamma_{10}\text{UNC} + \gamma_{11}\text{PL} + \gamma_{12}\text{UEFA} + u \quad (2)$$

ATT refers to total tickets sold annually, WIN refers to the percentage of wins achieved by a club over a season, UNC concerns uncertainty, PL refers to whether a club participates in the Premier League, and UEFA regards presence in UEFA's contests.

Several studies consider matching attendance as a crucial factor for the financial performance of a club (e.g., Jennett, 1984; Janssens and Kesenne, 1987; Peel and Thomas, 1988). Based on these studies findings, the attendance coefficient is expected to be positive. Dimitropoulos (2009) finds that the number of wins achieved by a club is positively related to its financial performance. If this relation applies to our sample, too, the coefficient of the winning rate will be positive. Dimitropoulos (2009) reports a negative but insignificant relationship between financial performance and uncertainty in the case of Greek football clubs. If such a negative relation applies to the English football clubs, the relevant coefficient will be negative and significant. Finally, a club's participation in the Premier League ensures much more revenue than the money gathered by a club that competes in the Championship or League One. Increased revenue possibly entails higher profitability. Consequently, the Premier League dummy coefficient in the model (2) is expected to be positive. The same discussion can be made about the participation of a club in UEFA's competitions. Thus, the estimate of the UEFA dummy is expected to be positive too.

Similar to model (1), we apply an alternative version of model (2) having the lagged performance in the independent variables to check whether the impact of lagged performance on concurrent financial performance is stronger than the influence of the rest explanatory variables.

3.4 Sample

The study focuses on the twenty teams that participated in the Premier League during the season 2021-22 and covers a period from the season 2012-13 to the season 2021-22.

Table 1 presents key accounting figures from the balance sheet, income statement and cash flow statement of the examined English football clubs. Accounting figures include total assets, current assets, equity, total liabilities, current liabilities, the net cash flow, i.e., the change in cash reserves at the end of each year compared to the previous year, total operating revenue (turnover), and profit before taxes (PBT). The number of staff and revenue per

employee are reported too.³ The figures in the table concern the average terms of the accounting data for the entire period under review and have been collected manually from the published financial statements of clubs.

The average assets of the sample's clubs amount to £389 million. The largest club is Manchester United with average assets of £1.360 million. The smallest club in the sample is Leeds United with average assets of £86 million. The average current assets equals £103 million, that is, 27% of the average total assets. The average equity amounts to £107 million, i.e., about 38% of total liabilities. Total liabilities amount to £282 million. This amounts captures 73% of total assets. Short-term (current) liabilities amount to £156 million, or approximately 55% of total liabilities.

From the simple presentation of the key balance sheet figures, we may conclude that English football clubs rely pretty heavily on external funding to finance their operations, as evidenced by the fact that 73% of assets are funded by liabilities to third parties. In addition, the fact that more than half of liabilities are short-term may trigger a risk regarding the liquidity of the English football firms. This risk is further enhanced by the fact that the average net cash flow, although positive at £2.4 million, is very small if we compare it to the total liabilities of clubs (i.e., 0.86% of total liabilities). In other words, the money generated by the clubs is not enough to meet their obligations.

When it comes to the income statement figures, the average turnover of the examined clubs amounts to £194 million. Manchester United shows the highest average turnover of £509 million. The club with the second highest average revenue is Manchester City (£453 million), which falls behind Manchester City by 12%. The club with the smallest average turnover is Brentford, which shows a turnover of £24 million. In total, just six out of twenty clubs in the sample show turnover that exceed the average term of the entire sample. These clubs are Manchester United, Manchester City, Liverpool, Chelsea, Arsenal and Tottenham Hotspur.

Regarding profitability, Table 1 shows that the majority of the examined clubs are loss-makers. Only three clubs, i.e., Tottenham Hotspur, Liverpool and Burnley, present a positive profit before tax figure. The average PBT in the sample is equal to £8 million. The worse profitability is shown by Arsenal, with an average annual loss before tax of £12 million. On the other hand, the most profitable English football club is Tottenham Hotspur, with an average PBT of £21 million.

The low amount of revenue (compared either to total assets or total liabilities) combined with the significant losses, as well as the high leverage, evidenced by the large balance of total liabilities, and the weak ability of clubs to generate money, picture a rather negative financial structure and performance of the English football enterprises.

Finally, with respect to staff numbers, the relevant average term in the sample is equal to 435 employees. Manchester United employs the highest number of staff, i.e., 896, while Brentford presents the lowest staff number at 153 employees. The average revenue (turnover) per employee in the sample amounts to £431 thousand. The highest revenue per employee equals £1.1 million (achieved by Manchester City) and the lowest amounts to £117 thousand (presented by Leeds United).

³ Staff includes all types of personnel, that is, football players, training staff, management staff, etc.

4. Result and Discussion

4.1. Financial Ratios

The conclusion about the negative financial performance of the English clubs is verified by the financial ratios reported in Table 2. The three financial performance measures considered are negative for most of the examined clubs. In the case of ROA, only Burnley, Tottenham Hotspur, Liverpool, and Newcastle United present an average positive ratio. The average ROA of the sample is equal to -4.48%, with the lowest being equal to -21.51% (presented by Leeds United). In the case of ROE, just half of the clubs show a favorable ratio. The sample's average ROE equals 9.18%. Finally, the sample's average profit margin equals -13.71%. At the club level, only three clubs present a positive profit margin.

The sample's average liquidity ratio is significantly lower than 100% (or the unity) being equal to 94.95%. The liquidity of just four clubs (i.e., Wolverhampton Wanderers, Manchester City, Arsenal and Burnley) exceeds 100%. Overall, liquidity ratios indicate that the English football clubs might face issues with their ability to meet their financial needs.

In regard to leverage, the sample's relevant average ratio is equal to -58.54%. This negative percentage is explained by the fact that six clubs present negative equity figures in Table 1. In addition, the leverage ratio of Norwich City (1.248%), Leeds United (-1.783%), and Brentford (-2.667%) stand as the sample's outliers. Without these outliers, the average leverage ratio is equal to 119.52%. This adjusted average ratio indicates that the majority of the English football clubs are highly leveraged.

Finally, as far as efficiency is concerned, the relevant average ratio in the sample is equal to 67.90%. Only Aston Villa, Crystal Palace and Burnley show an average efficiency ratio that exceeds 100%. In addition, the efficiency ratio of ten clubs in the sample is lower than the sample's average efficiency ratio. Overall, the efficiency ratios show that most of the examined clubs do not utilize their assets in the best possible way. Similar inferences can be drawn via the cash flow efficiency ratio, whose average term is slightly lower than 1%, with the highest ratio being equal to 4.89% (achieved by West Ham United).

4.2. Sporting Statistics

Table 3 provides some basic sporting data of the examined clubs. These data concern the number of years each club participated in the Premier League during the study period, the total number of tickets sold annually, the percentage of wins (in the Premier League, the Championship or the League One), the uncertainty rate (in the Premier League, the Championship or the League One), and the number of years each team participated in UEFA's competitions.

As shown in Table 3, only nine clubs have had a constant presence in the Premier League over the study period. These clubs are Arsenal, Chelsea, Everton, Liverpool, Manchester City, Manchester United, Southampton, Tottenham Hotspur and West Ham United. Furthermore, Manchester United has been the most ticket selling club, with an average annual volume of tickets of 1.8 million. The second best-selling club is Arsenal with an average tickets' volume of 1.6 million. In the bottom, Brentford presents the lowest average number of tickets sold, which is equal to 563 thousand. In sum, the tickets' volume of eleven clubs is lower than the sample's average term.

Moreover, the average winning rate of the sample is 43%. The highest rate of wins over the study period is 69% and has been achieved by Manchester City, which have been the champion in half of the seasons examined. The worst on-field team (based on winning rates) is Aston Villa, with an average winning rate of 32%.

Finally, on the participation of the English clubs in the European competitions, twelve teams had at least one presence in such a contest. Manchester City had a European presence in each single season during the study period. Each of Arsenal, Manchester United and Tottenham Hotspur failed to participate in a European competition in just one year. On the other hand, Newcastle United, Southampton, West Ham United and Wolverhampton Wanderers had just one year of participation in European contests. The clubs with nil European presence are Aston Villa, Brentford, Brighton & Hove Albion, Burnley, Crystal Palace, Leeds United, Norwich City and Watford.

4.3. Empirical Results

In this section, we first discuss the correlations among the variables assessed in our study. The discussion of regression results on the financial performance of the English football enterprises follows.

4.3.1. Correlation Analysis

Table 4 presents the correlation coefficients among the average ROA, ROE, profit margin, size, liquidity, leverage, efficiency, cash flow efficiency, turnover per employee, attendance, winning rate, uncertainty, Premier League membership, and the participation in UEFA's Champions League or Europa League.

The correlation between ROA and the size of clubs is equal to 0.15. Based on this estimate, the size of the clubs is a factor that may affect the financial performance of the English football enterprises in a positive way. Similar positive correlations are found between ROA and liquidity (0.27), efficiency (0.25), cash flow efficiency (0.31), turnover per employee (0.38), attendance rate (0.14), the presence in the Premier League (0.34), and the participation in UEFA's competitions (0.13). There is also a positive correlation between ROA and leverage, which, however, is quite close to zero (0.02). Therefore, the effect of leverage on ROA cannot be expected to be significant from an economic perspective. The correlation of ROA with the winning rate is slightly positive at 0.05, while the correlation with uncertainty is equal to -0.29.

In regard to ROE, the only material correlations is that with leverage, which is equal to -0.64, and that with the presence of clubs in the Premier League, which equals -0.12. The absolute value of correlations between ROE and the other factors considered are below 0.10. Based on these correlation coefficients, one might expect that the more leveraged an English football firm, the lower its return on equity. Quite surprisingly, a similar inference applies to the relation of ROE with the participation in the Premier League.

Finally, as we can observe in Table 4, to a significant degree, the correlations of profit margin with the determinative factors resemble the corresponding estimates of ROA. In particular, profit margin is positively correlated to size (0.23), liquidity (0.14), efficiency (0.31), cash flow efficiency (0.10), turnover per employee (0.53), attendance (0.11), the presence in the Premier League (0.45), and the participation European competitions (0.20). The correlation between profit margin and leverage ratio is close to zero (0.01). The correlation of profit

margin with the winning rate is slightly negative at -0.09, while the correlation with uncertainty is equal to -0.25.

Overall, the results of the correlation analysis suggest that the variables we have chosen to use in our study have some sort of relation with the financial performance of the English football clubs. However, whether these linear relations can be interpreted as if the selected variables can explain or affect financial performance will be answered via the results of the regression analysis, which are discussed in the next section.

4.3.2. Regression Analysis of Performance

The results of the basic regression model (1) on the financial performance of the English football clubs are provided in Table 5. The estimates of independent variables, t-statistics on their statistical significance, and R-squared are presented in the table. The table has two panels; Panel A concerns the basic model (1), and Panel B regards the extended model (1) with the lagged performance figures in the explanatory variables.

In the case of ROA, model (1) offers positive and significant estimates for liquidity, efficiency, cash flow efficiency and revenue per employee. The values of these estimates are equal to 0.06, 0.14, 0.36 and 13.16, respectively. As expected, the coefficient of size is positive too, but it is not significant from a statistical perspective. Finally, the coefficient of leverage is not significantly different from zero. When it comes to ROE, the coefficients of liquidity and efficiency are positive and significant. The opposite is the case for leverage. The rest of variables present no statistically significant estimates. To a large extent, the results on profit margin resemble the results of ROA. Liquidity, efficiency, cash flow efficiency and revenue per employee present positive and significant estimates, whose values are equal to 0.08, 0.34, 0.14 and 56.04, respectively. The coefficient of size is also positive but insignificant, while the coefficient of leverage is marginally negative but statistically significant at -0.01.

The results of the extended model (1) with the lagged performance figures in the independent variables are quite close to the results of the basic model (1). In the case of ROA, liquidity, efficiency and cash flow efficiency present significantly positive estimates. Revenue per employee also has a positive, but insignificant estimate. This is also the case for size. Leverage's estimate is statistically insignificant. Finally, some sort of performance persistence seems to exist as the coefficient of lagged performance is significantly positive at 0.17. ROE's results from the alternative model (1) are essentially equal to those obtained from the basic model. The estimates of liquidity and efficiency are positive and significant, while leverage's coefficient is significantly negative. Lagged ROE's seems not to have an impact on concurrent ROE. This is also the case for size, cash flow efficiency and revenue per employee.

Finally, with respect to profit margin, the results approximate those obtained from the basic model (1). The estimates of liquidity, efficiency, cash flow efficiency and revenue per employee present positive and significant estimates. The values of these significant estimates are equal to 0.11, 0.27, 0.13 and 49.00, respectively. The coefficients of size and leverage are not significant. The lagged profit margin presents a positive and significant estimate, which is equal to 0.23, indicating persistence in the profit margin achieved by the English football clubs over time.

Overall, the empirical results obtained from the two versions of model (1) are in line with our expectations and the relevant results of previous studies on the English football clubs. Factors such as liquidity, efficiency, cash flow efficiency and revenue per employee are crucial for the financial performance of the examined football clubs. Leverage can also have some negative impact on performance. Based on our results, the clubs need to focus on these factors in order to improve their financial health and performance. Investors need to focus on such factors too when they decide to invest in the English football clubs with the expectation of making a gain on these investments.

