Macroeconomic, Corporate Fundamentals, Systematic Risk on Firm Value: Evidence from Indonesian Manufacturing Sector

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Abstract

This paper aims to study the connection between the effect of macroeconomics, corporate fundamentals on systematic risk, and the firm's value of the Indonesian manufacturing industry listed on the Indonesian Stock Exchange period 2015-2020. A total of 522 object analyses in this study with the purposive sampling method. This paper found that the direction and magnitude of the impact of firm value depend on macroeconomic measurement variables: interest rates, exchange rates, and the company's fundamental measurement variables: leverage and capital expenditure. The paper also found that the macroeconomic positively affects firm value, and leverage has a significant positive effect on firm value. At the same time, capital expenditure shows different results in response to the firm value, that is, negatively significant. In particular, a systematic risk as a mediating variable becomes a significant and positive driver of macroeconomics and leverage on firm value. However, different results indicate that capital expenditure negatively affects the firm value if mediated by the systematic risk. The implication of this research is beneficial to enable companies and investors to make the right analytical decision in the Indonesian capital market in this pandemic covid-19 situation.

Keywords: Macroeconomics; leverage; capital expenditure; systematic risk; Tobin's q
JEL: E43, G10, G32

1. INTRODUCTION

The condition of the global economic cycle that occurs in the aggregate of macroeconomic variables both in a country and in the international world, especially on the performance of the capital market, is a current issue and concern among researchers and practitioners. This article provides a broad impact of information for investors to make the right investment valuation decisions in investing in the capital market by considering the risk that can't be eliminated especially in situation pandemic Covid-19. In addition, the company as an issuer must have a clear and good business model to anticipate macroeconomic shocks. Various empirical studies have been carried out to identify and

explain macroeconomic influences in addition to the fundamentals of the company. However, the previous research conducted in Europe, the U.S., and Asian countries almost entirely found that changes in macroeconomic and corporate fundamentals affect the value of shares. The research was also expanded to predict the level of market risk, namely systematic risk as measured by beta with variable results on stock prices. Responding to this problem, the researcher extended this research with a tiered model by placing systematic risk as a mediating variable and measuring the extent to which systematic risk can mediate responses to changes in the macro and fundamental conditions of the company against stock prices. This research model uses systematic risk because it is seen as the subject of changes in the real economic growth rate, interest rate, exchange rate, and inflation rate. This study uses beta as a proxy of systematic risk because each stock has a certain stock beta and tends to vary in response to economic conditions.

The value of shares reflects the company's value so that the fundamental aspects become the basis for the main assessment of rational investors (Kopwyhoba, 2019). Investors expect intrinsic value and hope for the company's ability to increase the value of wealth in the future. Internal and external factors of the company are used as a fundamental basis for investors to make investment decisions. Investors aim to increase their assets in the form of dividends and capital gains. Investors aim to increase their assets in the form of dividends and capital gains. Therefore, the value of the company is an essential factor for both investors and companies. However, there is no consensus among researchers regarding the measurement of company value and its determinant factors.

Some researchers use basic indicators of accounting and production processes, namely technical scale efficiency, to justify the ideal maximizing firm value (Vafea s & Vlittis, 2019); Dybvig & Warachka, 2015). Moreover, some use market-based measures such as Tobin's q as a proxy for firm value (Peters & Taylor, 2017; Lin, Wang, & et al., 2018. In addition, the determinants of company value from previous studies are still inconsistent and different between regions. Hence, efforts to expand this study still need to be made, especially in the context of developing countries such as Indonesia.

This study is related to recent research that has significantly analyzed variables considered to influence firm value. These factors can be separated into different categories, such as internal and external factors. e.g., (Mangantar & Ali, 2015); (Parlapiano et al., 2017); Utari & Sari, (2016); Ajaz, Taufeeq, (2017); Pan W, (2018); (Egbunike & Okerekeoti, 2018a); Lin et al. (2018); Santosa, P.W. & Puspitasari (2019) used macroeconomic fundamentals, while Dybvig & Warachka (2015); Egbunike & Okerekeoti, 2018b using the company's internal fundamental factors such as leverage, stakeholder welfare, income, corporate governance and other financial performance as an explanation of company value. Recent studies such as Vafeas & Vlittis (2019), Yu, Guo, & Luu (2018), and Ararat, Black, & Yurtoglu (2017) used corporate governance, board committees, environmental risk management, and social.

