

e-ISSN: 2746-136X



INTERNATIONAL JOURNAL OF FINANCE RESEARCH

Vol. 5 No. 4 Tahun 2024



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Diterbitkan



Jeramba Ilmu Sukses
Training & Research Institute (TRI-JIS)
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Observing the Influence of Job Demands, Job Resources, and Family Demands on Work Engagement Moderated by Self-Efficacy

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Article Information:

Received: August 24, 2024, Accepted: October 08, 2024, Published: December 01, 2024

Abstract

According to the Job Demand-Resource Theory, job demands, job resources, and personal resources significantly influence employee performance through work engagement (Bakker & Demerouti, 2017). Furthermore, performance is also affected by demands and resources originating from the family context (Brummelhuis & Bakker, 2012). This study aims to examine the impact of job demands, job resources, and family demands on work engagement, with self-efficacy as a moderating variable. The research was conducted at the Central Statistics Agency (BPS) across various districts/cities in North Sumatra Province, using a sample of 309 employees. The sampling technique employed was systematic random sampling, and the data analysis method used was Partial Least Square-Structural Equation Modeling (PLS-SEM). The study's findings show that both job resources and self-efficacy significantly and positively impact work engagement. This suggests that increases in job resources and self-efficacy are associated with enhanced work engagement. Conversely, job demands and family demands did not significantly affect work engagement. Additionally, the findings reveal that self-efficacy does not significantly moderate the relationship between job demands, job resources, family demands, and work engagement.

Keywords: Work engagement, job demands, job resources, self-efficacy, JD-R theory.

JEL CODES: J0, J2, J5

How to Cite:

Rangkuti, S., Harsasi, M., Asih, D., Patiro, S. P. S. & Yusriani, S. (2024). Observing the Influence of Job Demands, Job Resources, and Family Demands on Work Engagement Moderated by Self-Efficacy. *International Journal of Finance Research*, 5(4). 508 – 528. DOI: <https://doi.org/10.47747/ijfr.v5i4.1992>

1. Introduction

1.1 Research Background

Public servants or Aparatur Sipil Negara (ASN) are strategically responsible for realizing the national goals outlined in the Preamble of the 1945 Constitution of the Republic of Indonesia. To achieve these goals, it is necessary to have ASNs with high performance and a service-oriented approach toward society. The Badan Pusat Statistik (BPS) is a non-ministerial government institution with the vision of "Providing Quality Statistics for an Advanced Indonesia." To realize this vision, BPS requires a high-performing and service-oriented workforce.

According to the Job Demands-Resources (JD-R) theory developed by Bakker & Demerouti, (2017) one of the factors determining employee performance is work engagement. Positive mental states associated to work, such as vigor, dedication, and absorption in one's tasks, are referred to as work engagements. It is influenced by various factors, such as personal resources, job resources, and job demands. Employees with high levels of work engagement work with dedication and enthusiasm, viewing their work as enjoyable.

One of the factors influencing the an organization's succes is the adequacy of its human resources. For the work units in the BPS offices of North Sumatra Province, the adequacy of employees is shown in Table 1.

Table 1.a Data Report of BPS

No	Name of Work Unit	Active Employees	Employee Needs Based on Workload Analysis	Percentage
1	BPS North Sumatra Province	109	188	57.98%
2	BPS Nias Regency	41	52	78.85%
3	BPS Mandailing Natal Regency	31	52	59.62%
4	BPS South Tapanuli Regency	23	52	44.23%
5	BPS Central Tapanuli Regency	23	53	43.40%
6	BPS North Tapanuli Regency	26	52	50.00%
7	BPS Toba Samosir Regency	27	52	51.92%
8	BPS Labuhan Batu Regency	22	52	42.31%
9	BPS Asahan Regency	32	53	60.38%
10	BPS Simalungun Regency	36	58	62.07%
11	BPS Dairi Regency	25	53	47.17%
12	BPS Karo Regency	25	59	42.37%
13	BPS Deli Serdang Regency	45	58	77.59%
14	BPS Langkat Regency	36	59	61.02%
15	BPS South Nias Regency	24	48	50.00%

Table 1.b Data Report of BPS

No	Name of Work Unit	Employees	Workload Analysis	Percentage
16	BPS Humbang Hasundutan Regency	25	48	52.08%
17	BPS West Pakpak Regency	23	49	46.94%
18	BPS Samosir Regency	22	48	45.83%
19	BPS Serdang Bedagai Regency	28	54	51.85%
20	BPS Batu Bara Regency	21	52	40.38%
21	BPS North Padang Lawas Regency	19	48	39.58%
22	BPS Padang Lawas Regency	19	48	39.58%
23	BPS South Labuhan Batu Regency	21	48	43.75%
24	BPS North Labuhan Batu Regency	18	48	37.50%
25	BPS Sibolga City	17	48	35.42%
26	BPS Tanjung Balai City	17	49	34.69%
27	BPS Pematang Siantar City	22	54	40.74%
28	BPS Tebing Tinggi City	22	49	44.90%
29	BPS Medan City	46	59	77.97%
30	BPS Binjai City	26	53	49.06%
31	BPS Padangsidempuan City	23	53	43.40%
32	BPS Gunung Sitoli City	21	49	42.86%
Total	Total	915	1798	50.89%

Source: Data Report of BPS, October 2023

The table above indicates that the number of active employees in all work units of the BPS offices in North Sumatra Province is still below the required number based on workload analysis. The average percentage of fulfillment is only 50.89 percent. This condition presents a challenge for all employees within the BPS offices of North Sumatra Province, as the insufficient number of employees will increase job demands.

1.2 Research Objective

The relationship between work engagement and performance is explained by the JD-R theory, which was introduced by Bakker & Demerouti, (2017). This theory posits that job performance is influenced by personal resources, job resources, and job demands:

1. **Job Resources:** Positive aspects derived from the job, such as social support from colleagues and supervisors, recognition for performance, supervision, and guidance from superiors.
2. **Personal Resources:** Positive personal attributes in self-evaluation, such as optimism, self-efficacy (confidence in one's own abilities), and self-esteem.
3. **Job Demands:** The roles and tasks that an individual must perform, requiring physical and mental effort to accomplish.

Lu et al. (2018) show that work engagement among public employees mediates the relationship between service-oriented work systems and service-oriented employee behavior. Tian et al. (2019) investigated the impact of self-efficacy on job performance, with work engagement as a mediating variable. Their findings demonstrate a strong positive correlation between self-efficacy and work engagement, as well as between work engagement and job performance.

Published by:

Corbeanu and Iliescu (2023) found that vigor, dedication, and absorption—key components of work engagement—are positively correlated with organizational performance.

Several studies have examined the antecedents of employee performance at BPS DKI Jakarta. For example, Mayesta et al. (2022) explored the effects of restructuring and organizational commitment on work engagement, which subsequently impacts employee performance at BPS-Statistics in the Kepulauan Bangka Belitung Province. Additionally, Mer and Srivastava (2023) found that work-life balance, reward and recognition, and artificial intelligence positively influence employee engagement. Sawitri (2024) investigated the effects of work-life balance, employee engagement, and training on job satisfaction, which, in turn, affects employee performance. Similarly, Manalu et al. (2021) studied the impact of work engagement on employee performance at the BPJS Ketenagakerjaan Binjai Branch, concluding that work engagement positively influences employee performance.

The findings of these studies support the JD-R theory, which explains that work engagement influences employee performance. Therefore, one approach to improving organizational performance is by enhancing employee work engagement. This study aims to examine the influence of job demands, job resources, and family demands on work engagement, with self-efficacy as a moderating variable.

2. Literature Review

2.1 Work engagement

(Kahn, 1990) first introduced the concept of engagement. Engagement is defined as a condition in which employees utilize physical, cognitive, emotional, and mental aspects to achieve work goals. (Maslach & Leiter, 2008) state that work engagement is the opposite of burnout. Work engagement is characterized by increased positive energy (the opposite of exhaustion), involvement (the opposite of cynicism), and efficacy (the opposite of inefficacy). Work engagement is a positive mental state regarding work, marked by vigor, dedication, and absorption (Bakker & Demerouti, 2017).

The aspects of work engagement (Bakker & Demerouti, 2017) are:

- Vigor: A state characterized by high levels of energy, mental resilience, perseverance, and enthusiasm at work.
- Dedication: A positive attitude where employees view their work as important, fostering a strong drive to perform at their best.
- Absorption: A positive state in which employees are fully immersed in their work, feeling engrossed and happy with their tasks.

2.2 Job Demands

Demands are defined as the global perception of the level and intensity of responsibilities within the work (or family) domain. Job demands refer to the assessment of the degree of demands in the work environment (Demerouti et al., 2001).

The physical, psychological, social, and organizational components of work that necessitate prolonged physical and/or psychological effort and are thus linked to certain physiological and/or psychological costs are all included in the job demands (Demerouti et al., 2001). Examples include workload and time pressure from work

2.3 Job resources

The organizational, social, and physical elements that support goal achievement and stress reduction are referred to as job resources. Job resources include autonomy, positive working relationships with coworkers, chances for advancement, coaching and mentoring, and learning and development (Demerouti et al., 2001).

2.4 Job Demands-Resources (JD-R) Theory

The JD-R theory by Bakker & Demerouti (2017) explains how employee performance is influenced by two factors: job resources and job demands. Job demands encompass the physical, psychological, social, or organizational aspects required by a job. Job resources are the aspects of a job that have the potential to motivate employees in achieving work goals. Job demands and job resources are perceived differently by each employee. One important aspect of job resources (Bakker & Demerouti, 2017). When an employee gets emotional support from his or her leader, such as a leader who understands the needs of the job, the problems they face, and is willing to help the employee in completing the work, then this will be able to increase the employee's engagement in work (Eledora et al., 2024).

This theory posits that a combination of high job demands and low job resources will lead to exhaustion, whereas a combination of challenging job demands and high job resources will result in high work engagement.

Regarding family demands, demands are defined as the global perception of the intensity of responsibilities within the work or family domain (Boyar et al., 2008). It is important to note that demands are subjective. Employees may perceive job demands differently even in identical work conditions. Similarly, family demands refer to the perception of responsibilities within the family, such as time spent with family, caregiving responsibilities, etc. (Bakker & Demerouti, 2014).

2.5 Self efficacy

The term self-efficacy was first introduced by Bandura in 1977, a psychologist who developed Social Cognitive Theory. Social Cognitive Theory explains the reciprocal relationship between human behavior, individual characteristics, and the social environment. A change in one component will have implications for the others. Cognitive, social, and behavioral aspects must be organized to prepare individuals to face various events that affect their lives (Bandura, 1977).

Self-efficacy is defined as an individual's assessment of their ability to organize, regulate, and execute a series of actions required to achieve a specific level of performance, Bandura & Wessels (1997). It is not related to the skills a person possesses but rather to their judgment of what they can do with the skills they have (Yusriani et al., 2023). This indicates that self-efficacy is not a general trait but is dependent on specific conditions and situations Bandura & Wessels (1997) Furthermore, self-efficacy can enhance digital competence and learning enthusiasm (Yusriani et al., 2023).

2.6 Previous Research

The study by (Radic et al., 2020) shown that job demands negatively affect work engagement, while job resources positively affect work engagement. (Mussagulova, 2021) showed that job resources (such as autonomy, competence, and social perceptions) are positively associated with work engagement, and this relationship is stronger when public service motivation is high. (Han et al., 2020) also observed that work resources have a favorable influence on work engagement whereas job demands have a negative one.

(Bakker et al., 2019) found that stressful events in the family environment lead individuals to use significant resources to cope with these events, which subsequently affects their work life. Employees who continuously ruminate on these experiences may experience a decline in self-efficacy. A decrease in self-efficacy leads to a reduction in work engagement and performance.

(Kuok et al., 2022) demonstrated that self-efficacy is a positive predictor of work engagement and a negative predictor of emotional exhaustion. (Albrecht & Marty, 2020) also found that self-efficacy and job resources are positively correlated with work engagement. Their study further showed that self-efficacy is a critical factor influencing employee work engagement.

According to Social Cognitive Theory (Bandura, 1977), self-efficacy influences how people think, feel, motivate themselves, and act. Similarly, in the workplace, self-efficacy controls employees' perceptions of job demands, family demands, and job resources. (Liu et al., 2017) found that self-efficacy moderates the relationship between perceived organizational support and work engagement. Additionally, self-efficacy moderates the relationship between optimism and work engagement (Lu et al., 2018). (Krishnan et al., 2018) found that self-efficacy moderates the relationship between perceived job characteristics and work engagement.

2.7 Research Model

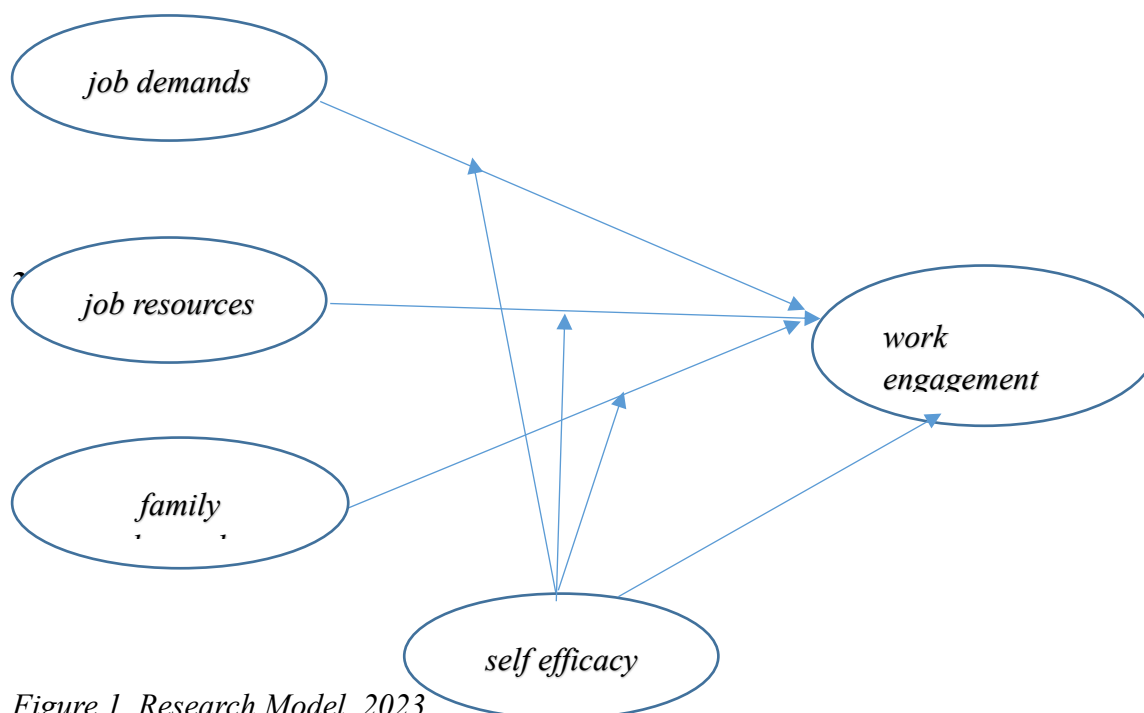


Figure 1. Research Model, 2023

Operational Definitions

• Operational Definition of Work Engagement

Work engagement is defined as a positive mental state of BPS employees regarding their work, characterized by vigor, dedication, and absorption. Work engagement is measured using the Utrecht Work Engagement Scale (UWES) as outlined by Salanova & Schaufeli (2008) The measurement uses 9 indicators:

1. At my work, I feel that I am bursting with energy.

2. When I get up in the morning, I feel like going to work.
3. At my job, I feel strong and vigorous.
4. I am proud of the work that I do.
5. I am enthusiastic about my job.
6. My job inspires me.
7. I feel happy when I am working intensely.
8. I get carried away when I'm working.
9. I am immersed in my work.

- **Job Demands**

Job demands refer to BPS employees' perceptions of the responsibilities and demands in their work. The measurement of the job demands variable is adapted from the study by (Inoue et al., 2014) with 6 indicators:

1. My job requires me to work hard.
2. My job is under time pressure.
3. I feel that my job exceeds my capabilities (overload).
4. My job drains my emotions.
5. My job requires me to perform tasks using information technology.
6. My job creates an imbalance in my personal life.

- **Operational Definition of Job Resources**

In this study, job resources are defined as BPS employees' perceptions of positive factors that support the achievement of work goals. The measurement of job resources is adapted from the study by Inoue et al. (2014) with the following indicators:

1. I receive sufficient information about my job objectives.
2. My job matches my skills/knowledge.
3. I receive support from my supervisor in my work.
4. I work in an environment where everyone complements each other.
5. I receive fair evaluations for my work.
6. I receive appropriate compensation for my work.
7. I have opportunities to develop my career.

- **Operational Definition of Family Demands**

In this study, family demands are defined as BPS employees' perceptions of responsibilities within the family. The measurement of family demands is adapted from the study by (Matthews et al., 2010) using the following 3 indicators:

1. I find it difficult to focus on my work because I am frequently under stress from my family obligations.

2. A behavior that I find I have to skip work activities because of the amount of time I have to dedicate to my family.
3. Behaviour that is necessary and productive at home would not be productive at work.
 - **Operational Definition of Self-Efficacy**
 - Self-efficacy is defined as BPS employees' assessment of their ability to successfully fulfill assigned tasks. The measurement of self-efficacy is adapted from the study by (Rigotti et al., 2008) with the following indicators:
 1. Because I can trust in my skills, I can maintain my composure in the face of challenges at work..
 2. I typically have multiple solutions to choose from when faced with an issue at work.
 3. My prior work experiences have equipped me effectively for my future career.
 4. I believe I am ready for the majority of the duties at work.

2.8 Variable Measurement

All the variables mentioned above will be measured using a Likert scale ranging from 1 to 5 as follows:

1. Strongly Disagree (STS)
2. Disagree (TS)
3. Neutral (R)
4. Agree (S)
5. Strongly Agree (SS)

2.9 Hypotheses

The hypotheses to be tested are as follows:

Relationship between Job Demands and Work Engagement

H1: Job demands have a significant impact on work engagement.

Relationship between Job Resources and Work Engagement

H2: Job resources have a significant impact on work engagement.

Relationship between Family Demands and Work Engagement

H3: Family demands have a significant impact on work engagement.

Relationship between Self-Efficacy and Work Engagement

H4: Self-efficacy has a significant impact on work engagement.

Moderating Effect of Self-Efficacy

H5: Self-efficacy moderates the impact of job demands on work engagement.

H6: Self-efficacy moderates the impact of job resources on work engagement.

H7: Self-efficacy moderates the impact of family demands on work engagement.

3. Research Method

This study employs a quantitative research method based on Creswell & Creswell (2017) and Hendrian & Patirol (2020). The data used in this research will be sourced from respondents'

answers to a questionnaire. The questionnaire responses are designed as numerical values within a specific scale range. The data will later be processed using statistical methods. The data represents individual perceptions of self-efficacy, job demands, job resources, family demands, and work engagement.

Population

The population in this study consists of all BPS employees at the district/city level in North Sumatra Province who have been actively working for at least the past year in their current unit. The total population in this study is 806 individuals.

Sample

To determine the minimum sample size for this study, the Slovin formula (Gunarto, 2018) is used. Using the Slovin formula, the minimum sample size is calculated to be 268 respondents. To account for incomplete data or non-response in the questionnaire, an additional 52 respondents are included, bringing the total sample size to 320 respondents. The sample is selected using the systematic random sampling method (Cresswell & Cresswell, 2017; Yusriani et al., 2023; Eledora et al., 2024).

Data Collection Procedure

The data collection procedure involves distributing the questionnaire via a Google Form link to the selected respondents through the WhatsApp application. The questionnaire is self-administered by the respondents. The questionnaire is distributed to the respondents between June 20 and July 4, 2024.

Data Analysis Technique

The inferential analysis used in this study is Partial Least Squares-Structural Equation Modeling (PLS-SEM) with Smart PLS 3.0 software. This analysis is used to describe the relationships between variables and to test the research hypotheses (Hair et al., 2017).

Stages of PLS Analysis

3.1 Evaluation of the Reflective Measurement Model

According to (Hair et al., 2017) and Gunarto (2018), the model evaluation stages are as follows:

- Convergent validity is evaluated using the Loading Factor (LF) and Average Variance Extracted (AVE). Values above 0.70 indicate appropriate validity.
- Discriminant Validity Test: To confirm discriminant validity, one must meet the Fornell-Larcker criterion, which states that the square root of AVE must be higher than the correlation with other variables.
- Reliability Test: Cronbach's Alpha and Composite Reliability are used to test for reliability; scores above 0.70 indicate strong accuracy and consistency.

3.2 Evaluation of the Structural Model

- R-Square Value: The degree to which variation in independent variables influences dependent variables is ascertained using the R-Square value..
- Effect Size (f^2): The impact of predictor variables at the structural level is shown by the effect size, and f^2 values are regarded as weak (0.02), moderate (0.15), or large (0.35).
- Predictive Relevance (Q^2): To confirm that the model fit is predictively relevant, the Q^2 test is run.

- Goodness of Fit (GOF) Index: The total structural model is validated by the GOF index, whose values are regarded as small (0.1), moderate (0.25), or big (0.36).).

3.3 Hypothesis Testing

Significance weight values are used in hypothesis testing, with a t-statistic > 1.96 or a P-value < 0.05 indicating that the independent variable significantly influences the dependent variable (Anwar et al., 2024; Gunarto, 2018).

4. Findings and Discussions

Findings

4.1. Respondent Profile

Out of the 320 target samples, 309 provided complete responses, and these 309 responses were processed and analyzed. The study's respondents consisted of 51.80% males and 48.20% females. In terms of age, the majority (22.7%) were within the 35-39 years age range. Regarding marital status, most respondents (73.40%) were married. Based on education, the majority of respondents (75.5%) had completed a Diploma IV/S-1 bachelor degrees. The detailed characteristics of the respondents are presented in the following tables:

Table 2. Respondent Characteristics by Gender

No	Gender	Frequency	Percentage
1	Male	160	51.8
2	Female	149	48.2
Total		309	100

Source: Primary Data (July 2024), processed

Table 3. Respondent Characteristics by Age

No	Age	Frequency	Percentage
1	< 25 years	33	10.7
2	25-29 years	44	14.2
3	30-34 years	51	16.5
4	35-39 years	70	22.7
5	40-44 years	45	14.6
6	45-49 years	36	11.7
7	50-55 Years	22	7.1
8	> 55 years	8	2.6
Total		309	100

Table 4. Respondent Characteristics by Marital Status

No	Marital Status	Frequency	Percentage
1	Not Married	71	23.0
2	Married	233	75.4
4	Divorced	4	1.3
5	Widowed	1	0.3
Total		309	100

Table 5. Respondent Characteristics by Highest Education Level

No	Education Level	Frequency	Percentage
1	Primary school-senior high school level	32	10.04
2	Diploma I/II/III	43	13.9
3	Diploma IV/ Bachelor degrees	180	58.3
4	Master degrees	54	17.5
Total		309	100

Source: Primary Data (July 2024), processed

Table 6. Respondent Characteristics by Years of Service

No	Years of Service	Frequency	Percentage
1	< 1 years	17	5.50
2	1-5 years	67	21.68
3	6-10 years	42	13.59
4	11-15 years	69	22.33
5	16-20 years	62	20.06
6	21-25 years	19	6.15
7	26-30 years	14	4.53
8	31-35 years	13	4.21
9	>35 years	6	1.94
Total		309	100

4.2 Distribution of Respondent Answers

Distribution of Responses for Job Demands Variable

Table 7. Distribution of Responses for Job Demands Variable

Item	Statement	Average	Rating Criteria
X11	My job requires me to work hard.	4.20	High
X12	My job is under time pressure.	3.85	High
X13	I feel that my job exceeds my capabilities (overload).	3.01	Moderate
X14	My job drains my emotions.	2.97	Low
X15	My job requires me to perform tasks using information technology.	4.45	High
X16	My job creates an imbalance in my personal life	2.83	Moderate
Average for Job demand variable		3.55	Moderate

Distribution of Responses for Job Resources Variable

Table 8. Distribution of Responses for Job Resources Variable

Item	Statement	Average	Rating Criteria
X21	I receive sufficient information about my job objectives.	4.03	High
X22	My job matches my skills/knowledge.	3.79	High
X23	I receive support from my supervisor in my work.	4.16	High
X24	I work in an environment where everyone complements each other.	3.83	High
X25	I receive fair evaluations for my work.	3.82	High
X26	I receive appropriate compensation for my work.	3.64	Moderate
X27	I have opportunities to develop my career..	3.78	High
Average for Job resources variable		3.86	High

Source: Primary Data (July 2024), processed

Distribution of Responses for Family Demands Variable

Table 9. Distribution of Responses for Family Demands Variable

Item	Statement	Average	Rating Criteria
X31	I find it difficult to focus on my work because I am frequently under stress from my family obligations	2.19	low
X32	A behavior that I find I have to skip work activities because of the amount of time I have to dedicate to my family.	2.09	Low
X33	Behaviour that is necessary and productive at home would not be productive at work	2.76	Moderate
Average for Family Demands Variable		2.35	low

Source: Primary Data (July 2024), processed

Distribution of Responses for Self-Efficacy Variable

Table 10. Distribution of Responses for Self-Efficacy Variable

Item	Statement	Average	Rating Criteria
Z1	Because I can trust in my skills, I can maintain my composure in the face of challenges at work.	3.89	High
Z2	I typically have multiple solutions to choose from when faced with an issue at work.	4.04	High

Item	Statement	Average	Rating Criteria
Z3	My prior work experiences have equipped me effectively for my future career	4.11	High
Z4	I believe I am ready for the majority of the duties at work	4.94	High
Average for Self efficacy variable		4.25	High

Distribution of Responses for Work Engagement Variable

Table 11. Distribution of Responses for Work Engagement Variable

Item	Statement	Average	Rating Criteria
Y1	At work, I feel full of energy.	3.76	High
Y2	When I wake up in the morning, I feel happy to go to work.	3.72	High
Y3	At work, I feel strong and vigorous.	3.76	high
Y4	I am proud of the work that I do.	4.03	high
Y5	I am enthusiastic about my job.	3.91	high
Y6	My job inspires me.	3.86	high
Y7	I feel happy when I am working intensely.	3.79	high
Y8	I get carried away when working.	3.62	Moderate
Y9	I am immersed in my work.	3.19	Moderate
Average for work engagement variable		3.74	high

4.3 Hypothesis Testing

Evaluation of the Measurement Model (Outer Model)

The evaluation of the reflective measurement model is based on indicator reliability, internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2017; Hendrian & Patiro, 2020). 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 below the threshold, the indicator is removed.

Table 12. Outer Loading Values of Variables (Before Indicator Removal)

Variable	Indicator	Outer Loading	Note	Next Action	AVE
<i>job demands</i> (X1)	X11	0.017	Not valid	Removed	0.767
	X12	0.308	Not valid	Removed	
	X13	0.782	valid	Retained	
	X14	0.857	valid	Retained	
	X15	0.057	Not valid	Removed	
	X16	0.819	valid	Retained	
<i>job resources</i> (X2)	X21	0.708	valid	Retained	0.633
	X22	0.669	Not valid	Removed	

Variable	Indicator	Outer Loading	Note	Next Action	AVE
	X23	0.758	valid	Retained	
	X24	0.744	valid	Retained	
	X25	0.816	valid	Retained	
	X26	0.528	Not valid	Removed	
	X27	0.677	Not valid	Removed	
family demands (X3)	X31	0.659	Not valid	Removed	1.00
	X32	0.925	valid	Retained	
	X33	0.657	Not valid	Removed	
self efficacy (Z)	Z1	0.814	valid	Retained	0.622
	Z2	0.810	valid	Retained	
	Z3	0.770	valid	Retained	
	Z4	0.859	valid	Retained	
work engagement (Y)	Y1	0.788	valid	Retained	0.656
	Y2	0.794	valid	Retained	
	Y3	0.822	valid	Retained	
	Y4	0.785	valid	Retained	
	Y5	0.884	valid	Retained	
	Y6	0.824	valid	Retained	
	Y7	0.724	valid	Retained	
	Y8	0.545	Not valid	Removed	
	Y9	0.360	Not valid	Removed	

Source: Output of SmartPLS 3.0, processed, 2024

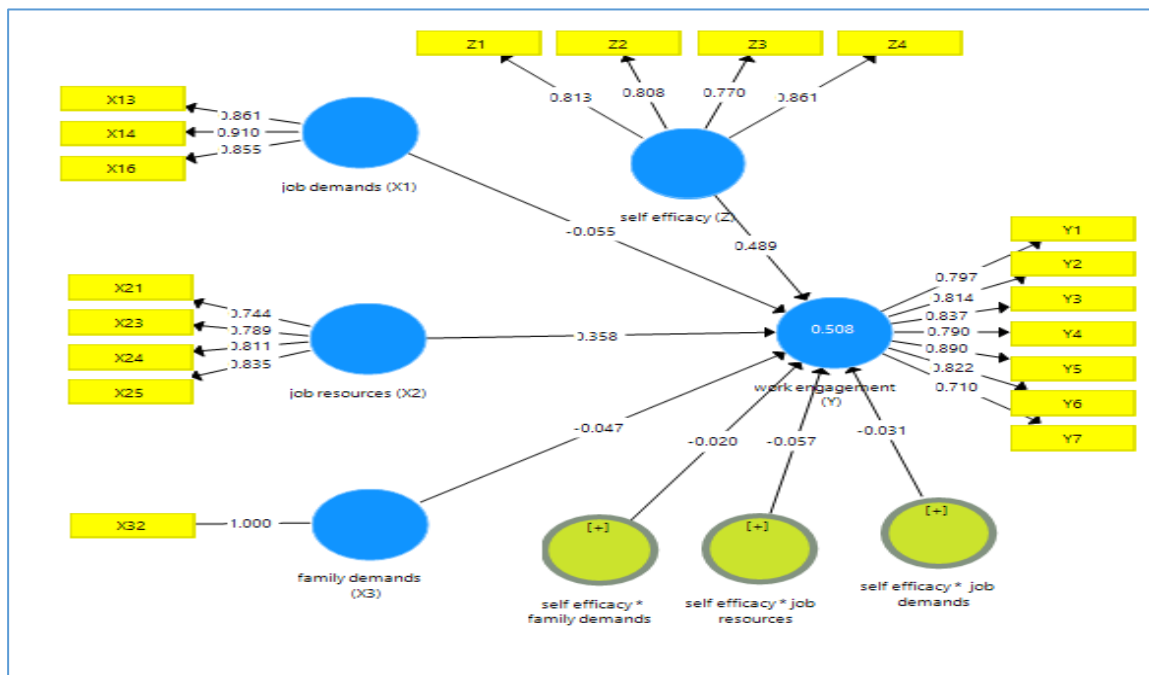


Figure 2 Visualization of the Outer Model Path Diagram (After Indicator Removal)

Reliability Test

Two techniques can be used to check reliability: Composite Reliability and Cronbach's Alpha. For both numbers to be deemed reliable, they must exceed 0.70.

Table 13. Cronbach's Alpha and Composite Reliability Values at the Variable Level

Variable	<i>Cronbach's Alpha</i>	<i>Composite Reliability</i>	Remark
<i>Job demands (X1)</i>	0.850	0.908	<i>reliable</i>
<i>Job resources (X2)</i>	0.807	0.873	<i>reliable</i>
<i>Family demands (X3)</i>	1.00	1.00	<i>reliable</i>
<i>Self efficacy (Z)</i>	0.831	0.887	<i>reliable</i>
<i>Work engagement (Y)</i>	0.912	0.930	<i>reliable</i>

Source: Output of SmartPLS 3.0, processed, 2024

Table 13 shows that the Cronbach's Alpha and Composite Reliability values for all constructs are above 0.70, indicating that the constructs in the estimated model meet the criteria for internal consistency reliability. Thus, it can be concluded that all constructs are reliable, and further assessments can proceed.

The Inner Model involves structural model testing to assess the relationships between latent constructs. This testing includes several calculations to determine model suitability, such as the coefficient of determination (R^2), effect size (f^2), Standardized Root Mean Square Residual (SRMR), and predictive relevance (Q^2). The criteria for R^2 values are as follows: 0.67 (substantial), 0.33 (moderate), and 0.19 (weak). The f^2 values are categorized as 0.02 (small influence), 0.15 (moderate influence), and 0.35 (large influence). A model meets the fit criteria if the SRMR value is less than 0.1. The thresholds for Q^2 are 0.02 (small), 0.15 (medium), and 0.35 (large), as discussed by (Hair et al., 2017).

Table 14. Summary of Model Fit Assessment Result

Variables	R-Squared adjusted	F-Square Y	Q-Square Predictive Relevance	SRMR
job demands (X_1)		0.005		
job resources (X_2)		0.205		
family demands (X_3)		0.004		0.065
work engagement (Y)	0.508		0.324	
self efficacy (Z)		0.400		

Source: Output of SmartPLS 3.0, processed, 2024

Based on the R^2 values presented in the table, it can be concluded that job demands, job resources, family demands, and self efficacy explain 50,80% of work engagement variance, with the remaining percentage attributable to other factors. The F-square values indicate that job demand and job family demands have a small effect on work engagement. But job resources have a moderate effect on work engagement. And self efficacy have large effect on work

engagement.

Additionally, the Q^2 value for performance is 0.324, demonstrating that the model is medium effective at predicting work engagement. The model's fit is further confirmed by an SRMR value below 0,1, signifying that the model is well-suited to the data.

Table 15 Hypothesis Testing

To determine how the independent variable affects the dependent variable, hypothesis testing is done. It can be concluded that the independent variable significantly affects the dependent variable if the P value is less than 0.05.

Hypothesis	Path Coefficient	t statistic	P Values	Remark
H ₁ job demands (X1) -> work engagement (Y)	-0.055	1.238	0.216	Not Significant
H ₂ job resources (X2) -> work engagement (Y)	0.358	6.506	0.000	Significant
H ₃ family demands (X3) -> work engagement (Y)	-0.047	1.030	0.303	not Significant
H ₄ self efficacy (Z) -> work engagement (Y)	0.489	8.733	0.000	Significant
H ₅ self efficacy * job demands -> work engagement (Y)	-0.031	0.608	0.543	Not Significant
H ₆ self efficacy * job resources -> work engagement (Y)	-0.057	1.273	0.203	Not Significant
H ₇ self efficacy * family demands -> work engagement (Y)	-0.020	0.473	0.636	Not Significant

Source: Output of SmartPLS 3.0, processed, 2024

Discussions

- H₁ For job demands and work engagement, the path coefficient is -0.055. The negative coefficient suggests that employees' work engagement declines as job demands increase. The P-value of 0.216 (>0.05) and the t-statistic value of 1.238 (<1.96), however, show that there is no significant relationship between job demands and work engagement. As a result, Hypothesis 1 is rejected.

- H₂ The path coefficient for job resources and work engagement is 0.358. The positive coefficient indicates that increasing job resources leads to higher employee work engagement. The t-statistic value of 6.506 (> 1.96) and P-value of 0.000 (< 0.05) indicate that the effect of job resources on work engagement is significant. Therefore, Hypothesis 2 is accepted.
- H₃ The path coefficient for family demands and work engagement is -0.047. The negative coefficient indicates that higher family demands lead to decreased employee work engagement. However, the t-statistic value of 1.030 (< 1.96) and P-value of 0.303 (> 0.05) indicate that the effect of family demands on work engagement is not significant. Therefore, Hypothesis 3 is rejected.
- H₄ The path coefficient for self-efficacy and work engagement is 0.489. The positive coefficient indicates that increasing self-efficacy leads to higher employee work engagement. With a t-statistic of 8.733 (> 1.96) and a P-value of 0.00 (< 0.05), the effect of self-efficacy on work engagement is significant. Therefore, Hypothesis 4 is accepted.
- H₅ The path coefficient for the effect of self-efficacy in moderating the impact of job demands on work engagement is negative, indicating that employees with high self-efficacy tend to experience a weaker influence of job demands on work engagement. The t-statistic value of 0.608 (< 1.96) and P-value of 0.543 (> 0.05) indicate that the moderating effect of self-efficacy on the relationship between job demands and work engagement is not significant.
- H₆ The path coefficient for the effect of self-efficacy in moderating the impact of job resources on work engagement is negative, suggesting that employees with high self-efficacy tend to experience a weaker influence of job resources on work engagement. The t-statistic value of 1.273 (< 1.96) and P-value of 0.203 (> 0.05) indicate that the moderating effect of self-efficacy on the relationship between job resources and work engagement is not significant.
- H₇ The path coefficient for the effect of self-efficacy in moderating the impact of family demands on work engagement is negative, implying that employees with high self-efficacy tend to experience a weaker influence of family demands on work engagement. The t-statistic value of 0.473 (< 1.96) and P-value of 0.636 (> 0.05) indicate that the moderating effect of self-efficacy on the relationship between family demands and work engagement is not significant.

