

## Research Article

# Internal and External Determinants of Capital Structure and Firm Value: Empirical Evidence from Property and Real Estate Firms in Indonesia

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**Abstract.**

Houses, land, and property are vital human requirements, with increasing demands year after year. This is mostly due to Indonesia's favorable population growth and economic development, which leads the demand for land and property to be even higher. However, this industry also experienced difficulties during the COVID-19 pandemic, which affected macroeconomic conditions. Therefore, this study aims to reinvestigate the role of internal and external factors on the capital structure and firm value of property and real estate firms listed on the IDX for the 2017-2021 period. In this study, the partial least squares structural equation modeling was used for the data analysis, whereas purposive sampling was used for company selection. The results showed that internal factors had a significant effect on capital structure and firm value, whereas external factors did not significantly impact capital structure and firm value. Lastly, capital structure is also proven to have no significant effect on firm value. These findings validate the signaling theory, where internal factors managed by the firm might produce a positive signal in the form of the firm's future prospects so that it can become essential information for stakeholders. This study contributes to helping policymakers with various considerations and sets realistic expectations about the role of internal and external factors on the capital structure and firm values.

**Keywords:** financial performance, macroeconomic, capital structure, firm value, signaling theory

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## 1. Introduction

A place to dwell or a house is one of the most fundamental human necessities. But today, everyone who wants to buy a property does so not only as a place to live but also as an investment. The intention to invest is driving up demand for property products. In addition, Indonesia's population growth trend which continues to increase is also one of the causes of decreasing land areas or vacant land, so that land prices become increasingly expensive, especially in urban areas. It was reported that land prices in Indonesia in 2020 were the most expensive compared to other countries in ASEAN [1]. On the positive side, the high demand for land and housing is a good

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opportunity for producers, namely property and real estate sector firms. Despite the fact, this sector also experienced the most difficult phase when entering the Covid-19 pandemic, where this outbreak also had an impact on the Indonesian national economy. The Covid-19 pandemic has mostly impacted the purchasing power of consumers [2], including in purchasing property and real estate products. Another effect is that the rapid spread of Covid-19 instances causes people to be extremely cautious when purchasing things and even making investments [3]. This happened because investors faced a high level of uncertainty regarding the impact caused by Covid-19 [4]. As a result, the uncertainty of economic conditions then influences firm value and capital structure, which are important measures in assessing firm performance.

The firm's value is represented in the share price, which indicates the general public's opinion of the company's performance [5], while the capital structure is the financial proportion of the firm's capital derived from long-term obligations or shareholders' equity [6]. Referring to signaling theory [7], these two metrics can be viewed as crucial signals that inform stakeholders about the future prospects of a company. Primarily, this signal aims to increase the confidence of investors or creditors to invest or lend their funds to the firm [8]. Furthermore, to better understand the firm value and manage the capital structure optimally, the factors that affect these variables, both controllable factors/internal factors and uncontrollable factors/external factors, must be investigated. The firm's internal conditions can influence the firm's use of the capital structure that has been targeted [9], as well as macroeconomic (external) factors that can fundamentally influence the firm's capital structure [10]. On the firm value side, Triani and Tarmidi [11] found that internal factors have a significant impact firm value, and according to Winarto [12], external factors are the determining factors for firm value. Internal factors consist of indicators of profitability, firm growth, firm size and asset structure Afriani [13], and other indicators including profitability, solvency, liquidity, tangibility [14]. External factors or also known as macroeconomics are proxied by indicators economic, environmental, socio-cultural, political, legal, regulatory and government policies using the most frequent measurements, namely inflation, economic growth, human development index, interest rates and exchange rates [15, 16].

Several previous studies on internal and external determinants on capital structure were shown by Aziz [17], Saif-Alyousfi et al. [18], Senjaya and Agustina [14], and Wang-sawinangun [19], the internal factor of profitability on capital structure has no significant effect because that create significant profits tend to have large retained earnings, thus enterprises will have to use internal capital to fund their operational activities. Other internal factor indicators, liquidity also has no a significant effect on capital structure

[17, 18]. So, the first hypothesis is internal factors have a significant effect on capital structure. Other studies that examine external factors on capital structure show that the exchange rate capital structure is significantly impacted by the exchange rate [15, 20, 21], while Muthama et al. [22] and Stiowati [23] show that interest rates have a significant effect on capital structure. So, the second hypothesis is external factors have a significant effect on capital structure. Then, previous research regarding internal and external factors on firm value was shown by Afriani [13], Pasaribu et al. [24], Prasitadewi and Putra [25], Rahmantio et al. [26], providing evidence that internal factors of profitability have a significant effect on firm value. Next, Chowdhury and Chowdhury [20] and Wangsawinangun [19] in their studies show that the value of a company is significantly impacted by liquidity. So, the third hypothesis is internal factors have a significant effect on firm value. On the external factor side, high inflation rates [24], high interest rates [27], and high exchange rate fluctuations [28], demonstrated to have no impact on company value. This is because these macroeconomic issues may produce financial challenges for businesses, which will have an effect on the firm value. So, the fourth hypothesis is internal factors have a significant effect on firm value. Findings from research conducted by Afriani [13], Cipto and Choerudin [28], and Prasitadewi and Putra [25] claimed that the value of a firm is significantly impacted negatively by its capital structure. This negative value proves that the lower the proportion of debt in the capital structure will have an impact on increasing the value of the company. An company that has a high degree of debt indicates that it lacks the internal resources to finance its operations and must turn to outside financing sources, such as debt, to meet its operating expenditures. So, the fifth hypothesis is internal factors have a significant effect on firm value. Most of the findings above focus on internal and external factors on capital structure and firm value separately by explaining the effect on each indicator used, however there is still little in-depth consideration of a whole variable's internal and external effects. This is important to provide an discussion of the effects of internal and external factors influencing capital structure and Firm value. Therefore, this research tries to cover this gap by presenting a comprehensive discussion, as well as being novel in this research. So this research question is how do internal and external factors influence capital structure and firm value? This is important to provide the key policy implications that can guide policymakers in managing the firm.

