

Research Article

The Moderating Role of CSR on the Impact of Liquidity, Leverage, Firm Size, and Firm Age on Profitability in Energy Sector Companies Listed on the Indonesia Stock Exchange

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Abstract: This study aims to investigate the link between liquidity, leverage, company size, firm age, and the profitability of energy sector companies which will make up 10.52% of Indonesia's GDP in 2023 and CSR. Purposive sampling was used to choose 20 samples from the study population, which, in compliance with the PROPER Program participation requirements, included 57 energy sector businesses listed on the IDX for the 2019–2023 timeframe. Panel data regression analysis and moderated regression analysis using eViews were used to examine the data. The results showed that although company age and size positively affect profitability, debt and CSR have a negative impact, and liquidity has no effect on profitability. The findings also demonstrate that the detrimental impact of debt on profitability is amplified by CSR moderation. The findings, however, indicate that CSR is unable to mitigate the impact of business age, size, and liquidity on profitability. It is determined that CSR is a predicted moderator of the impact of liquidity, company size, and age on profitability, as well as a quasi-moderator of the impact of leverage on profitability. Further research should be conducted to analyze other determinants of profitability and other factors that can moderate variables and profitability.

Keywords: liquidity, leverage, firm size, firm age, profitability, corporate social responsibility

INTRODUCTION

The mining and energy industry contributed 10.52% of Indonesia's GDP in 2023, according to figures released by the Central Statistics Agency in a press release dated February 5, 2024. This suggests that one of the key pillars supporting the Indonesian economy is the mining and energy industry. Due to its significant role, the Indonesian economy will be impacted by the energy sector's profitability. Profitability, as measured by ROA in this context, tends to fluctuate, based on the profitability trends of energy sector companies listed between 2019 and 2023 on the Indonesia Stock Exchange.

Both internal and external business variables might affect changes in the average ROA value. Previous study has examined the internal elements that impact a company's ROA and discovered that profitability is influenced by non-financial elements as well. Financially speaking, a company's profitability is greatly influenced by firm size, leverage, and liquidity. Research indicates that liquidity has a major influence on a company's profitability. The firm may avoid penalties or other expenses that might lower

earnings if it has enough liquidity to meet its commitments on time. Businesses with strong liquidity will have enough cash on hand to fund growth, R&D, and new initiatives. Ratios like the cash ratio, quick ratio, current ratio, and others may be used to gauge liquidity. According to the findings of studies by Alqudah and Zaitoun (2020); Darmayanti et al. (2022), liquidity significantly and favorably affects profitability. However, studies by Ayoush et al. (2021); Kamsari and Setijaningsih (2020) demonstrate that liquidity has little impact on profitability.

Apart from liquidity, one other factor that influences profitability is leverage. Leverage in the context of business and finance is the use of debt or loans to increase the potential profits from investments or business operations. The term leverage is often associated with capital loans to purchase equipment and other assets so that companies can finance the assets they need. However, the use of leverage also carries risks, because it increases the potential for losses if investments do not go as expected. Therefore, companies must be able to balance the benefits and costs of using debt. Wise use of debt can maximize ROA by exploiting the effects of financial leverage, However, using debt may also result in more risk and interest expenses, which, if improperly handled, might lower profitability. This is consistent with Adria and Susanto (2020), showing that profitability will rise with increased leverage. This, however, differs with the studies on the connection between leverage and profitability conducted by Jibrin Musa et al. (2022); Natalya and Maimunah (2022). Leverage has no influence on profitability, according to both studies.

One of the elements affecting a company's profitability is its size. Greater operational efficiency and easier access to low-cost financing are linked to larger businesses, both of which may boost profitability. High operational efficiency occurs because larger companies may have large economies of scale, meaning that as production volume rises, the cost per unit of production falls. Large companies will also have stronger bargaining power with suppliers and distributors, so that companies can get raw materials and services at lower prices or on more favorable conditions. Research conducted by Pradnyaswari and Dana (2022); Bilgin et al. (2023) has proven this. However, research by Ningrum and Suharti (2023); Abeyrathna and Priyadarshana (2019) showed that firm size had no effect on ROA.

In addition to the previously listed financial factors, non-financial factors like business age also have an impact on profitability. Firm age, which measures how long a business has been in operation since its inception, affects profitability. Numerous investigations, such as those by Oktavia et al. (2020); Kristanti et al. (2022); Yunita and Ramadhana (2022), provide evidence for this. According to these findings, older businesses often have greater levels of profitability. This occurs because businesses that have been in business for a number of years benefit from stability and expertise. In order to improve risk management and operational efficiency, the organization has encountered a number of difficulties and learnt from its past errors. However, research from Hartanto et al. (2021); Isayas (2022) show that firm age does not affect profitability.

The findings of earlier studies are inconsistent, indicating a research gap on the effects of liquidity, leverage, business size, and firm age on profitability. This suggests that further study is necessary to fully understand how liquidity, leverage, company size, and firm age affect profitability. To close the current research gap, this study suggests a method that includes the CSR variable as a moderator variable. Companies in Indonesia have a significant duty to undertake CSR. According to Law Number 40 of 2007, social and environmental duties must be fulfilled by every firm that deals with natural resources

or related fields. The goal of CSR is to improve society and the environment, covering various programs such as infrastructure development, education, health, economic empowerment and environmental preservation.

Implementing CSR not only helps improve the company's image, but also to support harmonious relationships between the company and local communities, as well as contributing to sustainable development in Indonesia. This is consistent with stakeholder theory, which holds that businesses have an obligation to serve society, the environment, and the government (stakeholders) in addition to maximizing profits for owners and investors (shareholders). Companies are supposed to be able to improve shared prosperity and promote sustainable development by positively influencing society and the environment via their CSR commitments. The corporation will be able to manage the impact of liquidity, leverage, firm size, and firm age on profitability via social engagement in CSR. Mixed findings were also discovered in studies on how corporate social responsibility affects profitability. According to Waaqi'ah et al. (2021), who looked at 68 manufacturing firms that were listed on the Indonesia Stock Exchange, CSR significantly and favorably affects profitability. Pratiwi et al. (2020) on Indonesia's state-owned banks, however, came to the opposite conclusion.

