



# The Influence of Macroeconomic Conditions on the Speed of Recovery of the Capital Structure of Companies: An Empirical Study on Manufacturing Companies in Indonesia

Pierdijono Hartono<sup>1</sup>, Nugraha Nugraha<sup>2</sup>,  
Toni Heryana<sup>3</sup>

<sup>1,2,3</sup> Universitas Pendidikan Indonesia, Bandung, Indonesia  
pierdijono@upi.edu

**Abstract.** In the wake of the COVID-19 pandemic, which began in 2020-2021, the capital structures of companies underwent significant changes due to the decline in the macroeconomic environment, the restriction of company operational activities, and, in some cases, the cessation of operations altogether. As a result, the company's capital was utilized to finance daily operational costs. To survive this challenging period, companies sought to reestablish their optimal capital structure. The speed at which a company recovers its capital structure (recovery speed) is of critical importance, as it plays a key role in determining whether the company can return to its pre-crisis performance level or even achieve a new, improved level of performance. This study examines the relationship between GDP, inflation, exchange rate, and interest rate and the recovery speed of the capital structure of manufacturing companies listed on the Indonesia Stock Exchange. Using a purposive sampling method, a sample of 167 manufacturing companies was selected for the period 2019-2021. The research method employed was a causal or explanatory approach with multiple regression analysis processed via the SPSS 27 application. The study's findings indicate that GDP and interest rate have a partial influence on the recovery speed of the capital structure, but do not exert a significant influence when considered together.

**Keywords:** Capital Structure, Macroeconomic, Speed of Recovery.

## 1 Introduction

In the current era of globalization, companies face intense competition, which compels them to devise novel strategies to maintain their market position by innovating rapidly. The aim of these efforts is to enhance the company's value, which is assessed by investors through stock prices and is a prime concern of the company's management. This competitive environment also affects exceptional performance and company excellence, making it imperative for the company to achieve its goals to remain competitive and successful in the future [1].

During the onset of the Covid-19 pandemic, the capital structure of companies in Indonesia underwent significant transformations as the Indonesian macroeconomic environment deteriorated, leading to operational restrictions or cessation for many companies. Consequently, the company's capital was utilized to cover operational expenses and loan installments. In order to endure this period, companies sought to re-evaluate their optimal capital structure.

The expediency of a firm in restoring its capital structure (speed of recovery) is of utmost importance to regain its previous levels of performance or even surpass them. A rapid recovery is often achieved when the company possesses a financial surplus and debt above the target, or a financial deficit and debt below the target [2]. For companies that encounter a financing deficit and low profitability, it is common for them to adjust their capital structure at a faster pace [3]. With regards to companies that possess credit facilities and have a capital structure which falls below the average, it is imperative that they expedite the process of adjusting their capital structure [4].

One method for gauging the pace of restoration towards an optimal capital structure is by evaluating the company's solvency ratio, which assesses the firm's capacity to fulfill short-term and long-term obligations with an optimal capital structure. This can be achieved by computing the company's total debt in relation to its total capital or equity, known as the DER (Debt to Equity Ratio).

Previous research on capital structure has comprehensively explored the impact of various factors such as company size, profitability level, tangibility of assets, growth opportunities, depreciation/amortization costs (non-debt tax shield), tax rate, earnings volatility, dividend payout ratio, stock price performance, company age, company interest rates, and macroeconomic variables [5,6,7,8,9]. These studies have demonstrated that these variables have a significant relationship with capital structure. The speed of adjustment method, which is the company's recovery speed to adapt to market changes or desired targets, is commonly utilized in these studies.

Given the aforementioned phenomena and research gaps, coupled with the current pandemic era, this study employs macroeconomic variables such as GDP, Inflation, Exchange Rate, and Interest Rate as independent variables, with the recovery speed of capital structure serving as the dependent variable.

The objective of this research is to investigate the correlation between GDP, Inflation, Exchange Rate, and Interest Rate and the rate of recovery of the capital structure of manufacturing companies listed on the Indonesia Stock Exchange.

## **2 Method**

This investigation is classified as causal or explanatory research, wherein the causality method is utilized to establish the causal relationship between the dependent variable and the independent variables.

This research sampled 167 manufacturing companies listed on the Indonesia Stock Exchange from the years 2019-2021. The purposeful sampling method was employed to select firms that reported their financial data during that period. The study utilized

Multiple Regression analysis and was conducted using the SPSS 27 software application.

The interdependence between the independent variables (GDP, inflation, exchange rate, and interest rate) and the dependent variable (Speed of Recovery of Capital Structure) will be established utilizing F-test and t-test values.