The hypotheses testing in this study provides valuable insights into the relationships between job demands, job resources, family demands, self-efficacy, and work engagement among employees, aligning with existing literature on the Job Demands-Resources (JD-R) Theory and self-efficacy.

H1: The negative path coefficient for job demands and work engagement (-0.055) suggests that higher job demands could reduce work engagement. However, the non-significant t-statistic (1.238) and P-value (0.216) indicate that job demands do not significantly affect work engagement in this context, likely due to the moderate job demands reported by employees, which may not be overwhelming enough to significantly lower engagement (Bakker & Demerouti, 2017). (Han et al., 2020) also noted that the impact of job demands on engagement can be mitigated by factors like job or personal resources.

H2: The significant positive path coefficient for job resources and work engagement (0.358) confirms that job resources play a crucial role in enhancing employee engagement, consistent

with JD-R Theory. The strong t-statistic (6.506) and P-value (0.000) highlight the importance of job resources in fostering work engagement, as supported by (Radic et al., 2020) and (Mussagulova, 2021) who emphasized the critical role of job resources in promoting well-being and performance.

H3: The non-significant path coefficient for family demands and work engagement (-0.047) suggests that family demands do not significantly impact work engagement. This may be because the family demands faced by employees are manageable and do not interfere with their work responsibilities (Boyar et al., 2008). The regional context and cultural factors may also influence these findings.

H4: The strong positive relationship between self-efficacy and work engagement (0.489) emphasizes how important self-efficacy is in fostering engagement. The significant t-statistic (8.733) and P-value (0.000) suggest that employees with higher self-efficacy are more likely to be engaged in their work, consistent with Bandura's (1977, 2000) theory of self-efficacy. (Krishnan et al., 2018) and (Liu et al., 2017) further support the positive impact of self-efficacy on work engagement.

H5: The negative but non-significant moderating effect of self-efficacy on the relationship between job demands and work engagement (t-statistic = 0.608, P-value = 0.543) suggests that while self-efficacy may lessen the negative impact of job demands, this effect was not significant in this study. This may be due to the moderate level of job demands, which might not necessitate high self-efficacy for mitigation (Tian et al., 2019).

H6: The non-significant moderating effect of self-efficacy on the relationship between job resources and work engagement (t-statistic = 1.273, P-value = 0.203) indicates that job resources are strong predictors of work engagement independently, without needing further moderation by self-efficacy (Albrecht & Marty, 2020).

H7: The non-significant moderating effect of self-efficacy on the relationship between family demands and work engagement (t-statistic = 0.473, P-value = 0.636) suggests that family demands do not significantly affect work engagement in this context. This might be due to specific demographic or cultural factors in the study sample, which influence how family demands are perceived and managed (Boyar et al., 2008; Brummelhuis & Bakker, 2012).

The results of this study enhance the understanding of how job resources and self-efficacy are vital for improving work engagement among employees. While job and family demands can impact engagement, their effects may be influenced by other contextual factors, which should be explored in future research. This study supports the JD-R Theory and underscores the importance of fostering self-efficacy and providing adequate job resources to maintain high levels of work engagement in organizational settings. Additionally, the study highlights the interesting roles of self-efficacy and job resources as critical variables in employee engagement.

5. Conclusion

This study is limited to BPS district/city offices in North Sumatra Province, so the results reflect only this region and cannot be generalized to the national level (BPS across Indonesia). Researchers interested in expanding this study are advised to conduct research at the national level.

According to the Work-Home Resources (WH-R) model developed by Ten Brummelhuis and Bakker (2012), family demands and home resources influence workplace outcomes. This study

did not examine home resources; future research should consider including this variable. This study collected general information on job demands, but in practice, job demands vary depending on the employee's position. Future research should measure job demands more specifically based on the employee's position.

This study concludes that job resources and self-efficacy have a significant positive impact on work engagement among BPS district/city employees in North Sumatra Province. In contrast, job demands and family demands do not significantly affect work engagement in this context. The implication of these findings is that efforts to increase work engagement among BPS district/city employees in North Sumatra Province should focus on enhancing job resources and self-efficacy. With high job resources and self-efficacy, employees are more likely to feel capable of handling the job and family demands they encounter.

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Published by:



Comprehensive Analysis of Capital Asset Pricing Model and Arbitrage Pricing Theory in Stock Investment Decision Making

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Article Information:

Received: October 31, 2024, Accepted: November 24, 2024, Published: December 03, 2024

Abstract

The increasingly advanced development of technology and the phenomenon of the Covid-19 outbreak, which has caused most employees to be affected by Work From Home, has led most people, especially the millennial generation or people under the age of 30, to be interested in allocating their excess funds into stock investments. This study aims to analyze the development of a multi-factor CAPM model by including volatility as an additional factor: a new approach in asset pricing with a case study of companies listed on the Indonesia Stock Exchange included in the LQ45 Index for the 2020-2023 period. The independent variables used in this study are Risk Premium (Beta), Company Size (SMB), book-to-market ratio (HML), and Stock Price Volatility. In contrast, the dependent variable used in this study is proxied by Stock Return with Excess Return. The population in this study consists of 45 companies. The sampling method uses a Purposive Sampling Technique. The analysis method used in this study is Multiple Linear Regression. The result of the study shows that the Risk Premium and Company Size variables partially have a significant positive effect on Stock Returns. The Book to Market Ratio variable partially has a negative but not significant impact on Stock Returns. Meanwhile, the Stock Price Volatility variable has a positive but insignificant effect on Stock Returns. The independent variables in this study can explain 88,61% of the factors affecting Stock Returns, while 11,39% is explained by other factors not researched in this study.

Keywords: Risk Premium, Company Size, Book To Market Ratio, Stock Price Volatility, And Stock Return

JEL CODES: J0, J2, J5

How to Cite:

Syahwildan, M. Widiastuti. (2024). Comprehensive Analysis of Capital Asset Pricing Model and Arbitrage Pricing Theory in Stock Investment Decision Making. *International Journal of Finance Research*, 5(4). 529 – 547. DOI: <https://doi.org/10.47747/ijfr.v5i4.2255>

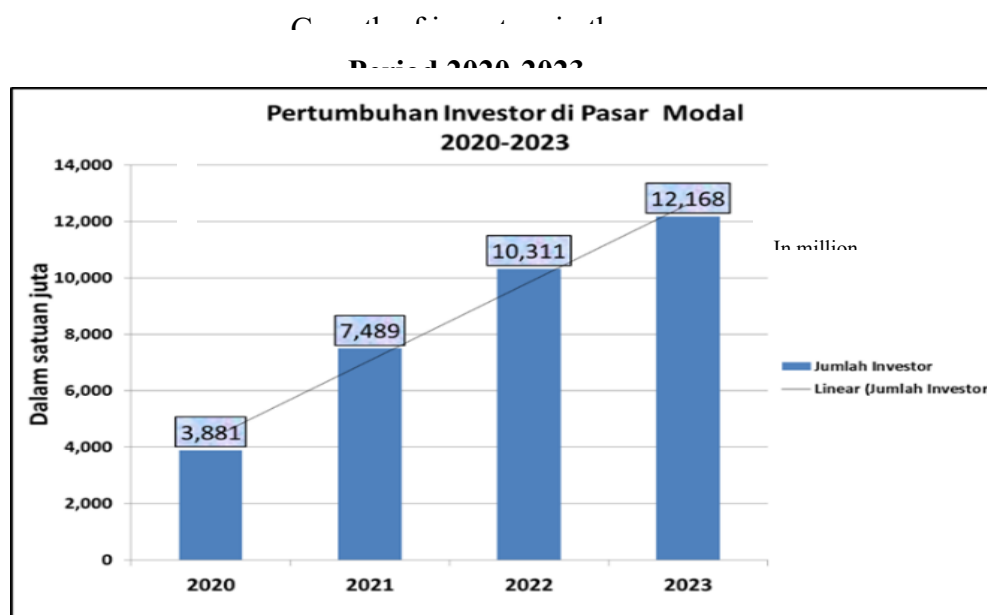
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1. Introduction

The development increasingly technology advancement have brought part big society, especially Generation millennials to allocate their excess funds have become a share. Enhancement to interest allocate funds to A share this started with many elderly society under 30 years old or the usual one called with generation millennial this experiencing the work form home (WFH) period during the pandemic, where part employee can carry out his work from house and have time as much free time as you can used For get income addition. Because only with invest capital without must follow in operate company Already Can get profit from companies invested in (Fitroh & Fauziah, 2022) .

Can seen from Figure 1.1 during for the period 2020 to 2023 the number of investors in the capital market is experiencing quite an increase significant. Moment There is diverse investment instrument options available, such as investment in real assets (property, gold, objects art, etc.) and investment in matter financial (stocks, bonds, derivatives, etc.). Important For remembered that investment No always bring profit, every alternative investment There is risks that every investor must consider and analyze thorough before make decision investment.



Source : www.ksei.co.id (data processed), 2024

Picture 1. Total Capital Market Investors for the 2020-2023 Period.

Studies case study This refers to registered companies in LQ45 Index. The LQ45 index is A index shares in it consists of the 45 issuers that have liquidity, market capitalization, and strong company fundamentals. In period time six month very The LQ45 index will do a evaluation routine For ensure is the shares contained therein Still fulfil criteria, this is what it becomes cause of the list of existing shares in LQ45 index always fickle (Ryanza, 2023). Based on phenomenon and description of the data above writer interested for make study about influence Model Three Factor Fama and French (2017), namely Risk Premium, Firm Size and Book to Market Ratio and including Stock Price Volatility as an independent variable in this research.

1.2 Objective

Based on the formulation the problem above so objective study this is :

1. To analyze the influence of premium risk to excess return on the LQ45 index for the 2020-2023 period
2. To analyze the influence of firm size on excess return on the LQ45 index for the 2020-2023 period
3. To analyze the influence of the book-to-market ratio on excess return on the LQ45 index for the 2020-2023 period
4. For analyze the influence volatility price share to excess return on the LQ45 index for the 2020-2023 period

2. Literature Review

2.1. Background Theory

2.1.1. Stock Return

Return share is an achievement expected by internal investors activity. Tandelilin (2017) in study (Maramis et al., 2021) mention returns share be one possible factors motivating investors to do activity investment, and also an A rewards on the courage of investors to bear risk on the investment he made

Excess Return which is return from a asset after reduced with level flower free risk. Astuti (2012) in study (Komara et al., 2019)explains the risk free rate proxy in Indonesia is Monthly Bank Indonesia Certificate (SBI), because investors will receive the return from payment government

Formula from excess returns are :

$$\text{Excess Return} = R_i(t) - R_f(t)$$

Where :

$R_i(t)$ = Return share monthly

2.1.2. Premium Risk

Premium market risk according to Fawziah & Margasari (2016) in a study (Nugraha et al., 2022) in addition, returns from market price are reduced with a level of flower-free risk. Boedi (2021) in study say risk or the usual one known with Market risk is described by beta and has positive relationship to returns shares on the CAPM model.

Beta stock is summarized as the following: Gunakan eqation agar rumus tampil jelas

$$R_m - R_f = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Description :

R_m (Market Return) : The return of the market, calculated as the difference in current market price and the price in the previous period, divided by the previous period's price.

R_f : Risk-free rate, which represents the return on a risk-free investment.

P_t : The value of the Composite Stock Price Index (IHSG) in month t .

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Pt-1Pt-1 : The value of the Composite Stock Price Index (IHSG) in month t-1t-1.

(Astuti, 2022)

2.1.3. Firm Size

According to Putra & Merkusiwati (2016) in study (Vemberain & Triyani, 2021), size company can categorized as company big and corporate small based on the amount of assets owned, market value of shares, or level of sale company. Moeljadi (2014) in (Nurul & Stella, 2021) research says that Company Size: "Company size can be defined as effort to Asses Company based on assets, number of sales, average total sales and average total assets.

2.1.4. Book to Market Ratio

Fama and French point out results his research that book to market ratio influential to returns share. In his research (FAMA & FRENCH, 1995) interpreted a book to market ratio as " Book common equity for the fiscal year ending in calendar year t-1, divided by market equity at the end of December of year t-1".

$$\text{Book to market ratio} = \frac{\text{Book Value}}{\text{Market Value}}$$

Book Value: The value of the company's equity as reported in the balance sheet for the fiscal year ending in calendar year t-1t-1.

Market Value: The company's market capitalization at the end of December of year t-1t-1.

According to Fama and French (1995), companies with a low book-to-market ratio (<1) are considered overvalued. This is because their market value (reflecting market perception and investor optimism) is much higher than their book value (based on the company's recorded assets and equity). Similarly companies with a high book-to-market ratio (>1) are considered undervalued, as their book value exceeds their market value, potentially signaling opportunities for value investing. (Darma & Lestari (2022).

The company mentioned overvalued will own mark more books (book value). small compared to mark the market (market value), meaning the same with company the own mark book to market ratio < 1 (Darma & Lestari, 2022).

2.1.5. Stock Price Volatility

Volatility price share is something movement fluctuating price shares in the stock market, volatility used as measurement statistics for change price during periods time certain (Andriana et al., 2021). Stock Price Volatility is formulated as following:

$$\sigma = \sqrt{(1/(n-1)) * \sum \ln(R_t - R_{t-1})^2}$$

Explanation :

σ : Stock price volatility.

n : Number of observed time periods.

$\ln(R_t)$: Natural logarithm of the stock price at time tt .

$\ln(R_{t-1})$: Natural logarithm of the stock price at time t-1t-1.

This formula is used to measure stock price movements (volatility) over a given period. Volatility is calculated as the square root of the average variance of the stock's log returns, as described by Andriana et al. (2021).

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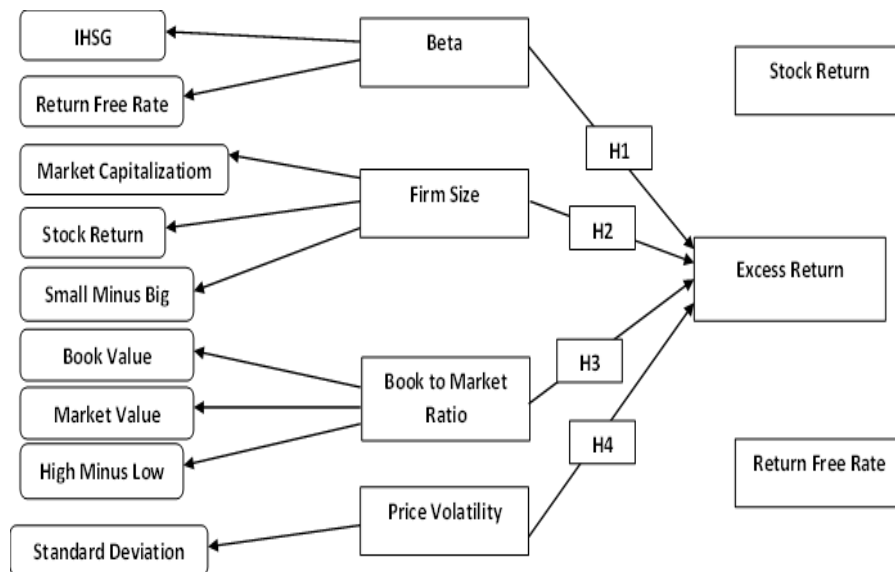
2.2. Previous Studies

The study previous contains section results from the study relevant past so that can give information related to the method research, results, and discussion used as a base comparison with the research to be done. Following a number of studies relevant past with study This is :

1. (Ryanza, 2023) in his thesis was entitled " Influence Stock Price Volatility, Overnight Return Momentum, and Firm Size on Stock Returns" (Study case registered company in LQ45 Index for the 2017-2021 Period). Year 2023. Faculty Economics and Business, Syarif State Islamic University Hidayatullah Jakarta. The results of the research state Stock Price Volatility Partial influential negative significant on Stock Returns, while Firm Size Partial influential positive significant on Stock Returns. But, in fact simultaneous Share Price Volatility and Firm Size have an influence significant on Stock Returns.
2. (Bhuntar et al., 2023) in article entitled "The Influence of Stock Trading Volume, Stock Price Volatility, Market Capitalization on Stock Returns in Trading Companies Registered Size on the Exchange Indonesian Securities (BEI) 2016-2020 Period" published in the Journal Study Economy Management and Business (JEKOMBIS), Vol. 02, No. 01, 2023. Faculty Economics, Mahaputra Muhammad Yamin University. The results of the research declare, based on analysis multiple linear regression obtain results Stock Price Volatility matters positive on Stock Returns, and on the f test, Stock Price Volatility also has an influence on Stock Returns.
3. (Dewanto & Sumiati, 2022) in article entitled "Influence Fama - French Five Factor Model of Stock Returns" published in the Journal of Risk Management and Finance, Vol. 01, No. 03, 2022. Faculty Economics and Business, Brawijaya University. The results of the research state that the market excess return variable and the book to market ratio (HML) variable have an influence positive and significant, whereas variable (SMB) has a negative and significant effect on Stock Returns.
4. (Komara et al., 2019) in article entitled "Analysis of the Three Factor Fama and French Model of Returns on the Indonesian Sharia Stock Index (ISSI) for the 2011-2014 Period" was published in the Journal Inspiration Business and Management, Vol. 03, No. 02, 2019. Faculty Economics and Business, General University Ahmad Yani. And Faculty Economics and Business, Padjadjaran University. Research result This stated that in a way Partial the Market Return variable has an effect on Return, meanwhile Firm Size and Book to Market Ratio variables do not influential on Return.
5. (Sulistiani, 2022) in thesis entitled " The Influence of Return on Equity, Book to Market Ratio, and Company Size on Stock Returns in Subsector Companies Pharmacies Registered on the IDX 2013-2020." Year 2022. Faculty Economics and Business, Pakuan University Bogor. Result of his research stated in a way Partial The variables Book to Market Ratio and Company Size have an influence significant on Stock Returns. The panel data regression test results show Book to Market Ratio and Size variables Unification own connection strong on Stock Returns with niai R - Squared of 0.7298. Whereas mark Adjusted R - Squared is 0.7298 which means donation influence the Book to Market Ratio variable, and Company Size on Stock Returns is 72.98%.

Conceptual Framework (optional)

So study This can walk in accordance with guidelines or not deviated, then design study is one possible strategy done. As for design in study this as following :



Source: Data processed researchers, 2024

Picture 2. Research Design

3. Research Method

Methodology consists of data, model development and method used. The paper can be either quantitative or qualitative. However, if the paper is quantitative, equations may appear in line with the text, if they are simple, short, and not of major importance; e.g., $a = b/c$. To set the style, type Equation in the style box. But this style only set the tab stop position. To put the equation on the right place just press tab button one time. And to type the equation number, press tab button once again from the right side of the equation.

3.1. Data

Types of data used by researchers in study This namely sourced secondary data from the Stock Exchange Indonesia, published by the party third and recognized by the State.

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Secondary data is data that has been there is and has been collected by researchers For makes it easier study. Secondary data used in study This namely historical data price closing share company and reports finance included companies to in LQ45 index during period 2020 to with in 2023.

3.2. Sample and Procedure

Population in study This is companies on the LQ45 index listed on the Indonesia Stock Exchange for the 2019-2023 period. Method taking sample used in this research that is technique purposive sampling. Purposive sampling is technique determination of sample data with consideration certain (Sugiyono, 2017). Population research used in this research is registered company in the LQ45 Index list for 4 years consisting of successively of 45 shares companies listed on the Indonesian Stock Exchange are appropriate with future period researched. Selection technique sample this use method purposive sampling, criteria in research this that is as following :

1. Companies listed on the Indonesian Stock Exchange in LQ45 Index for the 2020-2023 period.
2. Internal company LQ45 index for the 2020-2023 period which has price data closing (close price) is appropriate with period study .
3. Internal company The LQ45 index for the 2020-2023 period is published report finance monthly (monthly) on the Indonesia Stock Exchange website during period study.

3.3. Data Analysis

This research use method analysis regression multiple. Analysis regression multiple own objective for measure and show direction regulator between independent variable (Ghozali, 2018). Equality analysis regression multiple in study this is as following :

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Information :

Y = Excess Return

α = Konstanta

X1 = Beta (Premi Risiko)

X2 = Size (Small Minus Big)

X3 = Book to Market Ratio (HML)

X 4 = Share Price Volatility

$\beta_1 - \beta_4$ = Coefficient Regression

e = Degrees Error

3.4. Hypothesis testing

Test this done with see mark coefficient and significance from each variable independent in influence variable dependent. Hypothesis testing this is what it will be made base in state is results study support hypothesis Good or No.

Accuracy function regression sample in appraise mark actual can be measured from Goodness of fit his. Statistically, at least This can be measured from mark t statistics, value F statistics,

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and values coefficient determination. Calculation statistics called significant in a way statistics if statistical test value is at in area critical (area where H_0 is rejected). On the contrary called No significant when conducting statistical tests is at in area where H_0 is accepted (Ghozali, 2016).

a. Significant Test Partial (t Test)

The t test was used for test coefficient regression in a way individual. The t statistical test is basically show how much far influence One variable explainer or independent individually in explained variation variable dependent (Ghozali, 2016). Comparison between mark probability t-statistic with level significance (α) 0.05, for know influence significant or no.

b. Coefficient Test Determination (R^2)

Size coefficient determination used in testing This For set level accuracy analyst optimal regression. For see percentage between influence variable independent to variable dependent so used coefficient determination R-squared (R^2). For know mark from coefficient determinant use formula as following :

$$Kd = R^2 \times 100 \%$$

Information :

Kd = Coefficient Determination

R^2 = Coefficient Correlation

If value Adjusted R-square (R^2) is obtained is 0.1234, that is variable independent can explain changes up and down variable dependent by 12%.

4. Findings and Discussions

4.1. Results

4.1.1. Statistics Descriptive

Analysis statistics are used to give a description general of each independent variable in research that includes the average value (mean), value maximum (max), and standard deviation, as well as for measuring data distribution with skewness and kurtosis of each variable. Following is a table that displays the results statistics descriptive in a study this :

Table. 1 Descriptive Statistics of Variables

Statistik	X1	X2	X3	X4	Y
Mean	0.004933	0.104938	-0.197208	3.221.206	0.013608
Median	0.001650	0.053350	-0.381950	3.203.750	0.018300
Maximum	0.158100	3.843.600	2.707.000	3.531.900	0.203900
Minimum	-0.315700	-1.587.000	-2.580.000	2.909.400	-0.308100
Std. Dev.	0.077230	0.951833	1.015.428	0.130204	0.085888
Skewness	-1.294.949	1.346.918	0.314078	-0.207954	-0.927852

Kurtosis	7.451.071	6.485.356	3.360.491	3.027.731	5.910.790
Jarque-Bera	5.357.512	3.880.993	1.019.067	0.347498	41.083
Probability	0.000000	0.000000	0.591831	0.840508	0.000140
Sum	0.236800	5.037.000	-9.466.000	1.546.179	0.653200
Sum Sq. Dev.	0.280334	4.258.132	4.846.140	0.796793	0.346705
Observations	48	48	48	48	48

Source: Data processed researchers , 2024

Statistics Descriptive

Premium risk is the difference from the average (average) monthly return monthly IHSG shares with a risk-free monthly rate. Can see from Picture 4.1, the premium risk own mark minimum of -0.315700 shows the weighted average value lowest JCI return in the month March 2020 and the value maximum of 0.158100 shows the weighted average value The lowest JCI return was in November 2020, mean from premium risk of 0.004933 which means trend mark market return is at the point 0.004933 and value standard deviation show distribution of premium data risk of 0.077230.

Size in research This proxied with Small Minus Big (SMB) obtained from calculation mark market capitalization, value market capitalization is obtained with method close price (price shares) multiplied with outstanding share (amount share circulating). Based on Figure 4.1, explained that mark minimum of -1.58700 shows from 43 samples company majority including in category small market capitalization in month December 2023 and value maximum of 3.843600 shows from 43 samples company majority including in category big market capitalization in month December 2020. Mean value variable size showed with the figure 0.104938 shows trend SMB value of the company that became sample study is at the point 0.104938 and value standard deviation show the spread of SMB variable data is 0.951833.

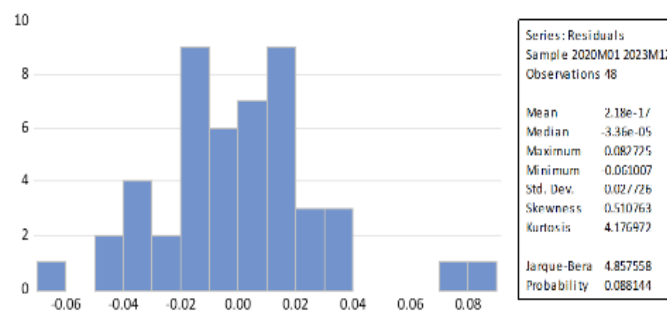
Book to market ratio is ratio book value equity (value book) against close price (price shares) of the company and proxied with high minus low (HML). Book to market ratio has mark minimum of -2.580000 which means 43 samples company majority own mark book to market ratio (Low BE/ME) in the month December 2020 and value maximum amounting to 2.707000 which means 43 samples company majority own mark book to market ratio (High BE/ME) in November 2020. Mean value of -0.197208 shows trend HML value of the company that became sample study is at the point -0.197208 and standard deviation show variable data distribution book to market ratio at 1.015428.

Volatility price share is measurement statistics For fluctuation price share during period certain ones can determine pattern expected return from a share. Based on Figure 4.1, explained that variable volatility price share own mark minimum amounting to 2.909400 which shows that from 43 samples company own level change price lowest in May 2022 and value maximum of 3.531900 shows that from 43 samples company own level change price highest in the month January 2021. The mean value is 3.221206 trend mark volatility price share from the company that became sample study is at the point 3.221206 and standard deviation show variable data distribution volatility price share is at 0.085888.

Excess return is variable proxied dependencies with $(R_i - R_f)$ in the Fama -French Three Factor Model. Based on Figure 4.1, explained that variable excess returns own mark minimum of -0.308100 occurred in the month March 2020, This possibility big caused exists phenomenon the Covid-19 outbreak that made part company No Can maintain price shares , and give impact many investors are hesitant to invest Because its height uncertainty expected return. Maximum value amounting to 0.203900 was recorded in November 2020, a phenomenon this happen because from beginning start The Covid -19 outbreak occurred in 2019 learning at the company cor Can stabilize return price the shares so that uncertainty returns already can minimized and capable attract investors to return invest. The mean value of 0.013608 shows trend mark excess returns from the company that became sample study is on point 0.013608 and standard deviation show variable data distribution excess returns is at 0.085888.

4.1.2. Test Assumptions Test

a. Normality test



Source: Data processed researchers, 2024

Picture. 3 Normality Test Result

Hypothesis :

H_0 = Normally distributed residuals

H_1 = Residual no normally distributed

Normality test needed for know normal data distribution or no. On research this is a normality test using the Jarque-Bera test (JB Test). Analysis results show that mark probability JB Test amounting to 0.088144. Data distribution is said to be normal if mark probability $> \alpha$, level significance used namely 5%. In the output results above probability value equal to $0.088144 > 0.05$, then H_0 accepted, H_1 rejected. This means the distribution of residual data used in research This is normal or fulfil assumption normality.

b. Multicollinearity Test

Table. 2 Multicollinearity Test Result

	Risk Premium	Size	Book to Market Ratio	Stock Price Volatility
Risk Premium	1.000000	0.354138	0.246459	-0.333442
Size	0.354138	1.000000	0.170247	-0.213939
Book to Market Ratio	0.246459	0.170247	1.000000	-0.268169

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Stock Price Volatility	-0.333442	-0.213939	-0.268169	1.000000
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Source: Data processed researchers , 2024

The multicollinearity test aims to know whether there is or is not a correlation between independent variables. According to Wiyono (2011) the study (Sadria, 2018) mention that in the multicollinearity test, if the mark correlation between variables exceeds the value of 0.90, then there is symptom multicollinearity. In a study, this is a multicollinearity test using matrix correlation if the mark correlation between variables exceeds the value of 0.90, then there is symptom multicollinearity. Based on results analysis all over independent variable in research this, value correlation between variable premium risk with size of 0.354138, value correlation between variable premium risk with book to market ratio of 0.246459, value correlation between variable premium risk with volatility price share of -0.333442, value correlation between variable size with book to market ratio of 0.170247, value correlation between variable size with volatility price share of -0.213939, value correlation between variable book to market ratio with volatility price share of -0.268169. Entire mark correlation between variable on own mark not enough of 0.90 then concluded free from symptom multicollinearity.

c. Heteroskedasticity Test

Table. 3 Heteroskedasticity Test Result

Heteroskedasticity Test Glejser

**Null hypothesis:
Homoskedasticity**

F-statistic	0.280957	Prob. F(4,43)	0.8887
Obs*R-squared	1.222555	Prob. Chi-Square(4)	0.8744
Scaled explained SS	1.273994	Prob. Chi-Square(4)	0.8658

Source : Data processed researchers , 2024

Hypothesis :

H_0 = No There is symptom heteroscedasticity

H_1 = Yes symptom heteroscedasticity

According to Wiyono (2011) in study (Sadria, 2018) state that heteroscedasticity test show exists inequality variant from residuals for all observations in the regression model. On research This testing heteroscedasticity use Glejser Test with results analysis Prob value. Chi-Square of Obs *R-squared is $0.8744 > 0.05$ so H_0 accepted, H_1 rejected. This means that the independent variable is free from heteroscedasticity or nature homoscedasticity.

d. Autocorrelation Test

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Table. 4 Autocorrelation Test Result

Breusch-Godfrey Serial Correlation LM Test			
Null hypothesis: No serial correlation at up 2 lags			
F-statistic	1.137.080	Prob. F(2,41)	0.3307
Obs*R-squared	2.522.514	Prob. Chi-Square(2)	0.2833

Source : Data processed researchers , use E-views 12 , 2024

Hypothesis :

H_0 = No There is problem autocorrelation

H_1 = There is a problem autocorrelation

An autocorrelation test is done to know if there is or no correlation between variables used in a study. Autocorrelation test in research uses the Breusch-Godfrey Serial Correlation LM Test. Autocorrelation test results in research This that is mark Prob.Chi -Square of Obs *R-square is $0.2833 > 0.05$ so H_0 accepted, H_1 rejected, which means this research is free from autocorrelation.

4.1.5. Analysis Multiple Linear Regression Result

Table. 5 Analysis Multiple Linear Regression Result

Dependent Variable: Y

Method: Least Squares

Date: 07/21/24 Time: 11:35

Sample: 2020M01 2023M12

Included observations: 48

Source :	Variable	Coefficient	Std. Error	t-Statistic	Prob.	Data
	C	-0.068498	0.113845	-0.601672	0.5508	
	X1	0.978475	0.061661	15.868580	0.0000	
	X2	0.016955	0.004790	3.539407	0.0010	
	X3	-0.001540	0.004399	-0.350050	0.7280	
	X4	0.023344	0.035332	0.660702	0.5123	

processed researchers , 2024

In figure 4.6 above show results equality multiple linear regression as following :

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$$R_i - R_f = -0,068498 + 0,978475 \cdot X_1 + 0,016955 \cdot X_2 - 0,001540 \cdot X_3 + 0,023344 \cdot X_4$$

Based on results equality regression that, then can explained that influence premium risk, proxied size with SMB, and volatility price share is positive to returns shares under research This proxied with excess return meanwhile proxied book to market ratio with HML no influential positive to returns share or excess returns.

Premium risk, proxied size with SMB, and volatility price share influential positive to returns proxied shares with excess return, shows that the more tall mark premium risk, size, and volatility price shares, then the more returns are also high shares that will obtained from registered company in share LQ45 Index on the Indonesian Stock Exchange for the 2020-2023 period. But matter this compare backwards with variable proxied book to market ratio with HML where variable this own connection negative to returns shares, which means the more big mark ratio book to market something company so will the more small returns shares that will obtained and increasingly small ratio book to market something company so will the more big returns shares that will obtained.

4.1.6. Hypotesis Test Result

a. T test (Partial)

Table. 6 T Test Result

Dependent Variable : Y

Method Least Squares

Date: 07/21/24 Time:
11:35

Sample: 2020M01
2023M12

Included Observations:
48

Variable	Coefficient	Std. Erro	t-Statistic	Prob.
C	-0.068498	0.113845	-0.601672	0.5506
X1	0.978475	0.061661	15.86858	0.0000
X2	0.016955	0.004790	3.539.407	0.0010
X3	-0.001540	0.004399	-0.350050	0.7280
X4	0.023344	0.035332	0.660702	0.5123

R-squared 0.895792 Mean dependent var 0.013608

Adjusted R-squared 0.886098 S.D. dependent var 0.085888

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S.E. of regression	0.028987	Akaike info criterion	-4.145638
Sum squared resid	0.036129	Schwarz criterion	-3.950721
Log likelihood	104.4953	Hannan-Quinn criter.	-4.071978
F-statistic	92.40916	Durbin-Watson stat	2.364498
Prob(F-statistic)	0.00000		

Source : Data processed researchers , 2024

Based on Picture 4.7 results analysis partially (t-test) shows that of the 4 independent variables, 3 independent variables have influence positive to variable stock returns or excess returns. Three of the independent variables are premium risk, size, and volatility price shares; the variable book-to-market ratio has No influential positive on stock returns or excess returns.

b. Coefficient Determination

Table. 7 Coefficient Determination Result

Dependent Variable : Y

Method Least Squares

Date: 07/21/24 Time:
11:35

Sample: 2020M01
2023M12

Included Observations:
48

Variable	Coefficient	Std. Erro	t-Statistic	Prob.
C	-0.068498	0.113845	-0.601672	0.5506
X1	0.978475	0.061661	15.86858	0.0000
X2	0.016955	0.004790	3.539.407	0.0010
X3	-0.001540	0.004399	-0.350050	0.7280
X4	0.023344	0.035332	0.660702	0.5123

R-squared	0.895792	Mean dependent var	0.013608
Adjusted R-squared	0.886098	S.D. dependent var	0.085888
S.E. of regression	0.028987	Akaike info criterion	-4.145638

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Sum squared resid	0.036129	Schwarz criterion	-3.950721
Log likelihood	104.4953	Hannan-Quinn criter.	-4.071978
F-statistic	92.40916	Durbin-Watson stat	2.364498
Prob(F-statistic)	0.00000		

Source : Data processed researchers , using E-views 12, 2024

Coefficient determination is one of the statistical value that can be used For measure how much far the model used For connect between variable dependent and independent in estimate equality regression. Based on Picture 4.8 is obtained coefficient test results determination (Adjusted R-square) of 0.88, This show that variable premium risk, size (SMB), book to market ratio (HML), and volatility price share capable explain influence to returns share amounting to 88.61% while the remaining 11.39% explained by other variables that are not used in the research model this. Variable other can form factor external as well as internal, namely momentum, profitability, and so on. Study This only using 4, 3 factors among them is factors formulated by Eugene Fama and Kenneth French (1992) viz premium risk, company size, and book to market ratio (BE /ME) as well as 1 factor others who become factor addition that is volatility price share.

Discussion

Previous research highlights the need to understand the strengths, weaknesses, and relevance of different models. The Capital Asset Pricing Model (CAPM), introduced by Sharpe (1964) and Lintner (1965), explains the relationship between systematic risk (beta) and the expected return of stocks. This model is simple and widely used, but it has been criticized for not considering other risk factors beyond beta. In contrast, the Arbitrage Pricing Theory (APT), developed by Ross (1976), adopts a multi-factor approach, allowing for the analysis of various influences such as inflation, interest rates, and specific industry risks. Previous studies indicate that CAPM is more relevant in stable and efficient market conditions, whereas APT performs better in dynamic and complex markets.

Empirical studies such as those by Black, Jensen, and Scholes (1972), support the use of beta in CAPM to predict stock returns. Fama and French (1992) found that beta alone is insufficient to explain return variations. Other factors such as firm size and the book-to-market ratio, have been shown to have significant influence. In the property sector CAPM often struggles to account for specific risks, such as changes in government policies or interest rate fluctuations, which are better captured by APT. Research by Chen, Roll, and Ross (1986) further reinforces APT's advantage by demonstrating that macroeconomic variables play a critical role in influencing stock returns although the implementation of APT requires careful selection of factors appropriate to specific markets.

Risk, firm size, and market volatility are essential aspects of investment analysis. CAPM focuses solely on systematic risk (beta), while APT incorporates non-systematic risks, which are often significant particularly in the property sector. Studies by Banz (1981) and Fama & French (1993) reveal that smaller firms tend to generate higher returns but also exhibit greater volatility. In the property sector, smaller firms are more vulnerable to macroeconomic risks. Market volatility also greatly impacts risk premiums. While CAPM does not explicitly account for this impact, APT is flexible enough to include volatility as one of its risk factors.