This study contributes as follows: First, the object of this research is property and real estate firms listed on the IDX, although there are two previous studies such as Afriani [13] and Pasaribu [24] who also done study on this object, but both conducted research prior to the pandemic, thus this research was undertaken in the 2017-2021 period to

update the results of this study. Second, referring to previous studies, there are three theories that are relevant to the current research, namely pecking order theory, trade off theory and signaling theory. This is because these three theories explain firm value and capital structure. Pecking Order Theory describes a funding hierarchy that begins with retained earnings and progresses to debt financing and finally equity financing [29]. Then, Brigham and Houston [9], trade-off theory is where companies exchange funding benefits through debt. Lastly, Signaling Theory, put forward by Ross [7], states that signals can be given by company management to investors as an indication of the company's prospects. But there have been many studies using pecking order theory [14, 16-19, 23, 30], and trade off theory [14-16, 18, 21, 28, 30], while signaling theory only used by Prasitadewi and Putra [25], Radhitiya and Purwanto [31], and Afriani [13]. Moreover, the findings from the signaling theory studies are still inconsistent, so more study employing signaling theory is required to validate the research results. Finally, this study plays a role in examining various factors that influence the capital structure and firm value in the property and real estate sectors.

## 2. Material and Methods

Based on signaling theory and related data, this study use SEM for econometric analysis. The primary research method used in this study was quantitative analysis. The sample is primarily comprised of secondary data in order to investigate the intenal and external factors, as well as how these factors affect capital structure and firm value.

### 2.1. Sample and data collection

The target population consists of 80 property and real estate listed on the IDX in Indonesia. The sample for this study selected the period from 2017 to 2021. Purposive sampling was the approach utilized to gather the sample data on this research. To be more precise, purposive sampling was used to choose the firms that are pertinent to the research [32]. The sampling allowed for firms includes the main criteria: First, the sample firms is part of the property and real estate industry, which is listed on the Indonesia Stock Exchange (IDX) and has never been delisted during the research period. Second, sample firms' data for the all variables is totally available during the research time. Finally, annual profit or net profit is positive during the research period. It follows the same criteria as did by Aziz [17] and Wangsawinangun [19], in which the two studies used these criteria to see the effect of profitability indicators. Based on the sample

selection process, in the end a total of 15 selected property and real estate sector firms were obtained which were analyzed in this study, so that the firms final sample consists of eighty (80) firms observations. The details regarding the data utilized can be found in Table 1.

Data for the observed variables in this study are collected annually from the website of the Indonesia Stock Exchange (IDX) and Bank Indonesia. Senjaya and Agustina [14], argue that indicators of internal factors that can influence capital structure and firm value are profitability, solvency, liquidity, tangibility and sales growth. This research follows that with Internal factor variables are proxied by ROE, current ratio and firm size. Then, there are many external factors that can influence the capital structure and value of the firm, but this research only limits the external factors of the company to indicators of inflation, interest rates and exchange rates following [15]. Next, the capital structure variable is built from the debt to equity ratio and longterm debt equity ratio indicators, while the firm value is built from the Tobin’s Q and Price Book Value (PVB) indicators.

## 2.2. Model development

The first stage is to create a PLS SEM Structural Model, which comprises an examination of pathways, direct impacts, and indirect effects. The Path model is given in Figure 1 below as the model used in this study.

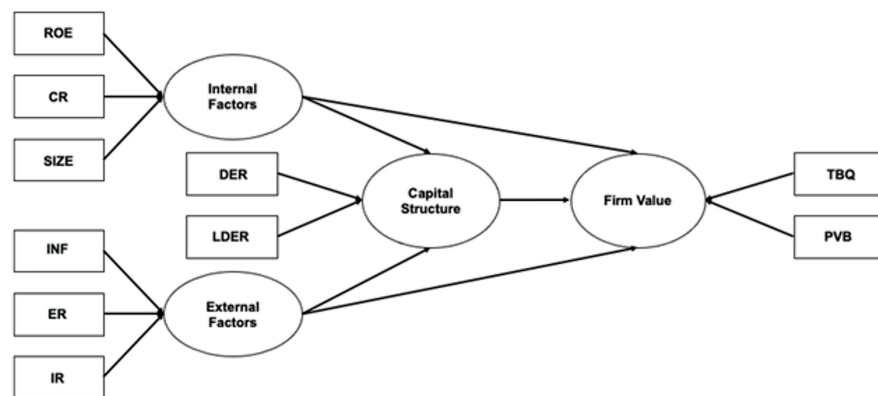


Figure 1: Conceptual framework. Source: Author’s own work.

## 2.3. Data analysis

A component-based structural equation modeling (SEM) technique utilizing partial least squares structural equation modeling (PLS-SEM) is the data analysis method used. Some of the benefits we considered while choosing this method over regression analysis

TABLE 1: Details about latent variables.