The results of model (2), which has both financial and sporting factors as explanatory variables, are provided in Table 6. Similar to Table 5, Table 6 has two panels; Panel A regards the basic model (2), and Panel B refers to the extended model (2), which has the lagged performance figures as independent variables.

In the case of ROA, the results concerning the financial factors resemble those obtained from model (1). Liquidity, efficiency, cash flow efficiency and revenue per employee have a positive and significant impact on performance. This finding applies to both versions of model (2). Lagged performance also has a positive influence on concurrent performance. In regard to sporting variables, only winning rate and uncertainty present significant estimates. The winning rate's coefficient is equal to 0.26 and the estimate of uncertainty is -0.28. These estimates verify our expectations about a positive and a negative relation between financial performance and on-field success, as it is expressed via the number of wins, and uncertainty, respectively. As expected, the coefficients of the Premier League and UEFA dummies are positive. However, these estimates are not significant. The estimate of attendance is not significant either.

Regarding ROE, the results of model (2) are close to those from model (1). Liquidity's and efficiency's estimates are positive and significant. The coefficient of size is significantly positive too. In model (1), ROE's relation with size was positive too but insignificant. On the other hand, the relation of ROE with leverage is negative and significant. The coefficient of the lagged ROE is not significant. From the sporting variables, only the Premier League dummy shows a significantly positive relationship with ROE. The coefficients of the other sporting factors are insignificant.

Finally, as far as the profit margin is concerned, similar to model (1), the two versions of model (2) produce significantly positive estimates for liquidity, efficiency, cash flow efficiency and revenue per employee. Leverage's estimates are slightly negative, but significant only in the first version of model (2). On the other hand, sporting variables provide no significant estimates.

Overall, the incorporation of sporting variables in the explanatory variables of the regression models showed that such variables can have a limited impact on the financial performance of the English football clubs. In fact, the significance of sporting factors depends on the metric used each time for financial performance. In particular, winning rate and uncertainty do seem to have a positive and a negative effect on ROA, respectively, but not on the rest performance measures. Participation in the Premier League affects ROE but not ROA, nor the profit margin. Attendance and presence in UEFA's competitions seem not to affect financial performance at all.

5. Conclusion

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In this study, we investigate the factors that can affect the financial performance of the English football clubs. Our sample includes the twenty teams that participated in the Premier League of the season 2021-22. The period under study spans from the season 2012-13 to the season 2021-22. Correlation and regression analysis with panel data is applied. Three alternative measures of financial performance are used, namely, return on assets, return on equity and profit margin. The explanatory factors considered regard the assets (size) of clubs, along with their liquidity, leverage, efficiency, cash flow efficiency, turnover per employee, attendance rate, winning rate, uncertainty in the Premier League, participation in the Premier League or not and the presence in UEFA's European club competitions or not.

The empirical results reveal that factors such as size, liquidity, leverage, efficiency, cash flow efficiency and revenue per employee can more or less affect the financial performance of the English football clubs. Yet, the magnitude and the sign of each factor's impact on financial performance depends on the metric of performance used each time. In other words, the explanatory financial variables used do not affect return on assets, return on equity and profit margin in the same way. The same pattern applies to the sporting data considered in our analysis, of which the winning rate, uncertainty and the presence in the Premier League seem to affect financial performance in some way.

In any case, from a practical perspective, our results indicate that in order for the English football clubs to be financially healthy and self-sufficient, they need to focus on non-sporting factors such as liquidity, leverage, efficiency, cash flow efficiency and staff's productivity (i.e., turnover per employee). The significance of sporting factors seem to be less crucial than the financial factors for the determination of the club's financial performance.

In other words, football clubs need to make an effort to improve their efficiency in using their assets to make money that can help them meet their financial needs. The current business model of several football clubs in England, which entails that a large portion of the clubs' operating expenses and transfer costs are covered by loans or capital injections by the owners might not be viable in the long run. Several examples in the past have shown that powerful clubs occasionally encounter significant financial issues that can jeopardize their very existence. Obviously, our results and inferences are not relevant only to the English clubs. On the contrary, they can be reflected to football clubs from other European or international championships.

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Table 1: Accounting Data

This table presents accounting data of the English football clubs over the ten-year period spanning from the season 2012-13 to the season 2021-22. Data are presented in average terms and include total assets, current assets, equity, total liabilities, current liabilities, net cash flow inflow(+)/outflow(-), revenue from sales (turnover), profit before tax (PBT), number of staff and revenue (turnover) per employee.

Team	Assets	Current Assets	Equity	Total Liabilities	Current Liabilities	Cash Flow +/-	Turnover	PBT	Staff	Turnover per Employee
Arsenal	881,278,300	247,170,600	321,860,700	559,417,600	230,266,400	-12,366,900	354,775,000	-10,033,500	648	547,286
Aston Villa	104,297,647	13,301,118	-63,799,710	168,097,358	150,382,183	N/A	101,172,754	-7,594,804	188	534,746
Brentford	100,455,705	33,562,562	15,572,753	84,882,952	41,046,926	1,558,165	23,870,932	-1,175,234	153	140,252
Brighton & Hove Albion	230,745,198	36,012,164	-56,540,211	287,285,409	254,094,923	803,357	86,588,689	-20,751,579	542	157,611
Burnley	113,501,200	65,634,000	48,495,200	65,006,000	47,808,600	956,700	92,398,000	12,500,600	209	426,613
Chelsea	706,476,900	211,279,000	384,101,100	322,375,800	279,540,500	3,645,900	379,406,500	-38,306,200	754	500,409
Crystal Palace	103,501,200	31,502,100	-6,116,100	109,617,300	85,899,300	749,700	119,625,000	-11,520,700	219	538,245
Everton	255,704,100	84,200,200	61,126,800	194,577,300	126,510,300	4,341,000	157,434,200	-39,887,400	365	431,443
Leeds United	85,779,961	26,557,024	-15,595,526	101,375,486	67,853,435	331,617	64,664,958	-17,671,335	660	116,826
Leicester City	269,152,000	72,828,100	53,551,100	215,600,900	135,760,200	3,389,300	144,492,600	-13,116,300	291	478,585
Liverpool	508,514,800	118,779,300	120,931,000	387,583,800	120,931,000	861,200	398,558,900	15,344,600	774	503,255
Manchester City	1,024,235,200	290,011,000	650,794,200	373,441,000	272,434,500	6,515,200	453,127,400	-13,027,300	418	1,099,668
Manchester United	1,360,213,900	283,653,800	395,214,700	964,999,200	385,168,500	1,680,700	509,131,900	-764,500	896	567,634
Newcastle United	222,161,100	67,396,600	20,225,900	201,935,200	94,371,600	440,000	139,453,600	-2,618,800	280	498,993
Norwich City	99,007,400	40,861,000	17,091,000	81,916,400	63,026,500	-1,177,100	80,015,500	-859,900	303	261,345
Southampton	180,066,600	84,865,600	29,747,300	150,319,300	114,016,400	1,870,700	131,022,600	-2,257,500	337	390,293
Tottenham Hotspur	1,061,941,400	173,687,500	238,534,800	823,406,600	297,564,500	21,070,800	308,082,800	20,292,500	508	595,093
Watford	143,261,400	32,800,600	-10,877,800	154,139,200	86,609,900	180,300	85,259,400	-8,991,600	257	308,579
West Ham United	177,161,300	63,484,300	-34,003,100	211,164,400	118,368,400	9,464,900	160,180,600	-4,141,000	573	287,544
Wolverhampton Wanderers	154,830,200	85,927,600	-32,660,300	187,490,500	143,283,600	1,856,800	83,328,300	-12,353,900	317	235,696
Average	389,114,276	103,175,708	106,882,690	282,231,585	155,746,883	2,430,123	193,629,482	-7,846,693	435	431,006
Min	85,779,961	13,301,118	-63,799,710	65,006,000	41,046,926	-12,366,900	23,870,932	-39,887,400	153	116,826
Max	1,360,213,900	290,011,000	650,794,200	964,999,200	385,168,500	21,070,800	509,131,900	20,292,500	896	1,099,668

Table 2: Financial Ratios

This table presents several financial ratios of the English football clubs over the ten-year period spanning from the season 2012-13 to the season 2021-22. Ratios are presented in average terms and i) include return on assets (ROA), ii) return on equity (ROE), iii) profit margin, i.e., profit before tax to turnover, iv) liquidity, i.e., current assets to current liabilities, v) leverage, i.e., total debt (liabilities) to total equity, vi) efficiency (asset turnover), i.e., turnover to assets, and vii) cash flow efficiency, i.e., net cash flow inflow/outflow to assets.

Team	ROA	ROE	Profit Margin	Liquidity	Leverage	Efficiency	Cash Flow Efficiency
Arsenal	-1.41	-5.87	-3.38	110.80	183.78	40.26	-1.51
Aston Villa	-11.37	13.75	-8.63	10.29	-248.20	133.02	N/A
Brentford	-6.70	61.38	-65.47	98.27	-2,667.47	19.60	1.77
Brighton & Hove Albion	-9.80	-49.16	-47.11	20.65	751.10	32.71	-0.30
Burnley	6.45	47.26	2.76	109.74	41.10	108.39	3.37
Chelsea	-5.20	-10.11	-9.74	76.40	84.43	54.05	0.49
Crystal Palace	-8.16	-60.18	-6.04	81.06	511.47	120.67	-0.44
Everton	-9.42	-62.48	-20.80	64.62	-22.44	90.33	3.20
Leeds United	-21.51	335.79	-34.52	57.52	-1,782.89	71.98	0.71
Leicester City	-6.94	8.74	-27.59	56.04	137.04	56.90	2.68
Liverpool	1.75	24.65	2.65	55.50	124.82	81.29	0.14
Manchester City	-1.79	-2.81	-4.25	130.04	56.74	43.97	0.59
Manchester United	-0.22	-9.15	-0.06	73.26	299.88	37.30	0.18
Newcastle United	0.10	25.93	-2.97	97.64	220.88	63.40	0.22
Norwich City	-1.59	-200.93	-6.00	65.09	1,247.81	83.59	-2.05
Southampton	-0.04	-59.98	-2.08	76.69	-20.18	76.93	1.62
Tottenham Hotspur	3.90	7.40	9.01	59.94	345.94	34.20	2.58
Watford	-5.20	-5.97	-11.36	37.85	54.77	67.98	1.07
West Ham United	-1.39	3.28	-3.24	58.69	-276.29	91.84	4.89
Wolverhampton Wanderers	-10.97	122.13	-35.39	158.90	-213.05	49.68	-0.77
Average	-4.48	9.18	-13.71	74.95	-58.54	67.90	0.97
Min	-21.51	-200.93	-65.47	10.29	-2,667.47	19.60	-2.05
Max	6.45	335.79	9.01	158.90	1,247.81	133.02	4.89

Table 3: Sporting Data

This table presents sporting data of the English football clubs over the ten-year period spanning from the season 2012-13 to the season 2021-22. Data are presented in average terms and include the number of years each team participated in Premier League, total tickets sold on an annual basis, winning rate (either in Premier League, Championship or League One), uncertainty rate, i.e., the fraction of total champion's points minus team's X points to champion's points (either in Premier League, Championship or League One), and the number of years each team participated in UEFA's Champions League or Europa League.

Team	Premier League	Total Tickets	Winning Rate %	Uncertainty %	UEFA
Arsenal	10	1,606,653	53.68	-25.12	9
Aston Villa	7	1,187,796	31.73	-97.05	0
Brentford	1	563,019	45.16	-22.13	0
Brighton & Hove Albion	5	1,010,707	34.37	-37.57	0
Burnley	7	863,032	34.52	-52.70	0
Chelsea	10	1,303,266	57.11	-21.79	8
Crystal Palace	9	1,009,224	32.55	-59.82	0
Everton	10	1,263,053	38.42	-48.84	2
Leeds United	2	1,007,388	40.58	-31.02	0
Leicester City	8	1,086,642	43.76	-39.14	3
Liverpool	10	1,443,534	60.26	-18.87	8
Manchester City	10	1,466,105	68.95	-8.13	10
Manchester United	10	1,851,982	53.42	-24.38	9
Newcastle United	9	1,463,012	33.94	-69.52	1
Norwich City	5	1,004,100	34.95	-62.56	0
Southampton	10	1,128,870	32.63	-57.34	1
Tottenham Hotspur	10	1,380,479	54.74	-24.99	9
Watford	6	863,087	36.32	-44.59	0
West Ham United	10	1,394,123	35.00	-60.56	1
Wolverhampton Wanderers	4	946,609	42.87	-30.57	1
Average	8	1,192,134	43.25	-41.83	3
Min	1	563,019	31.73	-97.05	0
Max	10	1,851,982	68.95	-8.13	10

Table 4: Correlations

This table presents the correlation coefficients among ROA, ROE, profit margin, size, liquidity, leverage, efficiency, cash flow efficiency, turnover per employee, attendance, i.e., number of tickets, winning rate, uncertainty, Premier League membership and participation in UEFA's Champions League or Europa League.