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Previous research concludes that CAPM is more suitable for simplified approaches in efficient markets, whereas APT is more relevant for analyzing dynamic and complex sectors such as property. CAPM offers simplicity in application but lacks the flexibility to address complex risk structures. Conversely APT provides a more in-depth analysis of various risk factors, albeit with greater data and analytical requirements. In property investment decisions, combining both models can offer a more comprehensive perspective. This analysis can be further strengthened by incorporating recent empirical data to test the relevance of risk factors in CAPM and APT, while also accounting for market volatility through approaches like Value at Risk (VAR).

Based on results analysis and discussion regarding “Development of the Multi-Factor CAPM Model with Enter Volatility As Factor Addition : Approach New in Asset Pricing (Study cases in companies listed on the Indonesian Stock Exchange into the LQ45 index for the period 2020-2023)”. Discussion more carry on about How test results of each independent variable against variable dependent will explained as following :

Influence Premium Risk to Stock returns

Based on results study in a way Partial premium risk influential significant to returns share. Research result This in accordance with stated hypothesis that premium risk influential positive to returns share.

Influence Firm Size against Stock Returns

Based on results research on listed companies in The LQ45 index for the 2020-2023 period shows that owning shares size company big produce more stock returns big compared to company that has more size small. Research result This in accordance with stated hypothesis that size company influential positive to returns share.

Influence Book to Market Ratio to Return share

Based on results research on listed companies in The LQ45 index in the 2020-2023 period shows results negative coefficient with mark probability > 0.05 which means that variable book to market ratio own opposite relationship direction with returns share. If ratio book to market experience increase so returns share will experience decrease, and if ratio book to market experience decline so returns share will experience increase.

Influence Stock Price Volatility towards Stock returns

Based on results study in a way Partial show that volatility price share influential positive No significant to returns share. This matter possibility caused Because changing regulations or uncertainty in policy government during the Covid-19 pandemic that can influence volatility price shares, but investors may see This as risk while others don't change prospect period long company, so stock returns No too significant affected by volatility price share.

The CAPM and APT are key components in evaluating potential returns and losses in stock investments. CAPM emphasizes systematic risk, measured by beta, which indicates the sensitivity of stock returns to overall market movements. However this approach excludes unsystematic risk or company-specific risks, which often play a significant role in certain sectors. APT offers a broader framework by considering multiple risk factors such as inflation, interest rates, and economic conditions. Meanwhile the VAR approach complements these models by focusing on downside risk, specifically the maximum potential loss over a specified period at a given confidence level.

Firm size is another critical factor in determining stock returns. Previous studies, such as Fama and French (1993) suggest that smaller firms tend to offer higher returns than larger firms, albeit with greater risk. In the property sector, smaller companies are often more susceptible to market changes, such as fluctuations in raw material prices or government policies. APT enables a deeper analysis of firm size as a risk factor, while VAR helps measure potential losses based on size. Typically, larger firms have lower VAR values due to greater diversification, compared to smaller firms that are more vulnerable to fluctuations.

Volatility in VAR premiums is also a crucial aspect of risk evaluation in investments. Volatility reflects the level of market uncertainty and impacts investors' expectations of returns and losses. In CAPM, volatility is captured through beta, which only represents risk related to overall market movements. In contrast, APT allows for a more detailed analysis of volatility risks by incorporating multiple factors affecting stock return fluctuations. Within the VAR framework, volatility premiums provide deeper insights into the likelihood of extreme losses, which is highly relevant in high-volatility sectors such as real estate. Fluctuations in this sector are often driven by changes in interest rates, government policies, or market demand dynamics, making VAR an essential tool for measuring and managing risk.

5. Conclusion

Based on analysis and discussion which has done in chapter previously has generated influence between all over independent variable, namely premium risk, size (SMB), book to market ratio (HML), and volatility price share to variable dependent that is stock returns in the research This proxied with excess return, then results research that has been done can concluded as following :

1. Variable premium risk own influence positive and significant to returns share companies listed on the Indonesian Stock Exchange in LQ45 Index for the 2020-2023 period
2. Variable size (market capitalization) of the company being proxied with small minus big (SMB) has an effect positive and significant to returns share companies listed on the Indonesian Stock Exchange in LQ45 Index for the 2020-2023 period
3. Variable proxied book to market ratio (BE/ME). with high minus low (HML) has an effect negative No significant to returns share companies listed on the Indonesian Stock Exchange in Index LQ45 for the 2020-2023 period
4. Variable volatility price share own influence positive but no significant.

5.2. Recommendation for Future Research

The title of this research is "Development of a multi-factor CAPM model by including volatility as an additional factor: a new approach in asset pricing", where the multi-factor CAPM model used in this research is the Fama and French 3 factor model which consists of 3 factors and Volatility which is used as an additional factor in this research is share price volatility. Suggestions for future researchers are to use the latest, more complete multi-factor CAPM model, such as the Fama and French 5 factor model or the more recent model, namely the Fama and French 7 factor model. The objects used in this research are companies listed on the Indonesia Stock Exchange which are included in the LQ45 Index. So that research into the development of this multi-factor CAPM model can be better reflected according to the industrial sector such as companies in the LQ45 Index in the infrastructure, utilities, and more sector in the LQ45 index.

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Key Drivers of Stock Price Movements: Financial and Economic Indicators in Unilever Indonesia (2014–2023)

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Article Information:

Received: November 19, 2024, Accepted: December 03, 2024, Published: December 05, 2024

Abstract

Multinational corporations are critical in ensuring financial market stability and boosting corporate performance, mainly through job creation and increased productivity. These contributions positively influence investor confidence and significantly impact stock market performance. As one of the leading multinational companies, PT Unilever contributes substantially to Indonesia's economic development. However, in recent years, PT Unilever has faced a notable decline in its stock prices. Such a decline can undermine investor trust, affecting the company's investment strategies. For this reason, examining factors that influence stock price movements, including financial ratios and macroeconomic variables, becomes essential. This research investigates the influence of financial ratios and macroeconomic indicators on PT Unilever Indonesia Tbk's stock price fluctuations in 2014–2023. The variables analyzed include the Current Ratio (CR), Earnings Per Share (EPS), inflation, interest rates, and Gross Domestic Product (GDP). Using secondary data and a multiple linear regression approach, the study reveals that EPS and inflation positively and significantly impact stock prices. At the same time, interest rates and GDP exhibit a negative and significant effect. On the other hand, the CR variable does not significantly affect stock price movements

Keywords: Financial Ratio, Macroeconomic, Stock Price

JEL CODES: G11, G12, G14

How to Cite:

Setiawati, R., Herlina, L (2024). Key Drivers of Stock Price Movements: Financial and Economic Indicators in Unilever Indonesia (2014–2023). *International Journal of Finance Research*, 5(4). 548 – 565. DOI: <https://doi.org/10.47747/ijfr.v5i4.2255>

1. Introduction

1.1 Background Of The Problem

PT. Unilever Indonesia Tbk is one of the largest multinational companies operating in the fast-moving consumer goods sector, especially in the primary consumer goods sector of the non-

durable household products sub-sector. Unilever has a very important role in supporting the progress of the FMCG sector and the Indonesian national economy. Unilever produces various types of consumer goods that have been distributed in several countries with a strong brand image. Increasing population growth should be able to increase profits for companies engaged in the FMCG sector, but based on data from the last few years, PT. Unilever has experienced sales stagnation and experienced a significant decline in stock price. If the company's profits decline or revenues do not meet market expectations, its stock price can be affected. Financial reports that show declining profits or stagnation in sales growth can reduce investor interest, which results in falling stock prices.



Figure 1 Operating Profit PT. Unilever Indonesia Tbk 2013-2023

Source: www.unilever.co.id (Data Processed 2024)

Based on Figure 1, it shows that PT. Unilever Indonesia's operating profit has experienced quite significant fluctuations and declines. It was recorded that starting in 2019, Unilever experienced a decline in profit from Rp. 12,279 to Rp. 10,121. In 2019 and continued to decline until 2023 reaching the lowest figure of Rp. 6,279. The continuous decline in profit indicates poor company performance which will have an impact on declining investor interest.

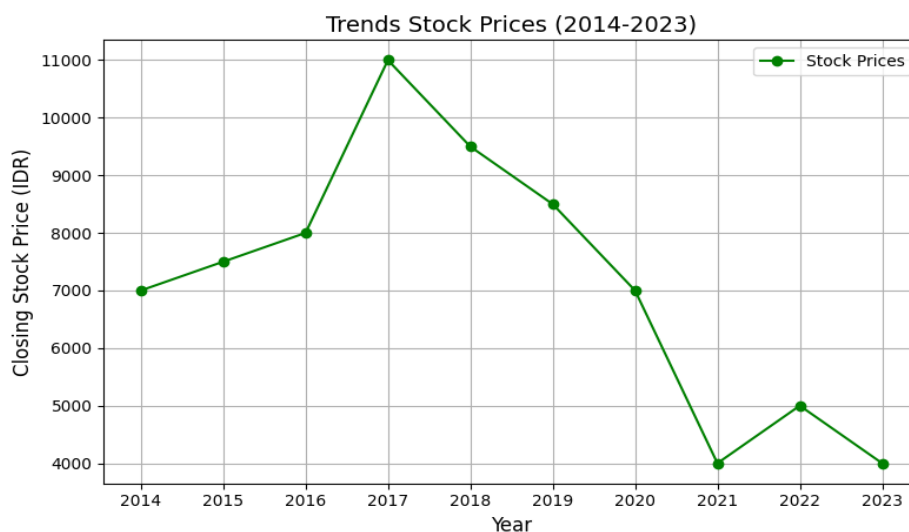


Figure 2 Closing Stock Price PT. Unilever Indonesia Tbk Period 2014-2023

Source: www.unilever.co.id (Data Processed 2024)

Figure 2 shows that PT. Unilever has experienced a significant decline in stock prices. It was recorded that in 2017 the price of PT Unilever shares reached its highest peak of IDR 11,180, but in 2018 the price of Unilever shares fell to IDR 9,080. This condition continued until 2021 where the price of Unilever shares reached IDR 4,110 at closing, although in 2022 the share price rose to IDR 4,700. In 2023, Unilever experienced a decline in share prices again and touched the lowest figure of IDR 3,530. This indicates poor company performance. If the company's condition continues to decline and the stock price falls periodically, the company will experience a decline in profits resulting in losses for the company. If this condition continues, PT. Unilever will have difficulty getting investors. In addition to these problems, this can affect the Stock Price considering that PT. Unilever Indonesia is one of the large companies engaged in the FMCG sector and has high employment prospects, so if the company's condition continues to worsen, there is a possibility for the company to reduce the number of workers. Reducing the number of workers will increase unemployment in Indonesia which will have an impact on macroeconomic conditions. The higher the unemployment rate, the lower people's purchasing power will be, this will affect the decline in stock prices due to a decrease in sales.

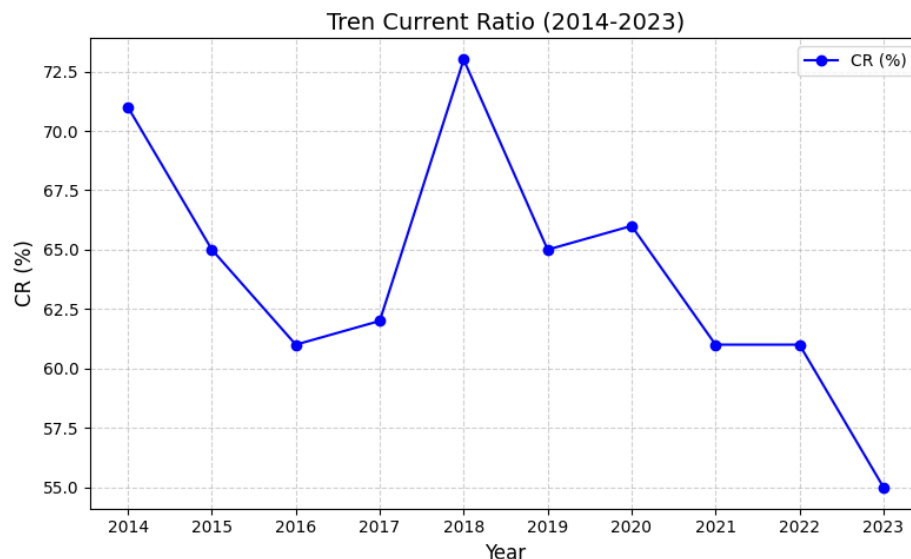


Figure 3 Current Ratio PT. Unilever Indonesia Tbk 2014-2023

Source: www.unilever.co.id (Data Processed 2024)

Based on Figure 3, the Current Ratio value of PT. Unilever Indonesia is below the minimum current ratio standard of industry. This shows that the financial performance of PT. Unilever Indonesia based on the Current Ratio is considered not good. In 2014, the Current Ratio value was at 71% and continued to decline until 2017 to 62%. Although in 2018 the Current Ratio value of PT. Unilever increased to 73%, but this did not last long because the Current Ratio value decreased again since 2019 to reach the lowest percentage in 2023, which was 55%.

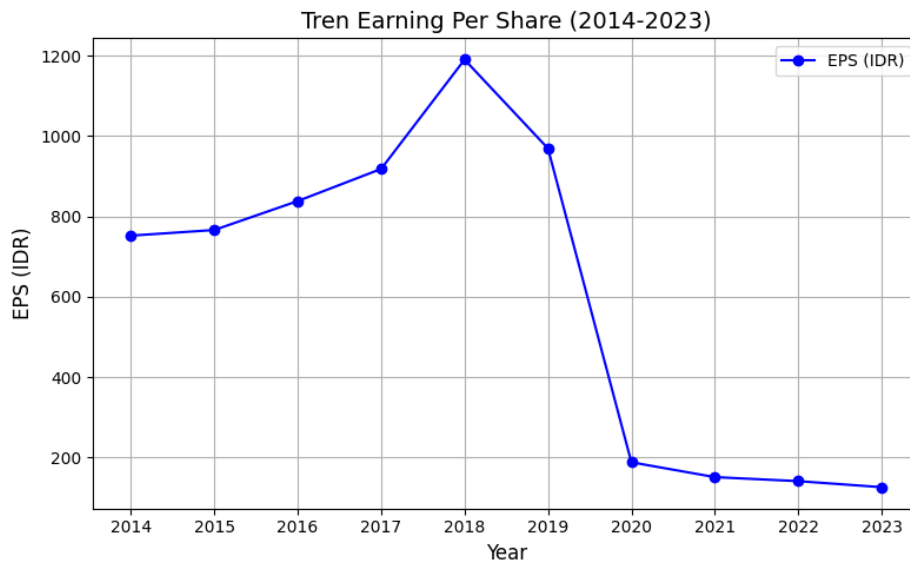


Figure 4 Earning Per Share PT. Unilever Indonesia Tbk 2014-2023

Source: www.unilever.co.id (Data Processed 2024)

In Figure 4 we can see that in 2014-2018, earnings per share at Unilever experienced a fairly good increase to reach the highest figure in 2018, which was IDR 1,190. However, PT. Unilever experienced a decrease in the value of earnings per share of IDR 221 per share in 2019. Then in 2020 Unilever also experienced a very significant decrease in EPS value, which was IDR 781 per share, so the EPS value distributed in that year was only IDR 188 per share. Since then, the condition of the Unilever company has continued to experience a decrease in EPS value until the end of 2023 reaching IDR 126 per share. This condition is certainly very concerning and not very profitable for investors. This decrease in EPS value can cause a decrease in investor confidence in the company

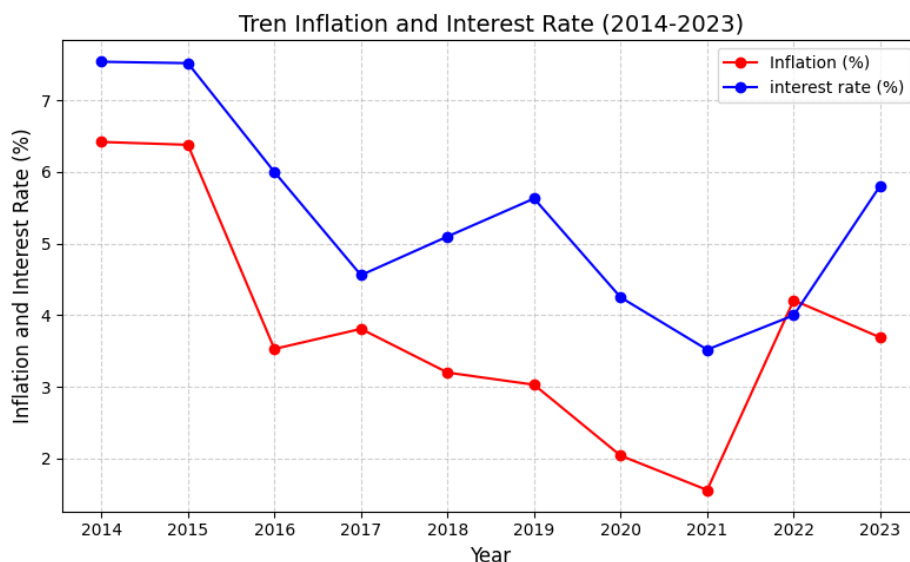


Figure 5 Inflation and Interest Rate in Indonesia 2014-2023

Source: www.bi.go.id & www.bps.go.id (Data Processed 2024)

Based on Figure 5, the inflation trend tends to decline from 2014 by 6.42% to reach its lowest point of 1.56% in 2021. This declining shows success in controlling inflation, which reflects

good price stability in the country's economy. However, in 2022, Indonesia experienced an increase in inflation and touched 4.21% based on data from Bank Indonesia, this was caused by an increase in fuel prices, tax rates, and production costs. However, in 2023 the inflation rate fell again to 3.69%, the decrease in inflation was caused by an increase in interest rates.

Figure 5 also shows the trend of interest rates in Indonesia based on these data, the interest rate trend has decreased from 2014, which was 7.54% to 2017 reaching 4.56% following the inflation trend. Then in 2018-2019, the interest rate rise again, this was thought to be used to anticipate an increase in inflation. In the period of 2020–2021, the government implemented further interest rate reductions as a strategic measure to promote economic stabilization in the aftermath of the COVID-19 pandemic. Subsequently, in 2022–2023, interest rates were raised to manage rising inflation driven by increases in fuel prices (BMM), tax rates, and production costs.

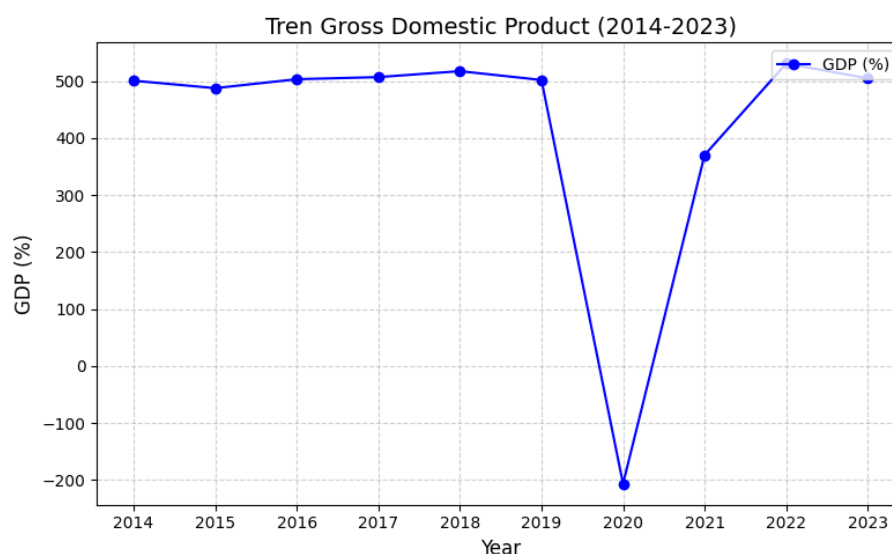


Figure 6 Gross Domestic Product Indonesia 2014-2023

Source: www.worldbank.org (Data Processed 2024)

Based on Figure 6, the growth of Gross Domestic Product in the 2014-2019 period tended to be stable, this shows that economic activity in Indonesia is running well and is supported by fairly strong price stability. However, in 2020, GDP in Indonesia experienced a significant decline reaching -207%. The decline in GDP in Indonesia was caused by various factors, but the main factor that caused the decline in GDP in 2020 was the COVID-19 Pandemic. The pandemic triggered social restrictions and the implementation of lockdown policies, which had a direct impact on the paralysis of economic activity. Social restriction policies disrupted the global supply chain, hampering production and reducing the level of public consumption which contributed to the decline in GDP. In 2021, Indonesia again recorded GDP growth of 370%. The increase in GDP value reflects the recovery of economic conditions after the COVID-19 pandemic. Economic recovery continued until 2022 and the GDP value in Indonesia was recorded to have increased again to 531%. However, in 2023, Indonesia's GDP decreased to 505%.

2. Literature Review

2.1 Stock Price

According to Damodaran (2012), the concept of stock price is a price determined by market

players in the stock market based on a certain period of time. Additionally, Brigham & Ehrhardt (2021) in *Financial Management: Theory & Practice* explain that stock prices are influenced by investors' expectations about future earnings and the overall supply and demand mechanism of the capital market

According to Damodaran (2012), stock price fluctuations are influenced by internal and external factors. Internal factors that influence stock prices include company fundamentals, corporate actions of the company and projections of future company performance. While external factors are influenced by fundamental macroeconomic conditions, exchange rate fluctuations, government statements and policies, panic factors and market manipulation

2.2 Current Ratio

According to Gitman (2015), the Current Ratio is a financial metric that gauges a company's liquidity by comparing its total assets to its current liabilities. Jaya et al. (2023) suggest that a company's financial performance is considered favorable if its Current Ratio exceeds 2, or 200%, indicating that for every Rp. 1 of current liabilities, there are Rp. 2 in current assets available to cover them. Gitman (2015) also outlines specific indicators related to the Current Ratio is:

$$\text{Current Ratio} : \frac{\text{Asset Lancar (Current Asset)}}{\text{Liabilitas Lancar (current Liability)}}$$

According to Sa'adah (2020), a higher Current Ratio reflects a company's ability to settle its short-term debts, with a high ratio suggesting better collateral for these debts. However, if the ratio becomes excessively high, it could negatively impact earnings potential, as not all working capital can be fully utilized.

Research by Ristiya, et al. (2024) found that the Current Ratio has a significant partial effect on stock prices. Similarly, studies by Novaldin, et al. (2020), Sandrina, et al. (2023), and Mayasari, et al. (2024) also highlighted the significant impact of the Current Ratio on stock prices.

2.3 Earning Per Share

According to Brealey (2020), Earnings Per Share (EPS) refers to the portion of a company's profit allocated to each outstanding share of common stock. EPS is an important indicator of profitability for shareholders. Brealey (2020) also provides the formula for calculating EPS is:

$$\text{Earning Per Share} = \frac{\text{Net Income}}{\text{Number Of Outsanding Share}}$$

Budiman (2017) states that a lower EPS typically indicates a lower stock price for the company. In contrast, a higher EPS usually leads to an increase in the company's stock price. This finding is supported by research conducted by Mustaffa, et al., (2021), which demonstrated a significant impact of EPS on stock prices. Additional studies by Risyaflī, et al., (2021), Satria, et al., (2022), and Ardillah, et al., (2024) also confirm that EPS has a notable influence on stock prices.

2.4 Inflation

According to Astuti et al. (2023), inflation refers to a sustained and significant rise in the general price levels of goods and services within an economy over time. Waluyo (2019)

describes inflation as a common economic issue in many countries, where prices of goods and services tend to rise consistently. Wahyudi (2019) identifies three macroeconomic indicators for measuring inflation: the consumer price index, the trade price index, and the GNP deflator. He explains that inflation can be measured using the Consumer Price Index (CPI), which reflects the price level of goods and services purchased by consumers over a specific period. The CPI is calculated by assessing the prices of goods and services consumed by the population during that period. Manurung, cited in Wahyudi (2019), provides a formula for calculating CPI in relation to inflation:

$$\text{Inflation} = \frac{IHK - IHK_{-1}}{IHK} \times 100\%$$

Tandelilin, as cited by Kurniawan (2019), states that inflation can impact a company's revenues and expenses. If the rise in production costs exceeds the increase in selling prices, the company's profitability will decrease, which generally has a negative effect on the stock market. On the other hand, if production costs increase less than selling prices, profitability will rise, making low inflation positively related to the stock market. This viewpoint is reinforced by research from Nurasilah, et al. (2019), which found that inflation has a significant positive effect on stock prices.

2.5 Interest Rate

According to Bank Indonesia, the interest rate, also known as the BI rate, is a benchmark interest rate set by the central bank as part of its monetary policy. This rate is used by Bank Indonesia to manage inflation and maintain economic stability. Mankiw, as cited in Nginang (2020), explains that interest rates can be categorized into nominal and real interest rates. The nominal interest rate is the observed market rate, which is the rate charged by banks without considering inflation. In contrast, the real interest rate adjusts for inflation, reflecting the actual rate of return and demonstrating an increase in purchasing power. Mishkin (2017) describes the Fisher Effect Theory and provides a formula for calculating the real interest rate is:

$$i_r = i - \pi^e$$

Description:

i = Nominal Interest Rate

i_r = Real Interest Rate

π^e =inflation rate

Moorcy, et al. (2021) state that an increase in interest rates raises the financial burden on companies (issuers), which can lead to a decline in stock prices. This situation may also prompt investors to shift their investments to the money market or place their funds in savings or deposit accounts to earn higher returns. This finding aligns with research by Herlina and Nugroho (2023), which shows that interest rates, or BI rates, have a significant negative impact on stock prices. Conversely, Ilyas (2022) found that interest rates have a positive effect on stock prices.

2.6 Gross Domestic Product

According to Astuti et al. (2023), Gross Domestic Product (GDP) represents the total value of goods and services produced by a country within a specific period, and it serves as a key indicator of economic growth. Positive growth in GDP signifies an increase in the country's

economic output. Mankiw (2022) further explains that the overall GDP, referred to as Real GDP, can be calculated using a specific formula is:

$$GDP\ Rill = \frac{GDP\ Nominal}{Deflator\ GDP}$$

Istinganah and Hartiyah (2021) suggest that GDP growth reflects an improvement in the economic conditions of the population, leading to increased purchasing power. This rise in purchasing power boosts company sales, which enhances company performance and leads to higher stock prices. The growth in stock prices resulting from GDP growth is expected to positively impact the Jakarta Composite Index (IHSG) on the Stock Exchange. Eldomiaty, Saeed, et al. (2018) explain that while GDP growth generally signals strong economic performance, a significant increase in GDP can also lead to inflationary pressures, as higher demand can drive up the prices of goods and services. To counteract inflation, central banks often raise interest rates, which in turn makes bonds more attractive than stocks due to their more stable returns and lower risk. This shift in investment preference can reduce demand for stocks and potentially lower stock prices. From the studies of Istinganah and Eldomiaty, it can be concluded that GDP growth can have both positive and negative effects on stock prices. In some cases, it may lead to a decrease in stock prices, while in other instances, it may result in an increase, depending on the specific circumstances of the companies involved. Research by Herlina and Nugroho (2023) supports the view that GDP has a positive influence on stock prices.

3. Research Method

The research method employed in this study is quantitative, utilizing both descriptive and verification approaches. Descriptive analysis is applied to address questions concerning the current ratio, Earnings Per Share (EPS), inflation, interest rates, Gross Domestic Product (GDP), and stock prices of PT. Unilever Indonesia Tbk for the period of 2014-2023. Verification analysis is used to examine the relationships between the current ratio, EPS, inflation, interest rates, and GDP with the stock price of PT. Unilever Indonesia Tbk during the same period. As part of the verification process, the researcher will perform classical assumption tests to ensure that the linear regression model used fulfills specific conditions, thereby ensuring the validity and unbiased nature of the estimation results. The classical assumption tests conducted include the Normality Test, Multicollinearity Test, Heteroscedasticity Test, and Autocorrelation Test.

3.1 Data Collection Technique

1. Documentation

According to Sudaryo (2016), documentation is a method used to gather direct data from the research site, which includes relevant books, regulations, activity reports, photographs, documentary films, and other pertinent information. In this study, the documentation technique involved collecting annual reports of PT. Unilever Indonesia Tbk for the period of 2014-2023 from the company's official website, www.unilever.co.id, to obtain internal company data. Additionally, inflation data for the same period was collected from the official Bank Indonesia website, www.bi.go.id. Interest rate data was gathered from the Central Statistics Agency's official website, www.bps.co.id, and Gross Domestic Product (GDP) documents were accessed through the official global website, www.worldbank.org.

2. Data Obtained

Table 1. Data Obtained

CR (%)	EPS (IDR)	INFLATION (%)	INTEREST RATE (%)	GDP (%)	STOCK PRICE (IDR)
0.71	752	0.06	0.08	5.01	6460
0.65	766	0.06	0.08	4.88	7400
0.61	838	0.04	0.06	5.03	7760
0.62	918	0.04	0.05	5.07	11180
0.73	1190	0.03	0.05	5.17	9080
0.65	969	0.03	0.06	5.02	8400
0.66	188	0.02	0.04	-2.07	7350
0.61	151	0.02	0.04	3.70	4110
0.61	141	0.04	0.04	5.31	4700
0.55	126	0.04	0.06	5.05	3530

Source: Data Processed 2024

3.2 Operational Variable

Table 2. Operational Variable

No	Variable	Variable Concept	Indicator	Measurement	Scale
1	Stock Price (Y)	Stock price is defined as the price in the real market, and it is the easiest to determine as it reflects the ongoing stock market price or, if the market is closed, the closing price	Closing Price	Rp	Ratio
2	Current Ratio (X1)	Current ratio measures the company's liquidity level, calculated by dividing the company's current assets by current liabilities.	$CR : \frac{Current Asset}{Current Liabilities}$	%	Ratio
3	Earning Per Share (X2)	Earnings Per Share (EPS) is a ratio used by companies to measure the amount of dividends received by shareholders per share owned.	$EPS: \frac{Laba Bersih}{Jumlah Saham Beredar}$	Rp	Ratio
4	Inflasi (X3)	Inflation is a condition where the general price level of goods and services in the economy increases continuously and significantly over time	$inflasi: \frac{IHK - IHK_{-1}}{IHK} \times 100\%$	%	Ratio
5	Suku Bunga (X4)	According to Bank Indonesia, the interest rate or BI rate is the reference interest rate set by Bank Indonesia as part of its monetary policy. BI rate is used by Bank Indonesia to control inflation and economic stability.	$i_r = i - \pi^e$	%	Ratio
6	PDB (X5)	Gross Domestic Product (GDP) is the value of all goods and services produced in a country	$GDP Rill: \frac{GDP Nominal}{Deflator GDP}$	%	Ratio

No	Variable	Variable Concept	Indicator	Measurement	Scale
		over a specific period. GDP is used as the main measure of economic growth. Positive GDP growth indicates an increase in economic production.			

3.2 Hypothesis Development

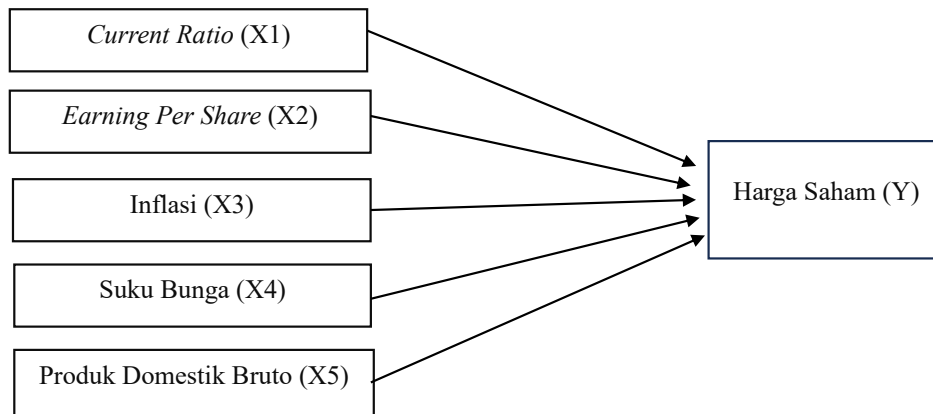


Figure 7 Research Model

Source: Data Processed 2024

4. Findings and Discussions

4.1 Descriptive Statistic

Table 3 Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
CR	10	.55	.73	.6400	.05249
EPS	10	126.00	1190.00	603.9000	408.14470
INFLATION	10	.02	.06	.0380	.01398
INTEREST RATE	10	.04	.08	.0560	.01506
GDP	10	-2.07	5.31	4.2170	2.25320
STOCK PRICE	10	3530.00	11180.00	6997.0000	2370.96816
Valid N (listwise)	10				

Source: Data Processed 2024

According to the results of the descriptive analysis in Table 3, the CR variable has a minimum value of 0.55, a maximum value of 0.73, an average of 0.64, and a standard deviation of 0.052. The EPS variable shows a minimum of Rp.126, a maximum of Rp.1190, an average of Rp.603.9, and a standard deviation of 408.14. The inflation variable has a minimum value of 0.02, a maximum of 0.06, an average of 0.038, and a standard deviation of 0.015. For the interest rate variable, the minimum value is 0.04, the maximum value is 0.08, the average is 0.056, and the standard deviation is 0.015. The GDP variable shows a minimum of -2.07, a maximum of 5.31, an average of 4.21, and a standard deviation of 2.25. Lastly, the stock price variable has a minimum value of Rp.3530, a maximum value of Rp.11,180, an average of Rp.6,997, and a standard deviation of 2370.9. The standard deviation values of all variables are

lower than their respective average values, suggesting that the data is relatively homogeneous and exhibits low variability.

4.2 Verificative Analysis

4.2.1 Classical Assumption Test

4.2.1.1 Normality Test

Table 4 Normality Test One-Sample Kolmogorov-Smirnov Test All Variable

One-Sample Kolmogorov-Smirnov Test			CR	EPS	INFLATION	INTER EST_ RATE	GDP	Stock Price	
N			10	10	10	10	10	10	
Normal Parameters ^{a,b}	Mean		.6400	603.9000	.0380	.0560	4.2170	6997.0000	
	Std. Deviation		.05249	408.1447 0	.01398	.01506	2.25320	2370.96816	
Most Extreme Differences	Absolute		.184	.246	.243	.195	.416	.159	
	Positive		.152	.246	.243	.195	.314	.134	
	Negative		-.184	-.242	-.157	-.145	-.416	-.159	
Test Statistic			.184	.246	.243	.195	.416	.159	
Asymp. Sig. (2-tailed)			.200 ^{c,d}	.088 ^c	.096 ^c	.200 ^{c,d}	.000 ^c	.200 ^{c,d}	
Monte Carlo Sig. (2-Sig. tailed)			.823 ^e	.505 ^e	.516 ^c	.769 ^e	.044 ^e	.926 ^c	
99% Confidence Interval			Lower Bound	.813	.492	.504	.758	.039	.919
			Upper Bound	.833	.517	.529	.780	.049	.933

Source: Data Processed 2024

Based on the results of the Kolmogorov-Smirnov Monte Carlo normality test in Table 4, the variables CR, EPS, Inflation, Interest Rate, and Stock Price all have significance values greater than 0.05, indicating that the data for these variables are normally distributed. However, the GDP variable shows a significance value of 0.044, indicating that the data does not follow a normal distribution. This result can be attributed to the economic contraction in 2020, which was caused by a decline in negative GDP growth.

Table 5 Normality Test One-Sample Kolmogorov-Smirnov Test Unstandardize Residual

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		10
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	489.97191800
Most Extreme Differences	Absolute	.147
	Positive	.144
	Negative	-.147
Test Statistic		.147
Asymp. Sig. (2-tailed)		.200 ^{c,d}

Source: Data Processed 2024

Even though the GDP data indicates a non-normal distribution, the Unstandardized Residual statistical values from the overall regression process show a normal distribution. As shown in

Table 5, the significance value of the Unstandardized Residual, based on the Kolmogorov-Smirnov test, is 0.200, which is greater than 0.05. This suggests that, overall, the data follows a normal distribution.

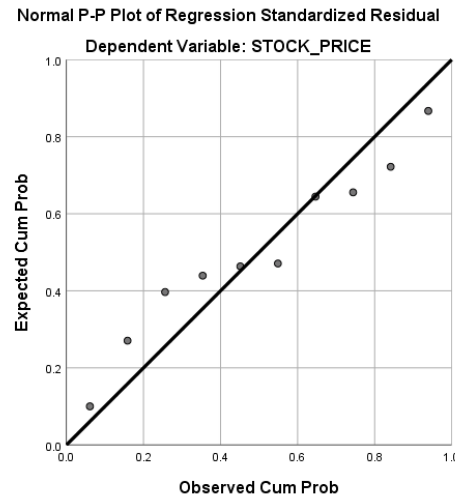


Figure 8 Normal Plot

Source: Data Processed 2024

Based on Figure 8 the test results using the P-P Plot graph, it can be seen that the data distribution is around the diagonal line, so this shows that the data is normally distributed.

