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The Influence of Tax Optimization, Sustainability Reporting, and Research Development on Firm Value in Indonesia

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Abstract

This research aims to examine the implications of tax optimization, corporate sustainability reporting, and research and development intensity on firm value with audit opinion as a moderating variable. The data used are manufacturing companies on the Indonesian from 2018 to 2022 period. The result shows that tax optimization, corporate sustainability reporting, and research and development intensity have a negative influence on firm value. The result also shows that audit opinion cannot moderate the influence of tax optimization, corporate sustainability, and research and development intensity on firm value.

Keywords: firm value, tax optimization, corporate sustainability reporting, research and development intensity, audit opinion.

1. Introduction

In a macroeconomics context, increasing firm value has an extensive impact not only on shareholders but also on the country and society in the form of overall economic growth. Based on that, the decline in the firm value will also lead to a decline in economic development. Conceptually, the internal impact of a decline in firm value is the firm finds it difficult to obtain funding. Besides the internal impact, the external impact that arises when the company value decreases is that the firm is seen as less successful in running its business from an investor's perspective. This causes a decrease in their interest in investing in the firm (Riky & Intan Sari, 2021). Using that perspective, it can be said that if the decline in firm value continues on the national level, economic growth will fall and a recession might happen.

One of the business sectors that makes the largest contribution to the Indonesian economy is the processing or manufacturing industry sector (Badan Pusat Statistik, 2023). Based on Badan Pusat Statistik (2023) on Gross Domestic Income (GDP) of Business Fields in 2022 using the Current Price reference, it is known that the manufacturing industry has the largest contribution, namely 3.592 trillion rupiah or the equivalent of 18,30 percent of the total GDP in 2022. Apart from referring to GDP data, the manufacturing industry has a large market capitalization value on the Indonesian Stock Exchange. Based on the data, it is known that the market capitalization value of the manufacturing industry reached 2.851 trillion rupiah cumulatively, or equivalent to 30,01 percent of the total market capitalization value on the Indonesian Stock Exchange (Indonesia Stock Exchange Data Services Division, 2023). It appears that manufacturing companies have a strategic and vital role in the national economy. However, many manufacturing companies have experienced a decline in firm value.

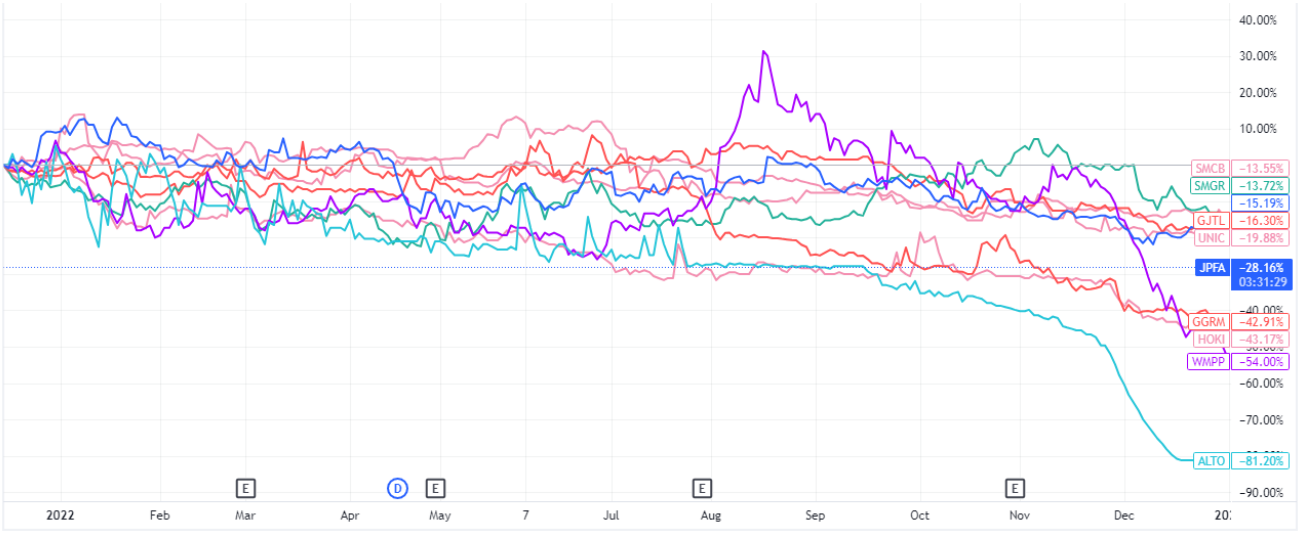

Figure 1: The phenomenon of manufacturing companies on the IDX in 2022 to 2023

By referring to Figure 1, it can be seen that the majority of manufacturing companies experienced a significant decline in value, even up to minus 81,20 percent. Thus, management must prevent this by examining the substance of the factors that influence firm value. Based on the explanation of firm value, factors that influence firm value can be explained conceptually through agency theory and signalling theory.