	ROA	ROE	Profit Margin	Size	Liquidity	Leverage	Efficiency	Cash Flow Efficiency	Turnover per Employee	Attendance	Winning Rate	Uncertainty	Premier	UEFA
ROA	1.00	0.04	0.73	0.15	0.27	0.02	0.25	0.31	0.38	0.14	0.05	-0.29	0.34	0.13
ROE	0.04	1.00	0.09	-0.09	0.09	-0.64	0.05	-0.03	-0.10	0.05	-0.02	-0.01	-0.12	-0.01
Profit Margin	0.73	0.09	1.00	0.23	0.14	0.01	0.31	0.10	0.53	0.11	-0.09	-0.25	0.45	0.20
Size	0.15	-0.09	0.23	1.00	0.03	0.10	-0.44	-0.02	0.68	0.05	0.42	0.26	0.61	0.70
Liquidity	0.27	0.09	0.14	0.03	1.00	0.01	-0.10	0.14	0.06	0.07	0.10	0.05	-0.08	0.08
Leverage	0.02	-0.64	0.01	0.10	0.01	1.00	0.02	0.01	0.13	-0.04	-0.01	-0.03	0.14	0.04
Efficiency	0.25	0.05	0.31	-0.44	-0.10	0.02	1.00	0.07	0.19	0.06	-0.37	-0.52	0.28	-0.26
Cash Flow Efficiency	0.31	-0.03	0.10	-0.02	0.14	0.01	0.07	1.00	0.06	0.23	0.01	-0.07	0.08	-0.02
Turnover per Employee	0.38	-0.10	0.53	0.68	0.06	0.13	0.19	0.06	1.00	0.11	0.14	-0.12	0.84	0.50
Attendance	0.14	0.05	0.11	0.05	0.07	-0.04	0.06	0.23	0.11	1.00	0.00	-0.13	0.12	0.10
Winning Rate	0.05	-0.02	-0.09	0.42	0.10	-0.01	-0.37	0.01	0.14	0.00	1.00	0.80	-0.10	0.48
Uncertainty	-0.29	-0.01	-0.25	0.26	0.05	-0.03	-0.52	-0.07	-0.12	-0.13	0.80	1.00	-0.36	0.29
Premier	0.34	0.12	0.45	0.61	-0.08	0.14	0.28	0.08	0.84	0.12	-0.10	-0.36	1.00	0.38
UEFA	0.13	-0.01	0.20	0.70	0.08	0.04	-0.26	-0.02	0.50	0.10	0.48	0.29	0.38	1.00

Table 5: Regression Analysis of Performance based on Financial Data

This table presents the results of a panel regression analysis of the English football clubs' financial performance over the ten-year period spanning from the season 2012-13 to the season 2021-22. Financial performance is measured as the return on assets (ROA), return on equity (ROE), and profit margin. The independent variables considered are the size of clubs in assets terms, liquidity, leverage, efficiency, cash flow efficiency and revenue per employee. The lagged value of performance is also included in the control variables in an alternative version of the basic regression model.

Variable	Dependent Variable: ROA		Dependent Variable: ROE		Dependent Variable: Profit Margin	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Panel A: Basic Model						
Constant	*-153.01	-5.93	138.00	0.26	*-507.98	-5.20
Size	4.25	0.63	114.30	1.57	5.27	0.49
Liquidity	**0.06	2.71	*0.55	3.81	***0.08	1.69
Leverage	0.00	-0.91	** -0.07	-2.76	** -0.01	-2.32
Efficiency	***0.14	1.72	*1.70	1.70	*0.34	2.65
Cash Flow Eff.	***0.36	1.97	-0.82	-0.33	***0.14	1.69
Employee Rev.	***13.16	1.65	-164.90	-1.29	*56.04	3.58
R-squared	0.31		0.43		0.35	
Panel B: Alternative Model with Lagged Performance						
Constant	*-117.81	-4.57	347.67	0.51	*-399.41	-3.64
Lagged Perform	**0.17	2.08	-0.08	-1.26	**0.23	2.38
Size	3.96	0.57	106.42	1.41	-0.59	-0.06
Liquidity	*0.08	4.17	*0.53	3.03	**0.11	2.67
Leverage	0.00	-0.77	** -0.07	-2.72	0.00	-1.27
Efficiency	***0.18	1.69	***1.78	1.71	**0.27	2.03
Cash Flow Eff.	***0.31	1.68	-0.70	-0.25	***0.13	1.72
Employee Rev.	8.52	1.08	-183.93	-1.35	*49.00	3.62
R-squared	0.35		0.43		0.39	
* Statistically significant at 1%; ** Statistically significant at 5%; *** Statistically significant at 10%.						

Table 6: Regression Analysis of Performance based on Financial and Sporting Data

This table presents the results of a panel regression analysis of the English football clubs' financial performance over the ten-year period spanning from the season 2012-13 to the season 2021-22. Financial performance is measured as the return on assets (ROA), return on equity (ROE), and profit margin. The independent variables considered are the size of clubs in assets terms, liquidity, leverage, efficiency, cash flow efficiency and revenue per employee, attendance, i.e., the logarithm of total tickets sold annually, winning rate, uncertainty, Premier League membership and participation in UEFA's Champions League or Europa League. The lagged value of performance is also included in the control variables in an alternative version of the basic regression model.

Variable	Dependent Variable: ROA		Dependent Variable: ROE		Dependent Variable: Profit Margin	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Panel A: Basic Model						
Constant	*-206.85	-3.22	** -1,184.17	-2.34	*-689.59	-2.99
Size	7.94	0.82	**211.29	2.49	22.14	1.07
Liquidity	**0.06	2.56	*0.47	3.40	***0.07	1.69
Leverage	0.00	-0.97	** -0.07	-2.72	** -0.01	-2.39
Efficiency	***0.11	1.68	***2.54	1.96	**0.41	2.34
Cash Flow Eff.	**0.35	2.08	-0.55	-0.22	***0.17	1.80
Employee Rev.	**14.93	2.09	-81.47	-0.72	*64.37	3.08
Attendance	-0.53	-0.25	14.10	0.63	1.35	0.33
Winning Rate	***0.26	1.92	-2.39	-0.92	-0.44	-1.15
Uncertainty	*-0.28	-2.92	0.05	0.05	-0.10	-0.93
Premier League	-8.95	-0.90	** -199.51	-2.73	-26.75	-1.22
UEFA	0.18	0.05	37.05	1.17	4.34	0.69
R-squared	0.36		0.44		0.37	
Panel B: Alternative Model with Lagged Performance						
Constant	** -208.22	-2.73	** -1,237.62	-2.19	** -653.73	-2.32
Lagged Perform	**0.16	2.08	-0.08	-1.25	**0.22	2.17
Size	10.58	1.04	**212.30	2.29	24.89	0.99
Liquidity	*0.07	4.52	**0.45	2.60	**0.11	2.62
Leverage	0.00	-0.96	** -0.07	-2.69	0.00	-1.46
Efficiency	***0.16	1.74	***2.87	1.92	***0.40	1.91
Cash Flow Eff.	***0.31	1.79	-0.57	-0.19	***0.18	1.75
Employee Rev.	***12.87	1.75	-74.90	-0.65	*60.32	3.08
Attendance	-1.11	-0.59	20.61	0.76	-0.94	-0.23
Winning Rate	***0.22	1.69	-2.78	-0.96	-0.55	-1.39
Uncertainty	** -0.28	-2.71	0.39	0.30	-0.04	-0.38
Premier League	-13.36	-1.24	*-238.95	-3.02	-32.06	-1.23
UEFA	0.08	0.02	42.22	1.07	-1.37	-0.17
R-squared	0.41		0.45		0.41	
* Statistically significant at 1%; ** Statistically significant at 5%; *** Statistically significant at 10%.						

Disclosure of Environmental, Social, Governance, and Company Size Performance on Company Value in the Energy Sector

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Abstract

This study aims to determine the effect of Disclosure of Environmental, Social, Governance, and Company Size Performance on Company Value in Energy Sector companies for 2017-2021. The population in this study was 72 companies in the Energy sector. After going through the purposive sampling method, the number of samples used in this study became 8 companies with 40 total observations. The data used in this study is secondary data taken through the annual report and the Sustainability Report downloaded from the company's website. Data taken from the Annual Report, namely Tobin's Q data for the variable Corporate Value, Number of Audit Committee Members for the Variable Governance and Total Assets for the variable Company size, while the data taken from the Sustainability report included PROPER for Environmental Performance Variables and GRI Index Disclosures for Social. The analysis technique used is Multiple Regression Analysis. This study found that environmental, social, corporate governance, and size performance positively and significantly affected firm value. On the other hand, social had a negative and insignificant effect on firm value. Meanwhile, environmental performance has a positive and insignificant effect on firm value compared to corporate governance and size, which negatively and significantly impacts firm value.

Keywords: Company Value, ESG, Company Size, PROPER, GRI, Audit Committee.

JEL Codes: G32, M21, M41

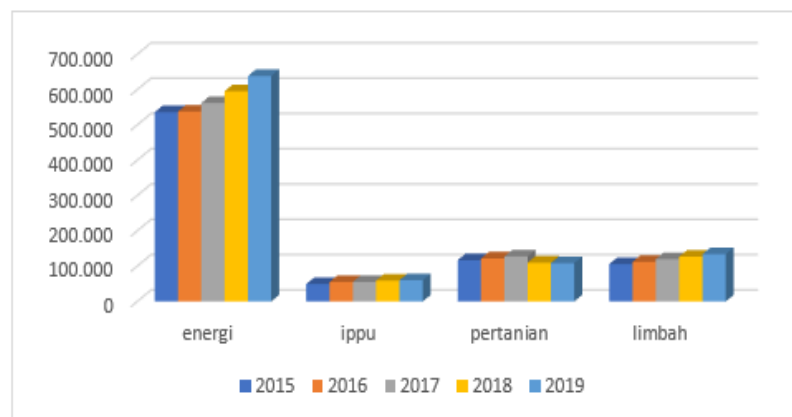
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1. Introduction

Company operational activities can have a significant impact on society and the environment because company operational activities can produce greenhouse gas emissions consisting of carbon dioxide (CO₂), nitrogen dioxide (NO₂), methane (CH₄), and freon (CFC) (Qodary & Tambun, 2021). The effects of greenhouse gases can cause global warming. Global warming is the increase in the earth's temperature every year due to the emission of greenhouse gases. The problem of global warming does not only occur in Indonesia but has become a world problem. (Qodary & Tambun, 2021). Global warming depletes the ozone layer, increasing the earth's temperature, rainfall, melting ice caps, and climate change, which impacts society, namely floods, rising sea levels, landslides, and land fires.



Graph 1. Greenhouse gas emissions by sector type 2015-2019 period

Greenhouse gas emissions are generated by many sectors, including the energy, industrial, agricultural, and waste sectors. Most of the greenhouse gas emissions are generated by the energy sector. From 2015 to 2019, greenhouse gas emissions produced by the energy sector have increased significantly every year due to the company's operational activities. From these data, it can be seen that the company's image in the energy sector is getting worse because it is one of the main contributors to greenhouse gases every year, which will impact company value. Company value is the value of public and investor trust in the company in operational and other activities. (Suryandari & Mongan, 2020). Company value can be described through the company's stock price. If a company has a stock price that is in a high position, the value of the company will also be high. (Suwardika & Mustanda, 2017). For companies that have high stock prices, it can be concluded that the level of shareholder prosperity is also high. (Putri & Suprasto, 2016) There are many ways to increase company value, not only in financial or economic terms but also non-financially, namely by improving the company's environmental, social, and governance performance. Environmental, social, and governance management can support companies in sustainable activities and protect the environment.

What companies do to increase company value is by increasing company companies' attention to the environment and increasing public and stakeholder trust. The government created a Company Performance Rating Program in Environmental Management (PROPER) (Maryanti & Fithri, 2017). Under the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia number 1 of 2021 concerning Increasing the Assessment of Company Performance in Life Management in Article 1 Paragraph 1 concerning the program for

evaluating company performance in environmental management, after this referred to as PROPER, is an evaluation of the performance of those in charge of business activities in the field of environmental management. One factor that needs to be improved to add value to the company is social.

One factor that needs to be improved to add value to the company is social. Social problems and social inequality arise because of the company's operational activities. Therefore, to reduce and overcome the problems and gaps by increasing social responsibility. (Rahmadhani & Ardini, 2018).

Corporate responsibility for obligations related to investors and shareholders and also has obligations relating to interested parties in the company or stakeholders. (Putri & Suprasto, 2016) Social responsibility is expected to be a place for companies to provide positive information to potential investors and get good views so that they are interested in buying company shares and so that social responsibility influences company value.

In addition to environmental and social performance, the company also performs corporate governance to increase corporate value. Governance is essential for corporate value because it controls equality between rights and obligations for shareholders, managers, government creditors, employees, and stakeholders. (Farah *et al.*, 2014)

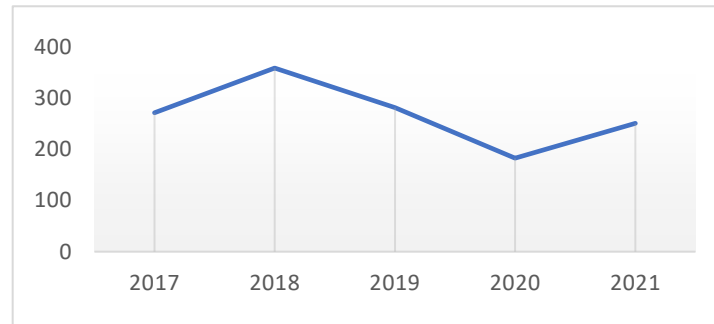
Governance is one of the indicators that can affect the company's value. Governance is necessary for the company so that it can run well, follow the rules that have been set, and achieve its goals. (Zakaria & Tanuwiharja, 2017). In supporting good corporate governance, the government has issued regulations related to governance, one of which is the regulation issued by the Capital Market and Financial Institution Supervisory Agency with Circular Letter No. SE03/PM/2000, which regulates the establishment of an audit committee. Regulations require listed companies to have an audit committee. The audit committee must consist of at least three independent people, and one must have accounting expertise.