Fundamental macroeconomic factors such as interest rates, exchange rates, and inflation can cause stock prices to fluctuate in the capital market. Volatility, namely rising and falling stock prices, can potentially increase and reduce systematic risk. The more deteriorating macroeconomic conditions, the more systematic risk increases, and, vice versa, the improved macroeconomic conditions can reduce the systematic risk (Santosa, P.W. et al., 2019). Previous research that analyzed macroeconomics with determinants of interest rates and exchange rates showed inconsistent results. Researchers such as

(Egbunike & Okerekeoti, 2018a); Utari& Sari (2016); Ajaz, Nain, Kamaiah, & Sharma (2017) concluded that the interest rate had a significant negative effect on stock prices which had an impact on the company value, while researcher Pan, (2018); Moya-Martínez et al., (2015); Santosa & Puspitasari, (2019) gave different results, those macroeconomics tended to respond positively to the stock price; however, the interest rate (B.I. rate) didn't influence the risk systematically. Likewise, studies that analyzed risks systematically show inconsistent results. In their research, researchers Zahedi et al. (2016) and (Santosa, P.W. & Puspitasari, 2019) concluded that systematic risk positively affected stock prices. In contrast, researchers such as Babenko et al. (2016) found that the results were different. In this study, systematic risks negatively affected stock price volatility. In the end, the effects of macroeconomics and systematic risk on firm value are open empirical questions.

Leverage is one of the indicators of financial performance that is still debated in relation to firm value. In addition to internal characteristics related to financial performance, such as leverage, are essential for firm value. Researchers such as Egbunike & Okerekeoti (2018a); Rina Masyithoh Haryadi (2016) concluded that leverage had a significant negative effect on stock price volatility and systematic risk. Instead, different results were shown by some researchers such as Suwardika & Mustanda (2017); Houmes Mac & Stranaha (2018). The results of their studies showed that leverage had a significant positive effect on tobacco and systematic risk.

Furthermore, other researchers such as Rani& Khan (2017) showed the results differ from other previous research. They concluded that leverage did not have a significant relationship with beta as a proxy of systematic risk. The difference in the results shows that the determinants of corporate value still need to be clarified, especially in the Indonesian manufacturing sector.

This research is motivated by the development of macroeconomic indicators in Indonesia, namely, the development of interest rates during the 2015-2020 period and the trend of exchange rate showing fluctuations. Deposit rates in the aftermath of the 1997 economic crisis increased to 17.6% in 2001, and vice versa decreased to 8.54% in 2014 and continued to decline to 7.35% in 2017. Likewise, the rupiah exchange rate against the dollar in the aftermath of the 1997 economic crisis and 2008 remained to fluctuate until the end of 2017 weakened with the exchange rate of Rp.13.548 per the U.S. $ 1. This condition illustrates the impact of the economic crisis on the value of the rupiah against the U.S. dollar. It can be said that the foundation of the economy is weak and easily affected by changes in the global economy. Another phenomenon in this study is based on observations of a sample of companies listed on the Indonesia Stock Exchange during the study period. Most of the listed manufacturing companies experienced significant growth and used debt as a source of company financing, some of which had exceeded the maximum capital structure. Most relationships between variable leverage, liquidity, capital expenditure, ROA on stock prices, or company value fluctuations are uncertain. Fluctuating stock price movements significantly affect the value of the company. Investor interest is focused on stocks that bring high capital gains and yields. A typical high-risk investor is more focused on stocks with increased risk to gain a high return.

The following is the average value of manufacturing industry companies in the 2015-2019 period, and Figure 1 shows the ratio results produced more than 1. This illustrates the company's value on the Indonesia Stock Exchange, especially for the average manufacturing industry, which is overvalued meaning, which means the market value of

shares in the manufacturing industry is valued two times higher than the book value of the company or recorded value.
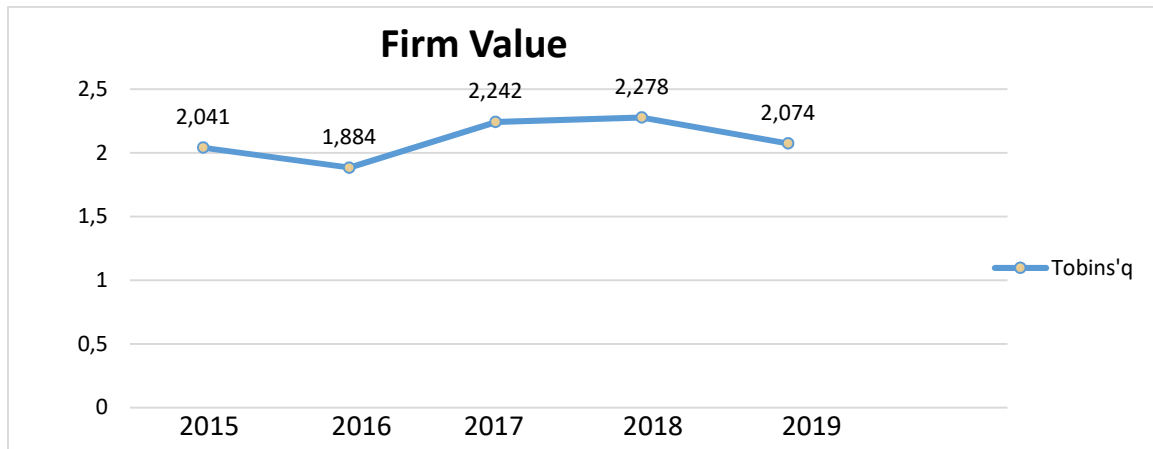

Figure 1. Value of Manufacturing Companies, As Listed on the Indonesia Stock Exchange for the period 2015-2019 (*Source*: Indonesian Stock Exchange)