Indonesia has been using the PROPER program since 1995. The Indonesian Ministry of Environment and Forestry launched PROPER. This initiative is an example of how Indonesian corporations are implementing CSR in the environmental sector. The program aims to encourage companies to comply with environmental regulations and adopt sustainable business practices. Through PROPER, companies' performance is evaluated and ranked based on their compliance with environmental management, ranging from a black rating for the worst performance to a gold rating for the best performance. Participants of the PROPER program automatically perform well in CSR as they must meet various environmental standards, such as waste management, energy efficiency, resource conservation, and emission reduction. In addition to showing their dedication to the environment, businesses that take part in PROPER also help to preserve nature and promote social welfare, both of which enhance the company's favorable reputation and image among stakeholders and the general public. Companies in the energy industry that take part in the Ministry of Environment and Forestry's PROPER program are the subject of the study in order to promote the moderating effect of CSR.

According to the above explanation, this study aims to investigate the moderating role of CSR on the effect of liquidity, leverage, firm size and firm age on profitability in energy sector companies listed on the Indonesia Stock Exchange for the 2019-2023 Period. It is anticipated that this study will deepen our understanding of the interdependencies between liquidity, leverage, firm size, and firm age, as well as how CSR mitigates their effects on profitability.

LITERATURE REVIEW

Theory of the Firm

A collection of ideas known as "theory of the firm" summarizes how businesses integrate and arrange their diverse resources in order to produce products and services that are sold, primarily to satisfy the demands of customers (Spulber, 2009). Murphy (2020) asserts that the firm's philosophy is a theory developed by classical and neoclassical economists which is a microeconomic concept which states that the existence of companies and decision making by companies is carried out to maximize profits. Firms

purchase and coordinate the services of factors of production such as land and buildings, labor, or other types of capital to produce commodities and sell them in the market for consumers (Kantarelis, 2017).

In the theory of the firm, it is explained how the firm behaves to maximize its profit; from how the firm chooses inputs, the firm's cost curve, to how the firm determines the price and output levels that maximize profits in the market structure where the firm is located (Prakasa & Firmansyah, 2019). Theories based on the objective of profit maximization suggest that firms seek to make the difference between total revenue (sales receipt) and total costs (outgo) as large as possible. A firm maximizes profit when, by producing and selling one more unit, it adds more revenue than costs (Lipsey & Chrystal, 2011).

Stakeholder theory

According to Freeman et al. (2010), stakeholder theory is a management strategy that highlights the significance of considering the interests of all stakeholders engaged or impacted by the company's operations. The Stanford Research Institute coined the word "stakeholder" in 1963, and it refers to a group that may support an organization's survival (Harmoni, 2013). This idea holds that businesses ought to take into account the interests of not only shareholders but also workers, clients, suppliers, communities, and governments.

Stakeholder theory challenges the widely held belief that a company's main objective is to maximize shareholder profits. Rather, since stakeholders have power over the resources required for the company's existence, this theory mandates that businesses provide value for all parties involved. In particular, stakeholders who control the availability of resources needed for the business's operational operations, such workers, consumers, and owners, must be accommodated in order for companies to retain connections with them (Hörisch et al., 2014).

Profitability

Profitability is a measure of a business's ability to generate income over time. One of the six components of financial measures that are crucial for businesses is profitability. Investors and analysts use the profitability ratio to assess management effectiveness based on the profit from sales and investments made by the firm (Weston & Copeland, 1992). According to Kasmir (2019), profitability is a ratio used to evaluate a company's capacity to generate profit over a certain time frame. As shown by the profit from sales or investment funds, this ratio also offers a gauge of how well a company's management is doing.

Profitability is measured using a number of measures, including earnings per share, ROE, gross profit margin, ROA, net profit margin, and return on investment (Weston & Copeland, 1992). ROA is the study's stand-in for profitability. One measure that indicates how well a company's assets can produce profits is called return on assets, or ROA (Adnyana, 2020). ROA is calculated by dividing a company's net income by the average of its total assets.

Corporate Social Responsibility

Carroll (1979) provided the first and most often referenced definition of CSR, stating that it includes the societal expectations of a firm at a particular period in terms of economics, law, ethics, and policy. A company's ongoing commitment to behave ethically,

promote economic progress, and The World Business Council for Sustainable Development (1999) later defined corporate social responsibility (CSR) as the company's efforts to better the lives of its employees and their families as well as the local and global community.

Businesses take into account the social and environmental effects of their daily activities under the notion of corporate social responsibility, or CSR. Law No. 40 of 2007 serves as the foundation for Indonesia's duty to execute CSR. Social and environmental responsibility, or CSR, is the firm's dedication to sustainable economic growth to enhance the environment and quality of life for the company, the community, and society as a whole. The link between liquidity, leverage, company size, and firm age and profitability was examined in this research, and the author included CSR as a moderating variable. The ratio of CSR expenses to business earnings serves as a stand-in for CSR in this research.

Liquidity

A ratio called liquidity indicates a company's capacity to settle its short-term debt (Hery, 2016). According to Hasan et al. (2022), liquidity is the capacity to meet all commitments that need to be settled right away in a short period of time. Dividends, accounts payable, taxes, and other expenses are a few instances of short-term business debt. Liquidity, according to Irfani (2020), is a gauge of a company's capacity to pay all of its short-term debts that have matured with the assurance of its present assets. There are two types of short-term obligations for the company: internal and external. CR, Cash Ratio, Quick Ratio, and other ratios are used to assess liquidity. The current ratio serves as a stand-in for liquidity in this investigation. A company's current assets divided by its current liabilities yields the current ratio.

Leverage

According to Brigham and Houston (2018) leverage is how companies Utilize loan capital in the form of debt to raise money for new business assets and to get or boost loan capital earnings. Effective use of leverage will help the company maximize its shareholders' wealth, but excessive or imprudent use can cause great risk to the company. Weston & Copeland (1992) categorize leverage as financial policy measures. This is because leverage is related to the strategic investment management and cost management decisions adopted by the company.