Company size is another indicator that has a relationship or influence on firm value. The company's size is divided into 2 scales: large-scale and small-scale (Setiawati & Lim, 2018). Companies that have a small scale tend to get less profit than companies that have a large scale (Rachmawati & Purwanti, 2016). Large company size can indicate that the company is experiencing development so that investors will respond positively to the company, and the company's value will increase. Companies with large or total assets will get more attention from investors, creditors, and others.

Companies that publish sustainability reports are superior because they can add to the company's value, obtained from disclosing reports related to the environment, social, and governance. The value of the company is reflected in the stock price. If the value of the stock continues to increase, then the company's value also increases, and vice versa. If the stock decreases, the value of the company also decreases.

The development of stock prices in companies in the energy sector that publish sustainability reports has obtained different results. Stock prices experienced a significant decline for three years and had improved in the following year but experienced a decline again. The average share in the energy sector from 2017 to 2018 has increased by 32%. However, from 2018 to 2019, it decreased by -22% from the average share price in 2018. The decline in the average share price continued from 2019 to 2020, and the decline was quite significant, namely -35%.

From 2020 to 2021, the average share price will start to improve because the average share price has increased by 37%.



Graph 2 Average Growth in Energy Sector Share Prices of companies issuing sustainability reports 2017-2021

When viewed from the environmental performance of one of the energy sector companies, PTBA has succeeded in getting a gold rating for five consecutive years; for social performance, PTBA has also succeeded in implementing it in the surrounding environment by disclosing that the GRI index is above 60% of the GRI index standard and carrying out efforts to prevent COVID-19, strengthen health facilities, provide medical equipment assistance, socialize prevention of COVID-19 and restore the social economy around the company area. Meanwhile, the 2021 CSR program will be carried out by relocating settlements around mining sites to more livable places and building facilities and infrastructure (mosques, early childhood education centers, integrated service posts for children's health (posyandu), and guard posts) by implementing a cooperation system with the surrounding community. Governance, as seen by the number of audit committees for five years, has three people. Large company size can indicate that the company is experiencing development so that investors will respond positively to the company, and the company's value will increase. Companies with large or total assets will get more attention from investors, creditors, and others.

The size of the company, as seen from the total assets, experienced a significant decline from 2017 to 2018, 3.07%, which continued in 2019 by 7.67%, and improved in 2020 by increasing by 2.13%, even though the increase in share prices could not return to the initial figure. It also decreased again in 2021, which was 0.31%.

It can be seen from non-economic factors, namely environmental, social, and good governance performance, as well as economic factors, that company size does not affect company value because stock prices in the energy sector experience significant stock price fluctuations, so economic and non-economic factors cannot affect value companies. Based on the explanation above, this study aims to determine the effect of disclosure of social environmental performance, governance and company size carried out by companies on company value simultaneously and partially.

2. Literature Review

Research according Azhar, (2020) by title *Do Environmental, Social, and Governance Practices (ESG) Signify Firm Value? Evidence from FTSE4 Good Bursa Malaysia (F4GBM)*. The research method used multiple linear regression analysis. The indicator used for company value is Tobins'Q and the ESG indicator used is the score obtained from Thomson Reuters.

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Research results There is a significant relationship between firm value represented by TQ with ESG scores and other company-specific variables, namely WACC, dividend policy, tangible assets, and company size. Meanwhile, there is an insignificant relationship between the debt and equity ratios.

Research Melinda & Wardhani, (2020) by title *The Effect Of Environmental, Social, Governance, And Controversies On Firms' Value: Evidence From Asia*. The indicators used for company value are Tobin's Q and environmental, Social, and Governance using scores taken at Thomson Reuters. The research model used in this study is the panel data regression model. The results of this study show that the value of ESG controversy is positively correlated with the value of companies in Asia, and investors have a strong negative response to negative ESG-related reporting. Their response is very strong when the information concerns employees and the environment.

Research Zhang et al., (2020) by title *The Interaction Effect Between ESG And Green Innovation and Its Impact on Firm Value from The Perspective of Information Disclosure*. The company value indicator in this study is the Tobins'Q, while ESG uses the score obtained at Bloomberg, and green innovation uses the green patent application. The research method used Quantile regression to better observe the overall distribution of the data without data processing, masking some of the defects of OLS regression.

Research Constantinescu et al., (2021) by title *Environmental, social, and governance disclosure associated with the firm value. Evidence from the energy industry*. The corporate value uses Tobin's Q indicator, and environmental, social, and Governance (ESG) uses the score indicator available at Thomson Reuters. The research method used is linear regression analysis. The results of this study show a relationship between disclosure of ESG factors and firm value for companies in the energy industry.

Research Sadiq et al., (2020) *The impact of environmental, social and governance index on firm value: Evidence from Malaysia*. The research method used was regression analysis. The results of the research The results obtained by the regression show that firm value increases with increasing ESG and decreases with ESG problems.

Research Zaitul et al., (2021). By title ESG disclosure and company value. Tobin's Q is used in measuring firm value as the dependent variable in). The social disclosure variable is measured using the IER index. While social disclosure variables (Social) are measured using the SCRI index. The research method was carried out with multiple linear regression. The results of this study Environmental, Social and Governance disclosure has a negative influence and does not have direct caretakers in companies listed on the LQ-45 index.

Research Putri & Suprasto, (2016).with the title *Effect of Corporate Social Responsibility and Corporate Governance Mechanisms on Corporate Values*. The company value indicator uses Tobin's Q. Social responsibility uses the GRI disclosure indicator. Meanwhile, governance uses indicators of institutional ownership, the board of commissioners, the audit committee and the board of directors. This research method uses multiple linear regression analysis. The results of this study social responsibility have a positive effect on corporate value and governance which has four indicators including 1) institutional ownership has a positive influence on firm value, 2) independent board of commissioners has also a positive influence on firm value, 3) audit committee has positive influence on firm value and 4) the board of directors has a positive result.

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Research Utami & Muslichah, (2019) with the title Effect of Economic, Environmental and Social Disclosure on Company Value with Financial Performance as an Intermediate Variable. The company value variable indicator uses Tobins'Q while for economic, environmental and social disclosures it uses index disclosure indicators on each variable with GRI-4 as a guideline. The analytical method used in this study is Partial Least Square (PLS). This study aims to examine the direct and indirect effects of economic, social and environmental disclosures on firm value. The results of this study are that economic and environmental disclosures have a negative value and do not have a direct effect on firm value, and social values are positive and have an influence on firm value. With the variables between financial performance, economic, environmental and social disclosures have a negative influence and do not affect firm value even though there are intermediate variables.

Research Daromes & Kawilarang, (2020) with the title Role of Environmental Disclosure in Mediating the Influence of Environmental Performance on Company Value. The research method used multiple regression analysis. The results of this study show that there is a positive relationship between environmental performance and firm value. The company is responsible for maintaining the environment as an environmental stakeholder.

Research Sixpria & Suhartati, (2013).entitled Effect of Disclosure of Social Responsibility and Corporate Governance Practices on Corporate Values on Corporate Values (Case Study: Manufacturing companies listed on stock exchanges). This study uses multiple linear regression analysis method. The results of this study CSR has positive results but has no effect on firm value, while governance has an effect on firm value but if the indicators of the board of commissioners are increasing, the firm value will decrease.

Research according Aryanto & Setyorini, (2019). with the title Effect of Corporate Governance and Social Responsibility on Mining Sector Company Value. The data analysis method used in this study is multiple regression analysis. The results of this study 1) Independent board of commissioners variables do not have a positive effect on firm value. 2) The audit committee variable has a positive and significant effect on firm value. 3) The social responsibility disclosure variable does not have a positive effect on company value.

Research Putri & Noor, (2016) with the title Effect of Corporate Governance and Environmental Performance on Corporate Values. The research method is a data analysis method used in this study is a quantitative data analysis method. The test results of this study indicate that the proportion of independent commissioners has an effect on firm value, is accepted and the results of this test indicate that audit committee size has no effect on firm value, is rejected. The test results in this study indicate that environmental performance has no effect on firm value, is rejected.

Research Ralina & Prasetyo, (2019) with the title Effects of Financial Performance and Environmental Performance on the Value of Mining Companies in Issi for the 2013-2017 Period. The analysis technique used in this study is panel regression. The results showed that ISR and CSR partially had a significant effect on firm value and ROA partially had no significant effect on firm value.

Research Faih, (2019) with the title Effects of Corporate Governance and Environmental Responsibility on Company Value (Empirical Study of Manufacturing Companies Listed on the Indonesia Stock Exchange for the 2016-2018 Period). The research method uses multiple regression analysis test. The result of this study is that corporate governance influences

environmental responsibility. This research contributes to the literature on social responsibility in developing countries, especially Indonesia because in the era of globalization Indonesia has begun to attract investment opportunities that will affect the environment in the long term.

Research Putri & Mardenia (2019), with the title Effect of GCG, CSR, Profitability and Company Size on Company Value. The research method used in this study is a quantitative data analysis method. The test results of this study show GCG has a positive effect on firm value, CSR has no effect on firm value, and company size hurts firm value.

Research Kusuma & Dewi, (2019) explained that environmental performance positively affects firm value, attracting investors to buy shares because the public trusts the company and increases the company's value. While research by Sawitri & Setiawan, (2019) have different results, namely, environmental performance hurts firm value.

3. Research Method

The type of research used in this research is quantitative, which is based on the size of the quantity or amount that can be applied to the observed phenomena. The population used is energy sector companies listed on the IDX for the 2017-2021 period, with a total population of 74 companies. using a purposive sampling technique, there were 8 companies with a total sample of 40.

Table 1. Operational Variables

No	Variables	Indicator	Scala	Source
1	Company Value	$TQ = \frac{MVE + DEBT}{TA}$	Ratio	Obradovich et al., (2012)
2	Environment	PROPER	Ordinal	hariati & Rihatiningtyas, (2015)
3	Social	CSRi= number of items disclosed/number of GRI standard items	Ratio	Wijaya & Lukman, (2022)
4	Audit Committee	Total members of the audit committee	Ratio	Al-Musalli & Ismail, (2012)
5	Size	(Ln)Total assets	Ratio	Wardhani .,et all (2021)

The data analysis model used in this company is multiple regression analysis. The equation of the multiple regression analysis:

$$TQ_{it} = \alpha + \beta_1 \text{lingkungan}_{it} + \beta_2 \text{Sos}_{it} + \beta_3 \text{Komaudit}_{it} + \beta_4 \text{Ukuranperusahaan}_{it} + e$$

Information :

TQ_{it} : Company value i in year t

Lingkungan_{it} : Environmental performance i in year t

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Sosit : Social performance i in year t
Komauditit : Composition of the company's audit committee i in year t
Ukuran perusahaanit : Total assets in year t
e : Error

4. Findings and Discussion

4.1. Descriptive Statistics

Table 2 Results of Descriptive Analysis

Variables	Max	Min	Mean	Std. Dev
Environmental performance	0,70	0,48	0,58	0,09
Social	-0,07	-1,10	-0,15	0,28
Governance	0,70	0,30	0,54	0,11
Size	13,56	9,06	10,79	1,85
Company Value	4,26	-0,08	1,75	1,74

Table 2, the results of the descriptive analysis carried out on the sample of this study, indicates that the firm value variable (Y) has a maximum value of 4.26. The minimum value is -0.08. As well as from the 2017-2021 period, it can be seen that the mean value is 1.75 and the standard deviation is 1.74, which means that the mean value is greater than the standard deviation value so that the data deviations that occur are low, so the spread of values will be comprehensive.

Environmental performance (X1) has a maximum value of 0.70 and a minimum value of 0.48. For the 2017-2021 period, the mean value is 0.58, and the standard deviation is 0.09. The mean value is greater than the standard deviation, so the data deviations that occur are low, and the spread of values will be comprehensive.

Social (X2) has a maximum value of -0.07 and a minimum value of -1.10. From the 2017-2021 period, the mean value is -0.15, and the standard deviation is 0.28. The mean value is smaller than the standard deviation, which means that the data deviations that occur are high, so the distribution of values will not be comprehensive.

Governance (X3) has a maximum value of 0.70. The minimum value is 0.30. As well as from the 2017-2021 period, it can be seen that the mean value is 0.54 and the standard deviation is 0.11, which means that the mean value is smaller than the standard deviation value so that the data deviations that occur are high, so the distribution of values will not be comprehensive.

Firm size (X4) has a maximum value of 13.56. The minimum value is 9.06. As well as from the 2017-2021 period it can be seen that the mean value is 10.7 and the standard deviation is 1.8, which means that the mean value is greater than the standard deviation value so that the data deviations that occur are low, so the spread of values will be comprehensive.

4.2. Normality Test

Table 3. Normality Test Results

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.

Environment	,264	30	,000	,788	30	,000
Social	,106	30	,200*	,947	30	,145
Governance	,377	30	,000	,736	30	,000
Size	,350	30	,000	,705	30	,000
Company Value	,225	30	,000	,808	30	,000

Based on decision making, the significance value is > 0.05 for normally distributed data. From table 3 only social variables have normally distributed data with a significance value of 0.200, which is $0.200 > 0.05$, so the data is normally distributed.