4.2.1.2 Multicollinearity Test

Table 6 Multicollinearity Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	18287.856	4399.263		4.157	.014		
	CR	-17536.491	6953.788	-.388	-2.522	.065	.450	2.220
	EPS	8.563	1.043	1.474	8.212	.001	.331	3.018
	INFLATION	116166.243	39458.252	.685	2.944	.042	.197	5.073
	INTEREST_RATE	-118062.156	35444.817	-.750	-3.331	.029	.211	4.745
	GDP	-721.273	164.731	-.685	-4.378	.012	.436	2.295

Source: Data Processed 2024

Based on table 6, the tolerance value of the CR variable is 0.450, EPS is 0.331, Inflation is 0.127, Interest Rate is 0.211, and GDP is 0.436. All results are greater than 0.10. While the VIF value of the CR variable is 2.220, EPS is 3.018, Inflation is 5.073, Interest Rate is 4.745, and GDP is 2.295. All results are less than 10.00. So it can be concluded that there is no multicollinearity.

4.2.1.3 Heteroskedastisity Test

Table 7 Heteroskedastisity Test

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2778.012	1517.974		1.830	.141
	CR	-3786.566	2399.418	-.650	-1.578	.190
	EPS	.900	.360	1.202	2.503	.067
	INFLATION	5919.469	13615.146	.271	.435	.686
	INTEREST_RATE	-12571.121	12230.303	-.619	-1.028	.362
	GDP	-13.307	56.841	-.098	-.234	.826

Source: Data Processed 2024

Based on the results of the Glaser test in Table 7, the significance values for the CR variable are 0.190, EPS is 0.067, Inflation is 0.686, Interest Rate is 0.362, and GDP is 0.826. Since all of these significance values are greater than 0.05, it can be concluded that there is no heteroscedasticity in the regression model used.

4.2.1.4 Autocorrelation Test

Table 8 Autocorrelation Test

Runs Test

	Unstandardized Residual
Test Value ^a	-60.59505
Cases < Test Value	5
Cases >= Test Value	5
Total Cases	10
Number of Runs	8
Z	1.006
Asymp. Sig. (2-tailed)	.314

Source: Data Processed 2024

According to the results of the run test in Table 5, the asymp. Sig (2-tailed) value is 0.314, which is greater than 0.05. This indicates that there is no autocorrelation present in the data.

4.2.2 Multiple Regression Analysis

The regression equation obtained from Table 6 is:

$$Y = 18287.856 + (-17536.491X_1) + 8.563X_2 + 116166.243X_3 + (-118062.156X_4) + (-721.273X_5)$$

The interpretation of the regression results can be summarized as follows:

1. The constant value is 18287.856, which indicates that if all independent variables are held constant, the stock price will remain at 18287.856, both before and after any changes to the independent variables.

2. The coefficient for the Current Ratio (CR) variable is -17536.491, meaning that a 1-unit increase in the CR variable, with other variables held constant, will result in a decrease in stock price by 17536.491.
3. The coefficient for the Earnings Per Share (EPS) variable is 8.563. This indicates that if the EPS variable increases by 1 unit, with all other variables constant, the stock price will rise by 8.563.
4. The coefficient for the Inflation variable is 116166.243, meaning that a 1-unit increase in inflation, with other variables held constant, will lead to an increase in stock price by 116166.243.
5. The coefficient for the Interest Rate variable is -118062.156. This means that a 1-unit increase in the Interest Rate, with other factors constant, will result in a decrease in stock price by 118062.156.
6. The coefficient for the Gross Domestic Product (GDP) variable is -721.273, meaning that a 1-unit increase in GDP, with other variables constant, will decrease the stock price by 721.273

4.2.3 Hipotesis and Testing Result

4.2.3.1 Result t test (Partial)

Based on the findings in Table 6, the following conclusions can be made:

1. The calculated t-value for the Current Ratio variable is -2.522, which is smaller than the t-table value of 2.776. With a significance value of 0.065, which is greater than the α value of 0.05 (or $6.5\% > 5\%$), it can be concluded that H_0 is accepted and H_1 is rejected. This indicates that the Current Ratio does not have a significant partial effect on stock prices.
2. The t-value for the Earnings Per Share (EPS) variable is 8.212, which is greater than the t-table value of 2.776. With a significance value of 0.001, which is less than $\alpha = 0.05$ (or $0.1\% < 5\%$), it can be concluded that H_2 is accepted and H_0 is rejected. This means that EPS has a positive and significant partial effect on stock prices.
3. The t-value for the inflation variable is 2.994, which is greater than the t-table value of 2.776. With a significance value of 0.042, which is less than $\alpha = 0.05$ (or $4.2\% < 5\%$), it can be concluded that H_3 is accepted and H_0 is rejected. This suggests that inflation has a positive and significant partial effect on stock prices.
4. The t-value for the Interest Rate variable is -3.331, which is smaller than the t-table value of 2.776. With a significance value of 0.029, which is less than $\alpha = 0.05$ (or $2.9\% < 5\%$), it can be concluded that the Interest Rate has a significant negative partial effect on stock prices.
5. The calculated t-value for the Gross Domestic Product (GDP) variable is -4.378, which is smaller than the t-table value of 2.776. With a significance value of 0.012, which is less than $\alpha = 0.05$ (or $1.2\% < 5\%$), it can be concluded that the GDP variable has a significant negative partial effect on stock prices.

4.2.3.2 Result F test (Simultan)

Table 9 Simultan Tes

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48432757.676	5	9686551.535	17.933	.008 ^b
	Residual	2160652.324	4	540163.081		
	Total	50593410.000	9			

a. Dependent Variable: STOCK PRICE

b. Predictors: (Constant), GDP, CR, INTEREST_RATE, EPS, INFLATION

Source: Data Processed 2024

Based on the results in Table 9, the calculated F-value is 17.933, which exceeds the F-table value of 6.26, with a significance value of 0.008, which is less than $\alpha = 0.05$. This indicates that the variables Current Ratio, Earnings Per Share, Inflation, Interest Rates, and Gross Domestic Product have a simultan positive impact on stock prices.

Table 10 Coefficient Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.978 ^a	.957	.904	734.95788	3.236

a. Predictors: (Constant), GDP, CR, INTEREST_RATE, EPS, INFLATION

b. Dependent Variable: STOCK PRICE

Source: Data Processed 2024

Based on the results in Table 10, the R Square value of 0.957 indicates that the combined effect of the variables Current Ratio, Earnings Per Share, Inflation, Interest Rates, and Gross Domestic Product accounts for 95.7% of the variation in stock prices.

4.2 Discussion

Based on the analysis above, we can see that:

1. The current ratio does not have a significant impact on stock prices, which contradicts previous studies by Ristiya et al. (2024), Novaldin et al. (2020), Sandrina et al. (2023), and Mayasari et al. (2024), which indicated that the current ratio affects stock prices.
2. Earning Per Share (EPS) has a positive and significant impact on stock prices. This aligns with the findings of previous studies by Mustaffa et al. (2021), Risyafli et al. (2021), Satria et al. (2022), and Ardillah et al. (2024), which concluded that EPS positively and significantly influences stock prices.
3. Inflation has a positive and significant effect on stock prices. As inflation rises, PT. Unilever's stock price increases. This can be attributed to the fact that PT. Unilever operates in the FMCG sector, where demand for essential consumer goods remains stable even during inflationary periods, ensuring continued profitability. These findings are consistent with research by Nurasilah, Yudhawati et al. (2019), which found that inflation positively affects stock prices.
4. Interest rates have a negative and significant impact on stock prices. When interest rates rise, stock prices tend to decline. Higher interest rates make other investment vehicles, such as bonds, more appealing due to their more stable returns and lower risks, leading many investors to shift their funds, causing stock prices to fall. This is supported by the research of Herlina & Nugroho (2023), which showed a negative an signifikan relationship between interest rates and stock prices.
5. GDP has a negative and significant impact on stock prices. As GDP increases, stock prices tend to decline. This is due to the rising demand for consumer goods, which leads to higher prices and prompts the central bank to raise interest rates to curb inflation. Higher interest rates make bonds more attractive compared to stocks, causing a shift in investment flows and a reduction in stock prices. This finding contrasts with the research of Herlina & Nugroho (2023), who found a positive and signifikan relationship between GDP and stock

prices.

5. Conclusion

1. Current Ratio does not demonstrate a significant effect on stock prices. This suggests that a company's ability to fulfill its short-term obligations does not directly influence investors' perceptions of stock value. In other words, liquidity is not a primary factor for investors when evaluating potential returns or risks associated with an investment. This finding contrasts with prior studies that have identified a significant correlation between the Current Ratio and stock prices.
2. Earning Per Share (EPS) has a positive and significant influence on stock prices. High EPS indicates strong company performance, which in turn enhances shareholder profit potential. As a result, EPS is recognized as a critical fundamental indicator that attracts investor interest, as it highlights the company's capacity to generate earnings on a per-share basis.
3. Inflation has a positive and significant impact on stock prices, particularly in companies operating in the fast-moving consumer goods (FMCG) sector, such as PT Unilever. This outcome is attributed to the relatively consistent demand for consumer goods, even amidst rising prices driven by inflation. The steady demand enables companies in this sector to maintain profitability, ultimately contributing to an increase in stock prices.
4. Interest rates exhibit a negative and significant effect on stock prices. Rising interest rates often shift investor preference towards alternative investment options, such as bonds, which provide more stable returns with lower risk. This shift reduces the demand for stocks, which consequently leads to a decline in stock prices.
5. Gross Domestic Product (GDP) has a negative and significant impact on stock prices. This phenomenon is likely due to the fact that an increase in GDP is frequently accompanied by rising inflation and interest rates, which influence investment preferences. Higher interest rates make low-risk instruments, such as bonds, more appealing compared to stocks. This results in reduced capital flow into the stock market, leading to a decline in stock prices.
6. Current ratio, earnings per share, inflation, interest rates and gross domestic product as a whole have a significant influence on stock prices.

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Analysis of Financial Distress and Bankruptcy Using the Altman Z-Score Method on the Indonesia Stock Exchange (IDX) in 2020 - 2022

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Article Information:

Received: November 30, 2024; Accepted: December 05, 2024; Published: December 07, 2024

Abstract

This research analyzes financial distress and bankruptcy using the Altman Z-Score method and its influence on share prices in construction service companies listed on the Indonesia Stock Exchange (IDX) for 2020 - 2022. The variables tested in this research consist of working capital to total assets, retained earnings to total assets, earnings before interest and tax to total assets, market value of equity to book value of debt, sales to total assets as independent variables, and share prices as dependent variables. The population in this research is construction services companies listed on the Indonesia Stock Exchange for 2020 - 2022. The sampling technique used in this research is purposive sampling, and a sample of 63 data from 21 construction services companies listed on the Indonesia Stock Exchange in 2020-2022 that meet specific criteria was obtained. The data analysis technique used in the research is panel data regression analysis and classical assumption testing using EViews version 13 statistical software. This research shows that in 2020, 18 construction service companies were in the distress zone and 3 companies were in the gray zone. In 2021, 17 construction service companies will be in the distress zone and 4 in the gray zone. In 2022, 17 construction service companies will be in the distress zone and 4 in the gray zone. The earnings before interest and tax to total assets have a significant effect and positive relationship with share prices. Working capital to total assets, retained earnings to total assets market value of equity to book value of debt, and sales to total assets do not have a significant effect and have a negative relationship to stock prices.

Keywords: Financial Distress, Stock Price, Altman Z-Score

JEL Codes: G01, G32, G33.

How to Cite:

Irwanto, M. E., Rodoni, A., Riniawati, R. (2024). Analysis of Financial Distress and Bankruptcy Using the Altman Z-Score Method on the Indonesia Stock Exchange (IDX) in 2020 - 2022. *International Journal of Finance Research*, 5(4). 587 - 602. DOI: <https://doi.org/10.47747/ijfr.v5i4.2463>

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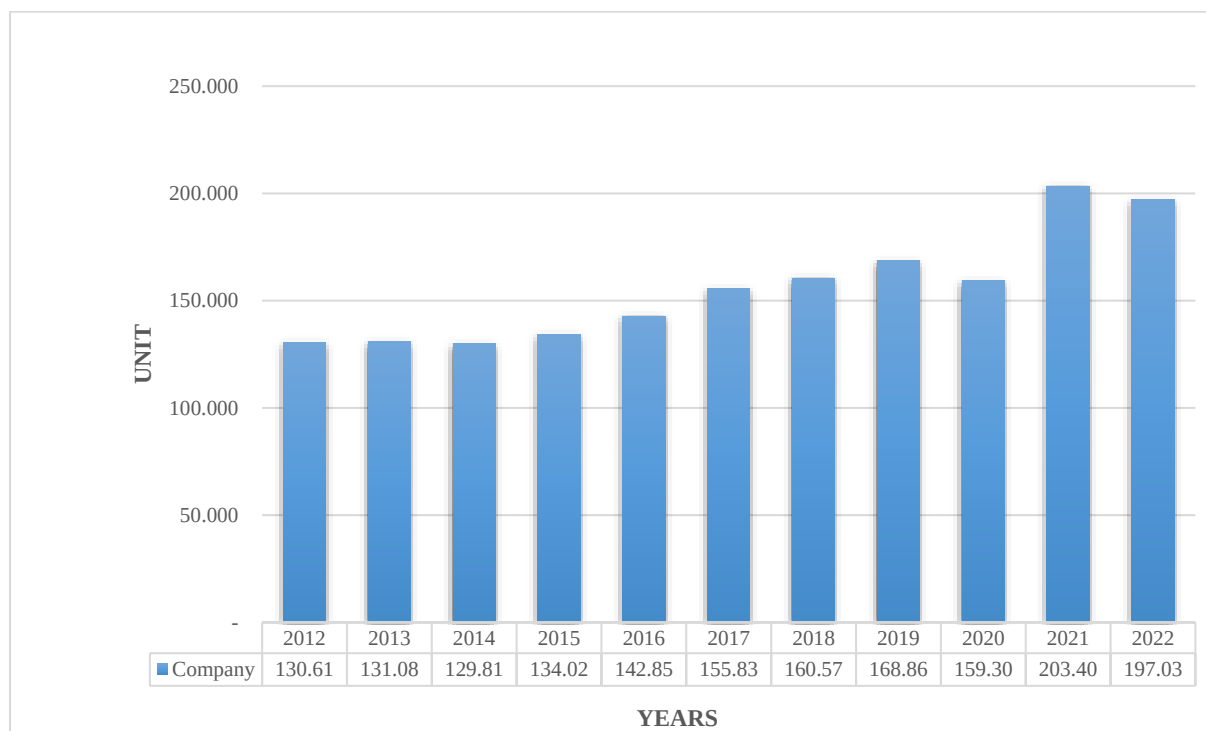
1. Introduction

The infrastructure sector is a sector that in recent years has become the focus of the Indonesian government. Infrastructure development is a vital aspect of accelerating the national development process. Infrastructure also has a significant role as one of the driving wheels of economic growth. The national economic growth rate cannot be separated from the availability of infrastructure, such as transportation facilities, energy, toll roads, ports, airports, and non-building construction. Therefore, this infrastructure development is the initial foundation for further economic development.

Performance in the construction services sector starkly contrasts share price movements. When construction issuers announced increases in performance, such as revenue and net profit, their share prices experienced a sharp decline. Negative issues began to emerge to justify the decline in share prices of construction issues.

Many construction issuers have recorded positive performance, but investors feel they don't care because the cash flow from the operations of construction issuers is negative.

Table 1. Number of Contractor Companies in Indonesia 2012-2022



From the table data above, the Central Statistics Agency (BPS) noted that the number of construction companies in Indonesia will be 197,030 units in 2022. This number was corrected by 3.13% compared to the previous year, which reached 203,403 units.

Construction service companies generally have unstable financial conditions. This instability can lead to financial difficulties. Financial distress is a stage of decline in financial conditions that occurs in a company before bankruptcy or liquidation according to Platt HD and Platt MB (2008:129-162).

Aghajani and Jouzbarkand (2012) formulated that financial distress is a situation where a company or person is in a weak financial position. This is because the company's income from

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sales has decreased, resulting in the company experiencing a decrease in funds, so the income obtained is smaller than the obligations and money due. If this situation continues continuously the company will be insolvent or bankrupt.

There are several financial analysis models to view potential financial distress that have been developed by many researchers. In this research the author tries to use Altman's Z-Score theory (1968), to see predictions of financial distress in each model. The development of this potential bankruptcy research method began when Beaver (1966:71-111) introduced a simple univariate analysis of financial ratios to see the potential for bankruptcy in the future. Altman's (1968) model uses a multivariate method. In statistics, determining this formula using Multivariate Discriminant Analysis (MDA) is an analytical tool for predicting company bankruptcy through a combination of liquidity, profitability, leverage, and activity ratio equations. Apart from being an analytical tool, Altman's Multivariate Discriminant Analysis (MDA) equation is also used to characterize or differentiate one group of companies from another group of companies. From the data analysis technique stage, the results obtained were that there were differences in financial performance between delist and non-delist companies based on Altman's Multivariate Discriminant Analysis (MDA) calculations and obtained the level of accuracy of Altman's Multivariate Discriminant Analysis (MDA) in predicting financial difficulties and bankruptcy of a company to discriminate 2 (two) groups of delist and non-delist companies have an average accuracy rate of 90%. So, it can be said that Altman's Multivariate Discriminant Analysis (MDA) equation examined in this research is suitable for predicting company difficulties and bankruptcy.

The Z-Score model is a bankruptcy prediction model discovered by Edward I. Altman in 1968. The Z-Score model uses the Multiple Discriminant Analysis (MDA) method with 5 (five) types of financial ratios. The Z-score model is a model that pioneered the Multi Discriminant Analysis Model and has been used widely throughout the world. According to Supardi & Mastuti (2003), the Z-Score method is a score determined from a standard calculation of times financial ratios which will indicate the level of probability of company bankruptcy. According to Hadi & Anggraeni (2008), the Altman or Z-Score prediction model is the best predictor among the three bankruptcy prediction models, namely the Zmijewski model and the Springate model. This Z-Score model aims to find the Z value, this value is a value that can indicate the financial condition of a company, whether it is in a healthy or unhealthy condition, and can show the company's performance. This opinion is also supported by several studies including McKeown (1991), while Emery (2004:844) states that the Multivariate Discriminates Analysis (MDA) Altman Model often called Altman's Z-Score is an analytical tool that can be used to assess performance.

One of the most famous financial distress analysis models is the Altman Z-score proposed by Edward I. Altman, a professor of finance from New York University in 1968. According to Hermanto and Agung (2015:241), the Altman Z-score analysis Score is a tool used to predict the level of bankruptcy of a company by calculating the value of several ratios and then entering them into a discriminant equation. Altman Z-score uses several ratios to create a difficulty prediction tool. Altman Z-score uses statistical techniques (multiple discriminant analysis) to produce a predictive tool that is a linear function of several explanatory variables. This predictive tool classifies or predicts the possibility of a company going bankrupt or not using the 5 (five) financial ratios used in the Z-score. According to Harahap (2015:353), the Altman Z-score is calculated as follows:

$$Z = 1,2 X1 + 1,4 X2 + 3,3 X3 + 0,6 X4 + 0,99 X5$$

Remark:

Z = Bankruptcy Index

X1 = Working capital to total assets

X2 = Retained earnings to total assets

X3 = Earnings before interest and tax to total assets

X4 = Market value of equity to book value of debt

X5 = Sales to total assets

Table 2. Discriminant Zone

Z-Score Value	Remark
> 2,99	<i>Non-Distress Area</i>
1,81 - 2,99	<i>Grey Area</i>
< 1,81	<i>Distress Area</i>

Source: (Harahap, 2015)

2. Literature Review

2.1 Working capital

According to Kasmir (2016:251-252), working capital is capital used to carry out a company's operational activities. Working capital is defined as investment invested in current assets or short-term assets, such as cash, bank, securities, receivables, inventories, and other current assets.

2.2 Retained earnings

According to Hanafi and Halim (2014: 100), retained earnings show the company's ability to generate retained earnings from the company's total assets. Retained earnings are profits that are not distributed to shareholders. Retained earnings show how much of a company's income is not paid out in the form of dividends to shareholders. Retained earnings reported on the balance sheet are not cash and are not available for dividend payments or anything else.

2.3 Earnings Before Interest and Tax (EBIT)

Profit before interest and tax is profit that has not been deducted from the company's interest expense and income tax within a certain period. It is also the total profit obtained by the company in the current year before deducting interest expenses and income taxes.

According to Stice (2009:295), profit before interest and tax expenses is "operating profit (operating expense) is the difference between gross profit and operating expenses. In general, operating expenses are all operating expenses except interest expenses and income taxes. So operating profit can also be called profit before interest and taxes (Earnings before interest and taxes/ EBIT).

2.4 Book Value of Equity

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The market value of equity itself is obtained by multiplying the number of ordinary shares in circulation by the market price per ordinary share (close review). According to Arini and Triyonowati (2013), the book value of equity is obtained by adding up the company's capital with additional paid-in capital plus accumulated retained earnings and non-controlling ownership.

2.5 Book Value of Debt

According to Arini and Triyonowati (2013), the book value of debt is obtained by adding up current liabilities and long-term liabilities.

2.6 Sales

According to Carl S. Warren et al (2015), sales are the total amount charged to customers for merchandise sold, including cash and credit sales.

2.7 Total Assets

According to Carl S. Warren et al (2015), fixed assets are assets that are long-term or relatively permanent, such as equipment, machinery, buildings, and land.

2.8 Bankruptcy

Bankruptcy according to Raffles (2015) in Hanafi (2010:638) states "A company can be said to be bankrupt if the company experiences mild difficulties (such as liquidity problems) and more serious difficulties, namely solvable (debts are greater than assets)". According to Mukhlisah (2011), bankruptcy is usually defined as the failure of a company to carry out its operations to generate profits. Bankruptcy is also often called company liquidation company closure or instability.

2.9 Share price

The share price is the closing market price during the observation period for each type of stock sampled and movements are always observed by investors. The rise and fall in share prices are something normal. If a stock experiences high demand, then the price will rise, conversely, if supply is high then the price will fall.

According to Brigham and Houston (2015:7), share prices determine the wealth of shareholders. Maximizing shareholder wealth translates into maximizing the company's share price. The share price at any given time will depend on the cash flows expected to be received in the future by the average investor."

In research conducted by Yaofeng Hu, Zhan Qi, Di Wang, and Yansen Wu (2022), Under the premise of using the annual stock return rate as an indicator of stock returns, this paper finds that Z-scores have a positive correlation with the annual return rate of airline companies in the US market, i.e., a high Z-score implies better market performance in the US market.

3. Research Method

The research method used in this scientific research is descriptive quantitative.

Place and Time of Research

1. Research Place

Research was conducted on Construction Services Companies listed on the Indonesian Stock Exchange (IDX) for the 2020-2022 period, based on data obtained through the official website

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of the Indonesian Stock Exchange at www.idx.co.id. The object of this research.

2. Research Time

The time used in this scientific research is 3 (three) months, from July to September 2023.

Table 3. List of Company Names presented in the Population

No	Emiten Code	Name of Company	Date IPO	2020	2021	2022
1	ACST	Acset Indonusa	24 Jun 2013	✓	✓	✓
2	ADHI	Adhi Karya (Persero)	18 Mar 2004	✓	✓	✓
3	RONY	Aesler Grup Internasional	9 Apr 2020	✓	✓	✓
4	BUKK	Bukaka Teknik Utama	29 Jun 2015	✓	✓	✓
5	PTDU	Djasa Ubersakti	8 Des 2020	✓	✓	✓
6	IDPR	Indonesia Pondasi Raya	10 Des 2015	✓	✓	✓
7	JKON	Jaya Konstruksi Manggala Pratama	4 Des 2007	✓	✓	✓
8	TAMA	Lancartama Sejati	10 Feb 2020	✓	✓	✓
9	MTPS	Meta Epsi	10 Apr 2019	✓	✓	✓
10	MTRA	Mitra Pemuda	10 Feb 2016	✓	✓	-
11	DGIK	Nusa Konstruksi Enjiniring	19 Des 2007	✓	✓	✓
12	NRCA	Nusa Raya Cipta	27 Jun 2013	✓	✓	✓
13	PBSA	Paramita Bangun Sarana	28 Sept 2016	✓	✓	✓
14	PTPP	PP (Persero)	9 Feb 2010	✓	✓	✓
15	PPRE	PP Presisi	24 Nov 2017	✓	✓	✓
16	PTPW	Pratama Widya	7 Feb 2020	✓	✓	✓
17	SSIA	Surya Semesta Internusa	27 Mar 1997	✓	✓	✓
18	TOTL	Total Bangun Persada	25 Jul 2006	✓	✓	✓
19	TOPS	Totalindo Eka Persada	16 Jun 2017	✓	✓	✓
20	WSKT	Waskita Karya (Persero)	19 Des 2012	✓	✓	✓
21	WIKA	Wijaya Karya (Persero)	29 Okt 2007	✓	✓	✓
22	WEGE	Wijaya Karya Bangunan Gedung	30 Nov 2017	✓	✓	✓

Table 3 Research Sampling

Description	Total
All construction service companies registered on IDX	22
Inactive companies during the research period (2020 - 2022)	1
Number of samples for each year	21
Total observation data for 3 years (21 companies x 3 years)	63

Based on the type, the variables in this research are divided into:

Independent Variables

In this research, the independent variables used are:

1. Working capital to total assets (X_1)

This ratio evaluates the company's ability to fulfill its short-term obligations.

$$X_1 = \frac{\text{Working Capital}}{\text{Total Assets}}$$

2. Retained earnings to total assets (X_2)

This ratio is used to evaluate the company's ability to generate operating profits with the assets it owns.

$$X_2 = \frac{\text{Retained Earnings}}{\text{Total Assets}}$$

3. Earnings before interest and tax to total assets (X_3)

The aggregate amount of current and deferred taxes is considered in determining a company's profit or loss.

$$X_3 = \frac{\text{Earnings Before Interest and Tax}}{\text{Total Assets}}$$

4. Market value of equity to book value of debt (X_4)

This ratio evaluates the company's ability to guarantee its debt with capital.

$$X_4 = \frac{\text{Market Value of Equity}}{\text{Book Value of Debt}}$$

5. Sales to total assets (X_5)

This ratio is used to measure the Company's ability to use assets to generate sales.

$$X_5 = \frac{\text{Sales}}{\text{Total Assets}}$$

Dependent Variable

The dependent variable used in this research is stock price (Y).

The conceptual framework used to describe the relationship between working capital to total assets (X_1), retained earnings to total assets (X_2), earnings before interest and tax to total assets (X_3), market value of equity to book value of debt (X_4), sales to total assets (X_5) to share price (Y):

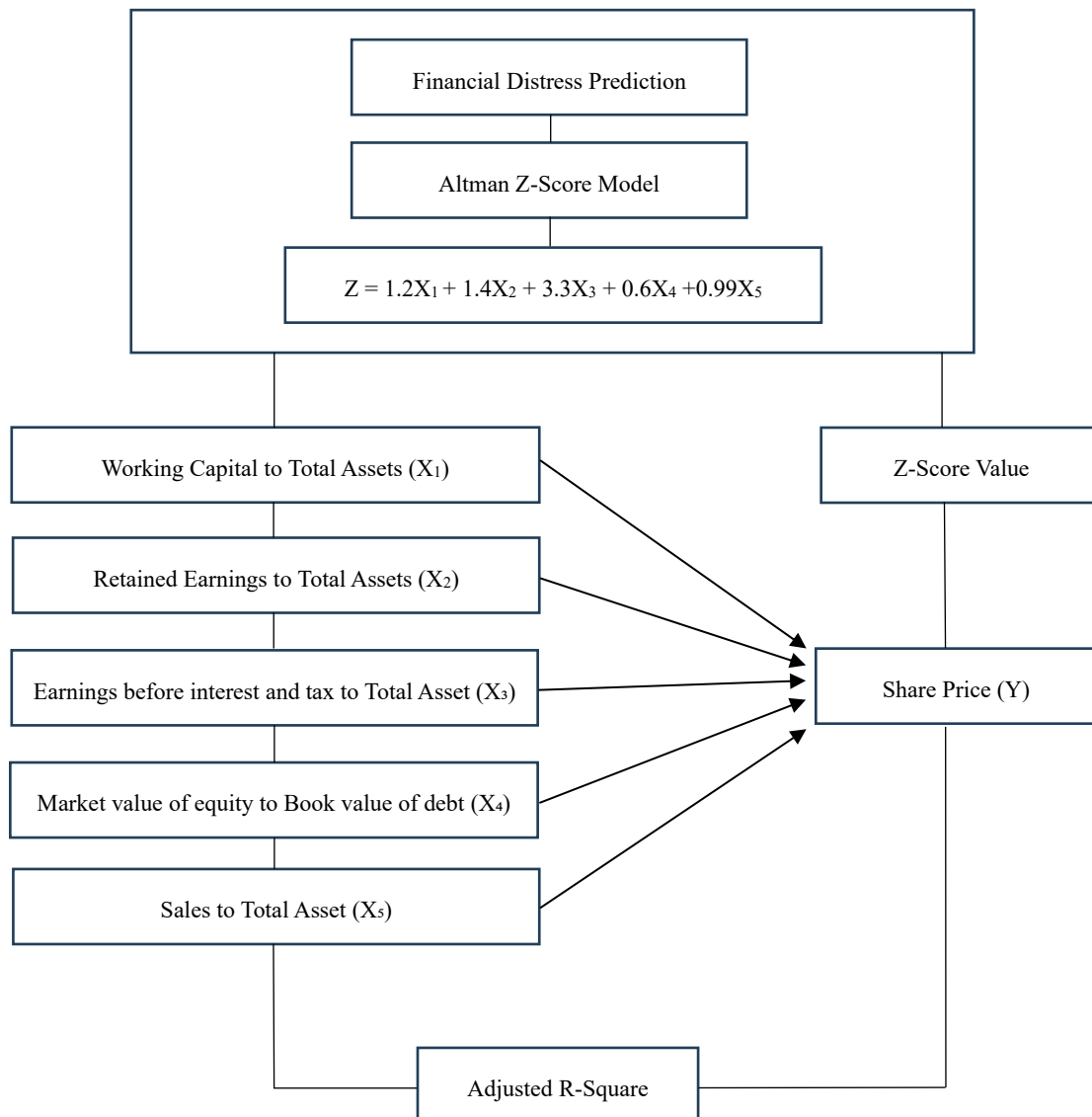


Figure 1. Research Model

The sample for this research is all construction service companies listed on the Indonesia Stock Exchange in 2020-2022. The research sample was obtained using a purposive sampling technique, with established criteria, criteria are as follows:

1. Companies that consistently operate during the research period 2020-2022.
2. Companies that have a financial year-end period as of December 31.

Based on these criteria, one of 22 companies cannot be used as a sample in this study. The tool used to manage data for this research is multiple linear regression analysis, which produces coefficients of determination and correlation coefficient values.

Multiple linear regression tests the influence of two or more variables.

The hypotheses in this research are:

Hypothesis 1:

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Ho1: There is no influence of working capital to total assets on share prices.

Ha1: There is an influence of working capital to total assets on share prices.

Hypothesis 2:

Ho2: There is no influence of retained earnings on total assets on share prices.

Ha2: There is an influence of retained earnings on total assets on share prices.

Hypothesis 3:

Ho3: There is no influence of earnings before interest and tax on total assets on share prices.

Ha3: Earnings before interest and tax on total assets influence share prices.

Hypothesis 4:

Ho4: There is no influence of the market value of equity to the book value of debt on share prices.

Ha4: The market value of equity influences the book value of debt on share prices.

Hypothesis 5:

Ho5: Sales do not influence total assets and share prices.

Ha5: There is an influence of sales to total assets on share prices.

4. Findings and Discussions

4.1 Findings

The data used is panel data so its use must meet panel data regression testing, namely:

1. Classic Assumption Test

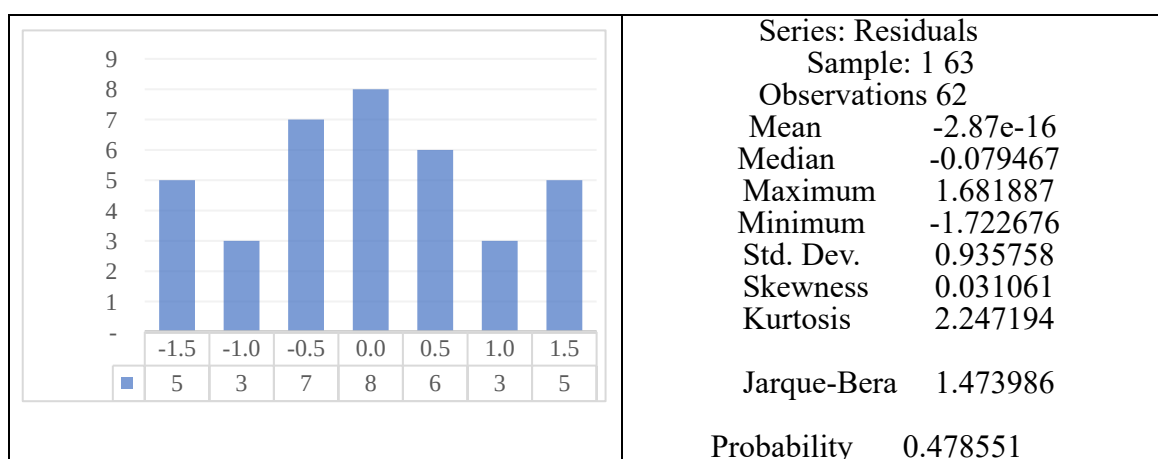
The following are the results of the classic assumption test:

Normality Test

The table below shows that the Jarque-Bera probability value is $0.478 > 0.05$, meaning that the residual research data is normally distributed.

The following are the results of the normality test:

Table 4 Normality Test



Source: Analyze results from secondary data

Multicollinearity Test

The following are the results of the multicollinearity test:

Table 5 Multicollinearity Test

	EBITTA	MVEBVD	RETA	WCTA	STA
EBITTA	1.000000	-0.491643	0.456487	-0.174445	-0.217412
MVEBVD	-0.491643	1.000000	-0.849934	0.110191	-0.229997
RETA	0.456487	-0.849934	1.000000	0.044868	0.088237
WCTA	-0.174445	0.110191	0.044868	1.000000	0.430833
STA	-0.217412	-0.029997	0.088237	0.430833	1.000000

Source: Analyze results from secondary data

Based on the Table, the results of the multicollinearity test above can be seen as that the correlation value is less than 0.8, so it can be concluded that there is no multicollinearity problem in the research variables.

Heteroscedasticity Test

The following are the results of the heteroscedasticity test:

Table 6 Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis:

Homoskedasticity

F-statistic	1.161875	Prob. F (5,57)	0.3391
Obs*R-squared	5.827006	Prob. Chi-Square (5)	0.3234
Scaled explained SS	5.998586	Prob. Chi-Square (5)	0.3064

Test Equation:

Dependent variable: RESID^2

Method: Lease

Squares

Sample: 1 63

Include

observations: 63

Source: Analyze results from secondary data

The Table above shows the results of the heteroscedasticity test using the white method. The probability value is $0.3234 > 0.05$, so it can be concluded that there are no symptoms of heteroscedasticity.

Autocorrelation Test

The following are the results of the autocorrelation test:

Table 7 Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 1 lag

F-statistic	0.119077	Prob. F (1,56)	0.7313
Obs*R-squared	0.133678	Prob. Chi-Square (1)	0.7146

Test Equation:

Dependent variable: RESID

Method: Lease

Squares

Sample: 1 63

Include

observations: 63

Presample missing value lagged residuals set to zero

Source: Analyze results from secondary data

Based on the Table above of the autocorrelation test, the probability value is $0.7146 > 0.05$, so it can be concluded that there are no symptoms of autocorrelation.

2. Hypothesis Testing

The following are the results of the hypothesis test:

1. T-test (Partial Test)

The following are the results of the t-test:

Table 8 T-test (Partial Test)

Dependent Variable: Share Stock

Method: Lease Squares

Sample: 1 63

Include observations: 63

Variable	Coefficient	Std. Error	t-Statistic	Prob.
WCTA	-1.126269	327.4889	-0.343911	0.7322
RETA	-241.3911	165.9956	-1.454202	0.1514
EBITTA	189.7508	76.66671	2.4750009	0.0163
MVEBVD	-543.4585	357.5825	-1.519813	0.1341
STA	99.48020	253.7617	0.392022	0.6965
C	557.2467	141.5800	3.935913	0.0002
R-squared	0.184696	Mean dependent var	481.7460	
Adjusted R-squared	0.113179	S.D. dependent var	465.3717	
S.E. of regression	438.2461	Akaike info criterion	15.09383	
Sum squared resid	10947397	Schwarz criterion	15.29794	
Log-likelihood	-469.4557	Hannan-Quinn criterion	15.17411	
F-statistic	2.582522	Durbin-Watson statistic	1.904180	
Prob (F-statistic)	0.035659			

Source: Analyze results from secondary data

Regression equation:

$$Y = 557,246 - 112,626X_1 - 241,391X_2 + 189,750X_3 - 543,458X_4 + 99,480X_5$$

Based on the results of the t-test in the table above, each variable shows different significance values, so the regression equation can be explained as follows:

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a. Constant (a).