Agency theory explains the relationship that occurs between the principal and the agent, where the principal delegates a task or activity to the agent (Delbufalo, 2018). Meanwhile, Gitman and Zutter (2015) said that tax optimization gives rise to agency costs. They also explain that agents will agree with the goal of maximizing shareholder wealth, but agents also worry about their personal wealth, job security, and benefits. These concerns can cause agents to make decisions that are inconsistent with shareholder wealth maximization (Gitman & Zutter, 2015). Brigham and Houston (2021) explain that signaling theory as an approach that explains management essentially provides a sign or signal to investors regarding the decisions and actions taken. The signals provided aim to minimize asymmetric information. Contextually, asymmetric information is a condition or situation when internal firm parties (management) have more comprehensive information than external parties (investors) regarding the firm's prospects (Brigham & Houston, 2021)

Based on theoretical explanations, it can be identified that the factors that influence firm value are tax optimization, corporate sustainability reporting, and research and development intensity. Research related to factors that have implications for firm value in the form of tax optimization, corporate sustainability reporting, and research and development intensity has been carried out and is still not conclusive. Research conducted by Minh Ha et al., (2021), Seifzadeh (2022), and Chen et al., (2014) states that tax optimization has a negative influence on firm value, while Guedrib & Marouani (2023) states that tax optimization has a positive influence on firm value. Furthermore, research conducted by Kuzey & Uyar (2017), Bachoo et al., (2013), and Buallay (2019) stated that corporate sustainability reporting has a positive influence on firm value, while Nguyen (2020) states that corporate sustainability reporting has a negative influence on firm value and Rudyanto & Pirzada (2020) states that corporate sustainability reporting does not influence firm value. Finally, research conducted by Kim et al., (2021), Trianti et al., (2021), Min & Smyth (2015), and Safitri & Gamayuni (2019) stated that research and development intensity has a positive influence on

firm value. Meanwhile, research by Subaida & Sari (2021) states that research and development intensity does not influence firm value. Empirically, the phenomenon of inconclusive research regarding firm value is the main factor for conducting further research on firm value.

2. Literature Review

2.1. Agency Theory

Jensen and Meckling (1976) explain agency theory as a contractual relationship between one or more owners of economic resources (principals) involving other parties (agents) to manage resources on behalf of the principal (Jensen & Meckling, 1976). Agency theory explains that principals, or shareholders, delegate business decisions to agents or managers who act as their representatives. However, it is not uncommon for managers to make decisions that are not completely in line with shareholders' interests due to differences in interests between them (Jensen & Meckling, 1976). In agency theory, the separation of ownership and control will create agency problems, which include managerial incentives to pursue valueless behaviors such as neglecting duties, consuming gifts outside of salary, and rent extraction (Badertscher et al., 2013). Agency problems arise when agents prioritize their goals compared to the interests of the principal (Gitman & Zutter, 2015). Therefore, theoretically, this condition can cause agency costs to arise. In the concept of enterprise value, the risks and returns of a firm directly affect its share price. Risk and return are the main determinants of firm value (Gitman & Zutter, 2015). By agency theory, the separation of ownership and control will create agency problems or agency costs, therefore firm value will be affected due to differences in interests between principals and agents (Arnold & Lewis, 2019).

2.2. Signaling Theory

Signaling theory is formed by a series of key elements, one of which is Return Signals (Russ, 2014). Brigham and Houston (2021) explain that signaling is an action taken by management to signaling investors regarding management's views on the firm's prospects (Brigham & Houston, 2021). In line with Brigham and Houston (2021), a signal as defined by Zutter and Smart (2022) is an action from management regarding its view of the value of the firm's shares (Zutter & Smart, 2022). In its development, Signaling Theory was used to reduce the problem of asymmetric information (Gitman & Zutter, 2015). Signaling theory is related to how companies reduce the problem of asymmetric information (Taj, (2016)) when there is a transfer of information from one party to another (Tasnia et al., 2020). Reducing asymmetric information can be done if the party who has the information gives signals to the other party (Watson et al., 2002). Based on Signaling Theory, the more information a firm discloses, the more positive it is because disclosure can control managers' steps in making decisions and reduce agency costs (Álvarez et al., 2008). Thus, it can be said that because it can control managers' steps in making decisions and reduces agency costs, disclosure can imply increased firm value (Sheu et al., 2010). In the concept of firm value, signaling theory is an action taken by management that reflects its views on the value of the firm (Gitman & Zutter, 2015).

2.3. Firm Value

Minh Ha et al., (2021) defines firm value as the tangible value or potential value that the firm might create in the future (Minh Ha et al., 2021). Firm value as reflected in the term "share price" is an economic consequence of business activities in the market (Harun et al., 2020) which reflects the firm's achievements from when the firm was founded until now (Zuhroh, 2019). With reference to Bryant-Kutcher et al. (2012) firm value can be measured using the Tobin's Q indicator (Bryant-Kutcher et al., 2012).

2.4. Tax Optimization

Nicoleta (2016) explains that tax optimization involves identifying methods or techniques so that companies as taxpayers can enforce tax regulations in the sense that most benefits their own interests, namely to reduce tax costs related to operations or transactions carried out (Nicoleta, 2016). In line with Nicoleta (2016), Arnold & Lewis (2019) define tax optimization as steps taken to reduce taxes that are permitted by law (Arnold & Lewis, 2019). The main objective of tax optimization is the creation of firm value and this is directly related to the planning and quality of the firm's managerial organization (Assidi et al., 2016). Based on these opinions, it is known that tax optimization is a concept where companies carry out practices to optimize their tax burden.

2.5. Corporate Sustainability Reporting

Corporate sustainability reporting is defined as a practice of measuring and disclosing sustainability information, simultaneously, or integrated with existing corporate reporting practices (United Nations Environment Programme, 2019). Mappanyukki et al. (2024) explain that the principles of good corporate governance guide companies to balance their power and authority with accountability to stakeholders, improving image, efficiency, and social responsibility (Mappanyukki et al., 2024). Dyllick and Hockerts (2002) define corporate sustainability as the ability to meet the needs of stakeholders without sacrificing the firm's capacity to meet those needs itself . Corporate sustainability reporting is not simply the process of summarizing and analyzing collected sustainability data. This is seen as the process of assessing data and using the analysis to internalize and increase the level of commitment of an organization in a way that can be demonstrated to all stakeholders (United Nations Environment Programme, 2019). By conveying information about sustainability, in essence, companies aim to increase transparency, increase brand value, maintain reputation, provide legitimacy, standardize benchmarks, indicate the level of competitiveness, motivate employees, support the delivery of firm information, and provide more effective control processes (Herzig & Schaltegger, 2006). This is related to corporate governance, which ultimately aims to reduce agency costs (Arnold & Lewis, 2019).