Whereas a significance value of ≤ 0.05 means that the data is not normally distributed where the variables of environmental performance, governance and company size and company value data are not normally distributed with a value of 0.000. The data were not normally distributed because the samples that fit the criteria in this study were relatively few, which caused the data not to be randomly distributed and not normally distributed.

4.3. Multiple Regression Analysis

Table 4. Results of Multiple Regression Analysis

	Coefficient	Standard Error	t	Sig	Tolerance	VIF
Constanta	12,659	2,686	4,714			
Environment	3,490	1,969	1,773	,088	0,84	1,19
Social	-,236	,797	-,296	,770	0,556	1,798
Governance	-7,659	2,001	-3,828	,001	0,623	1,605
Size	-,829	,107	-7,726	,000	0,694	1,442

The following equation is obtained based on the results of the multiple linear regression analysis Table 4.

$$Y = 12,659 + 3,490X_1 - 0,236X_2 - 7,659X_3 - 0,829X_4$$

Judging from the equation above, it can be explained as follows:

1. Based on the multiple linear regression equation above, a constant value of 12.659 means that if the independent variables of environmental, social, governance, and company size performance are considered constant, the company value can be predicted to be 12.659 one unit.
2. The environmental performance variable (X_1) in the multiple linear regression model has a coefficient value of 3.490, meaning that if the environmental performance variable increases by 1 level and the others are constant, it can be predicted that the firm value variable will increase by 3.490%.
3. The social variable (X_2) in the multiple linear regression model above the coefficient value is -0.236, meaning that if the value of the board of directors variable increases by 1% and the others are constant, it can be predicted that the social variable value will decrease by 0.239%.

4. The governance variable (X3) in the multiple linear regression model has a coefficient value of -7.656. This means that if the board of directors' variable value increases by 1 person and the others remain constant, the governance variable's value will decrease by 7.656%.
5. The firm size variable (X4) in the multiple linear regression model has a coefficient value of -0.829, meaning that if it increases by 1% and the others are constant, it can be predicted that it will decrease by 0.829.

4.4. Regression Model Fit

Table 5. Regression Model Fit Test Results

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	359,697	4	89,924	21,248	,000 ^b
Residual	105,801	25	4,232		
Total	465,498	29			

Based on the results of the regression analysis table, the obtained Fcount value is 21.248 greater than Ftable (2.641). Thus, it can be concluded that the environmental, social, corporate governance and size performance variables simultaneously have a significant influence on the Firm Value Variable.

4.5. Classic Assumption Test

4.5.1. Multicollinearity Test

From the multicollinearity test results in Table 4 above, it can be seen that the multicollinearity above can be that between the independent variables, there is no multicollinearity because the results of the peritoneal tolerance value of each independent variable show no results less than 0.10. The results of calculating the variance inflation factor (VIF) value also show that the results for each independent variable are no more than 10. It can be concluded that there is no multicollinearity between the independent variables in this regression model

4.5.2. Heteroscedasticity Test

Table 5. Heteroscedasticity Test Results - Parks Test

Variables	Coed	Standard Erro	t	Sig
Constanta	9,328	5,368	1,738	,095
Environment	-5,727	3,935	-1,455	,158
Social	2,956	1,592	1,857	,075
Governance	,755	3,999	,189	,852
Size	-,602	,214	-2,806	,010

Based on the data from the Parks test results above, it can be interpreted that in the regression analysis there are no symptoms of heteroscedasticity, indicating a significance value (p-value) of the environmental performance variable (X1) of 0.158, social (X2) of 0.075, audit committee of 0.852, company size (X4) of 0.10, the results clearly show that none of the independent

variables has a statistically significant effect on the dependent variable, this is because the significance probability value is above 0.05 or 5%.

4.5.3. Autocorrelation Test

Table 6. Autocorrelation Test Results – Durbin Watson

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
,879 ^a	,773	,736	2,05719	1,915

Decision The results of the calculation above show that the d value of 1.915 lies between the d_u and $(4-d_u)$ values of 1.721 and 2.279 ($d_u < DW < 4-d_u$) so it can be concluded that there is no autocorrelation in the regression model used in this study.

4.6. Slope or Regression test

Based on Table 4. the results of the regression analysis above can be interpreted as the magnitude of each as follows:

1. Based on the results of data analysis, it was obtained that the count for variable X1 was 1.791 while the table was 1.690, so count (1.791) < table (2.021). This is reinforced by a significant value of 0.085 ($0.085 > 0.05$). Thus, it can be concluded that environmental performance positively influences firm value but is insignificant.
2. Based on the results of data analysis, it was obtained that the count for variable X2 was -0.282, while the table was -2.021, so count (-0.282) < table (-2.021). This is reinforced by a significant value of 0.780 ($0.780 > 0.05$). It can be concluded that social factors negatively influence firm value and are insignificant.
3. Based on the results of data analysis, it was obtained that the count for variable X2 was -0.282, while the table was -2.021, so count (-0.282) < table (-2.021). This is reinforced by a significant value of 0.780 ($0.780 > 0.05$). it can be concluded that society has a negative influence on firm value and is insignificant.
4. Based on the results of data analysis, it was obtained that the count for variable X3 was -3.824, while the table was 1.690, so count (-3.824) > table (-1.690). This is reinforced by a significant value of 0.001 ($0.001 < 0.05$). Thus, it can be concluded that governance hurts firm value and is significant in terms of firm value.
5. Based on the results of data analysis, it was obtained that the count for variable X4 was -7.943, while the table was 1.690, so count (-7.943) > table (-1.690). This is reinforced by a significant value of 0.000 ($0.001 < 0.05$). Thus, it can be concluded that governance negatively and significantly influences firm value.

4.7. Coefficient of Determination

Table 6 shows that the value of R Square (the coefficient of determination R^2) is 0.773, meaning that the environmental, social, governance, and company size performance variables can explain changes to Y of 77.3%, while the rest is explained by other variables that were not included in this study.

4.8. Discussion

Disclosure of Environmental, Social, Governance, and Company Size Performance on Corporate Values

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The study's results, using the regression model fit test, show that environmental, social, corporate governance and size performance have a positive and significant effect on firm value

This can happen because of economic factors in the financial and annual reports and non-economic reports in the sustainability report, which can determine investor decision-making. According to (Suwardika & Mustanda, 2017) One way for investors to determine a company's value is by its stock price. Significant fluctuations in stock prices over several periods can indicate a company's value. These fluctuations can be caused by environmental, social, governance, and company size performance variables.

Disclosure of Corporate Environmental Performance on Company Value

Based on the results of the study, it shows that there is a positive and insignificant effect on environmental performance. This means that companies cannot balance economic and environmental goals in companies so that companies are less active in carrying out activities in the field of environmental preservation.

This is not in line with legitimacy theory which states that companies must balance economic, environmental and social goals in order to be acceptable to society Pfleiger *et al.*, (2005), explained that the company's activities in the field of environmental preservation will bring a number of benefits, including the interest of shareholders and stakeholders in the benefits for a company due to responsible environmental management.

Corporate Social Disclosure of Corporate Values

Based on the results of social research, it has a negative and insignificant effect. This means that social does not affect company value because investors generally focus on returns in the form of capital gains or dividends without focusing on corporate social responsibility, and forms of corporate social responsibility cannot be carried out directly or in a short period by the community because of social responsibility. social enterprise is a long-term strategy for the welfare of society.

The theory of legitimization contradicts the results of this study. According to Mardiana & Wuryani, (2019). Legitimation means that companies, as part of society, must obey and act by the values , norms, and regulations that exist in society in carrying out operational activities so that the company is said to be legitimate.

Disclosure of Corporate Governance on Corporate Values

The study results indicate that governance has a negative and significant effect. This means that disclosure of governance does not affect firm value because the formation of an audit committee is based solely on fulfilling obligations to applicable regulations, resulting in the role of the audit committee in monitoring management performance to be less effective and the audit committee's duties are not carried out properly so that there is conveyance of confidence to negative direction. This is not in line with agency theory, where governance by proxy audit committee is expected to function as a tool to provide confidence to investors that they will receive returns on the funds they have invested and are expected to reduce agency conflicts so that reports submitted to parties interested parties can be trusted (Dinah, 2017).

Disclosure of Company Zize to Company Value

Based on the test results, it can be said that company size has a negative and significant influence on firm value. This means that company size has no effect on firm value and is not

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in line with the signal theory used that the larger the company size, the company value will increase and attract investors to invest (Putra & Widayati, 2022). Because investors do not see the company's size, which can be identified through total assets, investors are more likely to consider other factors in the financial statements.

5. Conclusion

Environmental, social, governance, and firm size positively affect firm value. Environmental performance measured by PROPER has no positive effect on firm value. Social, as measured by the disclosure of the GRI Index, has a negative effect. Governance with the audit committee as a measuring tool hurts firm value. Firm size with total assets as a measuring tool hurts firm value.

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Causality Analysis Between Exchange Rate, Current Balance Sheet, Inflation, and Gross Domestic Product in ASEAN-5 1980-2022

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Abstract

This research investigates the causality between exchange rate, current balance sheet, inflation, and gross domestic product in ASEAN 5 from 1980 to 2022. The method employs the Granger causality test. This research finds weak evidence of a J-curve effect on the current account balance in Indonesia because empirical results with several tests and models reject the J-curve hypothesis and do not find evidence of an influence of the rupiah exchange rate on Indonesia's current account balance in the long term so that it can the conclusion is drawn that: (1) There is no causal relationship between the current account balance and the exchange rate in Indonesia from 1996-2022; (2) Changes in exchange rates affect changes in the current account balance in the short and long term; (3) The mechanism for changes in the current account deficit does not affect changes in the exchange rate.

Keywords: Exchange Rate, Current Balance Sheet, Inflation, Gross Domestic Product, ASEAN.

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1. Introduction

With the majority of countries now operating under an open economy, engaging in international trade of goods, services, and capital, the significance of understanding the economic relationships between these countries has never been more crucial. This research delves into the causality between exchange rate, current balance sheet, inflation, and gross domestic product in ASEAN 5, shedding light on the complex dynamics of these economic factors.

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Foreign currencies and their exchangeability play an important role in cross-world trade. Due to differences in exchange rates, international trade activities always face price differences for goods and services. Currency exchange rates (exchange rates) are needed to facilitate trade between countries. The currency exchange rate is also traded on the foreign exchange (forex) market.

Countries that are part of the Southeast Asian Nations (ASEAN) are also taking open economic action to embrace international integration as a state development strategy. This integration has gone through several steps since 1967 (Klimis, 2016). Through ASEAN, several member countries have experienced high economic growth since 1980. Collectively, ASEAN countries have a GDP of 3 trillion US Dollars. The ASEAN economy is also the fifth largest region after the United States, China, Japan, and Germany (The ASEAN Secretariat, 2021).

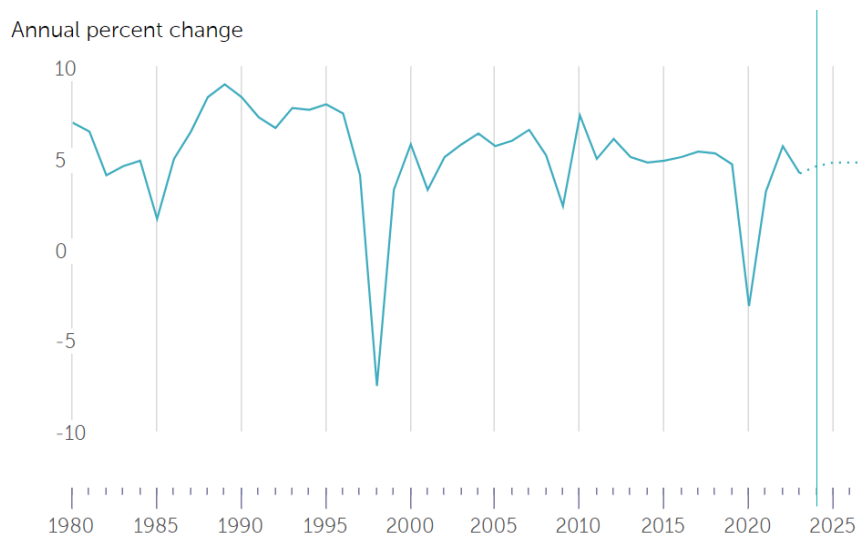


Figure 1. ASEAN Economic Growth Graph 1980-2022 (Source: IMF Website)

The founding countries of ASEAN, Thailand, Indonesia, Malaysia, Singapore, and the Philippines (ASEAN-5), have made a significant shift in their trade performance. They have successfully increased exports of manufactured goods and services, a notable achievement considering their initial focus on primary products. This transition is largely attributed to their ownership of abundant labor and natural resources, which have played a crucial role in supporting their economic growth and development. The role of an open economy, international trade, and foreign direct investment (FDI) in this process cannot be overstated, as they have been instrumental in achieving high economic growth, investment, and exports (Lubis et al., 2017).

Each ASEAN-5 country adheres to a different monetary policy system. This influences economic growth, exchange rates, and inflation that accompanied the five countries from 1980 to 2022. Before the Asian economic crisis in 1997, the Philippine government implemented the most flexible exchange rate regime, while Indonesia, Malaysia, Singapore, and Thailand implemented crawling-band or controlled floating exchange rate policies. As the largest region in ASEAN-5, Indonesia continues to follow crawling-band exchange rate settings, and Thailand pegs its currency into a currency basket. Malaysia and Singapore follow a controlled floating exchange rate regime. Meanwhile, the Malaysian government has officially pegged its currency to the US Dollar since September 1998 (Abdul Rashid, 2009).