Constant (a) = 557.246. If no effort is made to address the variables working capital to total assets, retained earnings to total assets, earnings before interest and tax, the market value of equity to book value of debt, and sales to total assets, then the price of the company's shares will rise by 557,247.

b. The effect of working capital on total assets on share prices

The results of testing the variable working capital to total assets on share prices have a probability significance value of 0.732, which means $0.732 > 0.05$, and the comparison of t-count is -0.343 and t-table 2.393. So, t-count < t-table means that H_0 is accepted and H_a is rejected, and this means that working capital to total assets has no significant effect and has a negative relationship with stock prices.

c. The effect of retained earnings on total assets on stock prices

The results of testing the retained earnings to total assets variable on share prices have a probability significance value of 0.151, which means $0.151 > 0.05$ and the comparison of t-count is -1.454 and t-table 2.393. So, t-count < from t-table means that H_0 is accepted and H_a is rejected, and this means that retained earnings to total assets have no significant effect and have a negative relationship with stock prices.

d. The effect of earnings before interest and tax on total assets on stock prices

The results testing the variables earnings before interest and tax to total assets on share prices have a probability significance value of 0.016, which means $0.016 < 0.05$ and the comparison of t-count is 2.475 and t-table 2.393. So, t-count > from t-table means that H_0 is rejected and H_a is accepted, and this means that earnings before interest and tax to total assets have a significant effect and have a positive relationship with stock prices. The regression coefficient value (B) of earnings before interest and tax to total assets is 189,750, meaning that for every increase of one unit, the share price will increase by 189,750 units.

e. The influence of the market value of equity on the book value of debt on share prices

The results of testing the variable market value of equity to book value of debt on share prices have a probability significance value of 0.134, which means $0.134 > 0.05$ and the comparison of t-count is -1.519 and t-table 2.393. So, t-count < from t-table means that H_0 is accepted and H_a is rejected, and this means that the market value of equity to book value of debt assets has no significant effect and has a negative relationship with stock prices.

f. The effect of sales on total assets on stock prices

The results of testing the sales to total assets variable on share prices have a probability significance value of 0.696, which means $0.696 > 0.05$ and the comparison of t-count is 0.393 and t-table 2.393. So, t-count < from t-table means that H_0 is accepted and H_a is rejected, and this means that sales to total assets have no significant effect and have a positive relationship with stock prices.

2. F-Test (Simultaneous Test)

The following are the results of the F statistical test in the table below as follows:

Based on Table 8 above, F-count = 2.582 and N = 63, F-table = 2.377. F-count > F-table, it can be concluded that the variables working capital to total assets, retained earnings to total assets, earnings before interest and tax to total assets, market value of equity to book value of debt, and sales to total assets simultaneously or jointly significantly influence the company's share

price.

3. Coefficient of Determination Results

The following are the results of the hypothesis test:

Based on the table 8 of the coefficient of determination above, the Adjusted R-square is 0.113 or 11.3%. This means that the dependent variable of the company's share price is influenced by variations in the five independent variables, namely the variable working capital to total assets, retained earnings to total assets, and earnings before interest and tax to total assets, market value of equity to book value of debt, and sales to total assets. Meanwhile, the remaining 88.7% is influenced by other variables not discussed in this research.

4.2 Discussion

The Effect of Working Capital on Total Assets on Stock Prices

The results testing the variable working capital to total assets on share prices show that Ho1 is accepted and Ha1 is rejected, and this means that working capital to total assets has no significant effect and has a negative relationship with share prices. The test results are the results of research conducted by Lestari (2016), Indrawan (2018), Hidayanita and Zafrizal (2023), Oktaviani, Purwanto (2020), Priambodo (2021) and Nurcahyani, Wahono, Athia (2022), who explains that working capital to total assets has a negative influence which is not significant to stock prices.

The Effect of Retained Earnings to Total Assets on Stock Prices

The results testing the retained earnings to total assets variable on share prices show that Ho2 is accepted and Ha2 is rejected, and this means that retained earnings to total assets have no significant effect and have a negative relationship with the company's share price. The test results are the results of research conducted by Lestari (2016) and Prayugo, Yohani, Fithrayudi (2022) which stated that retained earnings to total assets did not have a significant effect on the company's share price level.

The Effect of Earnings Before Interest and Tax to Total Assets on Stock Prices

The results testing the variables earnings before interest and tax to total assets on stock prices show that Ho3 is rejected and Ha3 is accepted, and this means that earnings before interest and tax to total assets have a significant effect and have a positive relationship on stock prices. The test results are the results of research conducted by Lestari (2016), Radiyatama, Mustafa (2019), Oktaviani, Purwanto (2020), and Priambodo and Kurniasih (2021) which stated that the EBIT Ratio /TA has a significant positive influence on stock prices.

The Influence of Market Value of Equity to Book Value of Debt on Stock Prices

The results testing the variable market value of equity to book value of debt on stock prices show that Ho4 is accepted and Ha4 is rejected, and this means that the market value of equity to book value of debt has no significant effect and has a negative relationship on stock prices. The test results are based on research conducted by Andromeda Ardian, and Moh Khoiruddin. (2014), Lestari (2016), Hidayanita and Zafrizal (2023), and Priambodo and Kurniasih (2021) stated that the market value of equity to book value of debt does not have a significant effect on stock prices.

The Effect of Sales to Total Assets on Stock Prices

The results testing the sales to total assets variable on stock prices show that Ho5 is accepted and Ha5 is rejected, and this means that sales to total assets have no significant effect and have a positive relationship with stock prices. The test results are the results of research conducted by Oktaviani, Purwanto (2020), Prayugo, Yohani, Fithrayudi (2022), and Utami, Isnaini, Stiawan (2023) which stated that the Sales to Total Assets have a negative but significant influence on stock prices.

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5. Conclusion

Based on the results of research and discussion on financial distress analysis using the Altman Z-Score method and the influence of working capital to total assets, retained earnings to total assets, earnings before interest and tax to total assets, market value of equity to book value of debt, sales to total assets to share prices in construction service companies listed on the Indonesia Stock Exchange (IDX) for the 2020-2022 period, the following conclusions are obtained:

1. In 2020 there were 18 construction service companies listed on the Indonesia Stock Exchange (IDX) for the 2020-2022 period which were in the distress zone and 3 companies in the gray zone, namely PT. Bukaka Teknik Utama, PT. Nusa Raya Cipta and PT. Pratama Widya. In 2021, 17 construction service companies listed on the Indonesia Stock Exchange (IDX) for the 2020-2022 period are in the distress zone and 4 companies are in the gray zone, namely PT. Bukaka Teknik Utama, PT. Jaya Construction Manggala Pratama, PT. Nusa Raya Cipta and PT. Pratama Widya. In 2022, 17 construction service companies will be listed on the Indonesia Stock Exchange (IDX) for the 2020-2022 period which are in the distress zone and 4 companies in the gray zone, namely PT. Jaya Construction Manggala Pratama, PT. Nusa Raya Cipta, PT. Paramita Bangun Sarana and PT. Pratama Widya.
2. The variable working capital to total assets on share prices shows that H_01 is accepted and H_{a1} is rejected, and this means that working capital to total assets has no significant effect and has a negative relationship with share prices. The test results are the results of research conducted by Lestari (2016), Indrawan (2018), Hidayanita and Zafrizal (2023), Oktaviani, Purwanto (2020), Priambodo (2021) and Nurcahyani, Wahono, Athia (2022), who explains that working capital to total assets has a negative influence which is not significant to stock prices.
3. The variable retained earnings to total assets on share prices shows that H_02 is accepted and H_{a2} is rejected, and this means that retained earnings to total assets have no significant effect and have a negative relationship with the company's share price. The test results are the results of research conducted by Lestari (2016) and Prayugo, Yohani, and Fithrayudi (2022) which stated that retained earnings to total assets did not have a significant effect on the company's share price level.
4. The variables of earnings before interest and tax to total assets on stock prices show that H_03 is rejected and H_{a3} is accepted, and this means that earnings before interest and tax to total assets have a significant effect and have a positive relationship with stock prices. The test results are the results of research conducted by Lestari (2016), Radiyatama, Matroji H. Mustafa (2019), Oktaviani, Purwanto (2020), and Priambodo and Kurniasih (2021) which stated that the EBIT ratio /TA has a significant positive influence on stock prices.
5. The variable market value of equity to book value of debt on stock prices shows that H_04 is accepted and H_{a4} is rejected, and this means that the market value of equity to book value of debt has no significant effect and has a negative relationship with stock prices. The test results are based on research conducted by Ardian, Khoiruddin (2014), Lestari (2016), Hidayanita and Zafrizal (2023), and Priambodo and Kurniasih (2021) which stated that the market value of equity to book value of debt does not have a significant effect on stock prices.
6. The sales to total assets variable on stock prices shows that H_05 is accepted and H_{a5} is rejected, and this means that sales to total assets have no significant effect and have a positive relationship with stock prices. The test results are the results of research conducted by Oktaviani, Purwanto (2020), Prayugo, Yohani, Fithrayudi (2022), Utami, Isnaini, Stiawan (2023) which stated that the sales to total assets have a negative but significant influence on stock prices.

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The Influence of Organizational Culture, Organizational Commitment to Fraud Prevention with Internal Control as an Intervening Variable in the South Sumatra Provincial Government

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Article Information:

Received: December 07, 2024; Accepted: December 16, 2024; Published: December 22, 2024

Abstract

This study aims to test and analyze the influence of organizational culture and organizational commitment to fraud prevention with internal control as an intervening variable. The data collection method used a survey using a questionnaire. The population in this study is part of the South Sumatra Provincial Government's procurement of goods and services. The sampling technique uses the purposive sampling technique. The number of respondents was 136 from 30 regional apparatus organizations (OPD) that were sampled. The data analysis method used in the study was PLS SEM. The results of this study show that organizational culture and commitment have a positive and significant effect on fraud prevention, with an R Square value of 97.5%. The results of this study also show that organizational culture, organizational commitment, and internal control have a positive and significant effect on internal control, with an R Square value of 93.4%. The results of this study provide empirical evidence that fraud prevention can be carried out with organizational culture and organizational commitments and good internal control so that fraud does not occur.

Keywords: Organizational Culture, Organizational Commitment, Internal Control, Fraud Prevention

JEL Codes: A12, A10, A19

How to Cite:

Putri, I. F., Rachman, A. A. (2024). The Influence of Organizational Culture, Organizational Commitment to Fraud Prevention with Internal Control as an Intervening Variable in the South Sumatra Provincial Government. *International Journal of Finance Research*, 5(4). 582 - 598. DOI: <https://doi.org/10.47747/ijfr.v5i4.2480>

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1. Introduction

Fraud cases that occurred in South Sumatra province based on Indonesia Corruption Watch (ICW) in 2023 in its report recorded as many as 31 cases with state losses of Rp. 213,200,145,041 and illegal levies of Rp. 1,281,500,000. However, the findings from the (ICW, 2024) Audit Board (BPK) of the South Sumatra Province (South Sumatra) Representative noted that the amount of money that had to be deposited back into the state treasury in this region in the 2023 Fiscal Year reached more than Rp 408 billion. This finding states that there is an increase in state losses of Rp.100 billion compared to the previous year (BPK, 2024). In addition to the above data, several cases are still being handled by the prosecutor's office, such as corruption cases in the construction of high school buildings, gratuities, and mining permit cases (Tempo, 2024).

According to the Association of Certified Fraud Examiners. Fraud is any action that relies on deception to generate a profit. Cheating is a criminal when it involves a misrepresentation of the truth or a purposeful concealing of material information to persuade others to do activities that are injurious to themselves. From the description above, it is stated that fraud is a violation of applicable standards or regulations defined by dishonest activity, such as embezzlement or violation of authority (ACFE, 2024).

Donald R. Cressey (Machado & Gartner, 2018) in the notion of the fraud triangle claimed that pressure, opportunity, and rationalization are the three typical things that create accounting fraud. Therefore, one of the reasons people cheat is because there is a possibility to cheat induced by environmental conditions and supportive opportunities. In this idea, the key function of cheating is the features and talents of individuals where a person cannot cheat if he does not have the ability to do so. Fraud theory further suggests that the aspect of arrogance is also crucial in identifying fraud. In addition, fraudulent acts that can hurt public budget have declined (Periansya et al., 2023)

An effective organizational culture is a crucial aspect in mitigating fraudulent activities. Research by (Fade et al., 2022; Rustandy et al., 2020; Tenriwaru & Pramukti, 2024) indicates that the propensity for accounting fraud diminishes when the corporate culture is effectively operational. Conversely, the research conducted by (Dewi et al., 2022; Yulian et al., 2017) revealed divergent outcomes, indicating that corporate culture did not exert a beneficial influence on fraud prevention. Organizational culture is a framework for regulating behavior and attitudes, wherein individual conduct inside an organization mirrors that culture (Hidayah et al., 2022; Khusnah, 2020). An effective organizational culture can bolster public trust.

Research Manurung & Kristanti 2024), Hidayah et al. (2022), and (Rifai & Mardijuwono, 2020) related to organizational commitment found a significant influence on fraud prevention. The existence of a strong organizational commitment can anticipate the occurrence of fraud in an organization. Organizational commitment can be interpreted as a firmness from the individual to the firmness in running the wheels of the organization. (Allen & Meyer, 1990).

Internal control in an organization is intended to achieve organizational goals, minimize the potential for unforeseen events, increase efficiency, prevent asset loss, enhance the reliability of financial reporting data, and encourage compliance with established laws and regulations (Mustopa et al., 2022; Rustandy et al., 2020; Sari & Widiatmoko, 2023). The results of the internal control research on fraud found a positive influence on fraud prevention (Rustandy et

al., 2020; Sumendap et al., 2019; Tenriwaru & Pramukti, 2024; Zelmiyanti & Anita, 2015). However, other studies conducted by (Fauzi et al., 2019; Damayanti & Primastiwi, 2021) found that internal control does not affect fraud prevention due to the low human resources available within the organization.

Weak internal control is often associated with fraud due to the lack of thorough control over the various management, monitoring, control, and evaluation and reporting of all stages of processes and operational activities. If the organization does not have good internal control, then fraud cases will arise. Weak internal control, poor organizational culture and organizational commitment that does not support the organizational environment are the causes of fraud. (BSN, 2018)

2. Literature Review

Agency Theory

Jensen, Michel C. (1976) developed Agency Theory, which describes the relationship between the principal and the agent. In this relationship, the agent is responsible for carrying out the owner's mandate and reporting the results. This theory is often used to explain the dynamics of public organizations, including the relationship between the executive as an agent and the legislature as a principal. In local governments, the executive has the power to run the government, while the legislature has a higher supervisory authority. (Halim & Abdullah, 2016)

Fraud Diamond Theory

(Wolfe & Hermanson, 2004) developed the Fraud Diamond Theory by adding the capability element to the previous three parts in the Fraud Triangle (pressure, opportunity, rationalization). Cheating occurs when individuals have significant pressure, opportunity, rationale, and the ability to do so. Fraud prevention needs early detection and the adoption of strong governance, to encourage ethical behavior and decrease the opportunity for fraud.

Organizational Culture

Organizational culture is a system of values, norms, and patterns of behavior that are shared by the members of an organization. This system provides a unique identity, sets the organization apart from others, and guides its members in thinking, acting, and behaving. stated that a strong organizational culture has a great influence on the attitudes and behaviors of organizational members. As according to includes productivity, performance, commitment, and ethical behavior (Deal & Kennedy, 1982; Stephen P, Robbins, 2015).

Organizational culture reflects shared values and is the basis of decision-making. It also becomes an invisible tool of control, influencing the behavior of individuals in organizations. The main functions of organizational culture are as follows as organizational differentiators, social adhesives, Behavior Controllers and stabilization of social systems, planning directors and innovation inhibitors (Pabundu, 2006).

The cultural dimension of an organization reflects the aspects that shape the mindset and behavior of the organization. These dimensions are measured by specific indicators, as described by Robbins in (Pabundu, 2006) such as innovation and risk-taking, attention to detail, outcome orientation, people orientation, team orientation, aggressiveness, and stability. Meanwhile, according to the dimensions of organizational culture such as engagement,

consistency, adaptability and mission (Denison, 2006).

Organizational Commitment

Organizational commitment relates to an individual's level of emotional involvement, loyalty, and duty towards the organization. It reflects the psychological interaction between the individual and the organization that affects the individual's willingness to remain a part of the organization.

According to (Meyer & Allen, 1997) organizational commitment is a psychological structure that characterizes an individual's relationship with an organization and influences his or her decision to stay within the organization. It also emphasizes that employees with strong commitment tend to have high productivity, discipline, and a good work ethic, thus helping to achieve organizational goals. (Stephen P, Robbins, 2015).

In conclusion, organizational commitment is an individual's sense of acceptance and attachment to the organization, which is manifested in the form of active participation and loyalty to remain part of the organization.

In forming organizational commitments, it is mentioned that there are: awareness, rules, organization, income, abilities and skills and service facilities. Organizational commitment has several dimensions that are measured through specific indicators, as described (Malayu S. P. Hasibuan, 2020; Meyer & Allen, 1997) affective commitment with indicators of pride and engagement in the organization, continuous commitment with indicators of opportunities and needs and normative commitment with indicators of loyalty and responsibility. Another opinion of (Kristanto, 2015; Perry & Porter, 1982) dimension consists of acceptance, willingness and maintain. In addition, the dimension of commitment according (Muis et al., 2018) continuity commitment, cohesion commitment and control commitment.

Internal Control

Internal control is very important to ensure the effectiveness and efficiency of the organization's operations. According to (COSO, 2013), internal control provides assurance to achieve organizational goals. (Mulyadi, 2019) explains that internal control includes structures, methods, and benchmarks to protect assets, ensure accounting reliability, promote operational efficiency, and comply with regulations.

The objectives of internal control include asset protection, accurate financial reporting, operational efficiency, and compliance with applicable laws (Romney & teinbart, 2018). At least there are 3 Functions of Internal Control such as; Preventive Control like Preventing problems before they occur, Detective Control like Identifying unavoidable problems, and Corrective Control like Fixing identified problems.

According to (COSO, 2013), there are Five Components of Internal Control, namely: 1). Control Environment: Includes management philosophy, commitment to ethics, and organizational structure. 2). Risk Assessment: Identifying and assessing risks that can affect the achievement of organizational goals. 3). Control Activities: Specific actions such as segregation of duties and proper authorization to manage risks. 4). Information and Communication: Ensuring that relevant and timely information is communicated within the organization. 5). Activity Supervision: Supervision, audit, and performance evaluation to ensure the internal control system is effective. It is the same with (Peraturan Pemerintah No. 60, 2008) that internal control

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consists of control environment, risk assessment, activity control, information and communication and monitoring.

Fraud Prevention

Fraud is a deliberate deception carried out by individuals or groups, often involving parties with authority such as management, employees, or third parties, to obtain unlawful benefits (ACFE, 2024). Types of fraud include asset misuse, fraudulent financial reporting, and corruption. According to (I Made Narsa, 2012) by fraud diamond theory, there are factors that contribute to fraud, including pressure, opportunity, rationalization, and capability.

Fraud prevention includes actions to deter fraudulent behavior, reduce the opportunity for fraud to occur, and identify high-risk activities. According to (Karyono, 2013). Effective fraud prevention aims to maintain the integrity of the organization and achieve its goals, while also protecting the entity's reputation. Meanwhile, the Dimensions and Indicators of Fraud Prevention according to (Jeremy Pope, 2008) consist of :

- Legal Framework: Clear guidelines for procurement, non-discriminatory technical standards, and regulatory compliance.
- Transparency: Clear procedures and fair competition in tenders.
- Opening of Tender Documents: An open tender process to ensure fairness.
- Offer Evaluation: Fair and unbiased bid evaluation.
- Delegation of Authority: Decision-making is carried out only by competent individuals.
- Independent Audits: Regular audits to ensure compliance and detect fraud.

Overall, an effective internal control system, accompanied by strong fraud prevention measures, is essential for ensuring organizational integrity, reducing risk, and maintaining a trustworthy environment.

The following is the research framework proposed in this study.

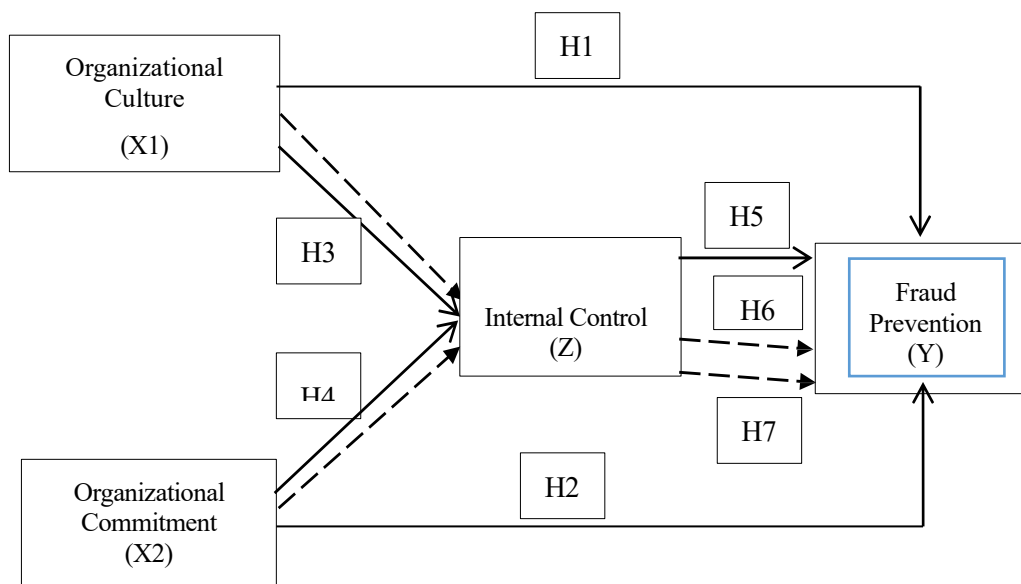


Figure 1. Research framework

The following hypotheses are proposed:

H1 : The Influence of Organizational Culture on Fraud Prevention

H2 : The Effect of Organizational Commitment on Fraud Prevention

H3 : The Influence of Organizational Culture on Internal Control

H4 : The Effect of Organizational Commitment on Internal Control

H5 : The Effect of Internal Control on Fraud Prevention

H6 : The Effect of Organizational Culture on Fraud Prevention with Internal Control as an Intervening Variable

H7 : The Effect of Organizational Commitment on Fraud Prevention with Internal Control as an Intervening Variable

3. Research Methodology

This study aims to assess the influence of organizational culture and commitment to fraud prevention, with internal control as a mediating variable. This study uses SEM-PLS (*Structural Equation Modeling-Partial Least Squares*) with Smart PLS for data analysis. This method handles complex relationships and does not require normal data distribution. The Measurement Model tests validity through Convergent Validity, Validity of Discrimination, and Reliability of Composites. The Structural Model examines multicollinearity and uses metrics such as R-squared (R^2), F-squared (F^2), and Q square to measure model fit and predictive relevance.

This study focuses on organizational culture (X1), organizational commitment (X2), internal control (Z), and fraud prevention (Y) in 30 regional apparatus organizations (OPD) of the South

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Testing the Structural Model (Inner Model)

R Square

Based on the results of testing with Smart PLS 3.0, the following R Square results were obtained in table 1.

Table 1. R Square

	R Square	Strong Relationships
Internal Control (Z)	0,934	Strong
Fraud Prevention (Y)	0,975	Strong

Source: Data Processing (2024)

According to Chin (1998) in, R Yamin & Kurniawan (2011) *Square* with a value of 0.67 indicates a strong model, a value of 0.33 indicates a moderate model and a value of 0.19 indicates a weak model. From the results of the table above, it can be seen that the R-Square for the Internal Control variable (Z) is 0.934 which means that Organizational Culture (X1) and Organizational Commitment (X2) are able to explain Internal Control (Z) by 93.4%, while the remaining 6.6% is the influence of other factors that were not studied in this study. The R-Square for the Fraud Prevention variable (Y) is 0.934, which means that Organizational Culture (X1) and Organizational Commitment (X2) are able to explain Fraud Prevention (Y) through Internal Control (Z) by 97.5%, while the remaining 2.5% is the influence of other factors that are not studied in this study.

f Square

Next is to look at the value of *f Square*. An *f-Square* value of 0.02 indicates a small rating, an Effect Size of 0.15 indicates a medium rating and an Effect Size of 0.35 indicates a large rating (Yamin & Kurniawan, 2011) Based on the results of the test with SmartPLS 3, the following F Square results were obtained.

Table 2. f Square

Variable	Effect Size	Rating
Internal Control (Z)		
Organizational Culture (X1)	5,178	Big
Organizational Commitment (X2)	0,295	Moderate
Fraud Prevention (Y)		
Organizational Culture (X1)	0,280	Moderate
Organizational Commitment (X2)	1,147	Big
Internal Control (Z)	0,110	Small

Source: Data Processing (2024)

Based on the results of the table above, it shows that the variables Organizational Culture (X1) and Organizational Commitment (X2) each have an influence with categories that are included in the large and moderate categories in influencing Internal Control (Z). The variables of Organizational Culture (X1), Organizational Commitment (X2), and Internal Control (Z) each have an influence with categories that fall into the moderate, large and small categories in

influencing Fraud Prevention (Y).

Q2 Predictive Relevance

The Q-square *test* is used to measure how well the observation value generated by the model and also the estimation of its parameters. A *Q-square* value greater than 0 (zero) indicates that the model has a *predictive relevance* value, while a *Q-square* less than 0 (zero) indicates that the model lacks *predictive relevance* (Cohen, 1988 in . The (Yamin & Kurniawan, 2011)Q-square value obtained using the R2 value in the table above, the calculation results are obtained as follows:

Based on the results of the calculation above, it is known that *the Q square* value is greater than 0, this means that the observed values have been reconstructed well so that the model has predictive relevance. This means that there is 0.636 or 63.6% of the relative influence of the structural model on the observational measurement for the endogenous latent variable, and as much as 36.4% is the model error

Table 3. Q² Predictive Relevance

	SSO	SSE	Q ² (=1-SSE/SSO)
Organizational Culture (X1)	2040,000	2040,000	
Organizational Commitment (X2)	1360,000	1360,000	
Fraud Prevention (Y)	3672,000	1337,113	0,636
Internal Control (Z)	4352,000	1503,077	0,655

Source: Data Processing (2024)

Discussion

The Influence of Organizational Culture on Fraud Prevention

The *Original Sample* (O) value of 1.208 indicates that the direction of influence of organizational culture on internal control is positive or unidirectional. The influence of organizational culture on internal control is significant, with a t-statistical value of 23.569 greater than the t-table or $23.569 > 1.96$, and a *p-value* of 0.000 smaller than alpha 5% (0.05). Based on this, the results were obtained that organizational culture has a positive and significant effect on fraud prevention, so the fifth hypothesis is accepted. Based on the fraud pentagon theory, one of the reasons that underlies or encourages someone to commit fraud in a company or organization is because of opportunity.

The opportunity to commit fraud is caused by supportive environmental conditions. This is inseparable from the concept of culture in the organization. It also states that a strong culture compared to a weak culture has a great influence on the attitude of members in the organization. Related to this explanation, the influence of organizational culture on (Stephen P, Robbins, 2015)*fraud* prevention is also supported by previous research by those who stated that organizational culture has a positive effect on fraud prevention (Nugroho et al., 2023; Fade et al., 2022; Rustandy et al., 2020).

The Effect of Organizational Commitment on Fraud Prevention

The high commitment of employees has an impact on the loyalty of employees to the

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organization's goals through good performance, which of course makes employees remain loyal and ready to maintain membership in the organization and work to carry out tasks for the success of the organization. obtained an *Original Sample* (O) value of 0.398, indicating that the direction of influence The organization's commitment to fraud prevention is positive or unidirectional.

The influence of organizational commitment to fraud prevention was significant, with a t-statistical value of 7.209 greater than the t-table or $7.209 > 1.96$, and a *p-value* of 0.000 smaller than alpha 5% (0.05). Thus, H1.2 is accepted, meaning that the organization's commitment has a significant effect on fraud prevention. In this regard, organizational commitment is a factor that also has an influence on fraud prevention, such as the results of research conducted by (Hidayah et al., 2022; Indriani, 2018; Manurung & Kristanti, 2024; Rifai & Mardijuwono, 2020)

The effect of Organizational Culture on Internal Control

Organizational culture affects the behavior of human beings who involve themselves in the organization so the good and bad attitudes and behaviors of the members will have an impact on employee performance in carrying out their duties. A strong culture provides stability for the organization such as its implementation, especially in the SPI (Internal Control System) unit, is beneficial to increase the effectiveness of the company, manage cultural changes and improve company performance.

Based on the results of the study, the (Effendi, 2009)*Original Sample* (O) value was obtained which was 1.208, indicating that the direction of influence of organizational culture on internal control was positive or unidirectional. The influence of organizational culture on internal control was significant, with a t-statistical value of 23.569 greater than the t-table or $23.569 > 1.96$, and a *p-value* of 0.000 smaller than alpha 5% (0.05). Thus, H1.3 is accepted, meaning that **organizational culture significantly affects internal control**. This theory is reinforced by the results of research by that internal control is influenced by organizational culture (Maharani & Damayanthi, 2020; I. M. E. L. Putra, 2018; I. M. Y. D. Putra et al., 2021; Riffany Fitri Arfaziah et al., 2022; Zelmiyanti & Anita, 2015).

The Effect of Organizational Commitment on Internal Control

The company's success is not spared from important factors that provide a positive side, such as the role of loyalty carried out by employees, namely internal control because it is an aspect that must be present in improving performance for employees in completing work. Internal control is created by the company as a safeguard of assets, accurate and reliable informants, encouraging and improving the efficiency of the entity's operation, and encouraging the suitability of activities with established policies.

Based on the results of the study, the value of (Romney & Steinbart, 2018)*Original Sample* (O), Namely by -0,289, shows that the direction of influence Organizational commitment to internal control is negative or in the opposite direction. Influence Organizational commitment to internal control Baby significantly, with a t-statistical value of 4,788 greater than the t table or $4,788 > 1.96$, as well as a value *P value* axle 0.000 less than alpha 5% (0.05). Thus, H1.4 accepted means Organizational commitment has a significant effect on internal control. Several studies have revealed that organizational commitment has a positive effect on those that state

that organizational commitment has an effect on internal control. (Alminanda & Marfuah , 2018; Firmansyah & Ha, 2015; Kurniawan et al., 2021; Riffany Fitri Arfaziah et al., 2022)

The Effect of Internal Control on Fraud Prevention

Tuanakotta (2013) and COSO (2013) mention that Cheating get Prevented with activate control internal mean that control Internal get Minimize Occurrence Cheating at deep organization . By result research , Retrieved value Original Sample (O) that is as 0,204 show that direction influence control Internal towards Prevention fraud be positive or unidirectional . Influence control Internal towards Prevention fraud be Significant , with value t- Statistics as 2,367 more big from t table or $2,367 > 1.96$, and value P value as 0,000 more small from alpha 5% (0.05). With such so H1.5 Accepted Means control Internal Influential Significant towards Prevention fraud. Research by (Rustandy et al., 2020; Sumendap et al., 2019; Tenriwaru & Pramukti, 2024; Zelmiyanti & Anita, 2015) mentioned that internal control affects fraud prevention.

The Influence of Organizational Culture on Fraud Prevention with Internal Control as an Interevening Variable

Organizational culture in shaping the attitude of members certainly has an impact on the results of the work done by the members. According to the SPI (Internal Control System) unit, it can run effectively, the culture changes that are managed are getting better, and the company's performance can improve, namely if the company culture is applied to the unit. By activating good internal control will be able to increase guarding in preventing cheating(Effendi, 2009)Tuanakotta (2013).

Based on the results of the study, the *Original Sample* (O) value of 0.249 indicates that the direction of influence of organizational culture on fraud prevention through internal control is positive or unidirectional. The influence of organizational culture on fraud prevention through internal control is significant, with a t-statistical value of 2.389 greater than the t-table or $2.389 > 1.96$, and a *p-value* of 0.017 less than alpha 5% (0.05). Thus, H1.6 is accepted, meaning that organizational culture has a significant effect on fraud prevention through internal control. As research by said that internal control mediates organizational culture towards fraud prevention. So, the hypotheses in this study are (Sumendap et al., 2019; Zelmiyanti & Anita, 2015).

The Effect of Organizational Commitment on Fraud Prevention with Internal Control as an Interevening Variable

An organization that is supported by employees who are strongly committed, have productive work behavior, have strong discipline and adhere to the organization's work ethics, then organizational goals can be achieved easily. The high commitment of employees has an impact on the loyalty of employees to the organization's goals through good performance which of course makes employees remain loyal and ready to maintain membership in the organization and work to carry out tasks for the success of the organization. The good attitude of commitment possessed by the personnel will have an impact on the achievement of good internal control. As it is said that good internal control will be able to increase guarding in preventing fraud(Stephen P, Robbins, 2015)Tuanakotta (2013).

Based on the results of the study, the *Original Sample* (O) value of -0.059 indicates that the direction of influence of organizational commitment to fraud prevention through internal

control is positive or unidirectional. The influence of organizational commitment to fraud prevention through internal control is significant, with a t-statistical value of 2.289 greater than the t-table or $2.289 > 1.96$, and a *p-value* of 0.022 smaller than alpha 5% (0.05). Thus, H1.7 is accepted, meaning that the organization's commitment has a significant effect on fraud prevention through internal control. In this regard, organizational commitment is a factor that also has an influence on *fraud* prevention, such as the results of research conducted by (Hidayah et al., 2022; Indriani , 2018; Manurung & Kristanti , 2024; Rifai & Mardijuwono , 2020).

5. Conclusion

Based on the results of the analysis and discussion above, it can be concluded that organizational culture and organizational commitment have a very significant effect on fraud prevention with an R2 value of 97.5%; the rest is influenced by variables that are not studied. Then, organizational culture and organizational commitment have a significant effect on the mediation of internal control variables 93.4%; the rest are influenced by other variables that are not studied. The results of this study provide empirical evidence that fraud prevention can be carried out with organizational culture and organizational commitments as well as good internal control so that fraud will not occur.

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Factors Influencing Going Concern Audit Opinion (Empirical Study of Manufacturing Companies Listed on the Indonesian Stock Exchange)

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Article Information:

Received: November 19, 2024, Accepted: December 03, 2024, Published: December 26, 2024

Abstract

This research aims to determine the influence of profitability, leverage, company growth, previous year's audit opinion, and company size on ongoing concerned audit opinions in manufacturing companies listed on the Indonesia Stock Exchange. A going concern audit opinion is given to a company that has financial problems but is considered capable of continuing its business within a reasonable period of time. This research uses secondary data from audited financial reports, which can be accessed via the Indonesia Stock Exchange website, namely www.idx.co.id. The population in this study was 136 manufacturing companies, and the sample used was 50 companies. The sampling method is purposive sampling with data analysis techniques using logistic regression. The results of this research show that the previous year's audit opinion influences the going concern audit opinion. Meanwhile, profitability, leverage, company growth and company size do not affect going concern audit opinion.

Keywords: *Going Concern Audite Opinion, Profitability, Leverage, Company growth, Previous Year Audite, and Company Size*

Kode JEL: J11, J12, J14

How to Cite:

Sintia. D., Indriani, P. (2024). Factors Influencing Going Concern Audit Opinion (Empirical Study of Manufacturing Companies Listed on the Indonesian Stock Exchange). *International Journal of Finance Research*, 5(4). 599 – 617. DOI: <https://doi.org/10.47747/ijfr.v5i4.2220>

1. Introduction

According to (Ginting & Tarihoran, 2017), Going Concern is a situation where an entity or company is expected to continue operating indefinitely. A business open statement is a statement made by an auditor regarding the audited company's financial statements. Users of financial reports generally also pay careful attention to the auditor's report. The audit description is one of the auditor's explanations or evaluations regarding whether the company's condition will survive in the future. The going concern assumption shows that a company can maintain

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its operational profitability in the long term. From a company's financial reports, it can be seen that the company's financial health is whether its annual financial reports reflect going concern reports (TULIA et al., 2019).