Leverage is measured using various financial ratios that show the ratio of a company's debt to its capital. These ratios are Debt to Equity Ratio (DER), Debt to Asset Ratio (DAR) and Times-Interest-Earned Ratio (TIE), etc. The proxy used by the author to measure leverage in this study is the DAR. The DAR ratio is used to calculate the proportion of total assets to total debt (Kasmir, 2019).

Firm Size

According to Kamsari and Setijaningsih (2020), firm size is the measure of a company's size as evidenced by its total assets. Meanwhile, Novianti and Agustian (2018) state that total assets, total sales, and average sales level may be used to calculate the size of a company when seen from the perspective of the industry in which it operates. Micro, small, medium, and big firms are the four groups into which Indonesian Law No. 20 of 2008 divides company size. The following criteria are used to classify a company's size: total assets held and total yearly sales. The natural logarithm (Ln) of total assets serves as

the company size proxy in this research based on the previously established firm size criterion.

Table 1
Firm Size Category according to Indonesian Law 20/2008

Firm Size	Asset (Land and Buildings) (IDR)	Sales per Year (IDR)
Micro Business	Max 50 millions	Max 300 millions
Small Business	>50 – 500 millions	>300 millions – 2,5 billions
Medium Enterprises	>500 millions – 10 billions	>2,5 – 50 billions
Large Enterprises	>10 billions	>50 billions

Source: peraturan.go.id

Firm Age

According to Poerwadarminta (2003), firm age is the length of time of life or existence of an organization or form of business that is engaged in business and has the aim of making a profit or profit. Meanwhile, Rachmawati (2012) states that firm age can demonstrate that the business is still operational and competitive. Firm age, as defined by Zen & Herman (2012), is the amount of time that has passed from the company's founding before it has been permitted to do business. According to the definition given above, a company's age is the period of time from its founding to the present. This shows how long the business has been in business and how long it has survived in a competitive business environment. Like humans, companies also have the following ages:

1. Chronological age: Refers to the length of time since the company was established. Chronological age gives an idea of how long the company has been operating physically.
2. Biological age: Refers to the stages of development and change experienced by the company over time. For example, a company may experience phases of early growth, maturity, or decline.
3. Social age: Refers to how the company is viewed by stakeholders and the public based on the length of its existence and its reputation in the market.
4. Psychological age: A subjective perception of how old or young a company is in the context of a particular industry or market. A relatively new but innovative company may be perceived as “psychologically younger” than an older company that may be perceived as old-fashioned or outdated.

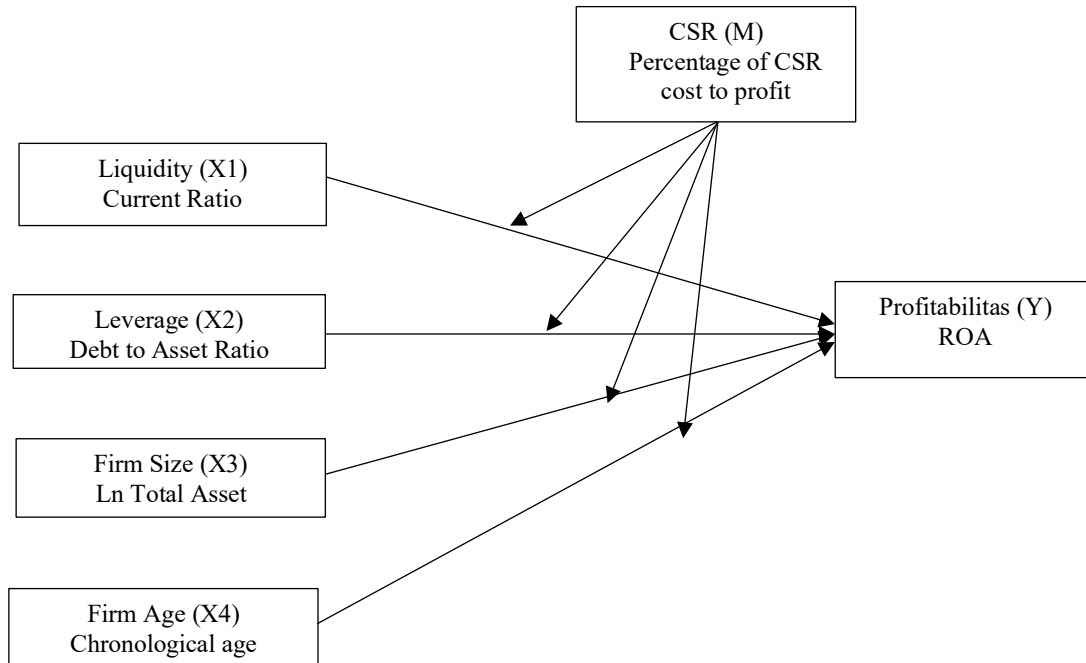
In this study, the proxy for firm age that will be used is chronological age. The chronological age refers to the length of time the company was established. The chronological age provides an overview of how long the company has been operating physically. The formula used to calculate the age of the company is the natural logarithm of December 31, 20XX (research period) minus date of company's establishment.

METHOD

The direct impact of liquidity, leverage, business size, firm age, and corporate social responsibility on profitability will be investigated in this research by quantitative methodologies. The moderating influence of corporate social responsibility on the direct relationship between profitability and business size, age, leverage, and liquidity will also be investigated in this research. Liquidity (X1), leverage (X2), firm size (X3), and firm age (X4) make up the independent variables. Profitability (Y) is the dependent variable,

while CSR (M) is the moderator. The figure below illustrates how the model framework for this research was created.

Figure 1
Model Framework



The following is the hypotheses proposed in this study:

1. H1: Liquidity affects profitability
2. H2: Leverage affects profitability
3. H3: Firm size affects profitability
4. H4: Firm age affects profitability
5. H5: CSR affects profitability
6. H6: CSR moderates the effect of liquidity on profitability
7. H7: CSR moderates the effect of leverage on profitability
8. H8: CSR moderates the effect of firm size on profitability
9. H9: CSR moderates the effect of firm age on profitability

Purposive selection was used to choose 20 samples based on the PROPER Program's participation criteria. All 57 energy-related companies listed on the Indonesia Stock Exchange between 2019 and 2023 make up the study's population. Documents are the data sources used in this investigation. Sources of information include official documentation from energy sector businesses that may be found on their own websites or on www.idx.co.id.