Table 1. IHSG performance

Year	IHSG Dec 31	Earnings	Accumulated earnings
2015	4.593,01	-12,13%	24,02%
2016	5.296,71	15,32%	43,02%
2017	6.355,65	19,99%	71,61%
2018	6.194,50	-2,54%	67,26%
2019	6.299,54	1,70%	70,10%
2020	5.979,07	-5,09%	61,44%

Source: IDX, 2021

In table 1, during the COVID-19 pandemic, the JCI performance recorded negative growth of -5.09%. Many companies in crisis admid the pandemic Covid-19. Previous research that analyzed macroeconomics with determinants of interest rates and exchange rates showed inconsistent results. Wijaya et al. (2019); Utari & Sari (2016); Ajaz, Nain, Kamaiah, & Sharma (2017) conclude that interest rates have a significant negative effect on stock prices which have an impact on firm value, while Pan W (2018); Santosa & Puspitasari, (2019) gave different results, namely that the macroeconomy tends to respond positively to stock prices; however, the interest rate (B.I. rate) doesn't affect the systematic risk.

Likewise, studies that analyze risk systematically show inconsistent results. Mouna & Anis (2017), and Lin et al. (2018), in their research, conclude that systematic risk has a positive effect on stock prices, while Babenko et al. (2016) have different results, namely systematic risk has a negative effect on stock prices. Stock price volatility. Other studies examining leverage show different results. Researchers (Savor & Wilson, 2016) concluded that leverage has a significant negative effect on stock price volatility, and systematic risk negatively impacts. Instead, researchers Houmes R, Mac, & Stranaha (2018) showed that leverage had a significant positive effect on tobacco and a positive effect on systematic risk. Further research from Rani & Khan (2017) differs from the previous results, which

concluded that leverage does not have a significant relationship with beta as a proxy of systematic risk. The difference in results shows that the determinants of corporate value still need to be clarified, especially in the Indonesian manufacturing sector.

The present research contributes to many researchers in the general field discussing macroeconomic changes to the value of shares in the capital market (Santosa, P.W. & Puspitasari, 2019). Still, few discussed the trend of systematic risk as measured by stock beta in influencing the stock's market value. In so doing, the contribution of this research is fourfold. First, different results have been found from previous researchers with regard to the influence of macroeconomics on firm value, leverage on firm value, and capital expenditure on firm value. This research aims to resolve such shortcomings. Second, the researcher used a tiered model and aimed to reveal the model that has not been studied and put systematic risk as mediating variable (Rani, T & Khan, A, 2017; Houmes R et al., 2018) and measure the extent to which systematic risk can be mediated. This research model uses systematic risk because it is seen as the subject of changes in the real economic growth rate and inflation rate. This study uses beta as a proxy for systematic risk because each stock has a certain stock beta and tends to vary in response to economic conditions (Houmes R et al., 2018). Third, the model in this study is more appropriate because firm value is a fairly long and continuous process. Therefore, the value created must provide investors with confidence about the investment prospects to gain a return. Fourth, this research is more focused on the scope of financial management. The development of theoretical models in manufacturing companies is expected to clarify the issues of increasing the firm value and can contribute to the development of financial management disciplines and the proper implementation of management in decision making so that the company's goals to increase the prosperity of stakeholders can be achieved.

2. HYPOTHESES DEVELOPMENT

Macroeconomic, Leverage, Capital Expenditure, Systematic Risk and Firm Value

Several indicators of macroeconomics are interest rates and exchange rates. Economic theory explains that the movement of interest rates and exchange rates affects the capital market's performance and has the potential to increase and decrease investment in the real sector. Uncertain conditions of interest rates and exchange rates can lead to greater risk investment and the company's operational activities. Therefore, that risk management at an organizational level is essential as a key for the company to survive in the long term (survival). The high and low risk of the company due to macroeconomic impacts is very dependent on the company's internal conditions and financial health. The measurement of interest rates in this study comes from the concept of the Fisher equation; that is, the interest rate used is the real interest rate. Real interest rates are nominal interest rates that inflation rates have reduced in the same period (Engel, 2016). In addition to interest rates, the exchange rate is also a macroeconomic indicator that illustrates the rupiah's exchange rate against the dollar ($). The exchange rate used in this study is the spot exchange rate adopted into the Fisher equation concept. The real exchange rate that occurs in a period is an exogenous variable that is not influenced by interest rates (Mouna & Anis, 2016). The fundamental factors of the company are factors that can influence the movement of stock prices and the volume of stock trading transactions. Those factors are factors that come from within the company, among others: assets, profits, business trends of the company,

and the estimated value of shares that can impact the value of the company. This study uses leverage as a proxy for the company's fundamental factor. The company's fundamentals are shown through financial leverage (financial leverage), which is originally from the use of securities (securities) that provide fixed income, namely, bonds and preferred stocks. For shareholders, the use of financial leverage will increase the financial risk for the company.