2.6. Research and Development Intensity

Astuti and Wirama (2016) explain that research and development intensity is the discovery of insight and knowledge about new products and processes that aim to meet society's needs (Astuti & Wirama, 2016). Gitman & Zutter (2015) explain that research and development activities are a firm's long-term plan to achieve its strategic goals. The firm's strategic goal is to increase its value (Gitman & Zutter, 2015). Meanwhile, Zutter & Smart (2022) stated that choosing research and development is one of the processes of selecting long-term investments to increase shareholder wealth (Zutter & Smart, 2022). Arnold & Lewis (2019) explained that firm spending through research and development can result in increasing firm value (Arnold & Lewis, 2019). Apart from Arnold & Lewis (2019), Ghazi & Rim (2014) explained that investment in research and development is an important factor in creating firm value (Ghazi & Rim, 2014). Research and development intensity generally refers to the extent to which financial and human resources are devoted to research and development. Milkovich et al., (1991) explained that research and development intensity is measured as the ratio of research and development expenditure to sales, research and development expenditure per employee, level of research and development expenditure, number of patents applied for or granted, and so on (Milkovich et al., 1991).

2.7. Audit Opinion

Arens et al. (2012) define auditing as an output from evaluation activities and accumulation activities regarding evidence regarding the suitability of information and conformity to established financial

reporting criteria (Arens et al., 2012). The audit opinion on a firm's financial statements reflects the quality of the firm (Meo & Reschiwati, 2019) and is related to the firm's financial condition (Simamora & Hendarjatno, 2019). Auditors achieve their objectives by collecting and evaluating audit evidence. This evidence must be of such quantity and quality that the auditor can provide an opinion on the financial statements (Basu, 2016).

In essence, the purpose of an audit is to provide information regarding actual conditions regarding the firm's historical financial performance to stakeholders and other users of financial reports. The actual conditions regarding financial performance are verified regarding their fairness in accordance with applicable standards. Next, the auditor provides an assessment in the form of an audit opinion on the financial statements he audits. So as a goal, the audit opinion aims to increase the level of confidence in the financial information presented in the financial reports (Elder et al., 2020).

2.8. Hypothesis

The hypotheses in this research can be explained as follows:

H1: Tax optimization has a negative effect on firm value.

H2: Corporate sustainability reporting has a positive effect on firm value.

H3: Research and development intensity has a positive effect on firm value.

H4: Audit opinion can moderate the effect of tax optimization on firm value.

H5: Audit opinion can moderate the effect of corporate sustainability reporting on firm value.

H6: Audit opinion can moderate the effect of research and development intensity on firm value.

3. Research Methods

3.1. Population and Sample

The objects of this analysis are firm value, tax optimization, corporate sustainability reporting, research and development intensity, and audit opinion. This analysis uses secondary data that available on the each company website and other data provider website. The population in this research is all of the manufacturing companies listed on the Indonesia Stock Exchange in the 2018 to 2022 period. The sample selection method uses purposive sampling. Based on the results of data processing, it is known that the data used in this research was 136 observation data.

3.2. Variables Operationalization

Firm value is an indicator of a firm's financial performance. Substantially, it can be explained that if the firm value is high, then this indicates high wealth and prosperity for shareholders (Sondakh, 2019). By referring to Bryant-Kutcher et al., (2012), the firm value variable in this study is proxied by Tobin's Q. Apart from being able to measure firm value well, Tobin's Q was chosen considering several previous studies which also used Tobin's Q as a proxy for measuring firm value.

Tax optimization is an explicit tax reduction (Hanlon & Heitzman, 2010) and reflects all forms of transactions that have an impact on the firm's tax debt (Dyreng et al., 2008) and does not differentiate between real activities carried out to reduce tax liabilities and obtaining tax benefits from lobbying activities (Jiménez-Angueira, 2018). Referring to Le et al., (2022), the proxy used to measure the tax optimization variable is the Effective Tax Rate which is calculated by adding up the total income tax costs divided by the total accounting profit before tax. Apart from being able to measure tax optimization well, the Effective Tax Rate was chosen taking into account several previous studies which also used the Effective Tax Rate as a proxy for measuring tax optimization.

Corporate sustainability reporting is a practice for measuring and presenting accountability to stakeholders

regarding organizational performance to achieve its goals in the context of sustainable development (Bachoo et al., 2013). The Global Reporting Initiative (GRI) framework, which is a sustainability reporting standard, is the most widely used sustainability reporting standard today. The GRI framework provides standards that require participants to report economic indicators, environmental compliance, labor practices, human rights, social responsibility, and products (Landrum & Ohsowski, 2018). Referring to research conducted by Indrianingsih and Agustina (2020), the proxy used to measure corporate sustainability reporting variables is the Sustainability Report Disclosure Index (SRDI) Scale. The SRDI calculation is carried out by giving a score of 1 to items that are disclosed in the firm's sustainability report and a score of 0 to items that are not disclosed, then all scores are added up. The results of adding up the scores disclosed are then divided by the total items from the GRI standard disclosure.