Since the research object happened in several periods and there were many samples, the author of this study decided to use panel data regression, which combines time series regression with cross-section regression. According to Gujarati and Porter (2009), the Fixed Effect Model (FEM), Common Effect Model (CEM), and Random Effect Model (REM) are the three models used in regression using panel data.

1. CEM. Because it just uses cross-sectional and time series data and estimates it using a least squares method, this is the most straightforward panel data model methodology. Since time and individual dimensions are not taken into account in this model, it is believed that firm data behaves consistently throughout time.
2. FEM. This model makes the assumption that variations in intercepts may account for individual differences. The FEM use a dummy variable strategy to incorporate intercept variations across organizations in order to estimate panel data.
3. FEM. Panel data with potentially interrelated disturbance factors across time and between people is estimated using this approach. The individual effects are handled as part of the random error component, which is uncorrelated with the observable explanatory factors, in contrast to the FEM. This model has the benefit of being able to remove heteroscedasticity.

Two model estimating strategies are used to determine which of the CEM, FEM, and REM is the best. To choose the best model for panel data regression estimation, these two methods are used. To pick between the Ordinary Least Square model and the FEM, two test techniques are utilized. The first is the Chow test. Second, while estimating panel data regression, the Hausman test is used to determine which of the FEM and REM is better.

The moderation model in this research will be examined using Moderated Regression Analysis (MRA). The purpose of this test is to ascertain how the independent (liquidity, leverage, firm size and firm age) and dependent variables (profitability) interact if strengthened or weakened by moderating variables (corporate social responsibility/CSR). According to Sharma et al. (1981), there are 4 kinds of moderation:

1. Pure Moderation. When the pure moderation variable interacts with the independent variable without acting as the independent variable itself, it moderates the link between the independent and dependent variables.
2. Quasi Moderation (Pseudo Moderation). The link between the independent and dependent variables is moderated by the variable known as pseudo moderation, which both functions as the independent variable and interacts with it.
3. Homologer Moderation. A variable that has the potential to function as a moderating variable that affects the strength of the relationship between the independent and dependent variables but does not interact with the independent variable or have a significant impact on the dependent variable is known as a moderation homologer.
4. Moderation Predictor. Moderating variables that solely function as independent variables in the relationship model that is created are known as moderation predictors.

Based on the research model framework, the mathematical models built in this study are:

First, testing liquidity, leverage, firm size and firm age on profitability.

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it} \dots\dots\dots (1)$$

Second, using corporate social responsibility as a moderating variable, examine how liquidity, leverage, company size, and firm age affect profitability. This test uses moderated regression analysis (MRA).

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M_{it} + \epsilon_{it} \dots\dots\dots(2)$$

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 M_{it} + \beta_6 (X_{1it} * M_{it}) + \beta_7 (X_{2it} * M_{it}) + \beta_8 (X_{3it} * M_{it}) + \beta_9 (X_{4it} * M_{it}) + \epsilon_{it} \dots\dots\dots(3)$$

The result of the moderation hypothesis based on the model above will result in several alternative moderation classifications as follows (Sharma et al., 1981):

Table 2
Moderation Type

No	Estimation Results	Moderation Type
1	β_5 : not significant (equation 2) $\beta_{6,7,8,9}$: significant (equation 3)	Pure Moderation (Pure Moderator)
2	β_5 : significant (equation 2) $\beta_{6,7,8,9}$: significant (equation 3)	Quasi Moderation (Quasi Moderator)
3	β_5 : significant (equation 2) $\beta_{6,7,8,9}$: not significant (equation 3)	Predictor Moderator (Predictor Moderator)
4	β_5 : not significant (equation 2) $\beta_{6,7,8,9}$: not significant (equation 3)	Homologiser Moderation (Homologiser Moderator)

Source: Sharma et al. (1981)

RESULTS

Fixed effects are the suitable model based on the findings of the Chow test, which yielded a Prob. value of 0.0000 for the Cross-section Chi-square. According to the Hausman test findings, the cross-section random's probability value of 0.0002 is less than 0.05. Based on these findings, the FEM was selected. Table 3 is the outcomes of equation 1's panel data regression using fixed effect mode.

Table 3
Results of Panel Data Regression with Fixed Effect Mode for Equation 1

ROA = Dependent Variable			
Variable	Sign Expectation	Coefficient	Prob.
C	-	12.32417*	0.0000
CR	-	0.117164	0.7317
DAR	-	0.937815***	0.0847
SIZE	+	0.595169*	0.0000
AGE	+	0.089501***	0.0610
Model		Fixed Effect	
R-squared		0.635724	
Adjusted R-squared		0.525482	
F-statistic		5.766643* Prob. 0.000000	
Durbin-Watson stat		1.801789	
Probability (Jarque-Bera)		0.139112	

ROA=Profitability; CR=Liquidity; DAR=Leverage; SIZE=Firm Size; AGE=Firm Age.
Note:
*: Significance $\alpha=1\%$; **: Significance $\alpha=5\%$; ***: Significance $\alpha=10\%$

Source: evIEWS application

From the results in Table 3, the interpretation was as follows:

1. Liquidity proxied by CR (current ratio) is not significant/has no effect on profitability proxied by ROA.
2. Leverage proxied by DAR has a significant negative effect but not too strong (weak) on profitability proxied by ROA. If the use of corporate debt increases by 10 percent, the tendency of the company's profitability will decrease by 9.38%.
3. As measured by ROA, firm size (SIZE) significantly and favorably affects profitability. The positive indicator suggests that a company's degree of profitability increases with its size. The elasticity between business size and profitability is inelastic, according to the calculated coefficient of 0.595169. This implies that the profitability rise will exceed the business size increase by a larger proportion.
4. Firm (AGE) has a significant but not too strong (weak) positive effect on profitability proxied by ROA (return on assets). The positive indicator suggests that a company's profitability increases with its age. The elasticity between company age and profitability is inelastic, as shown by the coefficient of 0.089501. This implies that the profitability rise will exceed the firm age increase by a larger amount.
5. According to the study's F test findings, the probability (F-statistic) of 0.000000 is less than α 0.05. This indicates that a company's profitability is significantly impacted by liquidity, leverage, firm size, and firm age all at the same time.
6. This study's coefficient of determination test yielded a value of 0.525482. This indicates that business size, age, leverage, and liquidity all affect 52.5482% of profitability. Other factors not included in this research, however, have an impact on the remaining 47.4518%.