According to Jensen and Meckling (1976), an agency relationship is a contract where an agent binds one principal or more. One decision made by an agent is a decision on capital expenditure or investment through capital expenditure. Capital expenditure by the company through the acquisition and use of assets is directed to benefit from cash inflows in more than one operating period. The risk concept model that Markowitz (1952) first developed is portfolio risk. The risk model in the capital market is divided into two, namely, Systematic Risk and Unsystematic Risk. Part of a security risk that can't be eliminated by forming a portfolio is called Systematic Risk, and part of a security risk that can be eliminated by forming a well-diversified portfolio is called Unsystematic Risk (Jagotra, 2018). The systematic risk that occurs depends on macroeconomic events that can be measured as the sensitivity of stock returns to fluctuations in market portfolio returns, and this sensitivity is called beta stocks (Zreik & Louhichi, 2017). Beta is used to measure the relationship between investment returns and market returns (Machdar, 2016). In the Capital Assets Pricing Model (CAPM), only systematic risks are involved in determining the return of individual securities.

The firm's theory examines how companies can determine the optimal combination of resources to produce company value (Jensen & Meckling, 1976). The company's value is the value of all assets owned by the company, consisting of its own capital's market value and debt's market value. Tobin's q as a measure of company value illustrates that the higher Tobin's q, the higher the company's value, which means that companies in the eyes of investors are more attractive. Researchers have used Tobin's q measure as an assessment tool to measure firm value, as has been widely used by other researchers, e.g., Marshall (2015) for systematic, non-systematic, and total risk, while Shen & Kevin Au (2018) for ownership, structure and diversification strategy.

Relation of the Macroeconomics on the Firm Value

The basic concept, which states a relationship between fundamental macroeconomic factors and firm value, indicates that corporate value cannot be separated from macroeconomic conditions. This factor has the potential to influence company policy and company value. This means that every determination of company policy must pay attention to fundamental macroeconomic factors, such as interest rates and exchange rates. The company's value in this study is proxy by Tobin's Q measure, in which the element of Tobin's Q calculation is the market value of common stocks and financial liabilities. Interest rates and exchange rates are used as macroeconomic proxies in this study.

The Government uses interest-rate instruments to attract investors to invest in the real sector. The Government hopes that if interest rates are reduced, there will be an increase in investment in the real sector. Increased investment in the real sector can lead to increased activity in the capital market, and an increase in capital market activity will cause capital market performance to improve. Increased activities in the capital market that will affect the reduction in market risk means that industrial companies will positively influence the decrease in the interest rate. A decrease in interest rates can cause a reduction in the

prices of necessities for an industry so that the cost of manufacturing goods is also low. This condition has a very positive effect on companies because companies can sell their products at affordable prices to the public. This increases company sales, and company profits rise. Rising corporate profits signal good corporate value, so investors are interested in investing.

In this study, the exchange rate will represent the foreign sector that affects the company's value. Changes in exchange rates can cause changes in the price of goods, especially imported goods. The consequences of globalization will bring companies into business risk between countries due to changes in exchange rates. If there is a weakening of the exchange rate, it will cause the price of imported raw materials in particular to rise, and that means the cost of production will also rise. The weakening of the exchange rate shows the decline in the value of the domestic currency because domestic inflation is greater than inflation abroad. In the current era of globalization, changes in inflation abroad affect the global and domestic economies.

Researchers have carried out several previous studies on macroeconomics. For example, (Egbunike & Okerekeoti, 2018a) indicate that the results of interest rate and exchange rate volatility are the major determinants of the stock return and have a negative impact on stock returns. Other researchers also support the above result of the study, such as Utami, Hartoyo, Nur, & Maulana (2015). Those studies show that there is a significant negative relationship between stock returns and interest rates. According to Ajaz et al. (2017), the monetary policy strictly inhibits stock prices.

On the other hand, other researchers put different results (Ajaz, Taufeeq, 2017), indicating no significance between interest rates and exchange rates on stock prices. Rachmawati & Laila(2015) conclude that the SBI interest rate is insignificant for the stock price; however, the exchange rate significantly influences the stock price. Further research conducted by Pan W (2018) supports the (Ajaz, Taufeeq, 2017) research in which a country's macroeconomic tends to respond positively to stock prices. Therefore, based on the theoretical description and empirical studies above, the hypothesis is proposed as follows:

H_1: The macroeconomic has a significant positive effect on the firm value

Relation of the Macroeconomics on the Firm Value with the Systematic Risk as mediating variable

This study uses the concept of market risk because macroeconomic fundamentals and systematic risk significantly affect the stock price, representing the company's value. The influence of pressures from uncontrolled macroeconomic fundamentals causes an increase in systematic risk so that it can cause a fall in stock prices to become uncertain. It means that the less pressure from fundamental macroeconomic factors, the less systematic risk will be. The ability to adjust and harmonize from these pressures will be higher and positively impact increasing the company's value.