Research and development intensity is the discovery of insight and knowledge about new products and processes that can meet society's needs (Astuti & Wirama, 2016). Research and development intensity can direct companies to continuous competition between industries, both old companies and new companies. Referring to Kim et., al (2021), the proxy used to measure the research and development intensity variable is R&D Intensity which is calculated by adding up the research and development expenses divided by total assets. Apart from being able to measure research and development intensity well, R&D Intensity was chosen taking into account several previous studies which also used R&D Intensity as a proxy for measuring research and development intensity.

The quality of a firm in carrying out its business activities can be seen, one of the ways, through the opinion expressed by the auditor or what can be called an audit opinion (Meo & Reschiwati, 2019) and is related to the firm's financial condition (Simamora & Hendarjatno, 2019). Referring to Averio (2020), the proxy used to measure the audit opinion variable in this research is a nominal scale by giving a score of 1 to companies that receive an Unqualified Audit Opinion and giving a value of 0 to companies that receive an opinion other than an Unqualified Audit. Apart from being able to measure audit opinion well, the use of a nominal scale was chosen considering several previous studies which also used the use of a nominal scale as a proxy for measuring audit opinion.

4. Research Results

4.1.Statistics Descriptive

The results of the descriptive statistical analysis of this research are summarized in the table as follows.

Table 1. Statistics Descriptive Result

Description	FV	TO	CSR	RDI	AO
Mean	1,64	0,39	0,47	0,00	0,96
Median	1,21	0,24	0,48	0,00	1,00
Maximum	5,69	4,15	0,87	0,15	1,00
Minimum	0,34	0,01	0,23	0,00	0,00
Observations	136,00	136,00	136,00	136,00	136,00

Based on the data presented in Table 1, it can be seen that the amount of data used in this research was 136 observation data. By referring to the average value, it can be seen that the firm value (FV) in this study is classified as low. By referring to the average value, it is known that the tax optimization (TO) contained in this study is classified as high. Furthermore, based on the average value, it can be seen that the corporate sustainability reporting (CSR) contained in this research is classified as medium in size. Based on the

average value, it can be said that the research and development intensity (RDI) contained in this research is classified as moderate. Finally, based on the average value, it can be seen that the audit opinion (AO) contained in this study is classified as high.

4.2. Estimation Model

The following are the results of the estimation model selection test.

Table 2. Estimation Model Selection Test Result

Description	Value	Conclusion
Chow Test	0,00	Fixed Effect Model
Hausman Test	0,01	Fixed Effect Model
Lagrange Multiplier Test	0,00	Random Effect Model

Referring to Table 2, it can be concluded that the Fixed Effect Model is suitable for this data processing.

4.3. Classical Assumption Test

The following are the results of the multicollinearity test and heteroscedasticity test in this research. The multicollinearity test results table can be presented as follows:

Table 3. Multicollinearity Test Result

	TO	CSR	RDI
TO	1,00	-0,20	-0,03
CSR	-0,20	1,00	0,13
RDI	-0,03	0,13	1,00

Next, the heteroscedasticity test results table can be presented as follows:

Table 4. Heteroscedasticity Test Result

Variable	Prob.
TO	0,07
CSR	0,91
RDI	0,23

Based on the classical assumption test, it can be concluded that the data passed the multicollinearity test and heteroscedasticity test.

4.4. Hypothesis Test

Based on the test that has been carried out, the results of hypothesis testing and regression testing can be presented as follows.

Table 5. Regression and Hypothesis Result

Description	Coefficient	t-statistics	Prob.
F Statistics	19,00		0,00
Adjusted R^2	0,82		
FV	2,89	11,53	0,00
TO	-0,22	-2,40	0,01

CSR	-2,01	-4,44	0,00
RDI	-25,10	-2,29	0,02
TO*AO	-8,46	-0,72	0,46
CSR*AO	-0,32	-0,02	0,98
RDI*AO	-0,20	-1,36	0,17

By referring to Table 5, it is known that the F Statistics probability value is 0,00. Based on the F test, it is known that the calculated F probability significance value is less than 0,05. Thus, it can be said that tax optimization, corporate sustainability reporting, and research and development intensity, are appropriate in explaining firm value. The adjusted R^2 value can be interpreted as tax optimization, corporate sustainability reporting, and research and development intensity explaining the firm value by 82 percent, while the remaining 18 percent is explained by other variables that are not included in this research. Based on the t-test, the probability value of tax optimization is 0,01 which is smaller than 0,05. Therefore, the tax optimization variable has an influence on firm value, and can be concluded that hypothesis 1 is accepted. The probability value of corporate sustainability reporting variable is 0,00 which is smaller than 0,05. Thus, it can be said that the corporate sustainability reporting variable has an influence on firm value, and hypothesis 2 is rejected. The probability value of research and development intensity is 0,02 which is smaller than 0,05. Thus, the research and development intensity variable has an influence on firm value and it can be said that hypothesis 3 is rejected.

4.5. Multiple Regression Test and Moderation Test

From the data result, it can be said that the constant value of 2,89 explains that if the coefficient value of tax optimization, corporate sustainability reporting, and research and development intensity are 0 then the coefficient value of firm value is 2,89. Tax optimization has a coefficient value in a negative direction and a value of -0,23. This explains that every one unit change in the tax optimization level will reduce the level of firm value by -0,23. The significance value of tax optimization is 0,01 which is lower than 0,05 so tax optimization has an effect on firm value. Corporate sustainability reporting has a coefficient value in the negative direction of -2,02. This explains that every one unit change in the level of corporate sustainability reporting will reduce the level of firm value by -2,02. The significance value of corporate sustainability reporting is 0,00 which is lower than 0,05 so corporate sustainability reporting has an effect on firm value. Research and development intensity has a coefficient value in the negative direction of -25,11. This explains that every one unit change in the level of research and development intensity will reduce the level of firm value by -25,11. The significance value of research and development intensity is 0,02 which is lower than 0,05 so research and development intensity has an effect on firm value.