The result of Moderated Regression Analysis (MRA) test for equations 2 and 3 are as follows (see Table 4).

Table 4

Result of Moderated Regression Analysis (MRA) Test for Equations 2 and 3

ROA = Dependent Variable				
Variable	Equation 2	Prob.	Equation 3	Prob.
C	-1.98811	0.1637	0.683583	0.7631
CSR	-0.754297*	0.0000	0.327343	0.6798
CR*CSR	-		0.075892	0.6991
DAR*CSR	-		0.465945***	0.0930
SIZE*CSR	-		-0.034265	0.3970
AGE*CSR	-		-0.039719	0.2821
Model		Fixed Effect		
R-squared	0.892614		0.899303	
Adjusted R-squared	0.858251		0.859591	
F-statistic	25.97568*		22.64591*	
Durbin-Watson stat	2.047788		2.025765	
Probability (Jarque-Bera)	0.422758		0.428784	

ROA=Profitability; CSR=Corporate Social Responsibility; CR*CSR=Liquidity*CSR; DAR*CSR=Leverage*CSR; SIZE*CSR=Firm Size*CSR; AGE*CSR=Firm Age*CSR.

Note:

*: Significance $\alpha=1\%$; **: Significance $\alpha=5\%$; ***: Significance $\alpha=10\%$

Source: eviews application

The estimate results of the moderating variable CSR based on equations 2 and 3 to ascertain if the CSR variable is a moderating variable are summarized in Table 4. The estimate results of equation 2 in the above table demonstrate that CSR significantly and negatively affects profitability as measured by ROA. This result shows that CSR can be an independent variable for profitability, because it has a direct influence on profitability.

While the estimation results of equation 3 show the interaction between CSR on the effect of liquidity proxied by CR, leverage proxied by DAR, firm size and firm age on profitability proxied by ROA. Among the 4 interactions, only the interaction between CSR on the effect of leverage (proxied by DAR/debt to asset ratio) on profitability (proxied by ROA) shows a significant positive effect but not too strong (weak). Referring to the preliminary tables, these results indicate that the XSR variable is a quasi-moderator in the relationship between leverage (proxied by DAR/debt to asset ratio) to profitability (proxied by ROA). While in the relationship between liquidity (proxied by CR) firm size and firm age to profitability (proxied by ROA), CSR is a predictor moderation variable.

DISCUSSION

The Impact of Liquidity on Profitability

Profitability is not significantly impacted by liquidity as the two are not directly connected; liquidity is more concerned with cash management and the capacity to fulfill short-term obligations, while profitability is more concerned with operating activity revenue. ROA, which contrasts net income with the company's total assets, is used in this research to quantify profitability. Liquidity represents the actual cash inflows and outflows from the business's activities, while net income represents revenue after all expenditures, including non-cash ones like depreciation, have been subtracted. Such that there is no obvious direct or cause-and-effect link between these two items. The current ratio, which contrasts current assets and current liabilities, is used in this research to quantify liquidity. Inventory and accounts receivable make up current assets on the balance sheet. If these two components have a large percentage of current assets, it will burden the company, because these two components cannot be immediately disbursed if the company needs funds quickly. The inventory component even raises inventory costs if the semi-finished or finished goods in inventory are not sold immediately.

Based on the study's findings, business management must formulate appropriate policies related to liquidity. Since liquidity does not affect profitability, the company does not need to hold many unproductive liquid assets. Liquidity still needs to be maintained to fulfill immediate commitments and do business, but the amount of liquidity must consider the cost of opportunity. Maintaining liquidity levels can be achieved by monitoring the budget so that tight financial control is obtained (Hasanudin, 2024). The findings of this study are consistent with those of studies by Ayoush et al. (2021); Kamsari and Setijaningsih (2020). According to the findings of both research, a company's high current ratio a measure of its capacity to handle short-term liabilities does not always mean that it will be able to boost its profitability. This is because not all current assets owned can increase profits.

The Impact of Leverage on Profitability

Leverage does have a major impact on profitability, according to test findings. Leverage significantly and negatively affects profitability, as shown by the negative coefficient of the leverage variable. The profitability of the business will decline as

leverage rises. On the other hand, the profitability of the business will rise if the amount of leverage is reduced. High leverage translates into high interest costs. Since the majority of revenue is utilized to pay interest, this substantial interest payment may significantly lower the company's net profit. The firm's theory states that in order to maximize earnings, a corporation must take into account a number of production aspects, including the interest payments that must be spent if the company takes on debt.

The results of this investigation align with those of Ayoush et al. (2021) concerning businesses that were listed between 2012 and 2018 on the Amman Stock Exchange. In that research, leverage, as determined by the debt ratio and DER, has a negative effect on ROE and ROA at a 99% confidence level ($\alpha=0.01$). These results are also supported by Elwisam's (2022) analysis on businesses in the Jakarta Islamic Index. The findings of this study disagree with those of Adria and Susanto's (2020) research, which demonstrates that leverage has a favorable and substantial impact on profitability. These discrepancies in findings might be explained by variations in the proxies used in the research. The study conducted by Adria and Susanto (2020) uses ROE as a proxy for profitability and DER as a proxy for leverage.

The Impact of Firm Size on Profitability

Profitability is positively and significantly impacted by firm size. This is due to the fact that economies of scale will enable a bigger business to increase its profitability. In this context, economies of scale mean that a larger business will be able to produce goods or services at a lower cost per unit because it has significant negotiating power with distributors and suppliers, allowing it to purchase raw materials in bulk at reduced costs and with better terms. Consequently, profit margins will rise. This is consistent with the firm's principle, which states that businesses increase the gap between revenue and expenses in order to maximize profits (Chrystal & Lipsey, 2011). The findings of this study are consistent with those of studies conducted by Aguade et al. (2022); Bilgin et al. (2023); Pradnyaswari and Dana (2022); Kristanti et al. (2022). In all three studies, profitability is positively impacted by the natural logarithm of total assets, which serves as a stand-in for business size. This suggests that a company's profitability increases with its size.