Latent Variables	Indicators	Codes	Definition	Source
Internal Factors	Return On Equity	ROE	How well a firm is managing the capital that shareholders have invested in it.	IDX
	Current Ratio	CR	The ability of the company to use its present assets to pay its short-term debts that are coming due shortly	IDX
	Firm Size	SIZE	Natural logarithm of the total assets	IDX
External Factors	Inflation	INF	Annual Inflation Rate	Bank of Indonesia
	Interest Rate	IR	The percentage of fees that must be paid by lending to a lender	Bank of Indonesia
	Exchange Rate	ER	The price of a country's currency in terms of another currency	Bank of Indonesia
Capital Structure	Debt to Equity Ratio	DER	How much debt a firm has compared to its assets.	IDX
	Long-term Debt Equity Ratio	LDER	How much long-term debt is used to finance a company's coassets	IDX
Firm Value	Tobin's Q	TBQ	The market worth of a company divided by the replacement cost of its assets	IDX
	Price Book Value	PVB	Compare the book value of the company with the stock price	IDX

Notes: **(1) IDX** dataset available on ([www.idx.co.id](http://www.idx.co.id)); **(2) Bank of Indonesia** dataset available on ([www.bi.go.id](http://www.bi.go.id))

Source: Authors' Compilation

[33, 34] are as follows: 1) PLS-SEM enables for evaluating complicated associations with numerous components and indicators in the model; 2) Multiple data types can be handled by PLS-SEM in a single model; and 3) PLS-SEM results are resilient in the presence of outliers and missing values. Several measures were taken in order to achieve all of the research objectives. The first stage evaluates the two components of PLS-SEM, the measurement and structural sub-models [34, 35].

### 3. Results and Discussion

#### 3.1. Descriptive statistics

Table 2 provides information about descriptive analysis for variables of the study with the help of mean, min, and max, standard deviation, skewness, and kurtosis. First, the

internal factor variable with indicators ROE, CR and SIZE shows that ROE has an average value of 0.08, meaning how well a firm is managing the capital that shareholders have invested in it is producing a return of 8% of its equity. The maximum CR value is 12.76, which is the CR value before the Covid-19 pandemic occurred, after which there was no value that could exceed this value. The standard deviation of the firm size is 1.13. This shows the level of spread of the data to the average value of the data. Second, the following variables are external factors built by inflation, interest rate and exchange rate indicators. The highest annual inflation occurred in 2017, while the lowest interest rate occurred in 2021, this is the government's effort to increase economic growth. According to Supriatna et al. [36] lowering the benchmark interest rate automatically reduces credit interest rates so the cost of capital will be small, making it easier for firms to obtain more capital at low costs to increase productivity. Skewness in the exchange rate in the value of the Indonesian currency (IDR) is -0.92, this shows the level of asymmetry or distance from symmetry of a distribution. Third, the capital structure variable is proxied by the DER and LDER indicators, which is the mean DER in the sample. is 0.73 while LDER has a mean of 0.36. This clearly shows that the entire sample has a mean long-term dept. half of the total dept. Lastly, the firm value built on the TBQ and PVB indicators both have positive skewness, namely 2.87 (TBQ) and 3.14 (PVB) in the period of this research in the firms observed.

TABLE 2: Descriptive statistics.

Name	Sample	Minimum	Maximum	Mean	S.D.	Skewness	Kurtosis
Return On Equity	15	0.0003	0.2622	0.0838	0.0592	0.8883	0.4552
Current Ratio	15	0.9363	12.7686	2.9405	1.9799	2.2556	7.6710
Firm Size	15	27.4608	31.7496	29.7996	1.1399	-0.3561	-0.6170
Inflation	15	1.5600	3.8100	2.7280	0.8206	-0.1919	-1.4224
Interest Rate	15	3.5200	5.6300	4.6120	0.7261	-0.0952	-1.0928
Exchange Rate	15	4.1249	4.1634	4.1486	0.0130	-0.9206	-0.2846
Debt to Equity Ratio	15	0.0433	3.6878	0.7347	0.6522	2.1176	6.4866
Longterm Debt Equity Ratio	15	0.0039	2.0066	0.3688	0.3662	1.8356	5.3061
Tobin's Q	15	0.0398	5.0945	0.9146	0.8099	2.8743	10.9182
	15	0.1520	7.6037	1.1830	1.1533	3.1478	13.6394

Source: Author's own work

### 3.2. Unit root test

The unit root test, which was created by Dickey-Fuller (Augmented Dickey-Fuller test), is used to perform the stationarity test. If the DF and ADF values are greater than the critical value, the variable is said to be stationary. When the variables are not stationary at the level then the degree of cointegration test must be continued. Time series data is said to be non-stationary if the average value and variance vary over time or in other words, data is said to be stationary if the data moves stably and converges around the average value without experiencing fluctuations in positive or negative trend movements [37].

TABLE 3: First difference unit root test.

Indicator	DF	ADF	Decision
Inflation	-2.96397	-4.98654	Stationer
Interest Rate	-2.96397	-4.19282	Stationer
Exchange Rate	-2.96397	-6.73351	Stationer

Source: Author's own work

Based on Table 3, it was discovered that the inflation, interest rate and exchange rate data were stationary at the degree of first difference cointegration. After the stationary variable data can be continued into the cointegration test. To see whether the variables in the study have a relationship or cointegration, the Johansen test is carried out. The results of the Johansen test found that the variable has a cointegration of 1 at a critical value of 0.05. This means that the research indicator variable has cointegration or a one-way relationship. The one direction in question is that the independent variable has an influence on the dependent variable and not vice versa. So, the variables of export value and inflation rate affect the rupiah exchange rate.

### 3.3. Empirical results

This study aims to investigate the role of internal and external factors on the capital structure and firm value of Property and Real Estate firms listed on the IDX for the 2017-2021 period. The results of partial least squares-structural equation modeling (PLS-SEM) are presented in Table 4. Graphical output of this study is shown in Figure 2.



TABLE 4: Hypotheses test results.