The concept of thinking related to macroeconomic variables, systematic risk, and firm value wherein economic theory logic is stated if inflation rises, interest rates rise, and the exchange rate is high. This macroeconomic risk will increase systematic risk and cause stock prices to decline because macroeconomic indicators drive investment. In this case, the Government always uses this instrument through monetary policy and fiscal policy to

stabilize basic and general needs and spur increased economic growth. The higher interest rates and exchange rates will cause the marginal cost of capital to rise. An increase in the marginal cost of capital causes an increase in the company's burden, thereby reducing company profits. Thus, according to the arguments of investment theory, an increase in systematic risk will reduce the company's value. Stock beta as one indicator of systematic risk is the only one that affects stock returns. The stock beta has a positive relationship with stock returns which means that if the stock beta rises, stock returns also rise. Some previous studies used accounting variables to explain a systematic risk.

The development of previous research from (Crawley 2015); Santosa, P.W. & Puspitasari (2019) gave macroeconomic results that tend to respond positively to the stock price; however, the SBI interest rate doesn't have a significant effect on beta or systematic risk. Otherwise, (Machdar 2016) stated a negative but not significant effect between the interest rate and systematic risk. (Santosa, P.W. & Puspitasari, 2019); (Ferranti & Yunita, 2015) found that the interest rate had a positive but not significant effect on systematic risk. Another researcher, such as (Pan W 2018), states that the results of systematic risk have a positive impact on firm value; conversely, the results are different from (Wijaya et al., 2019) research, indicating that there is a negative effect on stock price volatility.

Previous studies have produced inconsistencies, and some researchers have problems in multicollinearity, which means there is a strong relationship between independent variables in previous studies. Research conducted by Mouna & Anis (2016) used several accounting variables into systematic risk, but in this study, the researcher used Market Beta to measure systematic risk. This is the author's consideration because market interactions largely determine stock returns. Therefore, based on the theoretical description and empirical studies above, the hypothesis is proposed as follows:

H$_2$: The macroeconomic has a significant positive effect on the firm value with the systematic risk as mediating variable

Relation of the Leverage on the Firm Value

Company policies related to a capital structure are very conditional because when determining the source of funding, management will first look at the company's internal financial condition. This is in accordance with the concept of funding hierarchy theory (pecking order theory). If the company policy for funding uses internal funding sources, in this case, retained earnings, it will reduce the leverage factor or financial leverage, meaning that the capital structure will also go down. Related to the Pecking order theory of capital pooling theory, if there is a lack of funds due to insufficient internal sources, the alternative to be taken is debt, and the third alternative is the issuance of new shares.

The leverage theory used, namely trade-off theory or balancing theory (Modigliani & Miller, 1963), is based on easing, which states that if corporate tax and bankruptcy costs are considered, leverage with firm value is non-linear. The policy of using debt as a source of investment financing must increase the company's net profit so that its financial performance increases. Agency costs or agency costs resulting from agency conflict will be expensive if only borne by one investor, both borne by the owner or creditor. Agency costs will be optimally achieved if the marginal cost of controlling the owner is the same as the marginal cost of supervision from creditors, thereby reducing the manager's opportunistic behavior. The phenomenon that occurs in companies is that companies will use a

combination of debt and equity, and rarely or even no companies use 100 percent debt or vice versa, because, in reality, shareholders benefit from lower capital gains taxes. The existence of debt allows creditors to get more information about the company's prospects. The use of debt is also an effort of the owner to share the cost of supervision with creditors (Egbunike & Okerekeoti, 2018).

Previous research from Coles (2004) found significant negative leverage on stock price volatility and vice versa (Peng & Jiang, 2016). the research didn't support Cole's research because leverage results had a significant positive effect on tobacco and weren't significant on ROA. The results of this study contradict the capital structure theory of balancing theory (Graham & Harvey, 2001), namely, the relationship of leverage with firm value is non-linear. The theoretical logic stating that the use of debt will increase ROA means that leverage has a positive effect on bringing a greater rate of return than the cost of debt. Therefore, based on the theoretical description and empirical studies above, the hypothesis is proposed as follows:

H₃: The leverage has a significant positive effect on the firm value

Relation of the Leverage on the Firm Value with Systematic Risk as mediating variable

The leverage and capital expenditure variables, which are one of the company's policies, are the elements of the company's fundamental factors. The basic concept of this connectedness thinking line is the result of the implementation of company policy, while the company's value is the result of the implementation of company policy so that each company policy has the potential to increase or decrease systematic risk and company value. In addition to macroeconomic factors, stock price movements are also determined by fundamental / company policies as explained in capital structure theory or trade of theory (Modigliani & Miller, 1963), wherein the theory is stated for a perfect capital market and company tax. The use of debt can increase the company's value as long as the return is greater than the cost of debt. Pecking order theory (Myers, 1984) is based on information asymmetry and uses an accrual basis approach and free cash flow theory(Jensen and Meckling, 1976), which is built on cash dividend payments and uses a cash basis approach to investment financing. The meaning of investment financing is the use of funding sources with low capital costs. If the cost of capital is low, the company will produce high returns because it can cover the cost of capital. High returns will attract investors because there is a future profit signal on investments being invested. This is in accordance with the signaling theory.