As for the tax optimization moderated by audit opinion, it has a coefficient value of -8,46. This explains that every one unit change in the level of tax optimization moderated by audit opinion will reduce the level of firm value by -8,46. The significance value of audit opinion moderation on tax optimization is 0,47 which is greater than 0,05 therefore audit opinion cannot moderate tax optimization on firm value. Coefficient value of corporate sustainability reporting moderated by audit opinion is -0,32. This explains that every one unit change in the level of corporate sustainability reporting which is moderated by audit opinion will reduce the level of firm value by -0,32. The significance value of audit opinion moderation on corporate sustainability reporting is 0,98 which is greater than 0,05 therefore audit opinion cannot moderate corporate sustainability reporting on firm value. Coefficient value for research and development intensity moderated by audit opinion is -0,21. This explains that every one unit change in the level of

research and development intensity which is moderated by audit opinion will reduce the level of firm value by -0,21. The significance value of audit opinion moderation on research and development intensity is 0,18 which is greater than 0,05 therefore audit opinion cannot moderate research and development intensity on firm value.

5. Discussion

5.1. Tax Optimization Influences on Firm Value

Based on data, it is known that there is a negative influence of tax optimization on firm value. Based on the theoretical logic that has been explained, there are similarities between the theory and the research results. By referring to agency theory, it can be explained that in essence tax optimization actually affects firm value negatively. This means that if a firm increases its level of tax optimization, the firm value will become lower. This implication is because tax optimization increases agency costs and increases the cost of equity, thereby reducing firm value. Theoretically, it can be explained that companies that carry out tax optimization will increase agency costs due to potential conflicts of interest. The conflict of interest occurs between managers and shareholders, and this will have implications for decision making that is less transparent and only benefits managers rather than the firm. Meanwhile, tax optimization increases the cost of equity because tax optimization increases the risk and uncertainty felt by investors and this can damage the firm's reputation. This is in line with Minh Ha et al., (2021) who also conclude the conclusion. Based on the research results, it is known that tax optimization affects firm value negatively. Therefore, it can be said that the results of this research are in accordance with the proposed research hypothesis.

5.2. Corporate Sustainability Reporting Influences on Firm Value

Based on research data that researchers have conducted, it is known that there is a negative influence of corporate sustainability reporting on firm value. Based on the theoretical logic that has been explained, there are differences between theory and research results. Based on signaling theory, it is known that the more information a firm discloses, the more positive it is because disclosure can control managers' steps in making decisions. The research results show that there are different phenomena that occur in the influence of corporate sustainability reporting on firm value. The differences in phenomena that occur can be said to be caused by differences in perception. Based on the results of observations, it can be explained that companies that invest in the form of social responsibility can be considered wasting firm resources. This is because investment in the form of social responsibility can be considered to have a tendency to gain management's reputation by using firm resources. This use of firm resources also comes at the expense of shareholders. This is in line with Nguyen (2020) who also conclude the same conclusion. Therefore, it can be said that there are different phenomena which are new to the research. Based on signaling theory, it is known that the higher the level of quantity of information a firm discloses, the better it will be because disclosure can control managers' steps in making decisions. Based on research that has been conducted, it is known that corporate sustainability reporting negatively influences firm value. Thus, it can be said that the previously proposed research hypothesis has been rejected. The diversity of research results provides implications that show that there is novelty in this research.

5.3. Research and Development Intensity Influences on Firm Value

Based on research data that researchers have conducted, the results show that there is a negative influence of research and development intensity on firm value. Based on the theoretical logic that has been explained, there are differences between theory and research results. Based on signaling theory, the more information a firm discloses, the more positive it is because disclosure can control managers' steps in

making decisions. By giving a signal that the firm has investment in research and development, it can be said that the firm wants to provide guidance or navigation regarding the firm's future direction. The research results show that there are different phenomena that occur in the influence of research and development intensity on firm value. This difference in phenomena occurs because of the uncertainty felt by investors regarding the research and development carried out. Investors may assume that the research and development carried out by the firm could fail and actually reduce the value of the firm's property. This is in line with N. Lee & Lee (2019) who also conclude the same conclusion. Therefore, there are different phenomena that are new to research. This difference in phenomena is a novelty that also enriches the results of this research. Based on the results of research that researchers have conducted, it can be said that research and development intensity has a negative influence on firm value. Thus, it can be said that the results of this study reject the proposed hypothesis. This difference in results has implications that show that there is novelty in this research.

5.4. Audit Opinion Moderates Tax Optimization on Firm Value

Based on research data that researchers have conducted, it is known that audit opinion cannot moderate the influence of tax optimization on firm value. According to agency theory, tax optimization increases agency costs and increases the cost of equity, thereby reducing firm value. Through the phenomenon, it can be seen that companies tend to experience a decrease in the quality of financial reporting transparency when they engage in tax optimization practices. This implies that tax optimization can result in complex transactions, which in turn have a negative impact on firm information and reduce the level of transparency of financial reporting. Therefore, companies that have unqualified audit financial reports have a low interest in carrying out tax optimization. Therefore, it can be said that audit opinions can influence the firm's steps in carrying out tax optimization. However, in this research it is known that audit opinion does not moderate the effect of tax optimization on firm value, so this is a new phenomenon which also answers the problem formulation in the research. The research results show that the audit opinion cannot moderate the effect of tax optimization on firm value. Based on the relationship, investors realize that audit opinion is not a factor that can moderate the effect of tax optimization on firm value. This is because investors consider that an audit opinion is not a guarantee that a firm that has a good audit opinion will moderate the level of tax optimization carried out by the firm which will increase the firm's value. Based on the research results, it can be said that the research results reject the proposed hypothesis. The differences in results contained in this research provide implications that show that there is novelty in this research.