Hypotheses	Path	Std. Dev.	t-value	p value	Decision
H1	Internal Factors → Capital Structure	0.147	2.064	0.039	Supported
H2	External Factors → Capital Structure	0.154	0.002	0.998	Not Supported
H3	Internal Factors → Firm Value	0.220	2.445	0.015	Supported
H4	External Factors → Firm Value	0.125	0.449	0.654	Not Supported
H5	Capital Structure → Firm Value	0.085	0.535	0.592	Not Supported

Notes: p value significance at the 5% (0.05)

Source: Author's own work.

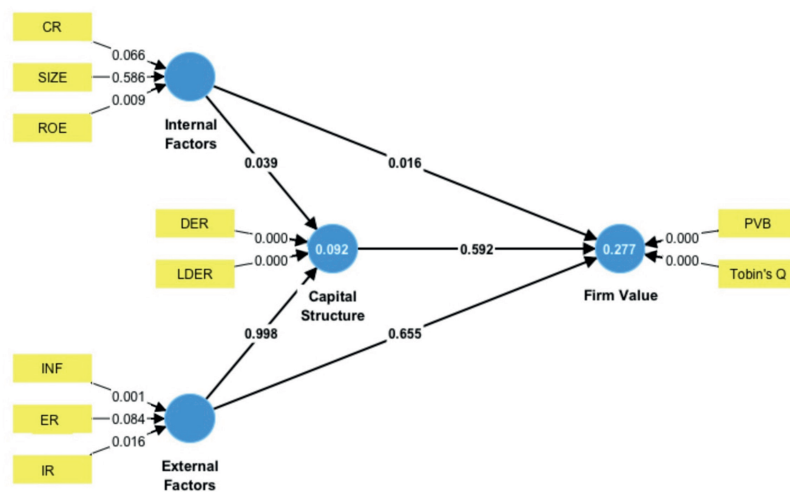


Figure 2: Graphical output. Source: Author's own work.

## 4. Discussion

### 4.1. Internal factors on capital structure

The aim of analyzing a firm's internal factors in order to evaluate the development of a firm's good and bad conditions, especially in terms of funding needs. The internal conditions of the firm can influence the utilization of the capital structure that the firm has planned [9]. The results of statistical testing show that internal factors are proven to have a significant effect on capital structure, thus the first hypothesis is accepted. These results support the signaling theory put forward by Ross [7], which states that signals can be given by firm management to stakeholders as an indication of the firm's prospects. One of the pieces of information released by a firm that can be a signal to parties outside the firm, especially to investors, is the firm's financial performance.

The information contained in the firm's financial performance is in the form of financial report information, such as profitability ratios, liquidity ratios and other performance measurements. Thus, the positive signal given by the firm through its performance encourages the formation of an optimal capital structure, because the firm can easily obtain funding sources from both debt and equity. The results of this research do not support the findings of Stiowati [23], regarding the analysis of the influence of micro factors using indicators of profitability and liquidity on capital structure, giving results that micro factors have no a significant influence on capital structure. This is because when micro factors in a firm increase, the firm's capital structure decreases and vice versa.

Through partial least squares-structural equation modeling analysis, it is also known that the ROE indicator has a significant effect on capital structure. These result is in line with studies carried out by Susilowati [38] and Priamadyan and Sagita [39], which claims that return on equity is significant positively on capital structure, due to firms with low profitability having inadequate internal funding sources. Firms with a low level of profit have low internal funds, requiring external funds, resulting in a high degree of capital structure. Contradictory to that, Afriani [13], Aziz [17], Saif-Alyousfi et al. [18], Senjaya and Agustina [14], and Wangsawinangun [19] research found that profitability has an insignificant influence on capital structure. Firms that create significant profits tend to have large retained earnings, requiring the firm to use internal capital to fund its operational activities. The greater the profitability, the larger the impact on retained earnings, reducing the use of long-term debt and thereby diminishing the firm's capital structure.

Next, the current ratio (CR) indicator has no significant effect on capital structure, this supports the same test shown by Aziz [17] and Saif-Alyousfi et al. [18], shows that the liquidity ratio has an insignificant effect on capital structure. This is because firms that have high liquidity tend not to use debt financing, because high liquidity certainly has large internal firm funds, so firms will use their internal funds more before using external financing through debt. When a firm has high total assets, it can be interpreted that the firm is able to maximize the assets owned by the firm, namely by placing its cash as the main operational source, so it does not require debt. That way, every increase in firm size will be followed by a decrease in the firm's capital structure. Vice versa, any decrease in firm size will be followed by an increase in the firm's capital structure.

The final indicator in the internal factor variable, firm size, was proven to be insignificant to the firm's capital structure. Anita and Sembiring [40], in his research stated that firm size has an insignificant effect on capital structure. Because large firms' shares

are widely distributed, each increase in share capital has only a minor impact on the possibility of losing control from the more dominant party over the firm in question, namely the controlling shareholder who has the final say greater control over the management of the firm, compared to minority shareholders, so that decisions taken frequently ignore shareholder group decisions, and vice versa.

## 4.2. External factors on capital structure

According to Spence [41], who explains that the sender (proprietor of information) provides a signal to the recipient (investor) the form of information positive or negative that represents the state of a company. Based on the findings shown in Table 4. It was decided that external factors had no effect on capital structure, thus the second hypothesis was rejected. These results again support signaling theory which explains that signals arising from information, whether originating from external firms (inflation, government policy, natural disasters and others) influence capital structure [42]. The fact is that all sample firms shown positive profitability performance throughout the Covid-19 pandemic crisis, which is a macro phenomenon that also affects Indonesia. Signaling theory emphasizes the importance of information released by firms on decisions of parties outside the firm [7]. Thus, while the Covid-19 epidemic was in progress, which is indicated by economic uncertainty with changes in inflation, interest rates and exchange rates, is not greatly impacted on the firm's capital structure. The results of the previous hypothesis also explain this, where the company has good performance so that it tries to provide a positive signal for stakeholders related to firm capital funding.