After 1998, the ASEAN-5 monetary policy focused on price stability. Indonesia, the Philippines, and Thailand are inflation-oriented and use floating exchange rates, while Malaysia and Singapore 'monitor' the value of their currencies on an 'undisclosed basket' (IMF, 2016). The development of foreign currencies in ASEAN-5 countries is still interesting, especially during the Covid-19 pandemic.

The ups and downs (exchange rates, balance sheets, etc.) of the COVID-19 pandemic (the number of victims/severity/spread of COVID explained again), as well as the frequency and severity of regional quarantines (lockdowns), have raised concerns in developing countries. For developing countries with open economies, their domestic currencies are experiencing vulnerability due to soaring national debt and stagnant or declining economic growth. The COVID-19 pandemic is a shock that requires adjustments in international financial markets (Nur Ain, 2022).

(explained above) ASEAN-5 is a group of regional economic actors, and the five countries rely on each other to facilitate each other's role in the international market. Even though they have one vision for national economic growth, the ASEAN-5 countries have different monetary policies adopted by each country. The conflict between international economic theory and exchange rate experience in ASEAN-5 countries can be an exciting study considering that ASEAN-5 experienced an economic growth crisis simultaneously, for example, the 1997 crisis, with different policy approaches in overcoming this crisis. Research related to the actual impact of depreciation or appreciation, both in the short and long term, is fascinating. Therefore, researchers are interested in "Causality Analysis between Exchange Rates, Current Balance, Inflation and Gross Domestic Product (GDP) in ASEAN-5 Countries 1980-2022."

International economic trade is becoming increasingly widespread among countries worldwide, accompanied by increasingly powerful technological advances and globalization. This international trade is also carried out by the countries that created ASEAN, usually called ASEAN-5. It is hoped that the cooperation carried out will facilitate the steps taken by each country to accelerate their respective domestic economic growth. In this case, many factors influence international trade, such as the exchange rate, current account, inflation, and GDP. These factors have been widely studied in previous research, but only a few have analyzed these four factors and their relationship. This is also interesting, considering that ASEAN-5 has different monetary policies adopted by each country. The conflict between international economic theory and exchange rate experience in ASEAN-5 countries can be an exciting study considering that ASEAN-5 experienced an economic growth crisis simultaneously, for example, the 1997 crisis, with different policy approaches in overcoming this crisis. Based on this background, the author proposes a problem formulation as follows: (1) Is there a short-term and long-term causal relationship between the exchange rate and the current account, inflation, and gross domestic product in ASEAN-5 countries in 1980-2022? (2) Is there a short-term and long-term causal relationship between the current account balance and the exchange rate, inflation, and gross domestic product in ASEAN-5 countries in 1980-2022? (3) Is there a short-term and long-term causal relationship between inflation on the exchange rate, current account, and gross domestic product in ASEAN-5 countries in 1980-2022? (4) Is there a short-term and long-term causal relationship between gross domestic product and the exchange rate, current account, and inflation in ASEAN countries.

2. Literature Review

In international trade, exchange rates have an important role. The exchange rate will affect

exports and imports, where if the foreign exchange rate depreciates, the price of imported goods will increase. Domestic goods will experience an increase in demand both at home and abroad. This condition causes the prices of imported and exported goods to be high. Rising prices of goods and services generally reflect inflation (Sugihyanto, 2021). High prices of goods will reduce people's purchasing power (PPP), where goods sold are no longer purchased and generate profits. In the long term, this causes capital borrowers to withdraw their capital, and capital investment will decrease so that state income will decrease (Ridwan, 2022).

International economic transactions expect a current account surplus for the country's economic growth. A current account deficit will cause capital to withdraw, and the stability of the domestic exchange rate will weaken and experience depreciation. An increase in imports will lead to an increase in domestic inflation due to the implications of increasing prices of imported goods (Alawin & Oqaily, 2017). An increase in demand for goods will only occur when the amount of surplus exports causes an expansion in production and increases national income. On the other hand, a current account deficit can cause a reduction in foreign exchange reserves, so the domestic currency will experience depreciation. Deficits experienced in the long term will lead to a decline in national income (Karkita et al., 2019).

Apart from the exchange rate and current account, the state of a country's domestic economy also plays a vital role in international trade. One of the influencing economic factors is inflation and gross domestic product (GDP). If there is an increase in the exchange rate against the dollar, the domestic currency rate depreciates, and the foreign exchange rate will increase. People will tend to exchange the rupiah they have for foreign currency at the bank, thereby increasing the amount of foreign currency. People's savings increase in the form of foreign currency, and there is excess demand while supply remains constant, so the price of foreign exchange will rise and vice versa. Thus, every change in the foreign exchange rate will affect the country's national income (Sundari, 2017).

Meanwhile, inflation will cause the currency to depreciate against foreign currencies if it increases. (first explanation) If deflation occurs, the domestic exchange rate against foreign currency will appreciate (Noor, 2014). The relationship between inflation and the exchange rate is also influenced by the law of one price in PPP theory, where the price of goods on the international market must be the same as that of domestic commodities. If commodity prices in one country are more expensive than in other countries, demand for currency and commodities will fall. This condition will encourage the exchange rate and domestic prices to return to the same as the PPP value. On the other hand, if domestic prices are cheaper, there will be appreciation and inflation. In the PPP concept, if the law of one price does not occur, then there are economic forces that will encourage equal PPP in all countries.

The exchange rate, current account, inflation, and GDP influence the growth of an open trade economy. Previous researchers have studied these factors. Leonard and Stockman (2001) show the results of a weak relationship between the real exchange rate, current transactions, and real GDP. In agreement with these results, according to Rajan (2003), currency depreciation and appreciation are ineffective ways to correct current account imbalances in the United States.

Meanwhile, inflation is influenced by domestic and external variables. According to Solihin (2011) (change journal update), these variables are Gross Domestic Product (GDP), currency exchange rates, interest rates, money supply, and changes or economic shocks in other countries. (Explain again how variables affect other variables.)

The relationship between the current account balance and the exchange rate has become a concern for economists who want to determine the right strategy choices in developing and increasing a country's development. Hady (2001) suggests a positive relationship exists between the current account deficit and the depreciation of the rupiah in Indonesia. On the other hand, Salman's (2002) research states a 2-way relationship between changes in the current account deficit and changes in the exchange rate in Indonesia.

Meanwhile, according to Ariyani (2018), research results show that GDP hurts current transactions. Short. Variable interest rates hurt current transactions in the long term. The foreign direct investment (FDI) variable hurts current transactions in the long term. Furthermore, the exchange rate variable hurts current transactions in the long term. In line with Ariyani, Syed (2012) revealed that cointegration results from research show a long-term relationship between the current account deficit, fiscal deficit, trade deficit, and exchange rate. Meanwhile, the Granger causality test results show a one-way relationship between the current account deficit and the exchange rate and foreign debt.

The research "Current Account Imbalances and Exchange Rate Volatility: Empirical Evidence from Indonesia" by Haryo Kuncoro and Fafurida (2023) uses current account balance variables, foreign exchange reserves, and foreign exchange rates for the 2005-2021 period in Indonesia, analyzed using GARCH. The results show that the current account balance has a high potential for triggering absolute exchange rate volatility. The research "The Effect of Real Exchange Rate on Current Account" by Moaned Talib Al-Hamdi, Mahmood Alshammari, and Mohammad Alawin (2023) uses the variables real GDP, trade balance, investment, and real exchange rate for the 2008-2022 period in Jordan, analyzed using OLS. The results show that the real exchange rate is not the main factor in determining the current account balance position. In "Current Account Drivers and Exchange Rate Regime in Central and Eastern Europe" by Kersti Harkmann and Karsten Staehr (2021), which uses current account balance and exchange rate variables for the 1997-2017 period in 11 countries, panel data analysis shows that for countries with floating exchange rates, current transactions are driven by domestic factors, while for countries with fixed exchange rates, current transactions are more influenced by external factors, indicating vulnerability to external developments.

The research "Balance of Payments and Exchange Rates in ASEAN Countries: Granger Causality Test" by Rina Aprilia and Rizka Malia (2021) uses balance of payments and exchange rate variables for the 2005-2019 period in 10 ASEAN countries. Analysis using the Granger Causality Test shows that only Myanmar and the Philippines show a causal relationship between the exchange rate and the balance of payments. "The Role of Exchange Rate for Current Account: A Panel Data Analysis" by Flavio Vilela Vieira and Ronald MacDonald (2020) uses current account balance variables, actual exchange rates, and nominal exchange rates for the 1994-2014 period in 58 countries. Panel data analysis shows that there needs to be a consensus on the critical variables in determining the current account, with significant variations in empirical approaches across countries. The research "Current Account Determinants in ASEAN 6 Countries" by Novi Ariyani, Fajar Wahyu Priyanto, and Lilis Yuliati (2018) uses current account balance variables, GDP, exchange rates, FDI, and interest rates for the 2001-2016 period in 6 ASEAN countries. The results show that GDP hurts current transactions in the short term, interest rates negatively affect the long term, FDI hurts the long term, and the exchange rate also hurts the long term.

In the research "The Connection between the Exchange Rate and the Balance of Payments

Accounts in the Czech Republic: An Econometric Approach" by Tomas Urbanovsky (2017), the variables used are the nominal exchange rate, current account balance, and financial transaction balance for the 1995Q1 period -2015Q4. Analysis using the Granger Causality Test shows a long-term balance between the current account balance and the financial transaction balance. The research "Effects of Exchange Rate on Current Account in Fragile Five" by Ahmet Sahbaz (2016) uses current account balance variables, actual exchange rates, and nominal GDP for 1987Q1-2016Q1 in 5 countries. SVAR analysis shows that national currency depreciation effectively reduces the current account deficit in Brazil, Turkey, and Indonesia, but there is no significant relationship between India and South Africa. "Interlinkage Between Real Exchange Rate and Current Account Behaviors: Evidence from India" by Mohamed Arouri, Arif Billah Dar, Niyati Bhanja, Aviral Kumar Tiwari, and Frederic Teulon (2015) uses current account balance variables and actual exchange rates for the period 1975-2011. Analysis using VAR and SVAR shows that genuine exchange rate appreciation drives a steady improvement in India's current account deficit.

The research "Dynamics of Current Account Deficit: A Lesson from Pakistan" by Jawaid Syed Tehseen and Syed Ali Raza (2012) uses current account balance variables, savings, fiscal deficit, trade deficit, foreign debt, and exchange rate for the period 1976-2010. Analysis using the Granger Causality Test shows a long-term relationship between the current account deficit, fiscal deficit, trade deficit, and exchange rate and a one-way relationship between the current account deficit and the exchange rate and foreign debt. In "Effects of Inflation, Interest and Unemployment Rates on Economic Growth: Evidence from ASEAN Countries" by Shrikant Krupasindhu Panigrahi, Noor Azlinna Azizan, Shahryar Sorooshian, and Prabha Thoudam (2020), the variables used are interest rates, unemployment rates, inflation, and GDP for the period 1995-2018. The analysis shows a strong long-term relationship between interest rates, inflation, and economic growth, but the relationship between the unemployment rate and economic growth is insignificant. The Granger test shows a relationship between interest rates, unemployment, inflation, and economic development.

The research "Exchange Rate and Current Account Balance: Evidence from ASEAN-5 Countries" by Cep Jandi Anwar, Indra Suhendra, Rah Adi Fahmi Ginanjar, Suci Hilmianti Oktari, and Deris Desmawan (2022) uses current account variables, exchange rate, FDI per GDP, economic growth, inflation, and market openness for the 1991-2021 period. Panel data model analysis with fixed effects estimation shows that the exchange rate and inflation significantly adversely impact the current account. In contrast, economic growth and FDI have a considerable positive impact. In the research "The relationship of real Gross Domestic Product (GDP), Inflation, and Unemployment in the Philippines (1970-2011)" by Kyle Christine Abalos Pascual, Christine Pauline Dionisio, and Rose Capulla (2020), the variables used are GDP, inflation, and unemployment for the period 1970-2011. The analysis shows significant short-run relationships between real GDP and inflation, real GDP and unemployment, and between inflation and unemployment. "Impact of Exchange Rate Shocks, Inward FDI, and Import on Export Performance: A Cointegration Analysis" by Van Chien Nguyen and Thi Tuyet Do (2020) uses FDI, import, exchange rate, and export variables for the 2009-2018 period. The analysis shows that exports are influenced by the exchange rate in the long run, with large-scale imports influencing exports and increased FDI increasing external markets. In "Exchange Rate Volatility, Inflation, and Economic Growth in Developing Countries: Panel Data Approach for SADC" by Ebenezer Olamide, Kanayo Ogijiuba, and Andrew Maredza (2022), the variables used include exchange rates and inflation for the 2000-2018 period. The analysis shows that

unstable exchange rates and inflation have a negative relationship with economic growth, where exchange rate instability exacerbates the impact of inflation on economic growth.