The phenomenon related to going concern issues can be seen in the Independent Auditor's Report (LAI) of PT Waskita Karya (Persero) Tbk. in 2021 where Public Accountants emphasized the existence of indications of material uncertainty and the impact on company operations. The next phenomenon was also seen at the LAI of one of the airlines in Indonesia, PT Garuda Indonesia Tbk. in 2021. The public accountant provided a disclaimer of opinion and explained the conditions indicating the existence of material uncertainty which raises significant doubts about the ability of PT GIAA and its subsidiaries to maintain its business continuity. Therefore, doubts about the company's going concern capabilities are very reasonable and are of concern to stakeholders regarding the company's going concern issue. This consideration is because if an error occurs in providing an audit opinion it can have fatal consequences for users of financial reports which will also influence company action/policy decisions. Purba (2017) states that financial condition is the main key in seeing whether a company will be able to maintain its business continuity or not in the future, while Amalia (2019) states that a company that has a large company growth ratio indicates that the company can maintain its survival (going concern).

Previous research has not found consistent research results regarding the influence of profitability, leverage, company growth, previous year's audit opinion, and company size (for example (Fauzan & Tugiman, 2020)). The aim of this research is to test the influence of profitability, leverage, company growth, opinion previous year's audit, and company size. The independent variables that will be used are profitability, leverage, company growth, previous year's audit opinion, and company size

2. Literature Review

2.1 Theoretical Foundation

2.1.1 Going Concern Audit Opinion

A going concern opinion is an opinion from an auditor that aims to determine whether a company is viable (IAPI, 2011). Auditors are responsible for assessing whether the company's viability is in question (Kartika, 2012). The auditor may identify information about certain circumstances or events that raise significant doubt about the entity's ability to maintain profitability over a reasonable period of time

When issuing an audit opinion, the auditor must follow the company's actual situation so that it can be responsible to the public who will use the results of the audit opinion. Therefore, audit opinions are expected not to provide unfavorable and misleading information to users of financial reports, such as investors who make investment decisions (Nursasi & Maria, 2015).

2.1.2 Profitability

Profitability is the ability of a company to generate profits. According to Nadeak (2018), investors better know profitable companies. Positive profitability means the company makes a profit, while negative profitability means the company experiences a loss. More profitable companies are less likely to receive a going concern report. If profitability is high, you can raise funds for your next business. Moreover, the company can fulfill its obligations within the relevant time period (Kadirisman, 2018).

2.1.3 Leverage

The leverage ratio is a ratio that shows how much debt the company uses to raise funds. Excessive debt puts a company at risk because it places it in the extreme debt category. This means that the company is trapped with a large amount of debt, and it is difficult to get rid of the debt burden. Therefore, it is best to consider how much debt the company can take on, and where the financial resources available to pay that debt come from (Gusti & Yudowati, 2018).

2.1.4 company growth

Sales is the company's main activity. The company's sales are increasing every year, providing opportunities for the company to gain higher profits. Therefore, the higher the company's growth rate, the less likely the auditor is to issue a going concern opinion as stated by Abdul Rahman (2012) and Oktaviyana (2016).

2.1.5 previous year's audit opinion

According to Kurnia & Mella (2018), the previous year's audit opinion is the audit opinion received by the auditee in the previous year or one year before the research year. The previous year's going concern opinion is an important consideration for auditors when issuing a new going concern opinion the following year. If the auditor has issued a going concern opinion in the previous year, then it is likely that the company will receive a going concern opinion again in the current year.

2.1.6 company size

Company size is a measure for grouping companies into large and small companies, and is related to company finances. Auditors are more likely to give going concern opinions to small companies than to large companies because they assume that large companies are able to overcome financial difficulties. Company size refers to the size of the company. Large companies diversify more easily and tend to have lower bankruptcy rates. Larger companies with larger total assets will be more willing to use borrowed funds to finance all their assets compared to smaller companies (Pane, 2018).

2.2 Research Framework

A research framework is a line of reasoning that connects a theory and concept with various research variables, which are then identified as crucial problems. The benefit of this research framework is that it can produce hypotheses or conclusions.

This research aims to provide scientific evidence about the influence of several going concern audit opinion factors. Factors influencing going into audit opinion are nominal profitability, leverage, company growth, previous year's audit opinion, and company size. The profitability variable has been proven to have no excellent ongoing audit opinion (Pradesa, 2019). The level variable has been proven to influence consumer opinion (Fauzan & Tugiman, 2020). The company's growth variable has been proven to have no effect ongoing concern audit opinion (Fauzan & Tugiman, 2020). Furthermore, the previous year's audit opinion variable has been proven to affect going concern audit opinion significantly. Likewise, the company size variable has been proven to have no influence on going concern audit opinion.

Thus, based on the description of the framework of thought explained in the paragraph above, a framework chart for this research was formed as follows:

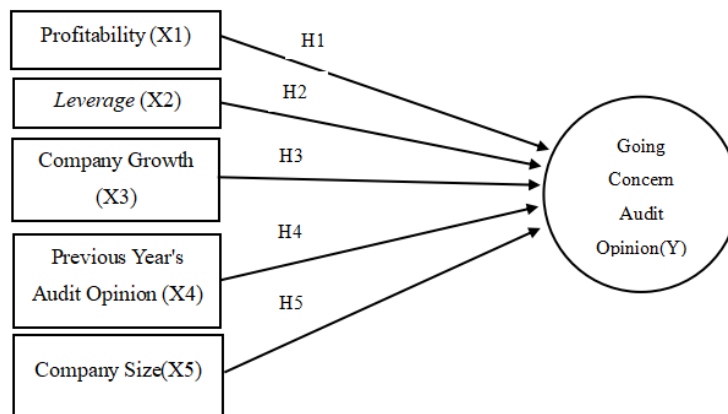


Figure 1. Research Paradigm

2.3 Hypothesis Development

2.3.1 The Influence of Profitability on Going Concern Audit Opinions

The profitability ratio is a ratio that helps maintain a company's ability to generate profits within a certain period (Putranto, 2018). According to Kadirisman (2018), and Hadri & Sudibyo (2014), companies are expected to be able to fulfill their obligations and guarantee the continuity of their business. Generating high profits allows the company to fulfill its obligations to investors. Investors sell the profits the company obtains from its investment activities. The more profits a company generates, the greater the investor's confidence in investing their capital in that company.

Companies that have high profitability have a slight possibility of getting a going concern audit opinion. With high profitability, the company can finance the company's operations in the next paid period. Apart from that, the company can fulfill its obligations in the period concerned (Kadirisman, 2018).

Research (Pradesa, 2019) on the factors that influence going concern audit opinions on manufacturing companies listed on the Indonesia Stock Exchange. The results show that profitability has no effect on going concern audit opinion. This research is strengthened by research (Tulia et al, 2019), (Fauzan & Tugiman, 2020), (Juanda & Lamur, 2021), (Setiawan et al, 2021), stating that profitability has no effect on going concern audit opinion. Based on this description, the formulation of hypothesis H1 is:

H1: Profitability has no effect on going concern audit opinion

2.3.2 The Influence of Leverage on Going Concern Audit Opinions

According to Fahmi (2011), the leverage ratio is an important number that measures how much debt a company has. Excessive debt puts a company at risk because it places it in the extremely debt category. This means that the company is trapped with a large amount of debt, and it is difficult to get rid of the debt burden. Therefore, companies need to consider how much debt they can take on and what financial resources they can use to pay this debt (Gusti & Yudowati, 2018).

Research (Fauzan & Tugiman, 2020) on the influence of profitability, leverage, and company growth ongoing concern audit opinion (empirical study on mining sector companies listed on the Indonesia Stock Exchange for the 2014-2018 period). The results show that Leverage has a positive effect on going concern audit opinion.

partially affects the ongoing audit opinion. This research is strengthened by research (Juanda & Lamur, 2021), (Pelrmadi et al., 2021), (Halim, 2021), stating that leverage has a positive effect on going concern audit opinion. Based on this description, the formulation of hypothesis H2 is:

H2: Leverage influences going concern audit opinion.

2.3.3 The Influence of Company Growth on Going Concern Audit Opinions

A growing company shows that the company's operational activities are good and can maintain its economic position and survival. On the other hand, companies with negative sales growth tend to experience a decline in profits, and management needs to take corrective action to maintain continuity (Gusti & Yudowati, 2018).

The growth rate calculated is the increase in sales, net profit and assets (Gusti & Yudowati 2018). The lower the company's growth, the higher the auditor's opinion regarding its business continuity.

Research (Fauzan & Tugiman, 2020) on the influence of profitability, leverage and company growth on going concern audit opinion (empirical study on mining sector companies listed on the Indonesia Stock Exchange for the 2014-2018 period). The results show that company growth has no effect on going concern audit opinion. This research is strengthened by research (Permadi et al, 2021), (Setiawan, 2021), (Halim, 2021), stating that company growth has no effect on going concern audit opinion. Based on this description, the formulation of hypothesis H3 is:

H3: Company growth has no effect on going concern audit opinion.

2.3.4 The Influence of Previous Year Audit Opinions on Going Concern Audit Opinions

The previous year's audit opinion is the audit opinion received by the company in the year before or before the reporting year. Companies that have received an audit opinion in the previous year will face difficulties. The reason is that the opinions collected by the company make investors hesitate to invest their money. Therefore, the difficult situation in the previous year could not be overcome, causing the company's situation to worsen and increasing the possibility that the company would receive another business continuity report (Suciati, 2019). The previous year's opinion is an important factor that auditors must consider when issuing a new going concern opinion in the following year. If the auditor issued a going concern opinion in the previous year, it is likely that the company will receive a going concern opinion this year (Kurnia & Mella, 2018).

Research (Trida, 2020) on Factors that Influence the Acceptance of Going Concern Audit Opinions (Empirical Study of Manufacturing Companies Listed on the IDX in 2016-2018). The results show that the previous year's audit opinion has a significant positive effect on going concern audit opinion. This research is reinforced by (Halim, 2021), (Yunita, 2022), stating that the previous year's audit opinion has a positive effect on going concern audit opinion. Based on this description, the formulation of hypothesis H4 is:

H4: The previous year's audit opinion influences the going concern audit opinion

2.3.5 The Influence of Company Size on Going Concern Audit Opinions

Company size is a measure for grouping companies into large and small companies, and is related to company finances. Auditors tend to issue going concern opinions more often on small companies than on large companies because they assume that large companies can overcome

financial difficulties that arise. Company size refers to the size of the company. Large companies diversify more easily and tend to have lower bankruptcy rates. Larger companies with higher total assets will be more aggressive in using capital from loans to finance all their assets compared to smaller companies (Pane, 2018).

Research (Pradesa, 2019) on Factors that Influence Going Concern Audit Opinions in Manufacturing Companies Listed on the Indonesian Stock Exchange. The results show that company size has a negative effect on going concern audit opinion. This research is confirmed by (Tulia et al, 2019), (Tridai, 2020), (Setiawan et al, 2021), (Halim, 2021), stating that company size has no effect on going concern audit opinion. Based on this description, the formulation of hypothesis H5 is:

H5: Company size has no effect on going concern audit opinion

3. Research Method

3.1 Object Of Research

The objects of this research are manufacturing companies listed on the Indonesia Stock Exchange (BEI) in 2022-2023.

3.2 Research Methodology

3.2.1 Population and Sample

The population in this research is all manufacturing companies listed on the Indonesia Stock Exchange for the 2022-2023 period. The samples in this research are manufacturing companies that have been selected using a purposive sampling method on the Indonesia Stock Exchange for the 2022-2023 period. The results of this selection produced 50 companies as samples.

3.2.2 Types and Sources of Data

The type of data used is secondary data in the form of quantitative data. The data used in this research is based on company securities report data. This data was obtained from the Indonesian Stock Exchange website for the 2022-2023 period.

3.2.3 Research Variables and Operational Definition of Variables

Operational variables are used as instructions for measuring a variable to become a variable that can be measured and quantified by determining the things needed to achieve specific goals. This research was conducted to determine the factors that influence going concern audit opinions on manufacturing companies on the Indonesia Stock Exchange using one dependent variable and 5 independent variables. The dependent variable in this research concerns audit, while the independent variables are profitability, leverage, company growth, previous year's audit opinion, and company sales.

The following is an operational table of variables:

Table 1. Operational Variables

Variable	Operational Definition	Indicator	Scale Measure
Profitability (X ₁)	According to (Heri, 2015), profitability is a ratio used to measure a company's ability to earn profits from its normal business activities.	1. Net profit 2. All assets	Ratio

Leverage (X ₂)	According to (Fahmi, 2014) leverage is a ratio to measure how much a company is financed with debt. Using debt that is too high will endanger the company. The higher the debt ratio a company has, the greater the possibility that the company will not be able to fulfill its obligations	1. Amount of debt 2. Equity amount	Ratio
Company Growth (X ₃)	The company's strength to face business risks can be determined from the company's growth. The company certainly has a strategy to anticipate risks that may occur. The company's growth is illustrated by the sales volume which is the company's main activity. Company sales that always increase will also increase profits. Increased profits support funding for the continuity of the company's operations, such as financing operations and paying off liabilities. Company growth can be proxied by sales growth (Srimindarti et al., 2019).	1. Volume of other sellers 2. Increasing other sales	Ratio
Previous audit opinion (X ₄)	The course of economic activity in a particular year cannot be separated from the previous year's conditions. If the previous period revealed a going concern audit opinion, then in the current year, the company must be more careful so that it does not receive the same opinion again (Utami & Astika, 2017).	Previous Year Audit Results Report Audit Results Report for the current year	Nominal
Company Size (X ₅)	Company size is grouped into large, medium and small	All Assets	Ratio

companies. Total assets measure the size of the company, share market value, and others. Smaller companies are considered to not have the ability to compete with large companies, especially in maintaining performance. Large companies have the opportunity to obtain loans from external parties to obtain credit from investors because they are considered to have good performance with a low chance of bankruptcy. Company scale is proxied by the natural logarithm of total assets (Abbasi & Malik, 2015).

Going concern audit opinion (Y)	Going audit opinion Concern is an opinion issued by an auditor as a form doubt about the company's ability to maintain survival of the company owned (IAIPI, 2013)	Dummy, 1 = if Shows acceptance going concern audit opinion, 0= if not accepted going concern audit opinion	Nominal
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3.3 Analysis Technique

The data obtained from this research are quantitative. In processing the data, while the analysis technique used was logistic analysis.

4. Findings and Discussions

4.1 Research Results

4.1.1 Overview of research

The Indonesian Stock ELxchangel is one of the exchanges that can provide investment opportunities and sources of financing in an effort to support the National economic development. The Indonelsian Stock ELxchangel also plays a role in these efforts to develop large and solid local investors to create a stable market for the Indonesian capital. BEI is a capital market institution formed through a merger between the Jakarta Stock Exchange and the Surabaya Stock Exchange. The Indonesian Stock ELxchangel began with the establishment of the Stock ELxchangel in Batavia, which is currently known as Jakarta, by the Dutch ELast Indiels government on December 14, 1912. The securities traded were shares and bonds of Dutch companies operating in Indonesia, bonds issued by the Dutch East Indies government and other securities.

The Jakarta Stock ELxchangel (BELJ) and the Surabaya Stock ELxchangel (BELS) will merge

and change their name to the Indonesia Stock Exchange (BEI) in 2007. It is hoped that the merger of these two exchanges will create better conditions for the Indonesian economy.

This research was conducted at a manufacturing company, a company that manages and converts raw materials into finished goods. Manufacturing companies are companies that operate in the capital market apart from other industries such as banking, mining, agriculture, property and others. Manufacturing companies then produce goods or finished products that are marketed to the public. Manufacturing companies are divided into several types of industrial fields such as basic chemical industry, food and beverage industry, automotive industry and others.

4.1.2 Descriptive Statistical Analysis

Descriptive analysis of the data taken for this research is secondary data in the form of financial position reports and annual reports of manufacturing companies for 2022-2023 listed on the Indonesia Stock Exchange (BEI). The following is a descriptive statistical table for each research variable:

Table 2. Descriptive Statistical Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Profitability	100	-1.67	.29	.0158	.19906
Leverage	100	-18.94	3.81	.4126	2.09774
Company Growth	100	-.46	3.03	.3820	.61996
Previous Year's Audit Opinion	100	0	1	.94	.239
Company Size	100	14.70	30.30	26.3050	2.08270
Going Concern Audit Opinion	100	0	1	.90	.302
Valid N (listwise)	100				

Source: Processed Data (2024)

Table 2 shows that 100 observational data were used for all variables, which is in accordance with the findings of descriptive statistical analysis.

4.1.2.1 Logistic Regression Test

Hypothesis testing is carried out using the regression analysis method logistics (logistic regression). According to Ghozaili (2013), regression analysis is a study regarding the dependence of dependent variables on a more variable basis independent. The analysis technique involves analyzing data using a regression model Logistics does not require normal tests and classical assumption tests are highly variable free. The competition was used to test the hypothesis in this research. Instead, use the following formula:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Awareness:

Y = Going concern opinion

α = Constant β_1 - β_6 = Regression coefficient

X1 = Profitability

X2 = Leverage

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X3 = Company growth

X4 = Previous year's audit opinion

ε = Residual failure

Hypothesis testing uses a logistic regression model with a significance method (α) of 5%. Logistic regression is used to test the influence of profitability, leverage, company growth, previous year's audit opinion and company size on going concern audit opinion. The logistic regression model used in this research can be described as follows:

Table 3. Logistic Regression Test Results

		Variables in the Equation					
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Profitability	0.960	1.344	0.510	1	0.475	2.611
	Leverage	-0.118	0.530	0.050	1	0.824	0.889
	Company Growth	-0.383	0.654	0.343	1	0.558	0.682
	Previous Year's Audit Opinion	5.131	1.353	14.372	1	0.000	169.137
	Company Size	0.242	0.150	2.596	1	0.107	1.273
	Constant	-8.203	4.327	3.594	1	0.058	0.000

a. Variable(s) entered on step 1: Profitability, Leverage, Company Growth, Previous Year's Audit Opinion, Company Size.

Source: Processed Data (2024)

Based on table 3 above, the logistic regression model is obtained are as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

$$Y = -8,203 + 0,960X_1 - 0,118X_2 - 0,383X_3 + 5,131X_4 + 0,242X_5$$

4.1.2.2 Assessing the Feasibility of the Regression Model (Goodness of Fit Test)

If the Hosmer and Lemeshow Goodness of Fit Test Statistics value is equal to or less than 0.05, then the null hypothesis is rejected, which means there is a significant difference between the model and its observations so that the goodness of fit of the model is not good because the model cannot predict the observed value (Ghozaili, 2016) . The results of the Hosmer and Lemeshow Goodness of fit test can be seen in table 4 below:

Table 4. Hosmer and Lemeshow Goodness of fit Test Results

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	5.357	8	.719

Source: Processed Data (2024)

From the Hosmer and Lemeshow's Test table, it is shown that it produces a chi-square value of 5.357 with a significance value of 0.719, more than 0.05, so it can be concluded that the logistic regression model that has been used meets data adequacy (fit). So H₀ is accepted and H_a is rejected, and it is concluded that there is no difference between the model and the data. This means that the logistic model produced in this research is able to predict the observed values, so that the model can be accepted.

4.1.2.3 Classification table

Table 5. Classification table

				Predicted		
				Going Concern Audit Opinion Not Accepting Going Concern Audit Opinion	Receive Going Concern Audit Opinion	Percentage Correct
Observed						
Step 1	Going Concern Audit Opinion	Not Going Audit Opinion	Accepting Concern	5	5	50.0
		Receive Concern Opinion	Going Audit	1	89	98.9
	Overall Percentage					94.0

a. The cut value is .500

Source: Processed Data (2024)

Table 5 shows that the company's estimate of receiving a going concern audit opinion is 98.9%. There are 89 companies that are predicted to receive a going concern audit opinion and 1 company that receives a non-going concern audit opinion out of a total of 90 companies that receive a going concern audit opinion. The predictive power of the regression model to predict the possibility of a company receiving a non-going concern audit opinion is 50%. This means that in the regression model, there are 5 companies predicted to receive non-going concern audit opinions and 5 companies to receive going-concern audit opinions out of a total of 10 companies that receive non-going concern audit opinions. It can be concluded that the logistic regression model used is quite good, because it is able to predict 94% of the conditions that occur.

4.1.2.4 Assessing the Overall Model (Overall Model Fit Test)

Table 6. Overall Test of Initial -2LL Model

Iteration		-2 Log likelihood	Coefficients Constant
Step 0	1	68.780	1.600
	2	65.130	2.086
	3	65.017	2.193
	4	65.017	2.197
	5	65.017	2.197

a. Constant is included in the model.

- b. Initial -2 Log Likelihood: 65.017
c. Estimation terminated at iteration number 5
because parameter estimates changed by less
than .001.

Source: Processed Data (2024)

Table 7. Test the Entire Model -2LL Step 1

Iteration		Coefficients						
		-2 Log likelihood	Constant	Profitability	Leverage	Company Growth	Previous Year's Audit Opinion	Company Size
Step 1	1	51.221	-3.505	0.368	-0.009	-0.078	3.254	0.079
	2	42.733	-6.244	0.711	-0.024	-0.198	4.454	0.169
	3	41.586	-7.850	0.907	-0.056	-0.327	5.006	0.227
	4	41.525	-8.189	0.956	-0.098	-0.377	5.129	0.240
	5	41.523	-8.203	0.960	-0.116	-0.383	5.131	0.242
	6	41.523	-8.203	0.960	-0.118	-0.383	5.131	0.242
	7	41.523	-8.203	0.960	-0.118	-0.383	5.131	0.242

- a. Method: Enter
b. Constant is included in the model.
c. Initial -2 Log Likelihood: 65.017
d. Estimation terminated at iteration number 7 because parameter estimates changed by less
than .001.

Source: Processed Data (2024)

Table 7 shows that the -2LL step 1 value decreased by 23.485. This result is the difference between -2LL step 0 in table 6 row five of 65.017 and -2LL step 1 in table 7 row seven of 41.532. This decrease shows that the regression model is good, or in other words, the regression model is fit.

4.1.3 Classical Assumption Test

4.1.3.1 Normality Test

Table 8 Kolmogorov-Smirnov Test Results

			Unstandardiz ed Residual
N			100
Normal Parameters ^{a,b}	Mean		.0000000
	Std.		.23288660
	Deviation		
Most Differences	Extreme Absolute		.374
	Positive		.263
	Negative		-.374
Test Statistic			.374

Asymp. Sig. (2-tailed) .000^c

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.

Source: Processed Data (2024)

To find out whether the residual data is normally distributed or not, the significant value is greater than $\alpha=0.05$ (Ghozali, 2016). In accordance with the table above, a significant value of $0.000 < 0.05$ is obtained. So, the conclusion is that the data is distributed non-normally.

4.1.3.2 Multicollinearity Test

Table 9. Multicollinearity Test Results

Model		Collinearity Statistics	
		Tolerance	VIF
1	Profitability	.984	1.016
	Leverage	.977	1.023
	Company Growth	.973	1.027
	Previous Year's Audit Opinion	.951	1.052
	Company Size	.976	1.024

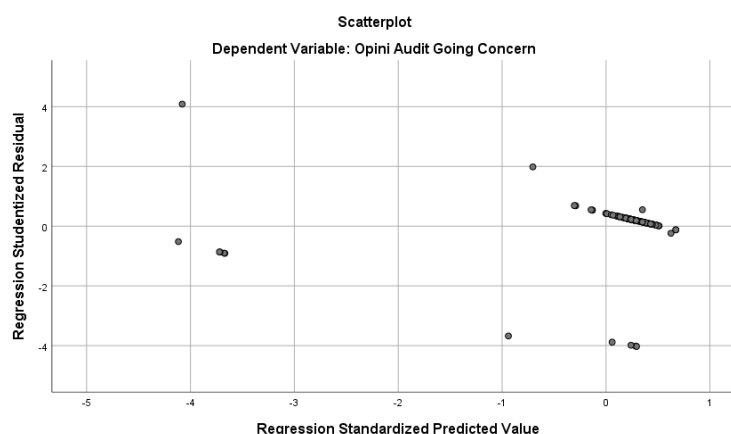
a. Dependent Variable: Opini Audit Going Concern

Source: Processed Data (2024)

From Table 9, it can be seen that the tolerance statistical value for the profitability variable is 0.984, and the VIF value is 1.016. The tolerance value for the leverage variable is 0.977, and the VIF value is 1.023. The tolerance value for the company growth variable is 0.973, and the VIF value is 1.027. The tolerance value for the previous year's audit opinion variable was 0.951, and the VIF value was 1.052. The tolerance value for the Company size variable is 0.976, and the VIF value is 1.024. All variables have a tolerance value above 0.1 and a VIF value below 10.00, so it can be concluded that the data in this study did not contain multicollinearity.

4.1.3.3 Heteroscedasticity Test

Table 10. Heteroscedasticity Test Results



Source: Processed Data (2024)

The results of the heteroscedasticity test from Figure 10 show that the scatter plot graph of SRESID and ZPRED does not show a scattering pattern, the main points are not spread across the plot and at the bottom 0 on the Y axis and the clusters do not form a pattern so that it can be concluded that the plot of this research is not there is a lot of heteroscedasticity.

4.1.3.4 Autocorrelation Test (Durbin-Watson)

Table 11. Autocorrelation Test Results (Durbin-Watson)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.636 ^a	.405	.373	.239	1.687

a. Predictors: (Constant), Company Size, Leverage, Company Growth, Profitability, Previous Year's Audit Opinion

b. Dependent Variable: **Going Concern Audit Opinion**

Source: Processed Data (2024)

Based on table 11, it can be seen that the Durbin-Watson test produces a value of 1.687. This value is greater than $dU=1.7804$ and $4-dU$ which results in 2.2196. This means that there is no autocorrelation.

4.1.4 Hypothesis Test

4.1.4.1 Partial Test (t Test)

Table 12. Results of Partial Significance Test (t Test)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.376	.335		-1.122	.265
	Profitability	.092	.122	.061	.757	.451
	Leverage	-.002	.012	-.015	-.187	.852
	Company Growth	-.019	.039	-.040	-.497	.620
	Previous Year's Audit Opinion	.813	.103	.644	7.890	.000
	Company Size	.020	.012	.136	1.691	.094

a. Dependent Variable: Opini Audit Going Concern

Source: Processed Data (2024)

Based on the results of testing paid for table 12, to test the significance of each independent variable, p-value (probability value) is used with a significance level of 5% (0.05). If the significance value is smaller than 0.05, the regression coefficient will be significant. The profitability variable has a significant value = 0.451 > level of significance (α) = 0.05. Because the significance value is greater than 0.05, the conclusion is that partially the profitability variable does not have a significant effect on going concern audit opinion. The leverage variable has a significant value = 0.852 > level of significance (α) = 0.05. Because the significance value is greater than 0.05, the conclusion is that partially variable leverage has no significant effect on going concern audit opinion. The company growth variable has a significant value = 0.620 >

level of significance (α) = 0.05. Because the significance value is greater than 0.05, the conclusion is that partially the company growth variable does not have a significant effect on going concern audit opinion. The previous year's audit opinion variable has a significant value = 0.000 < level of significance (α) = 0.05. Because the significance value is smaller than 0.05, the conclusion is that partially the previous year's audit opinion variable has a significant effect on going concern audit opinion. The company size variable has a significant value = 0.094 > level of significance (α) = 0.05. Because the significance value is greater than 0.05, the conclusion is that partially the company size variable does not have a significant effect on going concern audit opinion.

4.1.4.2 Simultaneous Test(F Test)

Table 13. Simultaneous Significant Test Results (F Test)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.643	5	.729	12.784	.000 ^b
	Residual	5.357	94	.057		
	Total	9.000	99			

a. Dependent Variable: Going Concern Audit Opinion

b. Predictors: (Constant), Company Size, Leverage, Company Growth, Profitability, Previous Year's Audit Opinion

Source: Processed Data (2024)

Based on table 13 for the ANOVA or F test results above, a sig value of 0.000 is obtained, this value is smaller than the significant level of 0.05 (0.000 < 0.05), so it can be stated that H_a is accepted, which means the independent variables used in this research, namely profitability, leverage, company growth, previous year's audit opinion, and company size simultaneously influence the acceptance of going concern audit opinions.

4.1.4.3 Coefficient of Determination

Table 14. Determination Coefficient Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.636 ^a	.405	.373	.239

a. Predictors: (Constant), Company Size, Leverage, Company Growth, Profitability, Previous Year's Audit Opinion

Source: Processed Data (2024)

Based on a variable of 14, the adjusted R^2 value is 0.373, which means that independent variables of 37.3% can explain the dependent variables paid for by the research. The conclusion is that 37.3% of the changes that occurred were well paid for by the going concern audit opinion (Y) which can be explained by the variables of profitability (X1), leverage (X2), company growth (X3), previous year's audit opinion (X4), company measurement data (X5). Meanwhile, the remaining 62.7% is explained by other variables which cannot be explained in this research or other factors outside the research model.

4.2 Discussion

This research examines the influence of profitability, leverage, company growth, previous year's audit opinion, and company measurement (company performance on the IDX). The following is explained in a table summarizing the results of research regarding the influence of independent variables on dependent variables based on the results of testing that has been carried out .

Table 15 Summary of Research Results

Independent Variable	Coefficient	Significance	Information	Hypothesis
Profitability	0,757	0,451	No Effect	Accepted
Leverage	-0,187	0,852	No Effect	Accepted
Company Growth	-0,497	0,620	No Effect	Accepted
Previous Year's Audit Opinion	7,890	0,000	Influential	Rejected
Company Size	1,691	0,094	No Effect	Accepted

Source: Processed Data (2024)

4.2.1 The Influence of Profitability on Going Concern Audit Opinions

The results of testing the first hypothesis show that the first hypothesis is accepted. The test results show that profitability has no effect on going concern audit opinion with a significance of 0.265, which is a value greater than 0.05 ($\alpha=5\%$) and a regression coefficient value of 0.757. Therefore, based on the results of this hypothesis, it states that profitability has no positive effect on going concern audit opinion.

4.2.2 The effect of leverage on going concern audit opinion

The results of testing the second hypothesis show that the second hypothesis is accepted. The test results show that leverage has no effect on going concern audit opinion with a significance of 0.451, where the value is greater than 0.05 ($\alpha=5\%$) and the regression coefficient value is -0.187. Therefore, based on the results of this hypothesis, it states that leverage has no positive effect on going concern audit opinion.

4.2.3 The influence of company growth on going concern audit opinion

The results of testing the third hypothesis show that the third hypothesis is accepted. The test results show that company growth has no effect on going concern audit opinion with a significance of 0.620, which is a value greater than 0.05 ($\alpha=5\%$) and a regression coefficient value of -0.497. Therefore, based on the results of this hypothesis, it is stated that company growth has no positive effect on going concern audit opinion.

4.2.4 The influence of the previous year's audit opinion on going concern audit opinion

The results of testing the fourth hypothesis show that the fourth hypothesis is rejected. The test results show that the previous year's audit opinion has an influence on going concern audit opinion with a significance of 0.000, where the value is greater than 0.05 ($\alpha=5\%$) and the regression coefficient value is 7.890. Therefore, based on the results of this hypothesis, it is stated that the previous year's audit opinion has a positive effect on going concern audit opinion.

4.2.5 The influence of company size on going concern audit opinion

The results of testing the fifth hypothesis show that the fifth hypothesis is accepted. The test results show that company size has no effect on going concern audit opinion with a significance of 0.094, which is a value greater than 0.05 ($\alpha=5\%$) and a regression coefficient value of 1.691. Therefore, based on the results of this hypothesis, company size does not have a positive effect on going concern audit opinion.

5. Conclusion

5.1 Conclusion

Based on the discussion regarding going concern audit opinions on manufacturing companies on the Indonesia Stock Exchange (BEI) using the independent variables profitability, leverage, company growth, previous year's audit opinion, and company size which the author presents, the author concludes several things as follows :

1. The results of testing the first hypothesis show that the profitability variable has no effect on going concern audit opinion. However, profitability simultaneously has an influence on going concern audit opinion. This is proven by the significance value in hypothesis testing with a value of 0.000 or less than 0.05. Profitability is not used as a benchmark by auditors in providing going concern audit opinions because auditors pay more attention to how the company carries out its operations and its financial condition.
2. The results of testing the second hypothesis show that the leverage variable has no effect on going concern audit opinion. However, leverage simultaneously has an influence on going concern audit opinion. This is proven by the significance value in hypothesis testing with a value of 0.000 or less than 0.05. This may be because the company in this study managed its assets efficiently, experienced revenue growth every year, and generated profits that could cover its debts. In addition, when developing a going concern opinion, auditors not only consider the company's ability to cover its debts, but also the company's general financial condition.
3. The results of testing the third hypothesis show that the company growth variable has no effect on going concern audit opinion. However, the company's growth simultaneously has an influence on the going concern audit opinion. This is proven by the significance value in hypothesis testing with a value of 0.000 or less than 0.05. Because the higher the company's growth ratio, the greater the probability of getting a going concern audit opinion.
4. The results of testing the fourth hypothesis show that the previous year's audit opinion variable has an influence on going concern audit opinion. However, the previous year's audit opinion simultaneously has an influence on the going concern audit opinion. This is proven by the significance value in hypothesis testing with a value of 0.000 or less than 0.05. This means that companies that received a going concern audit opinion in the previous year will have a greater probability of getting a going concern audit opinion.
5. The results of testing the fifth hypothesis show that the company size variable has no effect on going concern audit opinion. However, company size simultaneously has an influence on going concern audit opinion. This is proven by the significance value in hypothesis testing with a value of 0.000 or less than 0.05. Company size is not a benchmark in providing going concern audit opinions because auditors tend to look more closely at

company performance, so small companies will still be able to maintain their survival if they have good company performance.

5.2 Suggestions

Based on the conclusions and research results, the following suggestions are put forward:

1. Auditors are expected to always maintain audit quality and maintain independence and objectivity in issuing opinions so that the opinions given on the company's financial reports can be a reliable reference for users, namely for investors who will invest their capital, as well as for companies to always consider business sustainability. which are owned.
2. For companies, it is hoped that they can make company assets more efficient to gain profits because the profitability variable is a factor that influences the provision of going concern audit opinions.
3. Before investing capital, investors should carefully examine the various aspects in the financial reports, don't just rely on one variable so they can see how the company's business is sustainable.
4. The coefficient of determination (Adjusted R Square) in this study was 37.3% while the remaining 62.7% was explained by other variables outside the research model. This means that there are still other variables that need to be identified to explain the factors that influence the continuity of an audit opinion.
5. Future researchers can add research objects by using all Go Public companies in Indonesia, not just manufacturing companies and extending the research period.

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Stock Market Reaction: An Investigation Of COVID-19 Effects in ASEAN Countries

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Article Information:

Received: November 19, 2024, Accepted: December 03, 2024, Published: December 28, 2024

Abstract

This study examines the effects of the various COVID-19 announcements by the World Health Organization (WHO) on stock returns in ASEAN countries, which is different from previous research in that most of the research only observed the first announcement of COVID-19 when a pandemic was declared. This study uses 6 announcements of COVID-19, starting from the first time COVID-19 was identified until it was declared a variant delta. The results revealed that the market reaction in ASEAN to the first announcement of COVID-19 in China on December 31st, 2019, shows a positive and non-significant abnormal return and cumulative abnormal return. On January 13th, 15th, 21st, and 24th, 2020, the market also reacted negatively but not significantly to the announcement of the first recorded case outside China, which is in Thailand, Japan, the USA, and the European region, and it was an intermittently negative reaction but not significant. On March 7th, 2020, when the confirmed cases surpassed 100,000 globally, and on March 11th, 2020, when WHO officially announced COVID-19 as a global pandemic, the ASEAN market reacted negatively and significantly for abnormal and cumulative abnormal returns, which is inconsistent with Salisu, Sikiru and Vo (2020) and Topcu and Gulal (2020). However, the ASEAN countries reacted positively but not significantly to the second wave announcement on May 31st, 2021.

Keywords: abnormal return, COVID-19 announcements, ASEAN countries.

JEL Codes: G0, G1, G14

How to Cite:

Fauzi, F., Basyith, A., & Periansya. (2024). Stock Market Reaction: An Investigation of COVID-19 Effects in ASEAN Countries. *International Journal of Finance Research*, 5(4). 618 – 641. DOI: <https://doi.org/10.47747/ijfr.v5i4.2527>

Published by:

1. Introduction

The impact of COVID-19 as a global pandemic on human health was so profound that global economic activity suddenly froze in the first six months of 2020 (Gerlagh, Heijmans & Rosendahl, 2020). Businesses and different industry sectors were severely impacted, with their future condition are in jeopardy, while investors suffered the heavy effect of this disaster and left with uncertainty in the market (Laing, 2019; Salisu & Akani, 2020), thus changing the investors' behaviors (So, Chu & Chan, 2021). The consequentially destructed sectors relate to tourism, education, sports events, and public transport services (Donthu & Gustafsson, 2020). Nevertheless, the air industry is one of the crucial financial market sectors that was also heavily damaged due to the closure of international borders.