The empirical testing revealed that the capital structure is significantly impacted by inflation. It was explained that inflation causes the prices of raw materials and labor to be high so that a high inflation rate will affect the firm's capital structure [14]. This is because the firm will require a larger source of funds to finance the firm's production activities. In addition, when a firm's internal funds are unable to meet funding needs due to high inflation, the firm requires funding from external parties in the form of debt [14], so that it will affect the increase in the firm's capital structure. The findings of this investigation validate earlier studies carried out by Chow et al. [15] and Rehman [21], shows that the inflation rate is positively related to capital structure. In addition to inflation, interest rates can also affect firms in determining the capital structure policy used.

Next, the value of interest rates has a significant influence on capital structure. According to Riyanto [43] when a firm plans to fulfill capital, usually the firm will consider the interest rate that will apply at that time. In this opinion, if interest rates are high

and continue to rise, enterprises will be hesitant to fund their operational activities with debt. As a result, high interest rates may influence the firm's capital structure selection. According to research data, throughout this research period, the government prefers to use monetary policy to cut interest rates during a pandemic crisis in order to increase production. This becomes a source of low-interest debt funding for the firm. This research supports previous findings conducted by Muthama et al. [22] and Stiowati [23] shows that the impact of interest rates on capital structure is both positive and significant.

The findings of this research prove that exchange rate indicators have no significant effect on capital structure. The same findings were also revealed by research conducted by Budiono and Septiani [44]; Mahanani and Asandimitra [45] state that the exchange rate variable has a negative and insignificant effect on capital structure. This can be explained that when the domestic currency exchange rate experiences an upward trend, firms tend to have the potential for increased profits generated. When profit decline continues to occur, it will affect the firm's capital structure in order to finance the firm's operational activities [44].

### 4.3. Internal factors on firm value

Internal factors can be used to measure a firm's value by looking at the firm's performance through financial reports [46]. In general, profitability can reflect a firm's ability to generate profits for shareholders. Firms that have stable or high profitability can give investors an idea that the firm is experiencing good growth and performance. Thus, providing a sense of security and profit for investors to continue investing and can increase the value of the firm. The findings of this research indicate that internal factor variables have a significant effect on firm value, thus the third hypothesis is accepted. These results re-validate signaling theory [7], which explains why firms provide information to the capital market. The importance of information released by firms on decisions made by parties outside the firm is highlighted by signaling theory. If the information has a positive value, the market is expected to respond when the announcement is received. Market reactions that are quick and accurate indicate that the market is efficient, which can ultimately raise the firm's value [42].

The profitability indicator in the form of ROE is proven to be significant to the value of the firm. These results are similar to the results of tests conducted by Afriani [13]; Pasaribu et al.[24]; Prasitadewi and Putra [25]; Rahmantio et al. [26] provide evidence firm value is significantly impacted by profitability. A company's profitability is determined

by the net profit it can make from its operations. The bigger the firm's profits, the greater the firm's ability to pay dividends, and hence the firm's value will improve [47]. The next result is liquidity using the current ratio measurement which is proven not to be true. significant impact on firm value. This supports similar findings in the study Pribadi et al. [48] the higher the firm's liquidity above the optimal point, the lower it will be. firm value due to idle assets that are not utilized by firm management. Finally, this research found that firm size has an insignificant effect on firm value, this strengthens the findings of Ramdhonah et al. [49]; Lin and Chang [50]. This demonstrates that excessive firm size as measured by total firm assets is regarded as a negative indication for investors or potential investors. Cheng et al. [51] argue that in the case of Chinese firms which states that firms with higher size generally have lower firm value. If the firm has large total assets, management is more flexible in using the assets in the firm.

#### 4.4. External factors on firm value

The making profitable investment selections requires investors to have a thorough understanding of the capacity to forecast future macroeconomic situations [46]. Siegel [52] states that "There is a strong relationship between stock prices and macroeconomic performance, and found that stock price changes always occur before economic changes occur." The results of hypothesis testing show that external factors have no effect on firm value, thus the fourth hypothesis is rejected. These results support the findings of many previous researchers who believe that several macroeconomic variables such as high inflation rates [24], high interest rates Nuryani et al. [27] and high exchange rate fluctuations [28] causes firms to experience financial difficulties which can reduce financial performance, so that it will have an impact on decreasing the value of the firm. From the point of view of signaling theory, sometimes asymmetric information delivery occurs, actions by management in conveying information to investors which in turn can change investors' decisions in seeing the condition of the firm [42]. This research data shows that when economic conditions are uncertain, the property sector industry, in particular, is affected by the Covid-19 pandemic, despite the fact that this sector is not a need that must take precedence during the crisis, so that external factors have no influence on firm value.

The emergence of inflation sends a negative signal to the firm since inflation raises the costs of the firm's activities. Furthermore, high inflation reduces people's purchasing power and the level of real income obtained by firms. This is consistent with the findings of this study, which suggest that inflation has an impact on firm value. The findings

of Prasitadewi and Putra [25] investigation found similar conclusions, stating that the inflation rate had an effect on firm value. Because the inflation phenomenon means that enterprises cannot earn maximum profits, investors' interest in investing in the firm will be affected. If investors are hesitant to invest their assets, share prices will fall, which will be followed by a drop in firm value.

High interest rates, like inflation, will send a negative signal to investors' desire in putting their cash in the capital market. This study discovers that interest rates have a significant impact on firm value. These findings support the findings of Prasitadewi and Putra [25] that interest rates influence firm value. The interest rate is one of the references used by investors to determine the interest rate on stock investments. When interest rates rise, potential investors will prefer to save instead of invest [25]. Thus, if demand for shares falls, share trading activity falls, causing share prices to fall and, as a result, firm value to fall.