Previous research conducted by Rani T & Khan A (2017) reveals that leverage does not have a significant relationship with a beta. Still, the one conducted by Lee & Hooy (2012) shows that operating leverage has significant positive effects on the systematic risk in North Europe, Europe, and Asia capital markets. Another study conducted by Santosa, P.W. & Puspitasari (2019) supports the research. The leverage gives a significant contribution to systematic risk so that investors can consider whether or not it can expand the profit. Therefore, based on the theoretical description and empirical above, the hypothesis is proposed as follows:

H₄: The leverage has a significant positive effect on the firm value with systematic risk as mediating variable

Relation of the capital expenditure on the firm value

Investment policy in the form of capital expenditure will not be separated from the funding policy, so the success of this program is very supportive for the success in the financing selection program, whether through working capital alone or from a third party. This is in line with investment theory, namely, to expand business opportunities so that with regard to the funding policies, the policies in capital expenditure can be intended to improve company performance and positively influence the company's value.

The research conducted by Lew & Hee (2015); Majanga (2018) indicates a significantly positive association between capital expenditures and corporate earnings and shows a positive impact on stock prices on the stock exchange. The study conducted by Jiang et al. indicates that the unexpected announcements of capital expenditures are good news for investors. Another study conducted by Nursakti Niko R (2017) found that the investment period is the determining factor in whether capital expenditure can affect the level of earnings in the performance period. His study shows that capital expenditure has a positive effect on the profit rate. Capital expenditure and profitability have a significant relationship supported by pecking order theory, and are justified by previous research conducted by Machdar, (2016). In addition, Lew (2015) provides the results of the interaction variables capital expenditure indicating a negative relationship with firm value if firms are high-tech industries, but in low-tech industries, the market shows different results. Therefore, based on the theoretical description and empirical studies above, the hypothesis is proposed as follows:

H5: The capital expenditure has significant negative effects on the firm value
H6: The capital expenditure has significant negative effects on the firm value, with systematic risk as mediating variable

3.   METHODS, DATA, AND ANALYSIS

This research focuses on empirical testing of the model building based on macroeconomic variables, liquidity, and leverage on firm value with systematic risk as an intervening variable. This research refers to a quantitative data collection technique with secondary data from audited financial reports and annual reports of manufacturing industries. The population of the subjects involved in this study is all manufacturing industries listed on the Stock Exchange with 87 companies and 522 object research from 2015-2020. The sampling technique in this research relies on a purposive sampling method.

The analytical tool used in this study was Partial Least Square with Smart PLS 3 as software with two steps of analysis: First, outer model and, second, an inner model with reflective indicator. Concerning Nitzl (2016), the tool should use partial least squares path modeling in causal inference for financial accounting research. The test relied on two models, namely the inner model to evaluate structural capital and the outer model to evaluate the measurement model with reflective indicators. There were two types of tests in this research: first, a direct effect which compared the p-value (the result of model evaluation measurement) with significance levels or R2. Second, an indirect effect test was done by simultaneously estimating the indirect effect if the path coefficient from the independent variable to the dependent variable after the mediation variable was inserted and the result remained significant, unchanged. The mediation hypothesis is not supported if the value of path coefficient from the independent to a dependent variable after the

mediation variable being included falls but remains significant. Then, the form of mediation is partial mediation. Suppose the path coefficient value of the independent to a dependent variable after the mediation variable is included goes down and becomes insignificant. In that case, the mediation is full mediation.

4. RESULTS AND DISCUSSION

Measurement model evaluation (outer model)

Evaluation of the measurement model (outer model) is carried out to check the internal consistency and construct validity based on convergent and discriminant validity as determined by Nitzl (2016). Convergent validity is the result of combined loadings and cross-loadings factors between the proxies for constructs being obtained. The proxy that meets the convergent validity includes S.R., LEV, ME, CAPEX, and TOB'S. In the first step, internal consistency is evaluated using Cronbach Alpha α (C.A.) coefficient and Composite Reliability (C.R.).The result shows that all latent constructs meet the criteria greater than 0.6 for internal consistency, namely CA > 0.6 (Lev = 0.853; Capex = 1; ME = 0.611; FV = 1; SR = 1). The next step is evaluating the composite reliability and giving results in line with Cronbach alpha, where the CR is entirely greater than 0.6 (Lev = 0.872; Capex = 1; ME = 0.620; FV = 1; SR = 1). It can be concluded that the measurement model has met the criteria of reliability. Moreover, The scale and evaluation of the measurement model can be seen in table 2.

Table 2. Scale and evaluation of the measurement model

	Loading	Composite Reliability	Cronbach Alpha	AVE
LEV	0,813	0,872	0,853	0,850
CAPEX	1,000	1,000	1,000	1,000
ME		0,620	0,611	0,583
- INT	0,664			
- EXCR	0,689			
FV	1,000	1,000	1,000	1,000
SR	1,000	1,000	1,000	1,000

Source: Data processing result, 2021

Construct validity was used to check convergent validity and discriminant validity, and Discriminant validity was performed by measuring the cross-loading of each construct above from the comparative results of cross-loading. The entire proxy had fulfilled the criteria of discriminant validity where the relation of the constructs and its proxy was greater than the proxy with other constructs. Convergent validity was assessed through-loading factor (λ), and average variance was extracted. The calculation results were obtained. The variables had fulfilled the criteria of discriminant validity because AVE was greater than 0.5. It means that if each construct had reached the expected limit of 0.5, the entire construct could be considered satisfactory.