The Impact of Firm Age on Profitability

It is clear from the aforementioned findings that company age significantly and favorably affects profitability. This finding suggests that the company's experience grows with time, leading to higher profitability. The results of this investigation align with those of studies conducted by Yunita and Ramadhana (2022); Kristanti et al. (2022); Oktavia et al. (2020); Elwisam (2022). According to these four studies, the age of the business at the time of its founding significantly and favorably affects profitability. A company's ability to increase profitability is influenced by its age which reflects its maturity and operational experience (Elwisam, 2022).

The Impact of Corporate Social Responsibility on Profitability

Profitability is significantly impacted negatively by CSR. Given its strong direct correlation with profitability, this finding also suggests that the CSR variable may function as an independent variable for profitability. The ratio of CSR expenses to profit serves as a stand-in for CSR in this research. Accordingly, the study's findings suggest that a company's profitability would decline as its CSR expenditures rise. This is because

CSR programs often require significant investments in money, time, and human resources. These costs can reduce profit margins, especially if not offset by increased revenue.

Stakeholder theory states that companies must consider the interests of various parties, not only shareholders, but also other parties such as employees, customers, suppliers, communities, and governments. The results of this study do not necessarily imply that CSR contradicts stakeholder theory. On the contrary, stakeholder theory highlights that despite the short-term impact on profitability, CSR can increase long-term value for various stakeholders (trade-off). While investment in CSR decreases short-term profitability, it can improve customer relationships, enhance reputation, and reduce long-term risks that ultimately benefit the company. Therefore, companies that consider the interests of all stakeholders may need to sacrifice some short-term profits to achieve broader sustainability and balance goals, which can ultimately bring long-term benefits to the company.

The Moderating Role of Corporate Social Responsibility on the Impact of Liquidity on Profitability

The study's findings indicate that the impact of liquidity on profitability is not mitigated by CSR. The term CSR describes a business's obligation to the environmental and social environments in which it does business. Since CSR and liquidity are two distinct ideas with separate goals, even while CSR has a lot of potential advantages, it cannot mitigate the impact of liquidity on profitability. The capacity of a firm to fulfill its immediate commitments and maintain seamless commercial operations is known as liquidity. CSR, on the other hand, is concerned with how a business contributes to the environment and society. Due to this different focus, the direct impact of CSR on liquidity is not significant.

The Moderating Role of Corporate Social Responsibility on the Impact of Leverage on Profitability

The impact of leverage on profitability is moderated by CSR, according to the estimate findings of the moderated regression analysis equation. The analysis's findings indicate that CSR moderates the impact of debt on profitability in a favorable way. Nonetheless, the study's findings indicate that leverage significantly and negatively affects profitability. Therefore, it may be said that CSR exacerbates the detrimental impact of debt on profitability. The average leverage of energy sector companies sampled in the study is 49.16%. This means that almost half of the assets of these companies are financed by debt. If added with the implementation of CSR programs that require investment, both in the form of funds, time, and other resources, then the company's financial burden will increase significantly. In addition to interest payments and other obligations, additional investments for CSR programs can increase financial pressure, which ultimately reduces profitability.

From the leverage data of the object of research, it can be concluded that more than half of the energy sector companies in this study have a leverage level of more than 50%. This leverage level is categorized as high. Companies with high leverages should focus more on financial management and fulfillment of their debt obligations. When companies must also manage CSR programs, management attention can be divided, and This may lower operational effectiveness and have an impact on business profitability.

The results of the study, which show that CSR strengthens the negative effect of leverage on profitability, resulting in a decrease in company profitability, do not necessarily indicate that stakeholder theory is not appropriate for companies. This is because stakeholder theory emphasizes long-term benefits. In the short term, CSR may increase the financial burden and decrease profitability, especially in the context of companies that are already highly leveraged. However, long-term benefits such as enhanced reputation, loyalty, and support from the community may result in greater profits in the future. Profitability may decline in the short term, but long-term growth potential remains. Stakeholder theory does not prevent management from managing its finances well. If a company is highly leveraged, it must manage CSR strategically so as not to jeopardize financial stability. CSR implementation should be tailored to the financial capacity of the company, especially in the context of a highly leveraged company.

The Moderating Role of Corporate Social Responsibility on the Impact of Firm Size on Profitability

The findings of this research suggest that CSR has no moderating influence on the relationship between business size and profitability. Because CSR's influence is insufficient to counteract the company size's substantial positive impact on profitability, it does not mitigate the effect of firm size on profitability. This is because CSR and business size have distinct priorities. Firm size has a direct correlation with economies of scale that result in strong bargaining power, easier and cheaper access to resources whose impact on profitability can be seen directly in a shorter period. While CSR focuses on social and environmental responsibility, its impact on profitability tends to be indirect and long-term.

The Moderating Role of Corporate Social Responsibility on the Impact of Firm Age on Profitability

It may be inferred from the findings of this study's estimate of the moderated regression analysis equation that CSR has no moderating influence on the relationship between company age and profitability. This is because, while CSR and company age have distinct priorities, the former's influence on profitability is insufficient to offset the latter's positive and noteworthy effect. Firm age is closely related to experience, reputation and operational stability whose impact on profitability can be seen directly. While CSR focuses on social and environmental responsibility, its impact on profitability tends to be indirect.

The impact of CSR tends to be indirect and can fluctuate depending on various external factors. The effect of firm age on profitability is more stable and predictable. Additionally older companies will focus more on maintaining and improving existing operational efficiencies rather than implementing new CSR initiatives that may require significant changes in operations. In addition, older companies usually already have a deep understanding of their markets, including customer preferences and competitive dynamics, so CSR does not add much value in markets they already know well. Moreover, returns from investments in CSR are uncertain and difficult to measure. If a CSR program is not implemented well, it will not provide the expected benefits and will instead become a burden for the company. Older companies are more reluctant to take these risks and rely more on proven strategies to maintain their profitability.