The empirical study conducted also found that the exchange rate has no significant effect on capital structure. This study validates research findings by Afriani [13]; Pasaribu et al. [24]; Prasitadewi and Putra [25], who also show that the exchange rate has a negative effect on firm value. These findings suggest that as domestic currency conditions improve relative to foreign currencies (appreciation), it attracts investors to the foreign exchange market. Because foreign currency is cheaper, investors tend to buy and even accumulate it. This will make investors move their investment from the capital market to foreign exchange market instruments. Thus, it will result in a decrease in the firm's share price which in turn will also make the firm's value decrease.

#### 4.5. Capital structure on firm value

Capital structure is the most significant aspect of any business organization since making optimal capital structure decisions can reduce firm capital while increasing shareholder wealth. Thus, capital structure has a large impact on the firm's financial performance which can also affect firm value. Chowdhury and Chowdhury [20] argue that firm managers will be able to maximize firm value by choosing the optimal capital structure. The optimal capital structure is described as a capital structure that can minimize the overall cost of capital or average cost of capital in order to maximize firm value [53]. Statistical testing shows that capital structure has no significant effect on firm value, thus the fifth hypothesis is rejected. These results do not validate signaling theory, strategy to improve the firm's value can be done by delivering information or signals to outside parties to explain that the firm selects the optimal capital structure,

where the optimal capital structure is a positive signal that might stimulate an increase in the firm's value [42]. The fact is that the capital structure of the sample firms is not able to have a strong effect on the value of the firm. These findings support previous research by Afriani [13]; Cipto and Choerudin [28]; Prasitadewi and Putra [25] stated that capital structure has no significant effect on firm value. The reason is that the lower the proportion of debt in the capital structure will have an impact on increasing the value of the firm. When a firm has a high level of debt, it means that the firm does not have sufficient internal funds to finance the firm's operational activities, so the firm requires external funds in the form of debt to cover the firm's operational costs. The lack of internal firm funding will increase the firm management's interest in financing through debt, so that the amount of debt in the capital structure will increase. Apart from that, investors will also assess that the firm has a level of risk of loss originating from the debt and this could result in a decrease in the firm's value.

## 5. Conclusion

Signaling theory explains why corporations take the initiative and motivation to disclose information to third parties. It also explains why firms provide information to the capital market. Signaling theory emphasizes the importance of information released by firms on decisions of parties outside the firm. Firms take into account both internally controllable factors and outside controlled factors when determining signals. The aims are to improve firm performance, including capital value and capital structure. The results of this study indicate that internal factors have a significant effect on capital structure and firm value. These results validate the signaling theory in which firms have given positive signals regarding their performance so that stakeholders can use this information to contribute to the firm's capital funding. This has important implications where firms must focus on important measurements that can be positive signals to encourage investors and creditors to fund. The next result, external factors actually proved not to significantly impact on the capital structure and firm value. This research was conducted in the 2017-2021 period, which since 2020 Indonesia itself has also faced the Covid-19 pandemic, even though there is high economic uncertainty, in fact the sample firms can show good performance and generate positive profits, so that overall external factors do not have a significant impact on the capital structure and firm value. This has the implication that firms can survive even during times of crisis, so external adverse effects do not have a strong impact on firm operations. Other results show that capital structure is also proven to have no significant effect on firm value. The optimal capital structure is a signal that

can encourage an increase in firm value, so these results do not support signaling theory. Instead, efforts to increase firm value can be made by providing information or signals to explain to outsiders that firms choose the optimal capital structure.

There are several limitations in this research as follows: first, this research does not consider the effects of the Covid-19 pandemic crisis directly, however external variables can reflect the situation during the economic crisis through indicators of inflation, exchange rates and changes in interest rates. Second, this research only focuses on firms that have positive profitability performance, thus policy makers who use this research study must understand this in more depth. Lastly, the observation period and the number of samples in this study were limited due to the availability of research data. The implication for future research is that we can develop more varied variables related to internal and external factors, for example we can observe good corporate governance as an indicator of internal variables or the effects of the crisis, economic growth and human development index as indicators of external variables.

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## References

- [1] Sekretariat Nasional ASEAN – Indonesia. Ternyata UMP dan harga tanah di indonesia paling mahal di asean [Internet]. Jakarta: Sekretariat Nasional ASEAN – Indonesia; 2020 [cited 2023 Jul 15]. Available from: <https://setnasasean.id/news/read/ternyata-ump-dan-harga-tanah-di-indonesia-paling-mahal-di-asean>
- [2] Rhadityo, Sudiana. Analisis daya beli masyarakat melalui program kartu prakerja di era pandemi COVID-19. *Jurnal Investasi Islam*. 2022;7(1):14-19. <https://doi.org/10.32505/jii.v7i1.3486>
- [3] Nasution DAD, Erlina E, Muda I. Dampak pandemi COVID-19 terhadap perekonomian indonesia. *Jurnal benefita*. 2020;5(2):212–224.
- [4] Baek S, Mohanty SK, Glambosky M. COVID-19 and stock market volatility: An industry level analysis. *Finance Research Letters*. 2020;37:101748. <https://doi.org/10.1016/j.frl.2020.101748>
- [5] Harmono. *Manajemen keuangan berbasis balance scorecard pendekatan teori, kasus dan riset*. Jakarta: PT Bumi Aksara; 2017.