5.5. Audit Opinion Moderates Corporate Sustainability Reporting on Firm Value

Based on research that has been conducted, it is known that audit opinion cannot moderate the influence of corporate sustainability reporting on firm value. Based on signaling theory, it is known that the more information a firm discloses, the more positive it is because disclosure can control managers' steps in making decisions. This theoretical framework explains the phenomenon described previously, namely that the report that evaluates firm performance is a report on firm activities related to economic, social and environmental responsibility to society in a sustainability report. The implementation of corporate social responsibility can influence the firm's image in the eyes of the public, which is manifested in the form of a Sustainability Reporting. Companies that implement this can increase the firm's vision and stakeholder trust in the firm to maintain good relations with the firm. However, in this research it is known that audit opinion does not moderate the influence of corporate sustainability reporting on firm value, so this is a new phenomenon which also answers the problem formulation in the research. The research results show that the audit opinion cannot moderate the influence of corporate sustainability reporting on firm value.

Based on the relationship, investors realize that audit opinion is not a factor that can moderate the influence of corporate sustainability reporting on firm value. This is because investors consider that an audit opinion is not a guarantee that a firm that has a good audit opinion will moderate the level of corporate sustainability reporting carried out by the firm which will increase the value of the firm. Thus, it can be said that the research results reject the proposed hypothesis. The differences in results in this research provide implications that show that there is novelty in this research.

5.6. Audit Opinion Moderates Research and Development Intensity on Firm Value

Based on the research results, it is known that audit opinion cannot moderate the influence of research and development intensity on firm value. Based on signaling theory, the more information a firm discloses, the more positive it is because disclosure can control managers' steps in making decisions. By giving a signal that the firm has investment in research and development, the firm provides guidance to investors about how management views the firm's future prospects. The phenomenon is that research and development intensity is positively related to the choice of firm auditors who specialize in auditing research and development contracts. In addition, companies that are intensive in research and development tend to appoint top-level auditors. However, in this research it is known that audit opinion does not moderate the influence of research and development intensity on firm value, so this is a new phenomenon which also answers the problem formulation in the research. The research results show that the audit opinion cannot moderate the influence of research and development intensity on firm value. Based on the relationship, investors realize that audit opinion is not a factor that can moderate the influence of research and development intensity on firm value. This is because investors consider that an audit opinion is not a guarantee that a firm that has a good audit opinion will moderate the level of research and development intensity carried out by the firm which will ultimately increase the firm's value. Based on the research results, it can be said that the research results reject the proposed hypothesis. Thus, it can be said that the differences in these results have implications that show that there is novelty in this research.

6. Conclusion and Recommendation

Based on the problem formulation, discussion and results of research that has been carried out, it can be concluded that tax optimization has a negative influence on firm value. This result is caused by increased agency costs because the firm carries out tax optimization, the implication is that there is a potential conflict of interest which can later have an impact on less transparent decision making and increase the cost of equity because tax optimization increases the risk and uncertainty felt by investors and can damage the firm's reputation. Another result shows that corporate sustainability reporting has a negative influence on firm value. This result show that there are differences in perception, that companies investing in the form of social responsibility can be seen as wasting firm resources. This is because investment in the form of social responsibility can be considered to have a tendency to gain management's reputation by using firm resources. This use of firm resources also comes at the expense of shareholders. Research and development intensity has a negative influence on firm value. This result caused by the uncertainty felt by investors regarding the research and development carried out. Investors may assume that the research and development carried out by the firm could fail and actually reduce the firm's value. The audit opinion variable cannot moderate the tax optimization variable, corporate sustainability reporting variable, and research and development intensity variable to influence firm value. This is because investors do not consider audit opinion to be a factor that can moderate tax optimization, corporate sustainability reporting, and research and development intensity on firm value.

Based on the research's result, it can be recommended to companies to evaluate their level of tax optimization so that firm value can increase. As for corporate sustainability reporting and research and development intensity negatively affecting firm value, companies need to review their corporate sustainability reporting and research and development intensity activities. Suggestions for regulators are that the research results show that there is a negative influence of tax optimization on firm value, there is a negative influence of corporate sustainability reporting on firm value, and there is a negative influence of research and development intensity on firm value, so regulators need to review regulations on these matters in order to increase the value of existing companies. For future researchers, it is hoped that there are still hypotheses that have not been accepted and various shortcomings in this research.