CONCLUSION

In order to evaluate the phenomena of profitability variations of energy sector businesses that were listed on the Indonesia Stock Exchange and took part in the PROPER program throughout the 2019–2023 timeframe, a model was developed. According to the theoretical underpinnings and prior research, a company's profitability is influenced by its size, age, leverage, and liquidity. Inconsistencies in the findings of earlier study, however, represent a research gap. In this research, the author incorporates CSR as a moderating variable based on stakeholder theory to examine the impact of the link between liquidity, leverage, company size, and firm age on profitability. The study's findings indicate that although business size and age have a favorable impact on profitability, leverage and corporate social responsibility have a negative impact, and liquidity has no effect on profitability. The findings also demonstrate that the detrimental impact of debt on profitability is amplified by CSR moderation. The findings, however, indicate that CSR is unable to mitigate the impact of business age, size, and liquidity on profitability. It is determined that CSR is a predictive moderator of the impact of liquidity, company size, and firm age on profitability, as well as a quasi-moderator of the impact of leverage on profitability.

Implication

This study implies that the use of theory of the firm and stakeholder theory is still relevant in studies related to profitability. According to the firm theory, the study's findings demonstrate that in order to optimize profitability, businesses must balance a number of variables, including liquidity, leverage, company size, and age. The detrimental effects of leverage highlight how crucial caution is when deciding on the firm's financial structure. Additionally, the detrimental effects of CSR suggest that CSR expenses need to be better controlled. In relation to stakeholder theory, the results support stakeholder theory, especially in terms of moderating CSR on leverage. This suggests that socially responsible firms are better at managing financial risk. However, the negative impact of CSR on profitability is also a short-term challenge in implementing CSR effectively.

Limitation and Future Direction

There are limitations to this study that are expected to be refined in future studies. Limitations and suggested future directions are: First, only businesses that were listed on the Indonesia Stock Exchange between 2019 and 2023 and took part in the PROPER program were the subject of the study. Future studies should increase the observation period and expand the population so that it will provide better results. Second, the independent variables analyzed in this study are only variables of liquidity, leverage, firm size and firm age of the company. Theoretically there are still many other variables that have not been analyzed for their influence on company profitability. From the results of the coefficient of determination test, it is known that there are still 47.4518% of other variables that affect profitability that have not been studied. Future studies should include other variables such as capital intensity, firm growth, and others as determinants of profitability. Third, this study only uses CSR as moderator variable, several other factors that are important for company profitability are not discussed in this study. Future studies should obtain other variables such as good corporate governance (GCG), and others to be able to moderate the influence of independent variables on profitability.

REFERENCES

- Abeyrathna, S. P. G. M., & Priyadarshana, A. J. M. (2019). Impact of firm size on profitability. *International Journal of Scientific and Research Publications (IJSRP)*, 9(6), p9081. <https://doi.org/10.29322/ijsrp.9.06.2019.p9081>
- Adnyana, I. M. (2020). *Manajemen Investasi Dan Portofolio* (M. Melati, Ed.; 1st ed.). Lembaga Penerbitan Universitas Nasional (LPU-UNAS).
- Adria, C., & Susanto, L. (2020). Ukuran perusahaan, dan perputaran total. *Jurnal Multiparadigma Akuntansi Tarumanagara*, 2(1), 393–400.
- Aguade, A. E., Ayanaw, D., & Derso, E. A. (2022). Panel data analysis of profitability and employment growth of medium and large size industries in Ethiopia. *Heliyon*, 8(10). <https://doi.org/10.1016/j.heliyon.2022.e10859>
- Alqudah, H., & Zaitoun, M. (2020). The impact of liquidity and financial leverage on profitability: The case of listed Jordanian Industrial Firm's. In *International Journal of Business and Digital Economy* (Vol. 1, Issue 4). <http://www.ijbde.com>
- Ayoush, M. D., Toumeh, A. A., & Shabaneh, K. I. (2021). Liquidity, leverage, and solvency: What affects profitability of industrial enterprises the most? *Investment Management and Financial Innovations*, 18(3), 249–259. [https://doi.org/10.21511/imfi.18\(3\).2021.22](https://doi.org/10.21511/imfi.18(3).2021.22)
- Bilgin, R., Dinç, Y., Nagayev, R., & Aysan, A. F. (2023). Unlocking profitability in Borsa Istanbul: The impact of noncash credit and maturity breakdown of cash credit on corporate performance. *Borsa Istanbul Review*, 23, S19–S28. <https://doi.org/10.1016/j.bir.2023.12.008>
- Brigham, E. F., & Houston, J. F. (2018). *Dasar-dasar Manajemen Keuangan* (M. Masykur, Ed.; 14th ed.). Salemba Empat.
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, 4(4), 497–505.
- Darmayanti, P. D., Agus, G. P., & Susila, J. (2022). Pengaruh likuiditas, aktivitas, dan solvabilitas terhadap profitabilitas pada perusahaan sub sektor tekstil dan garmen yang terdaftar di Bursa Efek Indonesia. *Jurnal Manajemen Dan Bisnis*, 4(2).
- Elwisam, E. (2022). *Peran moderasi operating efficiency dan suku bunga pada pengaruh profitabilitas dan leverage terhadap nilai perusahaan (Studi empiris pada perusahaan yang terdaftar di Jakarta slamic Index Bursa Efek Indonesia)* [Disertasi]. Universitas Hasanuddin.
- Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & de Colle, S. (2010). *Stakeholder Theory: The State of the Art*. Cambridge University Press.
- Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics*. McGraw-hill.
- Harmoni, A. (2013). Stakeholder-based analysis of sustainability report: A case study on mining companies in Indonesia. *International Conference on Eurasian Economies 2013*, 40, 204–210.
- Hartanto, A., Camila, C., & Sari, I. R. (2021). Pengaruh tingkat pertumbuhan, struktur modal, ukuran perusahaan dan umur perusahaan terhadap profitabilitas perusahaan pertambangan. *Syntax Literate ; Jurnal Ilmiah Indonesia*, 6(10), 4829. <https://doi.org/10.36418/syntax-literate.v6i10.4345>
- Hasan, S., Elpisah, E., Sabtohadhi, J., M, N., Abdullah, A., & Fachrurazi, F. (2022). *Manajemen keuangan*. Penerbit Widina.