3. Research Method

This research analyzes the relationship between exchange rates, current account balance, inflation, and gross domestic product in ASEAN-5 countries, Indonesia, Thailand, Malaysia, Singapore, and the Philippines. The data used is secondary data and is quarterly for each variable in the 1980-2021 period. The variables in this research are the exchange rate, current account balance, inflation, and gross domestic product. Several research approaches were used to analyze different types of data. The cointegration test and Granger causality test approaches were carried out before proceeding with vector autoregression (VAR) and error correction ECM models). The data used is secondary data in the form of time series data in ASEAN-5 countries, namely quarterly quantitative data. The data used in the research is secondary data sourced from the official websites of Bank Indonesia and the World Bank. The data used are Exchange Rates, Current Account Balance, Inflation, and Gross Domestic Product. The analytical model used in this research is the cointegration test and Granger causality test to analyze the causal relationship between the exchange rate and the current account balance in Indonesia. Then, it will continue with vector auto-regression and error correction models. This research's model estimation uses the cointegration and Granger causality tests. The cointegration test was carried out to see the long-term relationship between the current account balance and the exchange rate in Indonesia.

Meanwhile, the Granger causality test is used to analyze and see the reciprocal (causal) relationship between the current balance and the exchange rate in Indonesia. The vector auto-regression model was carried out for the influence between relative current transactions and the real Rupiah exchange rate, as well as the impact of the real Rupiah exchange rate on relative current transactions. Meanwhile, error correction models are helpful because they can estimate short-term effects between variables and long-term implications from time series data. This research uses an analytical tool, namely the Granger causality test/GCT. In regression analysis, although one variable influences another variable, the direction of the relationship between these variables is not explained. In other words, a relationship between variables does not indicate causality or the direction of the relationship. GCT indicates whether a variable has a two-way or one-way relationship.

$$CA_t = \sum_{i=1}^n \alpha_i CA_{t-i} + \sum_{j=1}^n \beta_j ER_{t-j} + \mu_{1t}$$

$$ER_t = \sum_{i=1}^n \lambda_i ER_{t-i} + \sum_{j=1}^n \delta_j CA_{t-j} + \mu_{2t}$$

di mana:

CA_{it}: Current balance sheet at t (USD)

ER_{it}: Exchange rate at t (Rp/USD)

μ_{1t}, μ_{2t}: Error term.

4. Findings and Discussions

The ADF test results for the current balance sheet show that the probability is 0.0000, below 0.05, and the coefficient is 0.000, below 0.5, indicating that the current account balance is stationary. Meanwhile, the stationarity test for the exchange rate variable obtained the following results.

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Table 1. ADF Result

Null Hypothesis: D(CA,2) has a unit root

Exogenous: None

Lag Length: 4 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-8.875993	0.0000
Test critical values: 1% level	-2.588059	
5% level	-1.944039	
10% level	-1.614637	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CA,3)

Method: Least Squares

Date: 01/10/24 Time: 13:15

Sample (adjusted): 1997Q4 2022Q4

Included observations: 101 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CA(-1),2)	-4.717879	0.531532	-8.875993	0.0000
D(CA(-1),3)	2.633876	0.470921	5.593029	0.0000
D(CA(-2),3)	1.592369	0.358380	4.443237	0.0000
D(CA(-3),3)	0.748110	0.229335	3.262082	0.0015
D(CA(-4),3)	0.298305	0.103950	2.869686	0.0051

R-squared	0.870067	Mean dependent var	-15.01020
Adjusted R-squared	0.864653	S.D. dependent var	6084.144
S.E. of regression	2238.331	Akaike info criterion	18.31309
Sum squared resid	4.81E+08	Schwarz criterion	18.44255
Log likelihood	-919.8108	Hannan-Quinn criter.	18.36550
Durbin-Watson stat	1.990143		

The ADF test results for exchange rate show that the probability is 0.000, which is below 0.05, and the coefficient is 0.0000, below 0.5, which indicates that the exchange rate is stationary.

Table 2. Unit Root

Null Hypothesis: D(ER,2) has a unit root

Exogenous: None

Lag Length: 4 (Automatic - based on SIC, maxla...

Augmented Dickey-Fuller test statistic	
Test critical values: 1% level	
5% level	
10% level	

*MacKinnon (1996) one-sided p-values.

Table 3. ADF Tes Equation

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ER,3)

Method: Least Squares

Date: 01/10/24 Time: 13:24

Sample (adjusted): 1997Q4 2022Q4

Included observations: 101 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ER(-1),2)	-3.162768	0.385793	-8.198101	0.0000
D(ER(-1),3)	1.383621	0.331793	4.170132	0.0001
D(ER(-2),3)	1.083458	0.263539	4.111181	0.0001
D(ER(-3),3)	0.748695	0.191549	3.908639	0.0002
D(ER(-4),3)	0.260929	0.098202	2.657068	0.0092
R-squared	0.833085	Mean dependent var	-7.473168	
Adjusted R-squared	0.826130	S.D. dependent var	2344.825	
S.E. of regression	977.7388	Akaike info criterion	16.65660	
Sum squared resid	91773417	Schwarz criterion	16.78606	
Log likelihood	-836.1583	Hannan-Quinn criter.	16.70901	
Durbin-Watson stat	2.042370			

The research results were then continued with the VAR test using the lag length criterion at lag 10. Determining the optimal lag is essential because, in the VAR method, the optimal lag is very useful for eliminating autocorrelation problems in the VAR system, which is used as a VAR stability analysis. The following is a display of the results of the lag length criteria.

Table 4. VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria

Endogenous variables: CAER

Exogenous variables: C

Date: 01/10/24 Time: 14:31

Sample: 1996Q1 2022Q4

Included observations: 98

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1862.521	NA	1.15e+14	38.05144	38.10419	38.07278
1	-1684.003	346.1059	3.26e+12	34.48985	34.64812*	34.55387*
2	-1677.939	11.50783	3.13e+12	34.44774	34.71152	34.55443
3	-1675.473	4.579681	3.23e+12	34.47905	34.84833	34.62842
4	-1673.729	3.169073	3.38e+12	34.52508	34.99987	34.71712
5	-1664.480	16.42033*	3.04e+12*	34.41797*	34.99827	34.65269
6	-1662.330	3.730433	3.16e+12	34.45571	35.14152	34.73311
7	-1658.404	6.650646	3.17e+12	34.45722	35.24854	34.77729
8	-1655.725	4.428379	3.27e+12	34.48418	35.38101	34.84693
9	-1651.800	6.328269	3.28e+12	34.48571	35.48804	34.89113
10	-1650.692	1.740633	3.50e+12	34.54473	35.65258	34.99283

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

The output results show that the value is at lag 5 for LR FPE and AIC. Meanwhile for SC and HQ it is at lag 1. However, in the future it will use lag 5.

After knowing the optimum output at lag 5, proceed with the stability of the VAR estimation using the AR Roots Table on the lag structure.

Table 5. Root Characteristic Polynomial

Roots of Characteristic Polynomial
 Endogenous variables: CAER
 Exogenous variables: C
 Lag specification: 1 5
 Date: 01/10/24 Time: 14:34

Root	Modulus
0.963557	0.963557
0.803346 - 0.115646i	0.811628
0.803346 + 0.115646i	0.811628
0.563050 - 0.568299i	0.799993
0.563050 + 0.568299i	0.799993
-0.083034 - 0.729388i	0.734099
-0.083034 + 0.729388i	0.734099
-0.626156 - 0.379674i	0.732273
-0.626156 + 0.379674i	0.732273
-0.702080	0.702080

No root lies outside the unit circle.
 VAR satisfies the stability condition.

The output results show that there are no root and modulus values that are more than 1, so the stability requirements are met and are considered stable.

After knowing the reciprocal relationship, then proceed with the cointegration test to determine the long-term relationship. In this case, the Johansen cointegration test is used. The following are the estimation results using the Johansen co-integration test.

The cointegration results above can be seen using the critical value at a confidence level of 5%. The trace statistic value is greater than the critical value at the 5% confidence level and is greater than the eigenvalue. So, there is 1 variable that is cointegrated. Apart from that, there is also an "*" sign in none. The "*" none sign does not exceed 1 sign, so this equation is continued with the vector correction model (VECM) method. The results concluded that the current account balance and exchange rate variables have a stable long-term balance relationship. Meanwhile, in the short term, the current account balance and exchange rate variables adjust to each other for a long-term relationship, which indicates that the that the long term relationship is stronger than the short term

Table 6. Lags Interval

Date: 01/10/24 Time: 14:39
 Sample (adjusted): 1997Q3 2022Q4
 Included observations: 102 after adjustments
 Trend assumption: Linear deterministic trend
 Series: CAER
 Lags interval (in first differences): 1 to 5

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.217808	27.15135	15.49471	0.0006
At most 1	0.020325	2.094549	3.841465	0.1478

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.217808	25.05680	14.26460	0.0007
At most 1	0.020325	2.094549	3.841465	0.1478

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The results of the Granger Causality Test (GCT) for the current account balance and exchange rate variables are obtained as follows.

Table 7. Pairwise Granger Causality Tes
Pairwise Granger Causality Tests

Date: 01/10/24 Time: 21:40

Sample: 1996Q1 2022Q4

Lags: 4

Null Hypothesis:	Obs	F-Statistic	Prob.
CA does not Granger Cause ER	104	1.87044	0.1220
ER does not Granger Cause CA		1.44765	0.2244

The probability value for the current account balance variable on the exchange rate is 0.1220, more significant than 0.05, which indicates that the current account balance has no causal relationship with the exchange rate. Likewise, the probability for the exchange rate variable on the current account balance is 0.2244, more excellent than 0.05, so the exchange rate has no

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causal relationship with the current account balance.

The results of the VECM estimation will show the short-term and long-term relationship between the current account balance and the exchange rate. The VECM estimation results for analyzing the short-term and long-term effects of 2 variables can be seen in the following table.

Table 8. VECM estimation

Variabel	Koefisien	T Statistik
CointEq1	-0.035592	-0.81645
D(CA(-1))	-0.0223530	-2.01818
D(CA(-2))	-0.068696	-0.62437
D(CA(-3))	0.048445	0.44140
D(CA(-4))	0.237818	2.18290
D(CA(-5))	0.007323	0.06574
D(ER(-1))	0.596871	2.31189
D(ER(-2))	0.146600	0.58393
D(ER(-3))	0.182931	0.70648
D(ER(-4))	0.054846	0.22010
D(ER(-5))	0.064195	0.24203
C	-28.57639	-0.12943

Based on the results in the table above, there are 7 significant variables at the 5% absolute level in the short term, plus one error correction variable. Significant variables at the 5% absolute level are the current account balance at lags 2 and 4 and the exchange rate at lags 1,2,3,4,5. The alleged significant error correction parameter proves that there is an adjustment mechanism from the short term to the long term. The adjustment amount from short to long-term is -0.03%.

The short-term estimation results reveal the profound impact of the current account balance variable at lag 2, which has a negative effect at the 5% real level of 0.06%. This implies that a mere 1% increase in the previous 2 years would lead to a significant reduction of 0.06% in the current year's current account balance. Similarly, a 1% increase in the current account balance over the previous 4 years would result in a substantial increase of 0.23%. Moreover, a 1% increase in the exchange rate over the previous 1,2,3,4,5 years would lead to a noticeable increase in the current account balance by 0.59%, 0.14%, 0.18%, 0.05%, and 0.06% in the current year.

Table 9. VAR Coefisien

Variabel	Koefisien	T Statistik
ER(-1)	1.890145	4.90551

In the long term, the exchange rate is significant at the actual level of 5%, which affects the current account balance. The exchange rate variable positively influences the current account balance, namely 1.890145%. This means that an increase in the exchange rate will cause the current account balance to increase by 1.890145%. This condition is by exchange rate theory. If it appreciates, the current account balance will experience a surplus.

Table 10. Vector Error Correction Estimate

Vector Error Correction Estimates Date: 01/10/24 Time: 21:20 Sample (adjusted): 1997Q3 2022Q4 Included observations: 102 after adjustments Standard errors in () & t-statistics in []		
Cointegrating Eq:	CointEq1	
CA(-1)	1.000000	
ER(-1)	1.890145 (0.38531) [4.90551]	
C	-20017.62	
Error Correction:	D(CA)	D(ER)
CointEq1	-0.035592 (0.04359) [-0.81645]	-0.080021 (0.01606) [-4.98350]
D(CA(-1))	-0.223530 (0.11076) [-2.01818]	0.031845 (0.04080) [0.78060]
D(CA(-2))	-0.068696 (0.11002) [-0.62437]	-0.006159 (0.04053) [-0.15199]
D(CA(-3))	0.048445 (0.10975) [0.44140]	0.062872 (0.04043) [1.55525]
D(CA(-4))	0.237818 (0.11150) [2.13290]	0.106748 (0.04107) [2.59924]
D(CA(-5))	0.007323 (0.11140) [0.06574]	0.066576 (0.04103) [1.62251]
D(ER(-1))	0.596871 (0.25817) [2.31189]	-0.098600 (0.09509) [-1.03687]
D(ER(-2))	0.146600 (0.25106) [0.58393]	0.253728 (0.09247) [2.74380]
D(ER(-3))	0.182931 (0.25893) [0.70648]	-0.083780 (0.09537) [-0.87844]
D(ER(-4))	0.054846 (0.24918) [0.22010]	-0.333198 (0.09178) [-3.63030]
D(ER(-5))	0.064195 (0.26524) [0.24203]	-0.120972 (0.09770) [-1.23826]
C	-28.57639 (220.785) [-0.12943]	151.1372 (81.3223) [1.85850]
R-squared	0.172560	0.355687
Adj. R-squared	0.071429	0.276937
Sum sq. resids	4.07E+08	55222235
S.E. equation	2126.647	783.3137
F-statistic	1.706293	4.516693
Log likelihood	-919.9032	-818.0288
Akaike AIC	18.27261	16.27507
Schwarz SC	18.58143	16.58389
Mean dependent	89.08990	129.6227
S.D. dependent	2206.926	921.1870
Determinant resid covariance (dof adj.)	2.76E+12	
Determinant resid covariance	2.15E+12	
Log likelihood	-1737.691	
Akaike information criterion	34.58218	
Schwarz criterion	35.25129	
Number of coefficients	26	

IRF analysis will explain the impact of shocks in one variable on other variables, where in this analysis, it is not only in the short term but can be analyzed for several future horizons as long-term information. In this analysis, you can see the long-term dynamic response of each variable if there is a particular shock, which is one standard error in each equation. IRF analysis also functions to see how long the influence lasts. Following are the results of the impulse response function for 60 periods.