Table 3. Discriminant validity

	CF	ME	FV	SR
BETA	0,245	0,329	-0,208	1,000
CAPEX	1,000	0,213	-0,624	0,214
LEV	0,574	-0,213	0,527	-0,27
INT	0,106	0,562	-0,141	0,261
EXCHR	0,033	0,417	-0,123	0,191
TOBS	-0,623	-0,213	1,000	-0,157

Source: Data processing result, 2021

Note: CF = corporate fundamental; ME = macroeconomics; FV= firm value; SR = systematic risk; Capex = capital expenditure; Lev = leverage; Int = interest; Exchr = exchange rate; Tobs = tobin's q

Structural Model testing (inner model)

The next step after evaluating the inner model was to evaluate the structural model (inner model). Nitzl (2016) indicates that R^2 can be categorized as strong if R2 = 0.75, moderate if 0.5, and weak if 0.25. The analysis of structural estimated with R^2 for each endogenous variable being presented as R^2 for S.R. was 0,301 and F.V. was 0,621. The value of R^2 for variable shows that S.R. was weak, but the value of R^2 for firm value was strong. Based on the results of the Stone-Geisser'sQ^2 or predictive relevance test, the obtained value for ME was 0,431; LEV was 0,514; CAPEX was 0,434; S.R. was 0,227, and F.V. was 0,578. All variables were greater than zero, more than the criteria of 0.35, so they met the criteria of good predictive relevance.

Multi-group analysis

The next step of the analysis, bootstrap analysis, was used to assess the significance of the path coefficient. Table 3 shows that the direct and indirect with t-value indication and confidence intervals were obtained for each path coefficient.

Table 4. Path coefficient results

Hypotheses	Path analysis	Original sample (O)	t Statistics	Conclusion
H1	ME -> FV	0,165	3,182	Accepted
H2	ME->SR -> FV	0,201	2,187	Accepted
H3	LEV -> FV	0,311	4,326	Accepted
H4	LEV ->SR -> FV	0,324	5.035	Accepted
H5	CAPEX -> FV	-0,452	9,274	Accepted
H6	CAPEX->SR -> FV	-0,632	10,174	Accepted

Source: Data processing result, 2021

Notes: t-$_{value}$> 1.96; n = 522

As indicated in table 4, hypotheses 1, explained that macroeconomics had a significant relation in firm value (FV) = 3,182>1,96) and β = 0,165 and was mediated by systematic risk (SR) having significant value to FV 0.201>1.96 and β = 0,201; leverage was significant to FV 4.326>1.96) and β = 0,311 and was mediated by SR having significant value to FV 5.035>1,96 and β = 0,324; Capital expenditure having significant value to FV

9,274>1,96 and β = -0,452 and if mediated by SR, it had significant relation in FV 10.174>1,96 and β = -0,632.

5.   DISCUSSION

The result shows that the macroeconomics variable has a positive and significant effect on firm value. The result of this study indicates that the majority of investors use technical analysis than fundamental analysis. With technical analysis, the buying action of investors will increase the price of shares that have an impact on increasing the value of the company. A less drastic increase in macroeconomics that could falter economic fundamentals will be responded to positively by the majority of investors. This is a positive signal for investors to receive capital gains from rising SBI interest rates in the short term. The situation of insignificant macroeconomic increases will be used as the right momentum to take action by investors with high seeker types because the higher the risk, the higher the return. Conversely, a decrease in macroeconomics, namely, a decrease in interest rates, makes the selling on the capital market higher. This applies in the capital market, namely, high risk and high return. The results of this study are consistent with the investment theory, where the interest rate is the driver for investment. This research is in accordance with the theory of economics; that is, the macroeconomic effect will simultaneously increase or decrease investment in the real sector and impact investment in the capital market. This study supports the research conducted by Santosa, P.W. & Puspitasari (2019).

The results show that the macroeconomics variable has a positive and significant effect on firm value with systematic risk as mediating. This study indicates that with the mediating effect on the indirect effect pathway, the lower pressures from macroeconomic fundamentals, the lower the systematic risk. If the systematic risk is lower, the higher the ability to adjust and align with these macroeconomic pressures. This will have an impact on increasing the value of the company. An increase in interest rates and exchange rates will determine the direction of investment decisions. The management needs to be aware of the increase in the exchange rate, which is a variable that can't be controlled because it becomes a threat to increasing market risk or systematic risk. If this increase takes place in a short and insignificant time, it can be a positive signal for investors to receive capital gains to increase share prices. The results of this study support research from Babenko et al. (2016), finding that changes in systematic risk are positively related to changes in firm value. Likewise, the research results conducted by Savor & Wilson (2016) found that the beta index (systematic risk) has an intervening positive and significant effect on stock prices. The results of this study are not following the research by Machdar (2016).