References

1. Álvarez, I. G., Sánchez, I. M. G., & Domínguez, L. R. (2008). Voluntary and compulsory information disclosed online: The effect of industry concentration and other explanatory factors. Online Information Review, 32(5), 596–622. https://doi.org/10.1108/14684520810913990
2. Arens, A. A., Elder, R. J., & Beasley, M. S. (2012). Auditing and assurance services: an integrated approach (14th ed.). Pearson Education Inc.
3. Arnold, G., & Lewis, D. (2019). Corporate Financial Management (6th ed.). Pearson Education Limited.
4. Assidi, S., Aliani, K., & Omri, M. A. (2016). Tax optimization and the firm's value: Evidence from the Tunisian context. Borsa Istanbul Review, 16(3), 177–184. https://doi.org/10.1016/j.bir.2016.04.002
5. Astuti, N. M. A., & Wirama, D. G. (2016). Pengaruh Ukuran Perusahaan,Tipe Industri, dan Intensitas Research and Development Pada Pengungkapan Modal Intelektual. E-Jurnal Akuntansi Universitas Udayana, 15(1), 522–548.
6. Averio, T. (2020). The analysis of influencing factors on the going concern audit opinion – a study in manufacturing firms in Indonesia. Asian Journal of Accounting Research, 6(2), 152–164. https://doi.org/10.1108/AJAR-09-2020-0078
7. Bachoo, K., Tan, R., & Wilson, M. (2013). Firm Value and the Quality of Sustainability Reporting in Australia. Australian Accounting Review, 23(1), 67–87. https://doi.org/10.1111/j.1835-2561.2012.00187.x
8. Badan Pusat Statistik. (2023). Produk Domestik Bruto Pengeluaran. Badan Pusat Statistik. https://www.bps.go.id/subject/169/produk-domestik-bruto--pengeluaran-
9. Badertscher, B. A., Katz, S. P., & Rego, S. O. (2013). The separation of ownership and control and corporate tax avoidance. Journal of Accounting and Economics, 56(2–3), 228–250. https://doi.org/10.1016/j.jacceco.2013.08.005
10. Basu, S. K. (2016). Auditing and Assurance (2nd ed.). Pearson India Education Services Pvt. Ltd.
11. Brigham, Eugene. F., & Houston, J. F. (2021). Fundamentals of Financial Management (16th ed.). Cengage.
12. Bryant-Kutcher, L. A., Guenther, D. A., & Jackson, M. (2012). How do cross-country differences in corporate tax rates affect firm value? Journal of the American Taxation Association, 34(2), 1–17. https://doi.org/10.2308/atax-10207
13. Buallay, A. (2019). Between cost and value: Investigating the effects of sustainability reporting on a firm's performance. Journal of Applied Accounting Research, 20(4), 481–496.

https://doi.org/10.1108/JAAR-12-2017-0137
14. Chen, X., Hu, N., Wang, X., & Tang, X. (2014). Tax avoidance and firm value: evidence from China. Nankai Business Review International, 5(1), 25–42. https://doi.org/10.1108/NBRI-10-2013-0037
15. Delbufalo, E. (2018). Agency Theory and Sustainability in the Global Supply Chain. Springer International Publishing AG.
16. Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-Run Corporate Tax Avoidance. The Accounting Review, 83(1), 61–82. https://doi.org/10.2308/accr.2008.83.1.61
17. Elder, R. J., Beasley, M. S., Hogan, C. E., & Arens, A. A. (2020). Auditing and Assurance Services: International Perspectives (17th ed.). Pearson Education Limited.
18. Ghazi, Z., & Rim, Z. H. (2014). Directors' board, R&D investment and the firm's performance: Evidence from the french case. Corporate Board: Role, Duties and Composition, 10(2), 85–101. https://doi.org/10.22495/cbv10i2art7
19. Gitman, L. J., & Zutter, C. J. (2015). Principles of Managerial Finance (14th ed.). Pearson Education.
20. Guedrib, M., & Marouani, G. (2023). The interactive impact of tax avoidance and tax risk on the firm value: new evidence in the Tunisian context. Asian Review of Accounting, 31(2), 203–226. https://doi.org/10.1108/ARA-03-2022-0052
21. Hanlon, M., & Heitzman, S. (2010). A review of tax research. Journal of Accounting and Economics, 50(2–3), 127–178. https://doi.org/10.1016/j.jacceco.2010.09.002
22. Harun, M. S., Hussainey, K., Kharuddin, K. A. M., & Farooque, O. Al. (2020). CSR Disclosure, Corporate Governance and Firm Value: a study on GCC Islamic Banks. International Journal of Accounting and Information Management, 28(4), 607–638. https://doi.org/10.1108/IJAIM-08-2019-0103
23. Herzig, C., & Schaltegger, S. (2006). Corporate Sustainability Reporting. In Sustainability Accounting and Reporting (Eco-Efficiency in Industry and Science) (21st ed., Vol. 21, pp. 301–324). Springer.
24. Indonesia Stock Exchange Data Services Division. (2023). IDX Yearly Statistics 2022. https://www.idx.co.id/Media/5pfnt4gg/idx_yearly_statistics_2022.pdf
25. Indrianingsih, I., & Agustina, L. (2020). The Effect of Company Size, Financial Performance, and Corporate Governance on the Disclosure of Sustainability Report. Accounting Analysis Journal, 9(2), 116–122. https://doi.org/10.15294/aaj.v9i2.31177
26. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360. https://doi.org/10.1016/0304-405x(76)90026-x
27. Jiménez-Angueira, C. E. (2018). The effect of the interplay between corporate governance and external monitoring regimes on firms' tax avoidance. Advances in Accounting, 41, 7–24. https://doi.org/10.1016/j.adiac.2018.02.004
28. Kim, J. M., Yang, I., Yang, T., & Koveos, P. (2021). The impact of R&D intensity, financial constraints, and dividend payout policy on firm value. Finance Research Letters, 40(1), 1–16. https://doi.org/10.1016/j.frl.2020.101802
29. Kuzey, C., & Uyar, A. (2017). Determinants of sustainability reporting and its impact on firm value: Evidence from the emerging market of Turkey. Journal of Cleaner Production, 143(1), 27–39. https://doi.org/10.1016/j.jclepro.2016.12.153
30. Landrum, N. E., & Ohsowski, B. (2018). Identifying Worldviews on Corporate Sustainability: A Con-

tent Analysis of Corporate Sustainability Reports. Business Strategy and the Environment, 27(1), 128–151. https://doi.org/10.1002/bse.1989