- [6] Fahmi I. Manajemen keuangan perusahaan dan pasar modal. Bogor: Mitra Wacana Media; 2014.175 p.
- [7] Ross SA. The determination of financial structure: The incentive-signalling approach. *The Bell Journal of Economics*. 1977;8(1):23-40. <https://doi.org/10.2307/3003485>
- [8] Wisudani S, Priyadi MP. Analisis pengaruh faktor internal dan eksternal terhadap harga saham pada perusahaan manufaktur yang terdaftar di bursa efek Indonesia. *Jurnal Ilmu dan Riset Akuntansi (JIRA)*. 2021;10(1):1-22.
- [9] Brigham EF, Houston JF. Dasar-dasar manajemen keuangan. 11<sup>th</sup> ed. Jakarta: Salemba Empat; 2013.
- [10] Kasmir K. Analisis laporan keuangan. Jakarta: Rajawali Pers; 2016.
- [11] Triani N, Tarmidi D. Firm value: Impact of investment decisions, funding decisions and dividend policies. *International Journal of Academic Research in Accounting, Finance and Management Sciences*. 2019;9(2):158–163.
- [12] Winarto J. The determinants of manufacturer firm value in Indonesia stock exchange. *International Journal of Information, Business and Management*. 2015;7(4):323-349.
- [13] Afriani A. Pengaruh variabel fundamental dan makroekonomi terhadap struktur modal dan nilai perusahaan [Master thesis on the Internet]. Malang: Universitas Brawijaya; 2014 [cited 2023 Jun 2]. Available from: <http://repository.ub.ac.id/id/eprint/155793/>
- [14] Senjaya K, Agustina L. The influence of internal and external factors on capital structure of manufacturing companies listed on IDX in 2016-2018. *ACCRUALS (Accounting Research Journal of Sutaatmadja)*. 2020;4(2):163-174. <https://doi.org/10.35310/accruals.v4i02.595>
- [15] Chow YP, Muhammad J, Bany-Ariffin AN, Cheng FF. Macroeconomic uncertainty, corporate governance and corporate capital structure. *International Journal of Managerial Finance*. 2018;14(3):301-321. <https://doi.org/10.1108/IJMF-08-2017-0156>
- [16] Memon PA, Rus RBM, Ghazali ZB. Firm and macroeconomic determinants of debt: Pakistan evidence. *Procedia - Social and Behavioral Sciences*. 2015;172:200-207. <https://doi.org/10.1016/j.sbspro.2015.01.355>
- [17] Aziz LH. Pengaruh likuiditas, profitabilitas, struktur modal terhadap nilai perusahaan. *Sains: Jurnal Manajemen dan Bisnis*. 2019;12(1):16-37.
- [18] Saif-Alyousfi AYH, Md-Rus R, Taufil-Mohd KN, Mohd Taib H, Shahar HK. Determinants of capital structure: Evidence from Malaysian firms. *Asia-Pacific Journal of Business Administration*. 2020;12(3/4):283-326. <https://doi.org/10.1108/APJBA-09-2019-0202>
- [19] Wangsawinangun RZ. Pengaruh profitabilitas, likuiditas terhadap struktur modal dan nilai perusahaan (studi pada perusahaan sektor property dan real estate

- yang terdaftar di BEI tahun 2013-2015) [Master thesis on the Internet]. Malang: Universitas Brawijaya; 2018 [cited 2023 Jun 2]. Available from: <http://repository.ub.ac.id/id/eprint/177169/>
- [20] Chowdhury A, Chowdhury SP. Impact of capital structure on firm's value: Evidence from Bangladesh. *Business and Economic Horizons*. 2010;3:111-122. <https://doi.org/10.15208/beh.2010.32>
- [21] Rehman Z. Impact of macroeconomic variables on capital structure choice: A case of textile industry of Pakistan. *The Pakistan Development Review*. 2016;55(3):227-239.
- [22] Muthama C, Mbaluka P, Kalunda E. An empirical analysis of macro-economic influences on corporate capital structure of listed companies in Kenya. *Journal of Finance and Investment Analysis*. 2013;2(2):41–62.
- [23] Stiowati AI, Suhadak S, Kumadji S. Analisis pengaruh faktor mikro dan makro ekonomi terhadap struktur modal dan nilai perusahaan (Studi pada perusahaan industri otomotif dan komponen yang terdaftar di bursa efek indonesia (BEI) periode tahun 2007-2011). *Profit: Jurnal Administrasi Bisnis*. 2014;8(2).
- [24] Pasaribu UR, Nuryartono N, Andati T. Pengaruh faktor internal dan eksternal perusahaan terhadap nilai perusahaan. *Jurnal Aplikasi Bisnis dan Manajemen*. 2019;5(3):441-454. <https://doi.org/10.17358/jabm.5.3.441>
- [25] Prasitadewi MS, Putra INWA. Pengaruh faktor internal dan faktor eksternal terhadap nilai perusahaan. *E-Jurnal Akuntansi*. 2020;30(6):1397. <https://doi.org/10.24843/EJA.2020.v30.i06.p05>
- [26] Rahmantio I, Saifi M, Nurlaily F. Pengaruh debt to equity ratio, return on equity, return on asset dan ukuran perusahaan terhadap nilai perusahaan. *Jurnal Administrasi Bisnis (JAB)*. 2018;57(1):151–159.
- [27] Nuryani SD, Wijayanti A, Masitoh E. Pengaruh internal dan eksternal perusahaan terhadap nilai perusahaan pada perusahaan properti dan real estate. *Ekonomis: Journal of Economics and Business*. 2021;5(1):191. <https://doi.org/10.33087/ekonomis.v5i1.199>
- [28] Cipto PKA, Choerudin A. Effect of shareholding structure, internal factors, external factors on capital structure and value of the company in manufacturing company in Indonesia stock exchange. *International Journal of Recent Technology and Engineering (IJRTE)*. 2020;9(1):1854-1859. <https://doi.org/10.35940/ijrte.E6796.059120>
- [29] Gitman LJ, Zutter CJ. *Principles of managerial finance*. New York: Pearson Prentice Hall; 2012.
- [30] Oino I, Ukaegbu B. The impact of profitability on capital structure and speed of adjustment: An empirical examination of selected firms in nigerian stock