The result shows that the leverage variable has a positive and significant on firm value. This result can be concluded that if the higher using of debt, then the higher the value of the company. However, the effect of debt on firm value is not linear; however, there is an optimal limit, i.e., when marginal income from present value (P.V.) tax savings is equal to the present value of the marginal cost of bankruptcy costs. The results of this study are also consistent with the arguments of the trade-off theory, which states that before reaching the optimal capital structure, using debt will increase the company's value. As long as the debt is used for investment and within the maximum limit, leverage will be responded positively by investors. Leverage is also a form of control mechanism from third parties towards management. This study supports Egbunike & Okerekeoti's (2018b) research about leverage (debt) effect on Tobin's q. However, the results of this study do not support and are not following the findings of a study developed by Peng & Jiang (2016).

The results show that the leverage variable has a positive and significant effect on firm value with systematic risk as mediating. The results of this study are in accordance with the results shown in the direct effect path; in this case, it is explained that if the company's fundamentals increase, they will not affect systematic risk, otherwise high systematic risk will cause the company's value to fall. The mediating effect on the indirect effect pathway, namely, systematic risk as an intervening variable, will increase the company's value. The use of debt in controlled limits automatically becomes a positive signal for investors coupled with high market risk in the short term, making an investment in the short term attractive for investors to invest in the capital market because capital gains are higher. Conversely, the use of excessive debt coupled with market risk will increase financial distress for the company. This study supports the research conducted by Ibrahim & Haron (2016) and Stelk et al. (2018).

The results show that the capital expenditure variable has a negative and significant effect on firm value. These results prove that capital expenditure for plant, property, and equipment (PPE) financing has a negative effect on firm value. Capital expenditure as a representation of investment decisions is intended to increase and develop investment in the long run. In the short term, the effect of capital expenditure cannot produce a return. Investors will react negatively by selling if the capital expenditure motive does not bring a return in the short term so that the stock price decreases and has an impact on the value of the company. Expansion in the purchase of plants, property, and equipment must be accompanied by high growth in the future. The level of revenue must be significant because if it is not high revenue, the company is only burning money. This research is in accordance with (Majanga 2018) research about the effect of capital expenditure (investment) on Tobin's Q.

The results show that the capital expenditure variable has a negative and significant effect on firm value if the systematic risk is mediating. This means that when viewed from the direct effect path, company policies proxy by capital expenditure doesn't affect systematic risk; otherwise, high systematic risk will cause the company's value to decline (negative influence). The mediating effect on the indirect effect pathway is a systematic risk as an intervening variable, so if there is an increase in capital expenditure investment, it will cause a negative effect that causes the company's value to decrease because it is considered not bringing capital gains in the short term. With a systematic risk, an increase in capital expenditure coupled with a high risk of market beta (systematic risk) will make the market price fluctuate down in a negative response by investors causing the company's return to fall. The results of this study are in line with research conducted by (Lew & Hee 2015).

6. CONCLUSION, LIMITATIONS, AND SUGGESTION

Based on this research, it can be stated that macroeconomics and leverage positively impact firm value and have proven to be significant and positively significant if mediated by systematic risk. Meanwhile, the test result and analysis show that capital expenditure negatively affects the firm value, and it is negatively significant if mediated by systematic risk. Systematic risk can mediate macroeconomics, leverage, capital expenditure on firm value.

Theoretical contributions

This study contributes to the development of theoretical models in manufacturing companies expected to clarify issues on increasing the firm value and contribute to the development of financial management disciplines and the proper implementation of management in decision making. Therefore, the company's goals to increase the prosperity of stakeholders can be achieved.

Practical implications

The implication of this research is to keep company value increasing when interest rates, exchange rates, and systematic risk fluctuate, with the best efforts to reduce systematic risk at interest rates and low exchange rates. Therefore, the management policies must be able to anticipate changes in interest rates and exchange rates by maintaining earning stability through earning management policies that comply with applicable accounting standards. Stable earnings will be responded to positively by investors so that there is hope for a return on investment in the future. In terms of leverage, the contribution of this study is directed at optimal capital structure policies so that the management is able to maximize the use of debt which results in a rate of return more excellent than the cost of capital.

Limitations and Suggestions

There are still many limitations of this research. First, the data were collected from the manufacturing industry, which can limit research generalizations. Therefore, it is recommended that future research replicate this study in all sectors by using random sampling from all sectors in capital markets. Second, the indicator of macroeconomics was only interest rate and exchange rate. We suggest that future research is recommended by using inflation rate, unemployment rate, and economic growth. Third, this research used fundamental factors without using technical factors. Technical factors need to be considered in the research model because they are one of the factors that influence stock prices and the country's fundamental and corporate fundamentals. We suggest that future studies should focus on technical factors and fundamental factors. The consequences of this technical variable need to be considered as part of the methodological consequences. Fourth, with regard to the study results, some findings are not following previous studies. This happens because investors' behavior and culture or characteristics in the capital markets differ in each country. Therefore, we suggest that behavioral variables need to be included in future research models.

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