- Hasanudin, H. (2024). strategy analysis in managing company finances effectively and efficiently-hasanudin. *Sean Institute Jurnal Ekonomi*, 13(02), 1013–1023. <https://doi.org/10.54209/ekonomi.v13i02>
- Hery, S. M. C. R. (2016). *Analisis laporan keuangan-integrated and comprehensive Edition*. Gramedia Widiasarana Indonesia.
- Hörisch, J., Freeman, R. E., & Schaltegger, S. (2014). Applying stakeholder theory in sustainability management: Links, similarities, dissimilarities, and a conceptual framework. *Organization & Environment*, 27(4), 328–346.
- Irfani, A. S. (2020). *Manajemen keuangan dan bisnis; Teori dan aplikasi*. Gramedia Pustaka Utama. <https://books.google.co.id/books?id=qln8DwAAQBAJ>
- Isayas, Y. N. (2022). Determinants of banks' profitability: Empirical evidence from banks in Ethiopia. *Cogent Economics and Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2031433>
- Jibrin Musa, S., Moses, K., & Ejura Success, B. (2022). Effect of leverage on profitability of information and communication technology companies listed on the Nigeria Stock Exchange. In *Journal of Positive School Psychology* (Vol. 2022, Issue 6). <http://journalppw.com>
- Kamsari, A., & Setijaningsih, T. H. (2020). Pengaruh likuiditas, efisiensi modal kerja, leverage, dan ukuran perusahaan terhadap profitabilitas. *Jurnal Multiparadigma Akuntansi Tarumanegara*, 2, 603–612.
- Kantarelis, D. (2017). *Theories of the firm*. Inderscience Publishers.
- Kasmir, K. (2019). *Analisis laporan keuangan* (12th ed.). Rajawali Pers.
- Kristanti, N. D., Wiyono, G., & Prima Sari, P. (2022). Pengaruh modal kerja, likuiditas, umur perusahaan dan pertumbuhan perusahaan terhadap profitabilitas. *Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah*, 6(1), 100–111. <https://doi.org/10.47467/alkharaj.v6i1.2545>
- Lipsey, R., & Chrystal, A. (2011). *Economics*. Oxford University Press, USA.
- Murphy, C. B. (2020, December 20). *Theory of the firm: What it is and how it works in economics*. Investopedia.Com.
- Natalya, D., & Maimunah, M. (2022). Pengaruh leverage, likuiditas dan ukuran perusahaan terhadap profitabilitas. <https://journal.ukmc.ac.id/index.php/jia/issue/view/66>
- Ningrum, E. K., & Suharti, S. (2023). Pengaruh ukuran perusahaan, financial leverage, dan likuiditas terhadap profitabilitas.
- Novianti, W., & Agustian, W. M. (2018). *Improving corporate values through the size of companies and capital structures*.
- Oktavia, S., Arifin, R., & Wahono, B. (2020). Pengaruh manajemen modal kerja, umur perusahaan, ukuran perusahaan, dan pertumbuhan penjualan terhadap profitabilitas (Studi kasus pada perusahaan food and beverage yang terdaftar di Bursa Efek Indonesia Tahun 2016-2018). *E-Jurnal Riset Manajemen*, 88–103. www.fe.unisma.ac.id
- Poerwadarminta, W. J. S. (2003). *Kamus umum Bahasa Indonesia*. Balai Pustaka.
- Pradnyaswari, N. M. A. D., & Dana, I. M. (2022). Pengaruh likuiditas, struktur modal, ukuran perusahaan, dan leverage terhadap profitabilitas pada perusahaan sub sektor otomotif. *E-Jurnal Manajemen Universitas Udayana*, 11(3), 505. <https://doi.org/10.24843/ejmunud.2022.v11.i03.p05>
- Prakasa, A. G., & Firmansyah, F. (2019). Analisis pengaruh growth terhadap profit pada perusahaan manufaktur terbuka di Indonesia: Analisis Model Panel Data Dinamis.

- JDEP*, 2(3), 53–66.
https://ejournal.undip.ac.id/index.php/dinamika_pembangunan/index
- Pratiwi, A., Nurulrahmatia, N., & Muniarty, P. (2020). Pengaruh corporate social responsibility (csr) terhadap profitabilitas pada perusahaan perbankan yang terdaftar di BEI. *Owner*, 4(1), 95. <https://doi.org/10.33395/owner.v4i1.201>
- Rachmawati, H. (2012). *Teori Akuntansi Keuangan* (1st ed.). Graha Ilmu.
- Sharma, S., Durand, R. M., & Oded, G.-A. (1981). *Identification and analysis of moderator variables Working Paper No. 249*.
- Spulber, D. F. (2009). *The theory of the firm: Microeconomics with endogenous entrepreneurs, firms, markets, and organizations*. Cambridge University Press.
- Waaqi'ah, N. O., Mubyarto, N., & Orinaldi, M. (2021). Pengaruh corporate social responsibility (csr) terhadap kinerja keuangan pada perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia (BEI) Tahun 2018-2019. *Jurnal of Islamic Financial Management*, 1(1), 64–77. <https://doi.org/10.36406/jemi.v28i02.254>
- Weston, J. F., & Copeland, T. E. (1992). *Managerial finance*. Dryden Press. https://books.google.co.id/books?id=6FqfcpeL_noC
- World Business Council for Sustainable Development. (1999). *Corporate social responsibility: Meeting changing expectations*. World Business Council for Sustainable Development.
- Yunita, I., & Ramadhana, S. (2022). Analisis pengaruh suku bunga, inflasi, debt to equity ratio (der), ukuran perusahaan, dan umur perusahaan terhadap profitabilitas perusahaan sub sektor telekomunikasi yang terdaftar di BEI tahun 2016-2020. *Fair Value: Jurnal Ilmiah Akuntansi Dan Keuangan*, 4(4), 2033–2043. <https://journal.ikopin.ac.id/index.php/fairvalue>
- Zen, S. D., & Herman, M. M. (2012). *Pengaruh harga saham umur perusahaan dan rasio profitabilitas perusahaan terhadap tindakan perataan laba yang dilakukan oleh perusahaan perbankan yang terdaftar di Bursa Efek Jakarta*. <https://api.semanticscholar.org/CorpusID:167027326>