Furthermore, COVID-19 has not only caused a health crisis (Jacobsen, 2020) but also severely damaged international economic activity and market confidence (El-Erian, 2020), especially the financial market in general and the global stock markets had a record decline since 2008 financial crisis (Song & Zhou, 2020). Developed and developing countries, index funds, conglomerates, and multinationals have received unprecedented damages during COVID-19. This led to a slowdown in economic growth, and the global economy fell into a recession (OECD, 2020), while the financial market ground to a halt and plunged.

2. Literature Review

A signal theory provides an overview or signal related to information with external parties. The signal theory was first introduced by Spence (1973), who explained that events or activities from certain parties provide a signal or signal in the form of information that reflects the state of an entity beneficial to other parties. For investors, the signal or information is a picture of the entity's future development from the signal, which can be used as a basis for consideration when making investment decisions.

These events or activities originate from micro and macroeconomic factors, disasters, and politics. These disasters can be natural disasters, negligence, or disease outbreaks. Different events affect how the stock market reacts (Ramiah, 2013). Stock price changes over time correspond to current circumstances and information. Internal and external causes can also influence changes in stock prices. The core elements of the business, such as its earnings and dividends, are the pertinent internal variables (Al-Tamimi, Alwan, & Rahman, 2011). The information or news investors acquire, which may be favorable or unfavorable (Chan, 2003), is one of several external factors affecting stock values. According to Bae and Karolyi (1994), bad domestic and international news significantly impacts stock prices more than good news.

Natural disasters, negligence, and disease outbreaks will directly or indirectly impact stock prices (Artiani, 2015). Natural disasters include earthquakes, floods, and storms (hurricanes, tornadoes, and typhoons). Negligence can be in the form of work accidents, explosions, poisoning, which earthquakes can accompany, and toxic gas, which is a consequence of improper equipment. Disease outbreaks can be ebola, SARS, and currently, COVID-19.

The following presents cases of natural disasters that impact stock prices. Wulandari & Khairunissa (2015), Yuwono (2013) and, Mulyana and Lukman (2021) examined flooding in the capital, Ferenita (2014) examined the impact of the 2006 Aceh tsunami. The research results show that neither the tsunami nor the flood gave any difference in abnormal returns before or after the event. Only Natasha and Sumami's research (2015) examined flooding in

Jakarta from 2000 to 2013, which showed differences in returns before and after events for 5 sectors: consumer goods, property and real estate, finance, trade, services, and investment.

Yuwono (2013) examined flooding in Jakarta in 2013. This study's results indicated positive abnormal returns on stocks engaged in the consumer goods industry sector and the retail sub-sector on the day of the incident. Positive abnormal returns occur on the first, second, fourth, fifth, eighth, and tenth days. The difference test shows that statistically, there is a difference in the average abnormal return on stocks engaged in the consumer goods industry sector and the retail sub-sector before and after the event. As for the average stock trading volume activity, there is no statistically significant difference. Ferenita (2014) examined the effect of the Aceh tsunami disaster on stock prices. This is shown by no abnormal return during the event period, no difference in average abnormal return before and after the event, and no difference in average trading volume activity before and after Aceh's tsunami natural disaster event.

Natasha and Sumami (2015) examined flooding in Jakarta from 2000 - 2013. The results of this study show the significant effects of floods occurring in Jakarta on the return of sectoral indices, which were 4 of the 10 sectors in 2002, 3 sectors in 2007, and 2 sectors in 2013. The sectors significantly affected are consumer goods, property and real estate, finance, trade, services, and investment. Different results were obtained by Wulandari and Khairunissa (2015), who also examined the impact of flooding in Jakarta on insurance company shares. This study's results indicate no difference in abnormal returns and trading volume activity in insurance company shares before and after the floods in 2007 and 2013.

Mulyana and Lukman (2021) researched floods in early 2020 in Indonesia. The results show no significant difference in the average abnormal return on the stock afoot in the consumer goods sector, general insurance, and pharmaceutical companies before and after the flood disaster in early 2020. This research implies that investors should look at events that can affect stock prices.

The following are some studies on disasters caused by negligence: Capelle-Blancard and Laguna (2010) and Kowalewski and Śpiewanowski (2020) examined the disaster at the Potassium Mine and its impact on the stock market in Poland and Chemical Disasters. The results of their research showed that there was a decline in market value due to the disaster.

Capelle-Blancard and Laguna (2010) conducted a study on chemical disasters. On average, petrochemical firms in our sample experienced a drop in their market value of 1.3% over the two days immediately following the disaster. After that, Kowalewski and Śpiewanowski (2020) examined the catastrophe at the Potassium Mine and its impact on the stock market in Poland. In the first two days following a disaster, the affected mining companies typically see a cumulative decline in their market value of 1.15%. The result also displayed the rivals of the impacted organizations currently in business and those in the future (greenfield). The relative strength of the negative risk effect and the favorable pricing and supply effect determines the direction and size of the impact.

Previous research on the impact of disease outbreaks such as Ebola and SARS was conducted by Nippani and Washer (2014) and Ichev and Marinč (2018). Nippani and Washer (2004) examined whether SARS impacted the stock markets in Canada, China, Hong Kong, Indonesia, and the Philippines. By comparing stock indexes during and before the SARS outbreak, they found that SARS had no negative impacts except in China and Vietnam. Furthermore, Ichev and Marinč (2018) examined the effect of the Ebola outbreak in 2014 – 2016. The results show

that information about Ebola outbreak events is more relevant for companies geographically closer to the two birthplaces of the Ebola outbreak and financial markets. The results also show that the effect is more pronounced for smaller and more volatile stocks, stocks of specific industries, and stocks exposed to intense media coverage. An increased risk perception also accompanies this event effect; implied volatility increases after the Ebola outbreak event. One lousy news item that can affect stock market prices is the breakout of a disease. Previous research has looked into how outbreaks affect stock markets. However, the effect of severe acute respiratory syndrome (SARS) on stock performance has been the subject of numerous studies. In 2003, there was an outbreak of SARS. SARS is a respiratory illness that has spread to some nations, like COVID-19.

The travel and tourism industry was hit severely since people's willingness to travel decreased (Hao, Bai & Sun, 2021). COVID-19 negatively affected international travel demand due to the risk of being infected with the disease's new diagnosis and the government's travel restrictions. Therefore, as travel fell, these sectors' stock prices also decreased severely as the industry stopped or delayed until things got better, leading to high volatility in the equity market. Consumption is vital in GDP as the largest share, which is affected by internal and external factors. In this period, the main factor is COVID-19. Although the consumption of necessities such as accommodation, food, etc., does not change much, consumer discretionary, such as clothing, recreation, etc., reduced significantly due to COVID-19, leading to the fall in the stock price of these firms. In contrast, other entrepreneurs' stocks did not change much, causing high volatility in the stock market.

As most studies found that certain events caused volatility, Black (1976) was the first to illustrate the leverage effect in equity volatility, in which stock volatility is negatively associated with stock returns, implying that as stock prices fall, volatility rises. The significant fluctuation in market fundamentals creates long-term volatility and acts as a risk to investors who invest in marketable securities like common stock for a long time. Schwert (1990) asserted that there are different reasons for long and short-term volatility. For long-term fluctuations, there are three main factors: personal leverage, corporate leverage, and business condition. For short-term volatility trends, day-to-day business, social ceremonies, and politics cause short-term trends.

Moreover, stock returns are very responsive to the political situation in the country, economic crises, natural disasters inflation effects, etc. (Reddy & Narayan, 2016). These variables provoke fluctuation in the stock market. It is found that during a recession, stock market volatility is higher and can occur after a considerable drop in the stock market price (Schwert, 1990). Volatility in the stock market has always been a significant concern for investors and policymakers. Rajput, Kakkar and Batra (2012) defined volatility as a measure of the disparity between an asset's present and previous average values. Two types of volatility exist in the market: high volatility and low. High volatility exists when prices fluctuate widely over short periods, while low volatility exists when prices move slowly (Rajput, Kakkar & Batra, 2012). Investors observe volatility as a risk index and a piece of information (Rakesh, 2007). As a result, it changes their view on the stock market appropriately. The amount of inconsistency in the stock price, which shows the nature of volatility, caused the change in the value of the investor portfolio.

Furthermore, the ability to react and consecutive spread of volatility depends on market flexibility and efficiency. An efficient and flexible stock market will immediately respond to the market and different factors (Rakesh, 2007). Sometimes, unexpected high volatility is likely to be linked to a specific factor in the country, for instance, corporate earnings and political and government decisions (Bailey & Chung, 1995; Aggarwal, Inclan & Leal, 1999). Furthermore, the long volatility trend must be associated with economic growth.

Jones, Kaul, and Lipson (1994) examined how the flow of information could affect stock price behavior and proposed that community information could be the primary element of short-term volatility. Investors responded to immediate information and influenced the market by making the price go up and down, which caused volatility. We can see how information flow plays a vital role in the movement of stock prices, which is related to volatility (Ross, 1989). Moreover, investor sentiments are affected by the information and are significant in the volatility of the financial market. Such an adverse change in the sentiment due to the dangerous coronavirus situation has impacted the investor's trading behavior. Commonly, most individuals tend to have their behavior switched to a state of panic during a crisis, which makes them act irrationally toward the situation. Therefore, the slump in investor sentiment triggered panic selling behavior. The New York Stock Exchange (NYSE), which is the world's largest stock market, had recorded a high frequency of stock selling-off from the market participants, causing the variation of stock prices to move more significantly during the beginning of the COVID-19 (Hong, Bian & Lee, 2021).

3. Method

This study uses event study methodology to examine whether the market reacts unfavorably to a COVID-19 pandemic announcement by the WHO. Typically, the estimation window is about 250 days for daily data; however, there is discretion to determine the estimation window, which may depend on the characteristics and circumstances. Therefore, this study uses a 120-day estimation window, 21 21-day event window, and a 120-day post-estimation window. 21-day event window aims to capture the short-term effect of COVID-19. This paper used various event dates of COVID-19 events recorded by the World Health Organization (WHO) that are (1) 31 December 2019, when it was first identified in China; (2) 13 January 2020, the first recorded case outside China, took place in Thailand; (3) 15 January 2020, the second confirmed case detected outside China that took place in Japan; (4) 21 January 2020, when the United States of America (USA) reported its first confirmed case; (5) 24 January 2020, when France reported its first confirmed case; (6) 31 January 2020, when the United Arab Emirates (UAE) reported its first confirmed case; (7) the number of confirmed COVID-19 cases surpassed 100 000 globally on 7 March 2020; (8) the date when the WHO announced COVID-19 as a pandemic. Figure 1 presents the estimation window. This study used a composite index from 4 ASEAN countries.

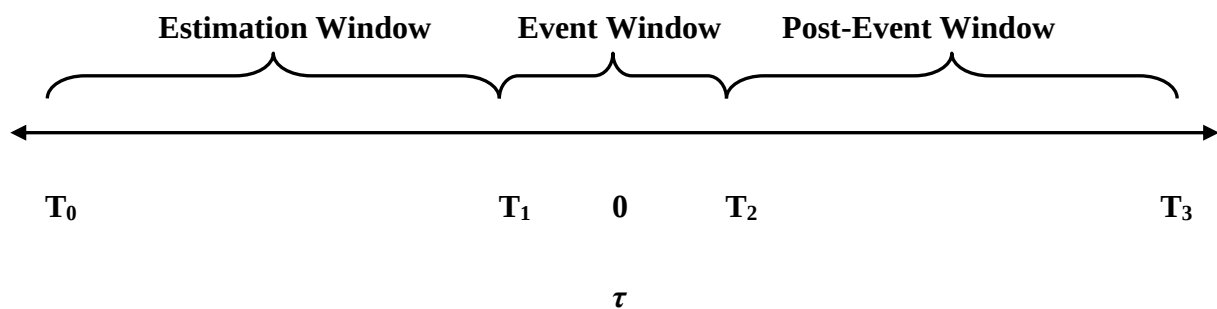


Figure 1: Estimation Window

$\tau = 0$ as the event date

$\tau = T_1 + 1$ to T_2 as the event window

$\tau = T_0 + 1$ to T_1 as the estimation window

$\tau = T_2 + 1$ to T_3 as the post-estimation window

The estimation period is the period over which no event has occurred and is used to establish how the return should behave generally in the absence of the event. There is no set standard for the number of periods to include in the estimation period; one can put a longer estimation window to capture the relationship between the stock and the market, but it should be noted that a longer estimation window may cause a spurious correlation between the stock and the market. The event window is the number of trading days preceding and following the event date that is considered necessary to capture both the leakage and the time needed for the information to be absorbed by the market. The length of the event window is a matter of the researcher's judgment. Having the least number of days possible for the event window is preferable because multiple events within an event window may occur and affect the result's significance. Therefore, the length of the event window depends on the event investigated.

According to Brown and Warner (1980), different abnormal return benchmarks used in the event studies give less benefit and may worsen the result. Moreover, the alternative estimators are the same in their ability to detect abnormal performance without event-time clustering (Peterson, 1989). The mean-adjusted return model is one of the simplest models of abnormal returns that yields similar results to other sophisticated models in the short-term interval, and general market movement is not allowed (Brown & Warner, 1985). The mean adjusted return is formulated as (Peterson, 1989; MacKinlay, 1997; Binder 1998):

$$A_{it} = R_{it} - \bar{R}_i$$

The abnormal returns in the sample are aggregated to draw overall inferences for a specific event. In estimating the performance measure over any multi-period interval (e.g., time 0 through +10), several methods exist for time-series aggregation over the period of interest. The cumulative average residual method (CAR) is used to measure the abnormal performance of the sum of each period's average abnormal performance. The cumulative abnormal return (CAR) is to accommodate a multiple-period event window.

$$AR_t = \frac{1}{N} \sum_{i=1}^N e_{it} \quad (1)$$

$$CAR_i = AR_{i,t1} + \dots + AR_{i,t2} \quad (2)$$

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i\tau} \quad (3)$$

Under the null hypothesis, H_0 , that the event has no impact on the behaviour of returns (mean or variance) in observation length of the event window (MacKinlay, 1997):

$$AR_{i\tau} \sim N(0, \sigma_i^2(AR_{i\tau})) \quad (4)$$

The variance of CAR_i is:

$$\sigma_i^2(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1)\sigma_{\varepsilon_i}^2 \quad (5)$$

The distribution of the CAR under H_0 is no abnormal return, then:

$$CAR_i(\tau_1, \tau_2) \sim N(0, \sigma_i^2(\tau_1, \tau_2)) \quad (6)$$

The aggregation is calculated through time and across securities

$$AAR_t = AR_{i,t1} + \dots + AR_{i,t2} \quad (7)$$

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_i \quad (8)$$

$$CAAR_t = \sum_{t=t1}^{t2} AAR_t \quad (9)$$

The variance of $CAAR_i$ is:

$$\sigma_i^2(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1)\sigma_{\varepsilon_i}^2 \quad (10)$$

The distribution of the $CAAR$ under H_0 is no abnormal return, then:

$$CAAR_i(\tau_1, \tau_2) \sim N(0, \sigma_i^2(\tau_1, \tau_2)) \quad (11)$$

A test statistic is typically computed and compared to its assumed distribution under the null hypothesis that mean abnormal performance equals zero. The null hypothesis is rejected if the test statistic exceeds a critical value, typically corresponding to the 5% or 1% tail region (i.e., the test level or size of the test is 0.05 or 0.01). For the CAR shown in equation (2 or 3), a standard test statistic is the CAR divided by an estimate of its standard deviation.⁵ Many alternative ways to estimate this standard deviation have been examined in the literature (MacKinlay, 1997). The test statistic is given by:

$$\frac{CAR(t_1 t_2)}{[\sigma^2(t_1 t_2)]^{1/2}} \quad (12)$$

$$\text{Where, } \sigma^2(t_1 t_2) = L\sigma^2(AR_t) \quad (13)$$

The test statistic in equation 12 provides the variance of one-period mean abnormal return and equation 13 assumes time-series independence of one-period mean abnormal return. $\sigma^2(AR_t)$ is the variance of the one-period mean abnormal return.

4. Findings and Discussions

Vietnam

Though most countries showed negative economic growth in the first quarter of 2020, Vietnam showed a positive growth rate, which indicated that the Vietnamese economy was not severely

affected by the pandemic. However, this does not guarantee that investors still have high confidence in the investment of financial assets, as the cumulative abnormal return has been negative since January 21st, 2020, two days before the first confirmed cases were detected in Vietnam.

The market reaction in Vietnam to the first announcement of COVID-19 in China on December 31st, 2019, shows a negative but non-significant abnormal and a non-significant positive for the cumulative abnormal return. Further, the market reacted negatively on January 13th, 2020, when the first confirmed cases outside China were announced in Thailand. Though the reaction was negative on the announcement date, the cumulative abnormal return was positive and significant. Further, the market reacted positively but not significantly to the announcement on January 15th, 2020, and the cumulative abnormal return was positive until day five after the announcement date. This indicated that the investors still have high confidence in the market. However, the market started to react negatively two days after the announcement on January 21st, 2020, when the first recorded case outside China was in the USA. The first confirmed case in Vietnam was on January 23rd, 2020, and there was a negative and significant reaction to the announcement of the first confirmed case in the European regions on January 24th, 2020. Hence, the stock prices fluctuated significantly, and the cumulative abnormal return ten days after the announcement date was negative and significant. Vietnam's overall economy was also affected by the mixed reaction to the COVID-19 announcement in the first quarter of 2020. Though there was a decline in GDP growth from 2019 to 2020, which was 7.02% and 2.9%, Vietnam's economy has remained resilient compared to other ASEAN countries and other countries as Vietnam is one of the few countries in the world which showed positive economic growth during this period. The positive growth in 2020 during the first outbreak was due to the solid economic fundamentals, decisive containment measures, and well-targeted government support.

On March 7th, 2020, when the number of confirmed COVID-19 cases surpassed 100,000 globally, and on March 11th, 2020, when WHO officially announced COVID-19 as a global pandemic, the market reacted negatively and significantly on the date of the announcements and during the event window of 21 days for both abnormal return and cumulative abnormal return. It can be seen that the stock price declined tremendously during the event window as the negative cumulative abnormal return increased sharply. Though Vietnam was one country that responded well to the pandemic over the following four months after it was first detected in the country and also was one country maintaining positive economic growth, there was an extreme decline in the stock price as the investor lost confidence in their investment. The result is consistent with the findings of Trang Anh and Gan (2020), Dang Ngoc, Vu Thi Thuy, and Le Van (2021), and Nguyen, Hai and Nguyen (2021).

On May 31st, 2021, when the WHO announced the second wave of COVID-19, in which the virus is deadly and more transmissible and called Delta Variant, the market reacted positively but not significantly. Hereafter, it was an intermittently mixed reaction but not significant. However, the cumulative abnormal return was positive and significant, possibly due to the enormous fluctuation of the stock price, which yielded a high abnormal return during the event window. The positive economic growth, which was 2.58% in 2021, might also affect the positive reaction. Further, Vietnam can be considered one of the success stories in dealing with Covid-19. The anti-Covid vaccination campaign is the country's largest-ever immunization campaign. Thus, the second wave of COVID-19 only shocked the economy and the financial

market as over 75% of the population had received one jab, and over 55% had been fully vaccinated (two jabs).

Philippines

The market reaction in the Philippines to the first announcement of COVID-19 in China on December 31st, 2019, shows a negative and non-significant abnormal return and cumulative abnormal return. The negative reaction was intermittent during the event window for abnormal and cumulative abnormal returns, though it was insignificant.

Apart from January 13th, 2020, the announcements on January 15th, 2020, and January 21st, 2020, affected the market's reaction negatively but not significantly to the announcement of the first recorded case outside China, which is in Japan and the USA. Hence, the reaction was negative and varied during the event window. The cumulative abnormal return for these two dates was negative and significant after and before the announcement. Though the first confirmed case was on January 30th, 2020, the market was already alerted by the situation, as shown by a considerable price fluctuation as the government declared a catastrophe in the country on March 17th, 2020, for six months. The government imposed travel restrictions and a stringent social distancing measure. Hence, the market started to slump, as indicated by high volatility. During the event window, most cumulative abnormal returns were negative and significant.

In conclusion, the market reacted positively to the COVID-19 outbreak in the USA; meanwhile, the market reacted negatively to the COVID-19 outbreak in Japan. However, the cumulative abnormal return was negative and significant for both announcements of the COVID-19 outbreak. The Philippines economy was deeply affected by COVID-19 in 2020 as the Philippines suffered a deep recession due to the impact of the COVID-19 pandemic, with GDP contracting by 9.6% compared to 2019. Sales declines caused negative economic growth, and most businesses reported severe liquidity problems as they had insufficient cash to cover daily operational costs and liabilities. Moreover, the government failed to boost the economy by enticing foreign investors to invest in the Philippines using a corporate tax cut policy.

On March 7th, 2020, when the number of confirmed COVID-19 cases surpassed 100,000 globally, and on March 11th, 2020, when WHO officially announced COVID-19 as a global pandemic, the market reacted negatively and significantly on the date of the announcements and during the event window of 21 days for both abnormal return and cumulative abnormal return. It can be seen that the stock price declined tremendously during the event window as the negative cumulative abnormal return increased sharply. The Philippines was the first country to shut financial markets in response to the spread of COVID-19 on March 17th, 2020, in which the stock, bond, and currency trading were halted until further notice. The Philippines benchmark index fell to 20 percent for March 2020, worse than the 2008 global financial crisis. The result is consistent with Camba and Camba Jr (2020) and Le and Tran (2021) findings.

On May 31st, 2021, when the WHO announced the second wave of COVID-19, in which the virus is deadly and more transmissible and called Delta Variant, the market reacted negatively but not significantly. Hereafter, it was an intermittently negative reaction but not significant. Though the cumulative abnormal return was positive and significant, the Philippines remained in a protracted recession during early 2021, with the first quarter of 2021 GDP growth rate at -4.2%, suffering its fifth consecutive economic contraction. Further, the economic recovery has been delayed by the latest COVID-19 wave that hit the Philippines during the first half of 2021,

with the highest number of coronavirus infections and COVID-19 deaths in Southeast Asia after Indonesia. Moreover, the slow economic recovery due to business insolvencies, weaker household balance sheets, and high unemployment also affected investors' confidence.

Laos

The market reaction in Laos to the first announcement of COVID-19 in China on December 31st, 2019, shows a negative but non-significant abnormal and a significant positive for the cumulative abnormal return. The market reacts negatively to COVID-19 only after two days, but it is insignificant. The abnormal return during the event window varied.

The announcement of the first confirmed case outside China, which was in Thailand on January 13th, 2020, did affect the market negatively but was not significant. The stock price fluctuated during the event window, which resulted in abnormal return variation. However, the cumulative abnormal return was negative and significant on the interval of 2 days before the announcement and all significant for 10 days after the announcement date.

The announcement of the first confirmed case outside China, which was in Japan on January 21st, 2020, did affect the market positively but was not significant. The market reacted negatively only three days after the announcement, although it was insignificant. However, the cumulative abnormal return was mainly negative and significant during the event window, as the first confirmed case in Laos was on March 24th, 2020. Though the announcement on January 24th, 2020, was positive and non-significant, the cumulative abnormal return during the event window varied. This indicated price volatility as the market was concerned about the situation.

Further, the first confirmed case in the country was announced on March 24th, 2020, and Laos had the lowest GDP growth rate in 30 years due to COVID-19. Tourism, handicrafts, and manufacturing are the dominant sectors in Laos. In the first six months of 2020, tourist arrivals declined by 60%, and the manufacturing industry had a growth decline from 6.7 percent in 2019 to 5.8 percent in 2020. Tourism-related sectors such as travel agencies, accommodation services, restaurants and entertainment services, passenger transportation, and retail trade have been hit hard. Moreover, investment has been slow or postponed as the government tightens labor and equipment movement difficulty as the borders are closed (source: <https://www.worldbank.org/en/country/lao/publication/covid-19-to-impact-lao-pdr-growth-debt-in-2020-new-world-bank-report>).

On March 7th, 2020, when the number of confirmed COVID-19 cases surpassed 100,000 globally, the market reacted negatively and significantly on the date of the announcements and during the event window of 21 days for both abnormal and cumulative abnormal returns. It can be seen that the stock price declined tremendously during the event window as the negative cumulative abnormal return increased sharply. However, when WHO officially announced COVID-19 as a global pandemic on March 11th, 2020, the market did respond positively but not significantly. However, most cumulative abnormal returns during the event window were negative and significant for March 7th and 11th, 2020. The result is consistent with Ibrahim, Kamaludin, and Sundarasan (2020) findings.

On May 31st, 2021, when the WHO announced the second wave of COVID-19, in which the virus is deadly and more transmissible and called Delta Variant, the market reacted negatively but not significantly. Hereafter, it was an intermittently negative reaction but not significant. However, the cumulative abnormal return was positive and significant, possibly due to the

enormous fluctuation of the stock price, which yielded a high abnormal return during the event window.

Table 1. Abnormal Return and Cumulative Abnormal Return for Vietnam Stock Exchange

Date	31-Dec-19		13-Jan-20		15-Jan-20		21-Jan-20		24-Jan-20		7-Mar-20		11-Mar-20		31-May-21	
	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR
-10	-0.7768	-0.7768	0.5119	0.5119	-0.4195	-0.4195	0.3228	0.3228	1.1701*	1.1701*	-3.2402*	-3.2402*	-1.5174*	-1.5174*	-0.6067	-0.6067
-9	-0.3044	-1.0812*	0.1576	0.6696	0.5893	0.1698	-1.0378*	-0.7151	0.8700*	2.0402*	0.6983	-2.5419*	0.2753	-1.2422	-0.4794	-1.0861
-8	0.1187	-0.9625*	-0.4195	0.2501	-0.1584	0.0114	1.1701*	0.4551	-0.2792	1.7610*	-1.5174*	-4.0594*	-1.8252*	-3.0674*	0.7801	-0.3061
-7	0.4349	-0.5277	0.5893	0.8394	-0.9734*	-0.9620*	0.8700*	1.3251*	0.1200	1.8810*	0.2753	-3.7841*	0.2536	-2.8138*	1.2383	0.9322
-6	0.3153	-0.2124	-0.1584	0.6810	0.3228	-0.6393	-0.2792	1.0459*	0.0579	1.9389*	-1.8252*	-5.6094*	0.6963	-2.1175*	0.4457	1.3779
-5	-0.0573	-0.2697	-0.9735	-0.2925	-1.0378*	-1.6771*	0.1200	1.1660*	0.6952	2.6341*	0.2536	-5.3558*	-0.1393	-2.2568*	1.0884	2.4663
-4	0.2125	-0.0572	0.3228	0.0302	1.1701*	-0.5070	0.0579	1.2239*	0.4761	3.1103*	0.6963	-4.6595*	0.4420	-1.8148*	0.8133	3.2795*
-3	-0.2428	-0.3000	-1.0378*	-1.0075*	0.8700*	0.3631	0.6952	1.9191*	-0.0337	3.0765*	-0.1393	-4.7988*	-0.2096	-2.0243*	0.6186	3.8981*
-2	0.5119	0.2120	1.1701*	0.1626	-0.2792	0.0839	0.4761	2.3952*	0.7878	3.8643*	0.4420	-4.3567*	-6.4819*	-8.5063*	-1.0022	2.8960*
-1	0.1576	0.3696	0.8700*	1.0326*	0.1200	0.2039	-0.0337	2.3615*	0.5147	4.3790*	-0.2096	-4.5663*	0.2403	-8.2660*	1.2874	4.1833*
0	-0.4195	-0.0499	-0.2792	0.7535	0.0579	0.2618	0.7878	3.1493*	-3.2682*	1.1107*	-6.4819*	-11.0483*	-3.1721*	-11.4382*	0.5732	4.7565*
1	0.5893	0.5394	0.1200	0.8735*	0.6952	0.9570*	0.5147	3.6640*	-2.4218*	-1.3110*	0.2403	-10.8080*	-5.3283*	-16.7665*	0.7300	5.4864*
2	-0.1584	0.3810	0.0579	0.9313*	0.4761	1.4331*	-3.2682*	0.3957	-0.9095*	-2.2205*	-3.1721*	-13.9802*	-0.9758	-17.7424*	0.2240	5.7104*
3	-0.9734*	-0.5925	0.6952	1.6266*	-0.0337	1.3994*	-2.4218*	-2.0260*	0.1023	-2.1182*	-5.3283*	-19.3085*	-1.8442*	-19.5866*	1.7375	7.4480*
4	0.3228	-0.2697	0.4761	2.1027*	0.7878	2.1872*	-0.9095*	-2.9355*	-0.3429	-2.4610*	-0.9758	-20.2843*	-0.2785	-19.8651*	0.7136	8.1615*

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5	-1.0378*	-1.3075*	-0.0337	2.0690*	0.5147	2.7019*	0.1023	-2.8332*	1.3548*	-1.1062*	-1.8442*	-22.1285*	0.2518	-19.6133*	-1.1175	7.0440*
6	1.1701*	-0.1374	0.7878	2.8568*	-3.2682*	-0.5664	-0.3429	-3.1761*	0.2352	-0.8710*	-0.2785	-22.4071*	-2.9480*	-22.5614*	-2.9046*	4.1394*
7	0.8700	0.7326	0.5147	3.3715*	-2.4218*	-2.9881*	1.3548*	-1.8212*	-1.0708*	-1.9418*	0.2518	-22.1553*	-2.2582*	-24.8197*	0.9816	5.1210*
8	-0.2792	0.4535	-3.2682*	0.1032	-0.9095*	-3.8976*	0.2352	-1.5860*	0.4224	-1.5194*	-2.9480*	-25.1034*	-6.2709*	-31.0906*	-0.7017	4.4193*
9	0.1200	0.5735	-2.4218*	-2.3185*	0.1023	-3.7953*	-1.0708*	-2.6568*	0.3215	-1.1978*	-2.2582*	-27.3617*	-1.1133*	-32.2039*	2.1052	6.5246*
10	0.0579	0.6314	-0.9095*	-3.2280*	-0.3429	-4.1382*	0.4224	-2.2344*	0.0597	-1.1381*	-6.2709*	-33.6326*	4.6011*	-27.6028*	0.7356	7.2601*

*significant at 5%

Table 2. Abnormal Return and Cumulative Abnormal Return for Philippines Stock Exchange

Date	31-Dec-19		13-Jan-20		15-Jan-20		21-Jan-20		24-Jan-20		7-Mar-20		11-Mar-20		31-May-21	
	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR
-10	-0.5840	-0.5840	1.2717	1.2717	-0.3451	-0.3451	0.5477	0.5477	-0.2680	-0.2680	-0.5847	-0.5847	-3.9388*	-3.9388*	0.5271	0.5271
-9	1.7487*	1.1647	-0.3859	0.8858	-0.9350	-1.2801	-1.3412	-0.7935	0.0000	-0.2680	-2.5052*	-3.0900*	0.8359	-3.1029*	0.2266	0.7537
-8	-2.2598*	-1.0952	-0.3451	0.5407	1.2484	-0.0318	0.7905	-0.0029	0.2117	-0.0563	-3.9388*	-7.0288*	-2.6162*	-5.7191*	-0.6200	0.1336
-7	0.3739	-0.7213	-0.9350	-0.3943	-0.5361	-0.5679	-0.2680	-0.2710	-1.6671*	-1.7234*	0.8359	-6.1929*	-0.5707	-6.2899*	-0.7571	-0.6235
-6	0.0416	-0.6796	1.2484	0.8540	0.5477	-0.0201	0.0000	-0.2710	-0.1465	-1.8699*	-2.6162*	-8.8092*	0.6095	-5.6804*	0.0260	-0.5975
-5	-1.0363	-1.7159*	-0.5361	0.3179	-1.3412	-1.3614	0.2117	-0.0593	0.9027	-0.9673	-0.5707	-9.3799*	1.1235	-4.5569*	-0.5558	-1.1533
-4	1.5451*	-0.1708	0.5477	0.8656	0.7905	-0.5708	-1.6671*	-1.7264*	-2.2256*	-3.1929*	0.6095	-8.7704*	0.2547	-4.3023*	0.5148	-0.6385
-3	1.2717	1.1008	-1.3412	-0.4756	-0.2680	-0.8389	-0.1465	-1.8729*	-1.1445	-4.3374*	1.1235	-7.6470*	-1.6754*	-5.9777*	2.3055*	1.6671
-2	-0.3859	0.7150	0.7905	0.3149	0.0000	-0.8389	0.9027	-0.9702	0.0279	-4.3096*	0.2547	-7.3923*	-7.0007*	-12.9785*	4.9816*	6.6487*
-1	-0.3451	0.3698	-0.2680	0.0469	0.2117	-0.6272	-2.2256*	-3.1958*	1.9572*	-2.3523*	-1.6754*	-9.0678*	0.0914	-12.8872*	0.1405	6.7892*
0	-0.9350	-0.5651	0.0000	0.0469	-1.6671*	-2.2943*	-1.1445	-4.3404*	0.0927	-2.2597*	-7.0007*	-16.0685*	0.5505	-12.3366*	-0.6919	6.0973*
1	1.2484	0.6832	0.2117	0.2586	-0.1465	-2.4408*	0.0279	-4.3125*	-0.4704	-2.7301*	0.0914	-15.9772*	-10.2158*	-22.5525*	-0.0160	6.0814*
2	-0.5361	0.1471	-1.6671*	-1.4085	0.9027	-1.5381*	1.9572*	-2.3553*	-1.5798*	-4.3100*	0.5505	-15.4267*	1.0003	-21.5522*	3.1817*	9.2631*
3	0.5477	0.6948	-0.1465	-1.5550*	-2.2256*	-3.7637*	0.0927	-2.2626*	-0.0856	-4.3956*	-10.2158*	-25.6426*	-8.2454*	-29.7976*	-0.7308	8.5323*
4	-1.3412	-0.6464	0.9027	-0.6523	-1.1445	-4.9083*	-0.4704	-2.7331*	-0.9375	-5.3330*	1.0003*	-24.6422*	0.0000	-29.7976*	0.0658	8.5981*

5	0.7905	0.1441	-2.2256*	-2.8779*	0.0279	-4.8804*	-1.5798*	-4.3129*	-2.6299*	-7.9630*	-8.2454*	-32.8876*	-14.3223*	-44.1200*	-0.4782	8.1199*
6	-0.2680	-0.1239	-1.1445	-4.0225*	1.9572*	-2.9232*	-0.0856	-4.3985*	-0.8894	-8.8524*	0.0000	-32.8876*	3.3046*	-40.8153*	0.6748	8.7947*
7	0.0000	-0.1239	0.0279	-3.9946*	0.0927	-2.8305*	-0.9375	-5.3360*	1.2513	-7.6010*	-14.3223*	-47.2100*	-0.7433	-41.5587*	1.3538	10.1486*
8	0.2117	0.0878	1.9572*	-2.0374*	-0.4704	-3.3010*	-2.6299*	-7.9659*	1.7277*	-5.8733*	3.3046*	-43.9054*	0.6493	-40.9093*	-0.3895	9.7591*
9	-1.6671*	-1.5793*	0.0927	-1.9447*	-1.5798*	-4.8808*	-0.8894	-8.8553*	2.0682*	-3.8050*	-0.7433	-44.6487*	5.1733*	-35.7360*	0.4655	10.2246*
10	-0.1465	-1.7258*	-0.4704	-2.4152*	-0.0856	-4.9664*	1.2513	-7.6040*	0.0092	-3.7958*	0.6493	-43.9994*	7.1716*	-28.5643*	0.1403	10.3649*