- exchange. *Research in International Business and Finance*. 2015;35:111-121. <https://doi.org/10.1016/j.ribaf.2015.03.004>
- [31] Radhitiya E, Purwanto A. Pengaruh mekanisme corporate governance pada struktur kepemilikan, faktor internal, dan faktor eksternal perusahaan terhadap nilai perusahaan (Tobin's Q). *Diponegoro Journal of Accounting*. 2017;6(1):22-34.
- [32] Taherdoost H. Sampling methods in research methodology; how to choose a sampling technique for research. 2016. <https://doi.org/10.2139/ssrn.3205035>
- [33] Hair JF, Sarstedt M, Ringle CM, Gudergan SP. *Advanced issues in partial least squares structural equation modeling*. UK: Sage Publications; 2023.
- [34] Ramli NA, Latan H, Nartea GV. *Partial least squares structural equation modeling: Recent advances in banking and finance*. Avkiran NK, Ringle CM, editors. Cham: Springer International Publishing; 2018. Why should PLS-SEM be used rather than regression? Evidence from the capital structure perspective; p. 171-209.
- [35] Latan H, Noonan R. *Partial least squares path modeling: Basic concepts, methodological issues and applications*. Cham: Springer International Publishing; 2017.
- [36] Supriatna A, Rahman F, Willianta A. Dampak kenaikan suku bunga dan inflasi terhadap harga saham perusahaan manufaktur. *Scientific Journal of Reflection: Economic, Accounting, Management and Business*. 2021;4(2):261-270. <https://doi.org/10.37481/sjr.v4i2.278>
- [37] Subanti S, Hakim AR. *Ekonometri*. Yogyakarta: Graha Ilmu; 2014.
- [38] Susilowati E. Pengaruh profitabilitas terhadap struktur modal pada perusahaan bidang pertanian yang terdaftar di BEI. *Jurnal Manajemen dan Bisnis (JMB)*. 2020;1(1):1-13. <https://doi.org/10.57084/jmb.v1i1.305>
- [39] Priamadyan M, Sagita R. Pengaruh profitabilitas dan tingkat pertumbuhan perusahaan terhadap struktur modal pada perusahaan Astra group periode 2015-2019. *Jurnal Akuntansi Syariah (JAKSyA)*. 2022;2(1):21-32.
- [40] Anita D, Sembiring GA. Analisis pengaruh profitabilitas, pertumbuhan aset, risiko bisnis, tingkat likuiditas dan ukuran perusahaan terhadap struktur modal perusahaan jasa (sektor hotel, restoran dan pariwisata ) yang terdaftar di bursa efek Indonesia periode 2010-2014. *Procuratio : Jurnal Ilmiah Manajemen*. 2016;4(4):415-433.
- [41] Spence M. Job market signalling. *The Quarterly Journal of Economics*. 1973;87(3):355-374.
- [42] Suganda TR. *Teori dan pembahasan reaksi pasar modal Indonesia*. Malang: Puntadewa; 2018. 179 p.

- [43] Riyanto B. Dasar-dasar pembelanjaan perusahaan. 4<sup>th</sup> ed. Yogyakarta: BPFE; 2008.
- [44] Budiono B, Septiani N. Pengaruh inflasi, suku bunga SBI, kurs US dollar terhadap rupiah, pajak, solvabilitas, dan profitabilitas terhadap struktur modal pada perusahaan Lq-45 yang terdaftar di bursa efek Indonesia periode 2010-2015. *BISMA (Bisnis dan Manajemen)*. 2017;9(2):119–134.
- [45] Mahanani RM, Asandimitra N. Pengaruh nilai tukar, suku bunga, inflasi, GDP dan corporate tax rate terhadap struktur modal perusahaan sektor infrastruktur, utilitas dan transportasi yang terdaftar di bursa efek Indonesia tahun 2011-2015. *Jurnal Ilmu Manajemen*. 2017;5(3):1–11.
- [46] Tandelilin E. Portofolio dan investasi: Teori dan aplikasi. Yogyakarta: Kanisius; 2010.
- [47] Rachmawati D, Pinem DB. Pengaruh profitabilitas, leverage dan ukuran perusahaan terhadap nilai perusahaan. *Equity*. 2015;18(1):1–18.
- [48] Pribadi MT, Sochib S, Murniati W. Pengaruh struktur aset, ukuran perusahaan, likuiditas dan profitabilitas terhadap nilai perusahaan dagang besar yang terdaftar di perusahaan bursa efek Indonesia. *Counting: Journal of Accounting*. 2019;1(3):121-134.
- [49] Ramdhonah Z, Solikin I, Sari M. Pengaruh struktur modal, ukuran perusahaan, pertumbuhan perusahaan, dan profitabilitas terhadap nilai perusahaan (Studi empiris pada perusahaan sektor pertambangan yang terdaftar di bursa efek Indonesia tahun 2011-2017). *Jurnal Riset Akuntansi Dan Keuangan*. 2019;7(1):67–82.
- [50] Lin F-L, Chang T. Does family ownership affect firm value in Taiwan? A panel threshold regression analysis. *International Research Journal of Finance and Economics*. 2010;42(1):45–53.
- [51] Cheng Y-S, Liu Y-P, Chien C-Y. Capital structure and firm value in China: A panel threshold regression analysis. *African Journal of Business Management*. 2010;4(12):2500-2507.
- [52] Siegel JJ. Does it pay stock investors to forecast the business cycle? *Journal of Portfolio Management*. 1991;18(1):27.
- [53] Martono M, Harjito H. Manajemen keuangan. Yogyakarta: Penerbit Ekonisia; 2003.