31. Le, V. H., Vu, T. A. T., & Nguyen, M. H. (2022). Tax Planning and Firm Value: The Case of Companies with Different State Ownership in Vietnam. Journal of Eastern European and Central Asian Research (JEECAR), 9(2), 333–343. https://doi.org/10.15549/jeecar.9i2.700
32. Mappanyukki, R., Nengsih, N., Adiztie, D., Azhar, Z., & Endri, E. (2024). Litigation Risk and Good Corporate Governance on Audit Fees: Moderate Role of Financial Reporting Disclosure Level. General Management, 25(202), 201–206. https://doi.org/10.47750/qas/25.202.21
33. Meo, M. C. L., & Reschiwati. (2019). Accuracy of Audit Opinion: Factors that Influence it. Journal of Accounting Research, Organization and Economics, 2(3), 218–231. https://doi.org/10.24815/jaroe.v2i3.15184
34. Milkovich, G. T., Gerhart, B., & Hannon, J. (1991). The effects of research and development intensity on managerial compensation in large organizations. The Journal of High Technology Management Research, 2(1), 133–150. https://doi.org/https://doi.org/10.1016/1047-8310(91)90018-J
35. Min, B. S., & Smyth, R. (2015). Determinants of R&D intensity and its impact on firm value in an innovative economy in which family business groups are dominant: The case of South Korea. Monash Economics Working Papers, 1(1), 1–34. https://doi.org/10.1080/00036846.2016.1181836
36. Minh Ha, N. M., Tuan Anh, P., Yue, X. G., & Hoang Phi Nam, N. (2021). The impact of tax avoidance on the value of listed firms in Vietnam. Cogent Business and Management, 8(1), 1–13. https://doi.org/10.1080/23311975.2021.1930870
37. Nguyen, T. T. D. (2020). An empirical study on the impact of sustainability reporting on firm value. Journal of Competitiveness, 12(3), 119–135. https://doi.org/10.7441/joc.2020.03.07
38. Nicoleta, B.-M. (2016). Tax Optimization - A Legally Way to Reduce The Fiscal Impact in Firms Activity. In Legal mechanisms to ensure the activities of economic entities (pp. 147–155). ISMA University.
39. Riky, K., & Intan Sari, W. (2021). Analysis of the Effect of Internal and External Factors on the Stock Price Index INFOBANK15. Jurnal Ilmiah Ilmu Administrasi Dan Manajemen, 15(2), 49–60.
40. Rudyanto, A., & Pirzada, K. (2020). The role of sustainability reporting in shareholder perception of tax avoidance. Social Responsibility Journal, 17(5), 669–685. https://doi.org/10.1108/SRJ-01-2020-0022
41. Russ, M. (2014). Value Creation, Reporting, and Signaling for Human Capital and Human Assets. Palgrave Macmillan.
42. Safitri, V. A. D., & Gamayuni, L. R. R. (2019). Research and Development (R&D), Environmental Investments, to Eco-Efficiency, and Firm Value. The Indonesian Journal of Accounting Research, 22(03), 377–396. https://doi.org/10.33312/ijar.446
43. Seifzadeh, M. (2022). The Effectiveness of Management Ability on Firm Value and Tax Avoidance. Journal of Risk and Financial Management, 15(11), 1–15. https://doi.org/10.3390/jrfm15110539
44. Simamora, R. A., & Hendarjatno, H. (2019). The effects of audit client tenure, audit lag, opinion shopping, liquidity ratio, and leverage to the going concern audit opinion. Asian Journal of Accounting Research, 4(1), 145–156. https://doi.org/10.1108/AJAR-05-2019-0038
45. Sondakh, R. (2019). The Effect of Dividend Policy, Liquidity, Profitability and Firm Size on Firm Value In Financial Service Sector Industries Listed In Indonesia Stock Exchange 2015-2018 Period. Accountability, 8(2), 91–101. https://doi.org/10.32400/ja.24760.8.2.2019.91-101

46. Subaida, I., & Sari, L. P. (2021). Intangible Assets, Research & Development Intensity, and Firm Value with Firm Performance as an Intervening Variable. Advances in Economics, Business and Management Research, 173(1), 9–15. https://doi.org/10.2991/aebmr.k.210416.002
47. Taj, S. A. (2016). Application of signaling theory in management research: Addressing major gaps in theory. European Management Journal, 34(4), 1–11. https://doi.org/10.1016/j.emj.2016.02.001
48. Tasnia, M., Syed Jaafar AlHabshi, S. M., & Rosman, R. (2020). The impact of corporate social responsibility on stock price volatility of the US banks: a moderating role of tax. Journal of Financial Reporting and Accounting, 19(1), 77–91. https://doi.org/10.1108/JFRA-01-2020-0020
49. Trianti, K., Rahmawati, N. M., & Aini, Y. N. (2021). The Impact of Research and Development Spending on Firm Value Moderated by Product Diversification. Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 4(3), 6648–6659. https://doi.org/10.33258/birci.v4i3.2480
50. United Nations Environment Programme. (2019). Background to Sustainability Reporting - Enhancing the Uptake and Impact of Corporate Sustainability Reporting: A Handbook and Toolkit for Policymakers and Relevant Stakeholders Section A - Handbook. https://wedocs.unep.org/20.500.11822/30663
51. Watson, A., Shrives, P., & Marston, C. (2002). Voluntary Disclosure of Accounting Ratios in The UK. British Accounting Review, 34(1), 289–313. https://doi.org/10.1006/S0890-8389(02)00077-X
52. Zuhroh, I. (2019). The Effects of Liquidity, Firm Size, and Profitability on the Firm Value with Mediating Leverage. KnE Social Sciences, 203–230. https://doi.org/10.18502/kss.v3i13.4206
53. Zutter, C. J., & Smart, S. B. (2022). Principles of Managerial Finance (16th ed.). Pearson Education Limited.