*significant at 5%

Table 3. Abnormal Return and Cumulative Abnormal Return for Laos Stock Exchange

Date	31-Dec-19		13-Jan-20		15-Jan-20		21-Jan-20		24-Jan-20		7-Mar-20		11-Mar-20		31-May-21	
	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR	AR	CAR
-10	-0.7117	-0.7117	-0.5042	-0.5042	0.5467	0.5467	-1.6226	-1.6226	-1.0975	-1.0975	-2.3004*	-2.3004*	1.3331	1.3331	-0.2670	-0.2670
-9	1.4242	0.7125	0.0000	-0.5042	-1.7960	-1.2492	-1.0975	-2.7201*	-0.0362	-1.1337	1.3331	-0.9674	0.5703	1.9033	0.5583	0.2914
-8	0.0353	0.7479	0.5467	0.0426	0.0405	-1.2087	-0.0362	-2.7563*	-0.6074	-1.7412	0.5703	-0.3971	-1.5383	0.3651	-0.5150	-0.2236
-7	-0.0619	0.6860	-1.7960	-1.7534	-0.6338	-1.8425	-0.6074	-3.3637*	1.4758	-0.2654	-1.5383	-1.9354	-0.1029	0.2622	0.2326	0.0090
-6	-1.0665	-0.3805	0.0405	-1.7129	0.3538	-1.4886	1.4758	-1.8880	0.1249	-0.1405	-0.1029	-2.0383*	-1.4878	-1.2256	0.2536	0.2627
-5	2.0606	1.6800	-0.6338	-2.3466	-0.5496	-2.0382	0.1249	-1.7631	-0.4284	-0.5689	-1.4878	-3.5260*	-0.2676	-1.4932	1.2285	1.4912
-4	5.9921*	7.6721*	0.3538	-1.9928	-1.6226	-3.6608*	-0.4284	-2.1915	-0.2958	-0.8646	-0.2676	-3.7936*	-1.2972	-2.7904*	-0.6624	0.8288
-3	-0.5042	7.1680*	-0.5496	-2.5424	-1.0975	-4.7583*	-0.2958	-2.4872	-1.6491	-2.5137	-1.2972	-5.0908*	0.3270	-2.4633*	0.9583	1.7870*
-2	0.0000	7.1680*	-1.6226	-4.1649*	-0.0362	-4.7945*	-1.6491	-4.1363*	-0.1573	-2.6710*	0.3270	-4.7638*	0.0000	-2.4633*	0.1750	1.9621*
-1	0.5467	7.7147*	-1.0975	-5.2624*	-0.6074	-5.4019*	-0.1573	-4.2936*	0.5180	-2.1530	0.0000	-4.7638*	-2.6512*	-5.1146*	-0.2901	1.6720*
0	-1.7960	5.9188*	-0.0362	-5.2986*	1.4758	-3.9261*	0.5180	-3.7756*	1.0497	-1.1033	-2.6512*	-7.4151*	0.8470	-4.2676*	-0.1897	1.4823
1	0.0405	5.9593*	-0.6074	-5.9061*	0.1249	-3.8012*	1.0497	-2.7259*	0.2401	-0.8632	0.8470	-6.5681*	-0.4396	-4.7072*	1.3381	2.8203*
2	-0.6338	5.3255*	1.4758	-4.4303*	-0.4284	-4.2296*	0.2401	-2.4858	-0.7352	-1.5984	-0.4396	-7.0077*	0.3611	-4.3462*	0.0595	2.8799*
3	0.3538	5.6794*	0.1249	-4.3054*	-0.2958	-4.5254*	-0.7352	-3.2210*	-0.0815	-1.6800	0.3611	-6.6466*	-0.8166	-5.1627*	-0.2295	2.6503*
4	-0.5496	5.1298*	-0.4284	-4.7338*	-1.6491	-6.1745*	-0.0815	-3.3025*	0.4796	-1.2004	-0.8166	-7.4632*	-0.3874	-5.5502*	-0.1018	2.5485*

5	-1.6226	3.5072*	-0.2958	-5.0295*	-0.1573	-6.3318*	0.4796	-2.8230*	1.5593	0.3589	-0.3874	-7.8506*	0.6650	-4.8852*	-0.4188	2.1297*
6	-1.0975	2.4097*	-1.6491	-6.6787*	0.5180	-5.8138*	1.5593	-1.2637	0.6643	1.0232	0.6650	-7.1856*	0.4280	-4.4571*	0.1374	2.2672*
7	-0.0362	2.3735*	-0.1573	-6.8360*	1.0497	-4.7641*	0.6643	-0.5994	-0.1121	0.9112	0.4280	-6.7576*	-3.6876*	-8.1448*	-0.0458	2.2214*
8	-0.6074	1.7661	0.5180	-6.3180*	0.2401	-4.5239*	-0.1121	-0.7114	-1.3692	-0.4580	-3.6876*	-10.4452*	0.0000	-8.1448*	0.1109	2.3323*
9	1.4758	3.2418*	1.0497	-5.2682*	-0.7352	-5.2592*	-1.3692	-2.0806	-0.9281	-1.3861	0.0000	-10.4452*	-2.6062*	-10.7511*	-0.8164	1.5160
10	0.1249	3.3667*	0.2401	-5.0281*	-0.0815	-5.3407*	-0.9281	-3.0087*	0.8648	-0.5213	-2.6062*	-13.0515*	1.2889	-9.4621*	1.0817	2.5977*

*significant at 5%

5. Conclusion

COVID-19 has impacted and altered various sectors and affected the economy of most countries in ASEAN. Though the market participants, including investors, did not immediately respond to the first announcement of COVID-19 in China, some countries reacted negatively but not significantly. The market participants still believed that the disease would not affect or be transmitted to other countries as ASIAN countries had experienced respiratory diseases such as SARS as there was no certainty about the cause or origin. However, when the disease was detected in other countries such as Thailand, Japan, the USA, and the European region in January 2020, the market started to have a mixed reaction (negative and positive reaction) depending on the country announcing the confirmed case. As the USA and Japan were two dominant trading partners of most countries, other markets, in particular ASEAN countries, started to respond to the COVID-19 announcement in these two countries. As the announcement in these countries affected their stock market, it also affected other stock markets. Furthermore, the stock price in ASEAN countries started to decline sharply as more confirmed cases increased in ASEAN countries and worldwide. The market participants started to panic and sold their stock and related financial instruments, which caused the index to fall significantly; hence some ASEAN countries also halted the stock market trading to prevent a further drop and a market crumble. There is no certainty in the market as most Governments imposed measures such as international travel restrictions, which affected all economic activities, industry sectors and global supply chains. It was also believed that there was international herding behaviour as most stock markets started behaving similarly, resulting in negative abnormal returns and cumulative abnormal returns. Further, the WHO's announcement of COVID-19 as a global pandemic negatively and significantly affected the ASEAN market negatively and significantly. During the first quarter of 2020, the economic growth of most ASEAN countries contracted by 2 to 8 per cent, depending on the economic fundamentals and government measures. However, the second wave of COVID-19 in May 2021 did not affect the ASEAN market severely as in 2020 due to preparedness and the vaccination rate. The market has already adjusted to the pandemic, and the economy has shown a positive increase compared to 2020. Though the outcome is only valid for the study's time period, this can be used as a base for future action and anticipation so that investors can choose which nations to invest in when building foreign stock portfolios by observing how the market responds to differences in the specific event announcements and which countries the market responds more to.

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The Effect of Debt to Asset Ratio, Firm Size, Audit Committee, and Audit Tenure on Audit Delay (on Property and Real Estate Sector Companies Listed on The Indonesia Stock Exchange for the 2016-2023 Period)

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Article Information:

Received: December 24, 2024, Accepted: December 27, 2024, Published: December 28, 2024

Abstract

Company, Debt to Asset Ratio (DAR), Audit Committee, and Audit Tenure. The research method used is quantitative with a descriptive and verification approach. Secondary data used were obtained from the annual financial reports for 2016-2023 in the property and real estate sector, accessed through the official pages of IDX and related companies. This study uses a purposive sampling technique, which resulted in 15 companies that met the criteria as research samples from a total population of 93 companies. The study's results indicate that audit tenure has a partially significant effect on audit delays. In contrast, DAR, company size, and audit committee do not have a partially significant effect on audit delays. However, simultaneously, the audit committee, audit tenure, company size, and debt-to-asset ratio affect audit delays.

Keywords: Debt to Asset Ratio, Firm Size, Audit Committee and Audit Tenure and Audit Delay.

JEL Codes: A110, G38, M42

How to Cite:

Setiawati, L., Febriyanti, D., Syarif, D. (2024). The Effect of Debt to Asset Ratio, Firm Size, Audit Committee, and Audit Tenure on Audit Delay (on Property and Real Estate Sector Companies Listed on The Indonesia Stock Exchange for the 2016-2023 Period). *International Journal of Finance Research*, 5(4). 618 – 641. DOI: <https://doi.org/10.47747/ijfr.v5i4.2544>

1. Introduction

1.1 Background

In 2023, there were 93 companies listed on the Indonesia Stock Exchange (IDX), including in the property and real estate sector. This sector faces various challenges, as seen from the 3.59%

Published by:

decline in the IDX Index in the past month. Several stocks that support the property industry also experienced a decline. During this period, shares of PT Ciputra Development Tbk (CTRA), PT Summarecon Agung Tbk (SMRA), PT Lippo Karawaci Tbk (LPKR), and PT Bumi Serpong Damai Tbk (BSDE) were recorded to have fallen by 11.74%, 9.23%, and 4.04%, respectively.

Investors remain interested in the property and real estate sector due to the increasing price of land and buildings, limited land supply, and growing demand along with population growth and human needs (Lestari and Sudaryo, 2023). However, the Indonesia Stock Exchange (IDX) reported that this sector often experiences delays in submitting audited financial reports every year. Over the past eight years, a number of companies in the property and real estate sector have been recorded as often late in submitting their financial reports, namely:

Table 1. Property and Real Estate Sector Companies that Experienced Audit Delays during the 2016-2023 Period

No	Years	The quantity of organizations operating in the real estate and property sector
1	2016	0
2	2017	9
3	2018	1
4	2019	8
5	2020	15
6	2021	15
7	2022	12
8	2023	20

Source :www.idx.co.id (Data processed, 2023)

Property and real estate sector companies have encountered delays in the publication of audited financial reports for the past seven years, as evidenced by data analyzed from 2016 to 2023. This demonstrates that in Indonesia, there are still public companies that encounter delays in the submission of financial reports (Mutianisa et al, 2024).

Table 2. Data on the Phenomenon of the Influence of Debt to Asset Ratio, Firm Size, Audit Committee and Audit Tenure on Audit Delay

Issuer Code	Year	Debt to Asset Ratio (Times)	Firm Size (Ln)	Audit Committee (People)	Audit Tenure (Year)	Audiy Delay (Day)
BIKA	2021	1.11	28.70	3	7	107
	2022	0.89	28.82	3	8	189
BKSL	2021	0.38	30.45	3	2	89
	2022	0.24	30.62	3	3	99
DART	2021	0.68	29.50	3	7	118
	2022	0.72	29.47	3	8	142
NIRO	2021	0.53	30.19	3	7	90
	2022	0.57	30.24	3	8	152

Source :www.idx.co.id(data processed by the author)

The debt to asset ratio for PT Binakarya Jaya Abadi Tbk. (BIKA) decreased by 0.22 times in 2022, according to the above table, however the audit delay grew by 82 days, from 107 days in 2022 to 189 days in 2023. According to Kasmir's theory, this phenomena is inversely proportional (2021:156). A debt ratio that compares total debt to total assets is called the debt to asset ratio. The company will suffer losses if the percentage of debt exceeds the quantity of assets, and the auditor will be more cautious when determining if the company's debt level and ability to pay it off are fair. The audit delay distance is longer because of this. Thus, allThe longer the audit delay, the greater the ratio; on the other hand, the shorter the audit delay, the lower the ratio. DAR affects audit delay, according to Irman (2017).

While the audit delay increased by 10 days, from 89 days in 2022 to 99 days in 2023, PT Sentul City Tbk. (BKSL) saw a 0.17 growth in company size in 2022. This phenomenon does not fit the hypothesis put forward by According to Hery (2017:11), a firm's size is thought to have an impact on its value since the larger the company, the easier it will be for it to find both internal and external funding sources. Because large organizations already have a strong internal control system, audit delays are less common the larger the company. This implies that the audit delay decreases with increasing firm size and increases with decreasing company size. According to Sihalohe and Suzan's (2018) research, audit delay is positively and significantly impacted by company size. so that the number of days that an audit takes to complete decreases with the size of the organization.

The audit delay from 2021–2022 increased by 24 days, from 118 days in 2021 to 142 days in 2022, despite the fact that PT Duta Anggada Realty Tbk (DART) had a three-person audit committee in 2021–2022. This runs counter to the notion put forward by Arens (2017:69), which states that the audit committee's job is to monitor planning and implementation, then analyze the audit's findings to determine whether internal control is feasible and capable, including managing the financial statement preparation process. In accordance with the Financial Services Authority's regulations, each public company is required to establish an audit committee that comprises a minimum of three members. An increase in the number of audit committees will result in a shortened audit delay. This is in accordance with the findings of Hasanah et al. (2021), who discovered that the audit committee has an effect on audit delay. This is because the audit committee's number of members will decrease the duration of the audit process for a company.

After eight years of working with KAP, PT City Retail Developments Tbk (NIRO) has seen a 62-day increase in audit delays, namely 90 days in 2022 and 152 days in 2023. According to Effendi's thesis, this behavior is not consistent (2021:216). "Auditing partners can draw on a wealth of customer information that has grown over time to inform their audit expertise. The auditor will gain more expertise and knowledge the longer the audit duration. "The longer the KAP engagement period with the client, the shorter the audit delay." The audit tenure has a negative impact on audit delays in the delivery of financial reports or short audit delays, according to the findings of Pradnyaniti & Suardhika's (2019) study.

2. Literature Review

2.1 Background Theory

1. Audit Delay

The audit delay is the number of days that elapse between the fiscal year of the financial statements and the publication of the audit report. The audit delay is proportional to the auditor's

completion time and decreases as the auditor's completion rate increases. Machmuddah (2020:34). Utilize the formula to verify the computation of the delay variable.

$$\text{Audit Delay} = \text{Audit Report Issue Date} - \text{Fiscal Year Closing Date}$$

2. Debt to Asset ratio

The debt-to-asset ratio calculates the proportion of total debt to total assets. That is, the extent to which a company's debt influences asset management or the proportion of its assets that are financed by debt.(Kasmir, 2021:158). A debt-to-asset ratio below 35% is considered excellent (Kasmir, 2021:158). Businesses with an average score below 35% indicate that debt funding is decreasing, which implies that the more loans a company takes out, the less funding it receives (Sudaryo et al, 2022). Using the formula to get the variable debt to asset ratio

$$\text{DAR: } \frac{\text{Total Debt}}{\text{Total Asset}}$$

3. Firm Size

The entire value of a company's assets, net sales, or equity value can all be used to determine its firm size (Jogiyanto, 2019:685). According to Kasir (2021), a company's size is thought to have an impact on its value because it will be simpler for the business to find funding sources if it is larger. Using the formula to calculate the firm size variable

$$\text{Firm Size (size)} = (\text{Ln}) \text{ total Assets}$$

4. Audit Committee

In most cases, the audit committee is made up of three, five, or seven non-management personnel. If a disagreement arises, the audit committee is meant to act as a mediator between the auditor and the business's management (Arens et al, 2017:69). The formula is used to calculate the audit committee variable.

$$\text{Audit Committee} = \Sigma \text{ Audit Committee members in the company}$$

5. Tenure Audit

The duration of the partnership between a client and a partner of a public accounting firm (KAP) is known as the audit tenure. Long-term audit tenure has the potential to enhance auditor proficiency. The vast customer knowledge that has grown over time can serve as the foundation for audit partners' audit expertise. Long-term tenure, however, may undermine audit independence. Junaidi (2016), p. 40. Audit tenure variables are calculated using the formula

$$\text{Audit Tenure} = \text{The length of time the KAP carries out audit engagements with clients}$$

2.2. Previous Studies

Table 3. Previous Research

No	Author Researcher Journal and Year	Journal Title	Research result
1	Fauziah 'Umdatul Hasanah,	Factors Affecting Audit Delay in Property and Real Estate Companies 2019-2021	The results of the study stated that the variables of Profitability, company size, audit committee, and auditor opinion had an effect on audit

	Suhendro, Dewi. 2021		delay.
2	Irman, 2017	The Effect of Company Size, ROA, DAR and Auditor Reputation on Audit Delay.	The study's results stated that the variables of company size, ROA, DAR, and audit reputation significantly affect audit delay.
3	Sihaloho, Suzan. 2018	The Effect of Company Size, Firm Reputation and Audit Committee on Audit Delay (Study on Mining Companies Listed on the Indonesia Stock Exchange in 2014-2016)	The study's results stated that the KAP reputation variable had a partial effect. Company size, KAP reputation, and audit committee had a significant effect on audit delay.
4	R apriliyani, g saharsini, 2023	Factors Affecting Audit Delay in Property and Real Estate Companies 2019-2021	The research results state that the variables of company size, profitability, and audit opinion have an effect on audit delay, while solvency and auditor change do not have an effect on audit delay.
5	Zusraeni dan Hermi, 2022	The Effect of Share Ownership Structure, Audit Tenure, Auditor Reputation and Audit Fee on Audit Delay	The results of the study stated that the variables of audit tenure and auditor reputation have a positive effect on audit delay, while the variables of share ownership structure and audit fee do not affect audit delay.

2.3. Conceptual Framework

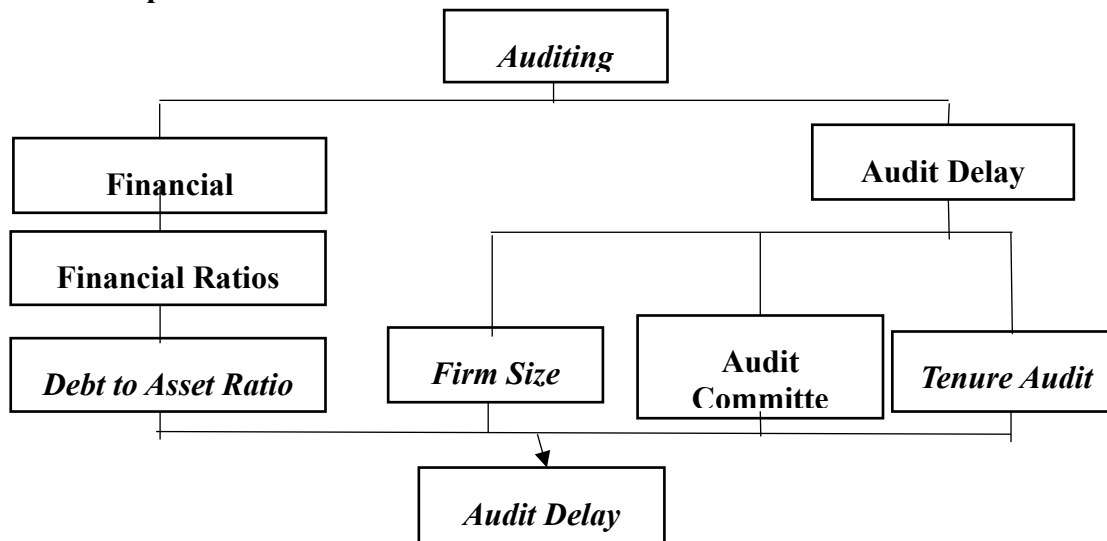


Figure 1. Conceptual Framework

3. Research Method

3.1 Method

The main objective of the study is to analyze the effect of debt to asset ratio, firm size, audit committee and audit tenure on Audit Delay simultaneously or partially in property and real

estate companies listed on the IDX for the 2015-2023 period (Sari and Berliani, 2024). The methodology employed is quantitative research that employs a descriptive and verification approach (Sari dan Berliani, 2024). This paper employs a descriptive methodology to elucidate and analyze the Debt-to-Asset Ratio, Firm Size, Audit Committee, Audit Tenure, and Audit Delay of Property and Real Estate Sector Companies listed on the Indonesia Stock Exchange from 2016 to 2023.

3.1.1 Data

The secondary data utilized in this investigation was obtained from the official websites of each company and www.idx.co.id. The data was sourced from the Financial Reports and Annual Reports of property and real estate companies that were listed on the Indonesia Stock Exchange between 2016 and 2023.

3.1.2 Research Sample

The research population consisted of 93 corporations in the Property and Real Estate sector that were listed on the IDX between 2015 and 2023. In the interim, the purposive sampling procedure was implemented to select the sample. 15 companies were identified as suitable and appropriate for use as research samples, as determined by the criteria that were implemented.

Table 4. Respondent Characteristics

No	Sample Selection Criteria	Number of Companies
1	Companies in the property and real estate sector were listed on the Indonesia Stock Exchange between 2016 and 2023.	93
2	Companies in the property and real estate sector that fail to publish comprehensive audited financial statements between 2016 and 2023.	(58)
3	Companies in the property and real estate sector did not experience an audit delay between 2016 and 2023.	(20)
	Number of companies that are research samples	15

3.2. Data Analysis Techniques

Descriptive statistical analysis and verification statistics are the methods used in this study. Descriptive statistics is a branch of statistics that examines how data is collected and presented so that it is easy to understand or comprehend. In this study, descriptive statistics looks at the mean, standard deviation, maximum, and minimum values, while verification analysis includes tests for validity and reliability of the data, as well as traditional assumption tests and hypothesis tests, such as multiple linear regression, correlation coefficient tests, coefficient tests, and partial tests and simultaneous tests.

4. Findings and Discussions

4.1 Descriptive Analysis Results

Table 5. Descriptive Statistics

Descriptive Statistics					
Variables	N	Minimum	Maximum	Mean	Std. Deviation
Audit Delay	120	25	331	111.53	51,053
Debt to Asset Ratio	120	0.01	1.11	0.4186	0.23059
Firm Size	120	25.63	30.74	28.9740	1.35096
Audit Committee	120	2	4	3.00	0.130
Audit Tenure	120	1	8	3.32	2.182
Valid N (listwise)	120				

1. Some variables, such as Audit Delay and Debt-to-Asset Ratio, show considerable variation, indicating that firms in this sample have very different characteristics in terms of debt structure and audit duration.
2. Variables such as Audit Committee and Firm Size show greater homogeneity across firms, with fairly consistent means.
3. Audit Tenure has a large standard deviation, indicating differences in the length of the relationship between firms and their auditors.

4.2 Verification Analysis Results

1. Kolmogorov-Smirnov Normality Test Results

Table 6. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		120
Normal Parameters ^{a,b}	Mean	0.0000000
	Std. Deviation	50.19349783
Most Extreme Differences	Absolute	0.188
	Positive	0.188
	Negative	-0.143
Test Statistic		0.188
Asymp. Sig. (2-tailed)		0.000 ^c
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: Data process

The variable is not regularly distributed, according to the Kolmogorov-Smirnov test findings, which indicate that the significant value produced is more than 0.05 or $0.000 < 0.05$.

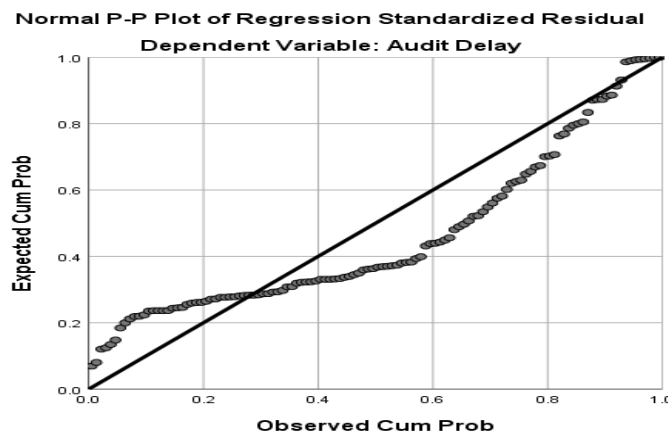


Figure 2. Normal P-Plot Regression of Standardized Residual Graph

It may be concluded that not every point follows the diagonal line based on the Normal P test findings. Consequently, it may be concluded that the data is normally distributed and that the model is applicable even though the One-Sample test results are not normal. This is because the P Plot test results are normal.

2. Test results in Heteroscedasticity

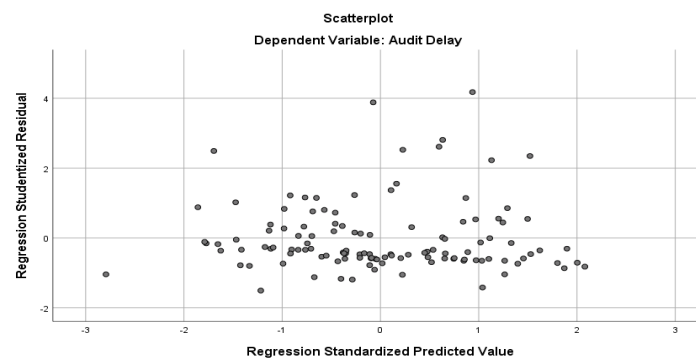


Figure 3. Scatterplot Heteroscedasticity Test Results Graph

The above Scatterplot Graph graphic shows that the dots are dispersed haphazardly and lack a discernible pattern. Additionally, the dots on the y-axis are dispersed both above and below zero. The regression model is appropriate for use in additional analysis as it can be inferred that it lacks heteroscedasticity.

3. Autocorrelation Test Results

Table 7. Autocorrelation test Result

Model Summary ^b	
Model	Durbin-Watson
1	0.903

Source: Data process

Above indicates that the Durbin-Watson value is 0.903. Df values are 1.6339 and two 1,7715 at the level of significance $\alpha = 0.05$, independent variables $k = 4$, and sample size $n = 120$. As a

result, if $0 < dw \leq dl$ or $0 < 0.903 \leq 1.6339$, it may be said that there is no positive autocorrelation. This indicates that the regression model is appropriate for use in prediction since it does not have autocorrelation symptoms.

4. Results of Pearson Correlation Coefficient Analysis (Product Moment)

Table 8. Results of Pearson Correlation Coefficient Analysis (Product Moment)

Correlation		
		Audit Delay
Debt to Asset Ratio	Pearson Correlation	-0.120
Firm Size	Pearson Correlation	0.098
Audit Committee	Pearson Correlation	-0.074
Tenure Audit	Pearson Correlation	0.201*
Audit Delay	Pearson Correlation	1

It is evident from the computation results above that:

1. There is a -0.120 magnitude link between the Debt to Asset Ratio (X1) and Audit Delay (Y). This indicates that the Debt to Asset Ratio (X1) and Audit Delay (Y) have a very weak negative association.
2. There is a 0.098 magnitude association between Audit Delay (Y) and Firm Size (X2). This indicates , Firm Size (X2) and Audit Delay (Y) have a very weak positive association.
3. The connection between Audit Delay (Y) and Audit Committee (X3) is -0.074 in magnitude. This indicates that the Audit Committee (X3) and Audit Delay (Y) have a very weak negative association.
4. There is a 0.201 magnitude association between Audit Delay (Y) and Audit Tenure (X4). This indicates that Audit Tenure (X4) and Audit Delay (Y) have a weakly positive association.

5. Results of Determination Coefficient Analysis (R²)

Table 9. Results of Determination Coefficient Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.450 ^a	0.203	0.175	17.900	0.903

a. Predictors: (Constant), Audit Tenure, Audit Committee, Debt to Asset Ratio, Firm Size

b. Dependent Variable: Audit Delay

Source: Data Process

Thus, a 20% determination coefficient value is derived, showing that Audit Delay (Y) has a 20% simultaneous association with Debt to Asset Ratio (X1), Firm Size (X2), Audit Committee (X3), and Audit Tenure (X4). This indicates that, in addition to the variables of debt to asset ratio, firm size, audit committee, and audit tenure, other factors still account for 80% of the factors that might increase audit delay in companies in the property and real estate sector listed on the Indonesia Stock Exchange between 2016 and 2023.

6. Multicollinearity Test Results

Table 10. Multicollinearity Test Results

Model		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	85.702	89.570		0.957	0.341		
	Debt to Asset Ratio	-25.374	12.976	-0.186	-1.955	0.053	0.884	1.131
	Firm Size	2.619	2.247	0.113	1.166	0.246	0.859	1.164
	Audit Committee	-16.418	21.738	-0.068	-0.755	0.452	0.996	1.004
	Audit Tenure	2.955	1.333	0.205	2.217	0.029	0.936	1.068

a. Dependent Variable: Audit Delay

Source: Data Process

According to the VIF value calculation findings, all independent variables have values below 10. There is no multicollinearity between the independent variables in the regression model, as indicated by the results of the tolerance value computation, which also reveal that all independent variables have values greater than 0.10.

7. Multiple Linear Regression Analysis Results

A multiple linear regression equation may be created as follows using the constant values and regression coefficients that are known from table 4.15's output data:

$$Y = 85,702 - 25,374 X_1 + 2,619 X_2 - 16,418 X_3 + 2,955$$

8. t Test Results

The coefficients given here show how changes in each independent variable are related to changes in Audit Delay, after accounting for other variables in the model.

1. Constant (Intercept)

B = 85.702: This is the intercept or constant value of the regression model. This means that if all the independent variables (Debt to Asset Ratio, Firm Size, Audit Committee, and Audit Tenure) are equal to 0, then Audit Delay is estimated to be 85.702 days.

Sig. = 0.341: A large significance value (greater than 0.05) indicates that this constant is not statistically significant, meaning it cannot be considered important in the model.

2. Debt to Asset Ratio

B = -25.374: This negative coefficient indicates that for every one unit increase in Debt to Asset Ratio, Audit Delay will decrease by approximately 25.374 days, assuming other variables remain constant.

Sig. = 0.053: The significance value is close to 0.05 (0.053) indicating that this relationship is almost statistically significant, but not strong enough to be accepted at the 5% significance level. This indicates a weak relationship and may be considered for a looser significance level (e.g. 0.10), but is generally not considered significant.

3. Firm Size

B = 2.619: This positive coefficient means that for every one-unit increase in firm size, Audit Delay will increase by about 2.619 days, assuming other variables remain constant.

Sig. = 0.246: This significance value is greater than 0.05, which means that the relationship between Firm Size and Audit Delay is not statistically significant. In other words, firm size does not appear to have a significant effect on audit duration in this model.

4. Audit Committee

B = -16.418: This negative coefficient indicates that for every one-unit increase in Audit Committee size, Audit Delay will decrease by about 16.418 days, assuming other variables remain constant.

Sig. = 0.452: A very high significance value indicates that the size of the audit committee does not have a significant effect on Audit Delay. This may mean that other factors (e.g., the complexity of the financial statements or the auditor's resources) are more influential in determining the duration of the audit than the size of the audit committee.

5. Audit Tenure

B = 2.955: This positive coefficient indicates that the longer the Audit Tenure (the duration of the auditor's relationship with the company), the longer the expected Audit Delay. Every one-year increase in Audit Tenure is estimated to increase Audit Delay by approximately 2.955 days, assuming other variables remain constant.

Sig. = 0.029: A significance value smaller than 0.05 indicates that Audit Tenure significantly affects Audit Delay. This indicates that companies with long-term relationships with auditors may experience longer audit delays. Audit Tenure is the only variable that shows a statistically significant relationship with Audit Delay. This means that the longer the auditor has been with the company, the longer it will take to complete the audit.

Although nearly significant, the debt-to-asset ratio is not strong enough to be considered statistically significant at the 5% level of significance. However, its negative relationship suggests that firms with higher debt ratios may experience earlier audits. Firm Size and Audit Committee do not significantly affect Audit Delay, based on significance values greater than 0.05. Therefore, firm size and audit committee do not affect audit duration in this model.

9. F Test Results

Table 11. F Test Result

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9367.749	4	2341.937	2.487	0.047 ^b
	Residual	108287.343	115	941.629		
	Total	117655.092	119			

a. Dependent Variable: Audit Delay

b. Predictors: (Constant), Audit Tenure, Audit Committee, Debt to Asset Ratio, Firm Size

Source: Data process

Sum of Squares:

- Regression (Model): 9367.749 shows the variation that can be explained by the regression model (the relationship between the independent and dependent variables).
- Residual: 108287.343 shows the variation that cannot be explained by the model (prediction error). Total: 117655.092 is the total variation in the data.

df (Degrees of Freedom):

- Regression (Model) has 4 degrees of freedom, which reflects the number of independent variables used in the model (Audit Tenure, Audit Committee, Debt to Asset Ratio, Firm Size).
- Residual has 115 degrees of freedom, which is calculated as the total number of observations minus the number of independent variables and 1 ($120 - 4 - 1 = 115$). Total has 119 degrees of freedom, which is calculated as the total number of observations minus 1 ($120 - 1 = 119$).

Mean Square:

- Regression: 2341.937 is calculated by dividing the Sum of Squares for regression (9367.749) by the degrees of freedom for regression (4).
- Residual: 941.629 is calculated by dividing the Sum of Squares for residual (108287.343) by the degrees of freedom for residual (115).

F-statistic:

- $F = 2.487$ is the ratio between Mean Square Regression and Mean Square Residual ($2341.937 / 941.629$). The F value is used to test whether the overall regression model is significant in explaining the variability of the dependent variable (Audit Delay).
- F greater than 1 indicates that the regression model is better than the model without the independent variable.

Sig. (Significance):

- Sig. = 0.047 indicates the p-value for the F test. This is the p-value to test the hypothesis that the overall regression model is not significant. If the p-value is less than 0.05, we can reject the null hypothesis and conclude that the overall regression model is significant.
- Since Sig. = $0.047 < 0.05$, we can conclude that the overall regression model is significant. This means that there is at least one independent variable in the model that has a significant effect on Audit Delay.

Based on the ANOVA results, the regression model used to predict Audit Delay as a whole is significant at the 5% significance level (p-value = 0.047). In other words, there is sufficient evidence to say that the variables Audit Tenure, Audit Committee, Debt to Asset Ratio, and Firm Size can jointly explain the variation in audit duration (Audit Delay).

However, this does not mean that all of these independent variables are individually significant (it can be further tested through the respective regression coefficient tests). But overall, the regression model provides useful information to explain the factors that affect audit duration.

4.3 Discussion

The Influence of Debt to Asset Ratio on Audit Delay

Based on the partial test that has been conducted, it was found that the debt to asset ratio variable does not have a significant effect on audit delay with a significance of $0.053 > 0.05$. Debt to

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assets ratio is a "debt ratio used to measure the comparison between total debt and total assets (Kasmir, 2021:158). The greater the debt to asset ratio will cause audit delay. Debt to asset ratio has no effect on audit delay. This is because even though the Company has a high amount of debt, it is not late in paying principal and interest or company expenses so that the risk of failure to pay debts will be low and this makes the auditor not expand his audit area which can cause audit delay. This study is in line with previous research conducted by Karyadi (2017) which showed that DAR has no significant effect on audit delay. However, the results of research conducted by Irman (2017) stated that DAR has an effect on audit delay.

The Influence of Firm Size on Audit Delay

Based on the partial test that has been conducted, it was found that the Firm size variable does not have a significant influence on audit delay with a significance of $0.246 > 0.05$. Firm size is the size of a company can be measured by the total value of assets or net sales or equity value (Jogiyanto, 2019:685). Where the greater the value of firm size, the smaller the company experiences audit delay. Firm size has an influence on the time span for submission of financial reports because the larger the company means it has a good control system and the company makes efforts to help expedite the audit process so that it can shorten the audit time, this is due to the large demands to be able to immediately present audited financial reports on time. This research is in line with Previous research conducted by Putri and Ratnaningsih (2020) stated that Company Size has no effect on Audit Delay. However, the results of research conducted by Sihaloho and Suzan (2018) stated that Company Size has a positive and significant effect on Audit Delay.

The Influence of Audit Committee on Audit Delay

Based on the partial test that has been carried out, it was found that the variable the audit committee does not have a significant influence on audit delay with a significance of $0.452 > 0.05$. Generally, the audit committee consists of three or five, sometimes seven people who are not part of the company's management (Arens et al, 2017:69). Because in this study the number of audit committees in the company is in accordance with OJK Regulation No.55/POJK.04/2015 the audit committee consists of at least 3 (three) members from Independent Commissioners and Parties from outside the Issuer or Public Company. The Audit committee is chaired by an Independent Commissioner. The company's condition will continue to be monitored by investors so that management publishes financial reports on time. This is done to avoid the loss of public trust which can have an impact on the loss of shareholder trust. This study is in line with previous research conducted by Sihaloho and Suzan (2018) stated that the audit committee has no effect on audit delay. However, the research results of Hasanah et al (2021) show that the audit committee has an effect on audit delay.

The Influence of Audit Tenure on Audit Delay

Based on the partial test that has been carried out, it was found that the variable audit tenure does not have a significant influence on audit delay with a significance of $0.029 > 0.05$. Audit tenure is the period of engagement between KAP and the same audit (Arens et al, 2017:136). Audit tenure affects audit delay because an auditor who is assigned for a long time with a client company may not necessarily be able to encourage the creation of good business knowledge. Assignment to KAP for a long time can actually cause the auditor to be less independent and professional in carrying out their duties. This causes an auditor to be unable to submit audit financial reports on time. This study is in line with previous research conducted by Zusraeni & Helmi (2022) Audit tenure has a positive effect on Audit Delay. However, the results of the

study by Rahmawati & Arief (2022) showed that the results of Audit Tenure did not have a significant effect on Audit Delay.

5. Conclusion

Research on the effect of debt to asset ratio, company size, audit committee, and audit tenure on audit delays in companies in the property and real estate sector listed on the IDX between 2016 and 2023 shows that debt to asset ratio, company size, and audit committee do not have a significant effect on audit delays. However, audit tenure is proven to have a significant effect on audit time. Overall, audit delays are influenced by a combination of debt to asset ratio, company size, audit committee, and audit tenure.

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