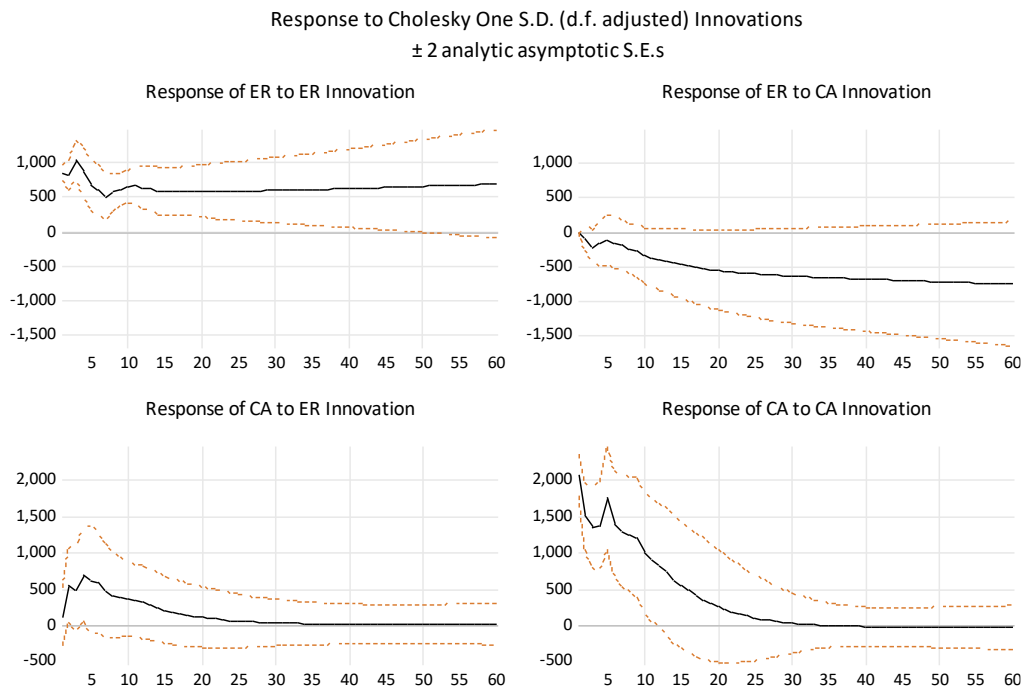


Figure 1. Response to Sholesky One S.D

If the exchange rate is given a shock of 1 standard deviation, the favorable exchange rate response increases by 866. For the next period, it continues to increase, but it decreases in several subsequent periods and tends to stabilize in the range of 500 from the 10 to 60 period. In period 1, the exchange rate response to the current account balance was not yet visible after the shock. After that, the response to the exchange rate decreased in the following few periods and even tended to respond negatively until it reached -800. Meanwhile, the current account balance's response to the positive exchange rate at the beginning of the period touched 500. However, it decreased in several subsequent periods and tended to stagnate at 0 in the 40 to 60. The same thing happens to the response of the current account balance to the current account balance itself. At the beginning of the period, it showed a positive reaction in 2000 and slowly decreased until it stabilized in the 0 range from 30 to 60.

Variance decomposition aims to measure the magnitude of each variable's contribution or composition of the influence on other variables. The following are the results of the variance decomposition rate of the current account balance and exchange rates for 60 periods.

Variance Decomposition using Cholesky (d.f. adjusted) Factors

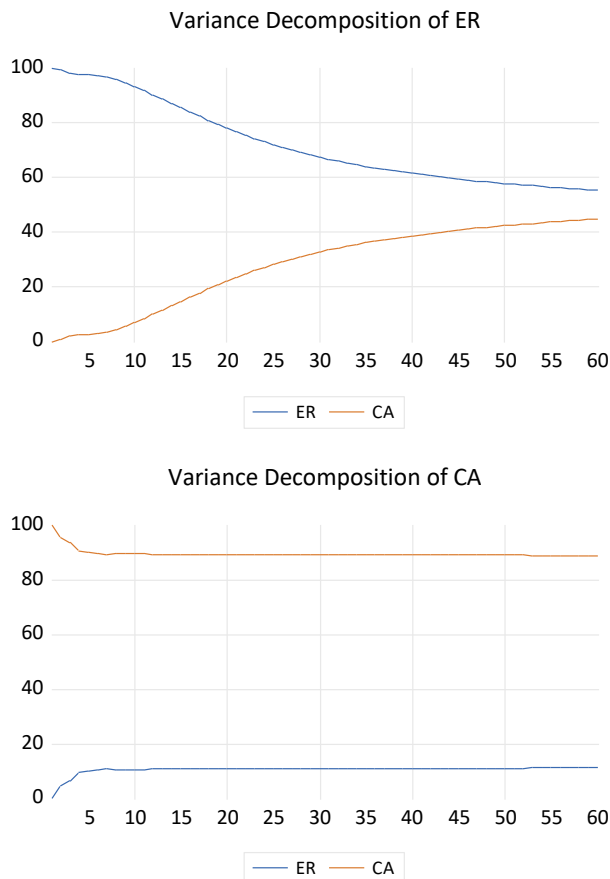


Figure 2. Variance Decomposition

In the initial period, the most significant variable contribution to the exchange rate was the exchange rate itself, but over time, the exchange rate variable decreased. Meanwhile, in the 30th period, the exchange rate was influenced by the increasing current account balance, not the exchange rate variable. On the other hand, it looks pretty stable for variables from the current account balance. It is still influenced and contributed by the current exchange rate variable itself after several periods.

Table 11. Variance Decomposition of ER.

Variance Decomposition of ER: Period	S.E.	ER	CA
1	864.3351	100.0000	0.000000
2	1205.403	99.48433	0.515670
3	1615.888	97.89222	2.107776
4	1848.113	97.58029	2.419714
5	1974.125	97.49802	2.501984
6	2075.494	97.08922	2.910785
7	2147.329	96.49475	3.505249
8	2239.163	95.65754	4.342457
9	2340.392	94.61036	5.389644
10	2456.540	93.19179	6.808214
11	2575.871	91.67256	8.327444
12	2686.341	90.14472	9.855282
13	2791.084	88.58983	11.41017
14	2888.986	86.99973	13.00027
15	2984.952	85.41271	14.58729
16	3081.092	83.84593	16.15407
17	3178.560	82.29920	17.70080
18	3277.519	80.79088	19.20912
19	3376.155	79.34086	20.65914
20	3473.924	77.95257	22.04743
21	3570.197	76.62533	23.37467
22	3665.068	75.36024	24.63976
23	3758.869	74.15974	25.84026
24	3851.902	73.02183	26.97817
25	3944.421	71.94531	28.05469
26	4036.375	70.92847	29.07153
27	4127.675	69.96878	30.03122
28	4218.217	69.06273	30.93727
29	4307.939	68.20696	31.79304
30	4396.861	67.39871	32.60129
31	4485.033	66.63517	33.36483
32	4572.531	65.91369	34.08631
33	4659.407	65.23176	34.76824
34	4745.692	64.58687	35.41313
35	4831.401	63.97656	36.02344
36	4916.544	63.39844	36.60156
37	5001.138	62.85033	37.14967
38	5085.204	62.33023	37.66977
39	5168.773	61.83630	38.16370
40	5251.874	61.36684	38.63316
41	5334.537	60.92029	39.07971
42	5416.786	60.49517	39.50483
43	5498.645	60.09010	39.90990
44	5580.131	59.70378	40.29622
45	5661.267	59.33503	40.66497
46	5742.070	58.98274	41.01726
47	5822.562	58.64592	41.35408
48	5902.762	58.32362	41.67638
49	5982.689	58.01498	41.98502
50	6062.362	57.71919	42.28081
51	6141.796	57.43551	42.56449
52	6221.007	57.16323	42.83677
53	6300.012	56.90172	43.09828
54	6378.825	56.65038	43.34962
55	6457.460	56.40863	43.59137
56	6535.932	56.17597	43.82403
57	6614.253	55.95192	44.04808
58	6692.436	55.73601	44.26399
59	6770.495	55.52784	44.47216
60	6848.440	55.32700	44.67300

Table 12. Variance Decomposition of CA

Variance Decomposition of CA: Period	S.E.	ER	CA
1	2074.468	0.411967	99.58803
2	2625.304	4.801003	95.19900
3	2997.289	6.482078	93.51792
4	3367.859	9.544369	90.45563
5	3847.161	9.879871	90.12013
6	4137.002	10.57064	89.42936
7	4360.969	10.69332	89.30668
8	4556.425	10.61742	89.38258
9	4732.087	10.51961	89.48039
10	4851.778	10.56049	89.43951
11	4946.703	10.63903	89.36097
12	5024.492	10.72244	89.27756
13	5085.697	10.78623	89.21377
14	5129.444	10.84733	89.15267
15	5163.244	10.87801	89.12199
16	5189.367	10.89966	89.10034
17	5208.868	10.91688	89.08312
18	5222.993	10.93634	89.06366
19	5233.683	10.95504	89.04496
20	5241.645	10.97291	89.02709
21	5247.440	10.98926	89.01074
22	5251.614	11.00317	88.99683
23	5254.671	11.01459	88.98541
24	5256.874	11.02425	88.97575
25	5258.442	11.03263	88.96737
26	5259.560	11.04012	88.95988
27	5260.363	11.04681	88.95319
28	5260.936	11.05285	88.94715
29	5261.344	11.05823	88.94177
30	5261.637	11.06299	88.93701
31	5261.850	11.06719	88.93281
32	5262.008	11.07092	88.92908
33	5262.129	11.07427	88.92573
34	5262.227	11.07730	88.92270
35	5262.311	11.08007	88.91993
36	5262.386	11.08262	88.91738
37	5262.457	11.08498	88.91502
38	5262.527	11.08717	88.91283
39	5262.597	11.08922	88.91078
40	5262.667	11.09115	88.90885
41	5262.740	11.09298	88.90702
42	5262.816	11.09473	88.90527
43	5262.894	11.09641	88.90359
44	5262.974	11.09804	88.90196
45	5263.057	11.09963	88.90037
46	5263.143	11.10118	88.89882
47	5263.230	11.10270	88.89730
48	5263.320	11.10420	88.89580
49	5263.412	11.10569	88.89431
50	5263.506	11.10716	88.89284
51	5263.602	11.10863	88.89137
52	5263.699	11.11009	88.88991
53	5263.798	11.11155	88.88845
54	5263.899	11.11301	88.88699
55	5264.001	11.11448	88.88552
56	5264.105	11.11595	88.88405
57	5264.209	11.11743	88.88257
58	5264.316	11.11891	88.88109
59	5264.423	11.12041	88.87959
60	5264.532	11.12192	88.87808

The output results show that the current account balance variable influences the fluctuating exchange rate variable. The exchange rate declined from the first period to the 60th period (100.0000-55.32700), while the current account balance increased from the first period to the 60th period (0.00000-44.67300).

5. Conclusion

This research finds weak evidence of a J-curve effect on the current account balance in Indonesia because empirical results with several tests and models reject the J-curve hypothesis and do not find evidence of an influence of the rupiah exchange rate on Indonesia's current account balance in the long term so that it can the conclusion is drawn that: (1) There is no causal relationship between the current account balance and the exchange rate in Indonesia from 1996-2022; (2) Changes in exchange rates affect changes in the current account balance

in the short and long term; (3) The mechanism for changes in the current account deficit does not affect changes in the exchange rate. Based on the empirical findings in this research, it is recommended that the government implement policies to encourage exports and control imports to correct the current account deficit. This should not be done solely with actions aimed at encouraging or allowing the depreciation of the rupiah without being accompanied by policies to improve internal conditions (real sector) in Indonesia. A consequence of the floating exchange rate policy, which cannot be denied, has created economic difficulties for domestic production activities; it has been proven that exchange rate fluctuations are not profitable for exports, and the monetary authority needs to continue to pay more attention to policies to maintain and control the stability of the rupiah exchange rate. This will encourage the country's real sector (production) and provide business certainty for Indonesian exporters. For the development of subsequent studies, it is crucial to delve deeper into the J-curve theory and the assumptions used, considering the conditions in different countries. This research, which considers the exchange rate as a minor factor based on the standard J-curve theory, suggests that future studies could explore the inclusion of other variables or proxies to explain current transaction behavior. The strategy that can be taken is to stabilize the Indonesian rupiah exchange rate, which not only relies on the supply of dollars in the money market but also maintains a current account surplus. The government can also improve the performance of the Indonesian economy, which has collapsed due to the multidimensional crisis.

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