The following is an illustration of the model of this research (see Fig.1) :

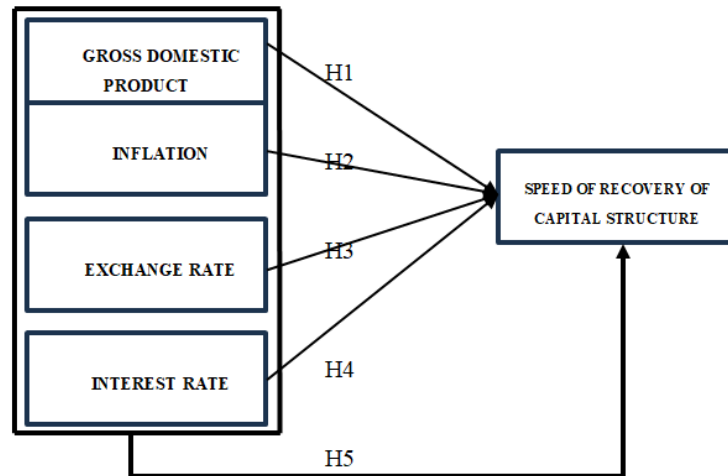


Fig. 1. Research Model

The regression equation:

$$SRCS = \alpha + \beta_1GDP + \beta_2INF + \beta_3EXR + \beta_4ITR \quad (1)$$

Where :

SRCS	=	Speed of Recovery of Capital Structure
$\alpha$	=	Constant
$\beta_1, \beta_2, \beta_3, \beta_4$	=	Regression Coefficient
GDP	=	Gross Domestic Product
INF	=	Inflation
EXR	=	Exchange Rate
ITR	=	Interest Rate

### 3 Result and Discussion

The collection of data from each variable was initially undertaken to assess the impact of each independent variable on the dependent variable, in a formal tone.

Obtained data on GDP, inflation, exchange rate, and interest rate were sourced from the Bank Indonesia website ([www.bi.go.id](http://www.bi.go.id)) and the Central Statistics Agency website (BPS - [[www.bps.go.id](http://www.bps.go.id)](<http://www.bps.go.id>)). Data on the Speed of Re-

covery of Capital Structure using the DER (Debt to Equity Ratio) ratio were obtained from 167 manufacturing companies listed on the Indonesia Stock Exchange between 2019-2021.

Processed data using the SPSS 27 application, the results of which are presented in Tables 1 and 2

**Table 1.** . Descriptive Statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
Speed of Recovery of Capital Structure	-0.1722	34.25164	501
GDP	2.2500	3.05405	501
Inflation	2.2100	0.61266	501
Exchange Rate	14158.6667	78.10505	501
Interest Rate	4.4667	0.87580	501

**Table 2.** Result of Model Summary, ANOVA and Coefficients

Model		R <sup>2</sup>	F	Sig	t	Sig
1	Regression	0.004				
1	Regression Dependent variable : speed of recovery of capital structure Predictors : interest rate, GDP		0.935	0.393		
1	(Constant)				0.980	0.328
	GDP				-0.681	0.496
	Interest Rate				-0.880	0.379
	Dependent variable : speed of recovery of capital structure					

As per the Descriptive table, the analysis can be elucidated as follows:

1. The Speed of Recovery of Capital Structure: The mean value of this variable is -0.1722, indicating a decline in the average change in capital structure. The standard deviation of 34.25164 signifies a high degree of variability in the data, implying a significant difference in the recovery rate of capital structure among the 501 companies in the sample.
2. GDP: The aforementioned data signifies that the mean value of GDP growth in the sample is 2.2500, which translates to an average expansion of 2.25% for the economy. Furthermore, the standard deviation of 3.05405 depicts a relatively high degree of fluctuation in the GDP growth among the companies in the sample.

3. Inflation: Inflation is known to average 2.2100, which translates to an annual price increase of 2.21% on average. The standard deviation of 0.61266 indicates that the inflation rate is relatively stable and not prone to drastic fluctuations.
4. Exchange Rate: The standard deviation of the exchange rate during the research period was found to be 78.10505, with an average rate of 14158.6667. This suggests that the exchange rate has remained relatively stable, with minimal fluctuations.
5. Interest Rate: The average interest rate is reported to be 4.4667, with a standard deviation of 0.87580. This denotes a moderate degree of variability in the interest rates, but the disparities are not excessive.

Based on the results of multiple linear regression analysis conducted using the SPSS application, multicollinearity was detected between the Inflation variable (X2) and the Exchange Rate variable (X3). These two variables exhibited similar trends and remained relatively stable during the 2019-2021 period. As a result, the Inflation and Exchange Rate variables were excluded from the analysis, and the relationship between GDP (X1) and Interest Rate (X4) with the Speed of Recovery of Capital Structure was subsequently analyzed.

Based on the results of the partial t-test, a significance value of 0.496 for GDP and 0.379 for Interest Rate was obtained. Both values are less than 0.05, suggesting that there is a positive relationship between GDP and Interest Rate and the Speed of Recovery of Capital Structure.

From the F-test table for simultaneous testing, a significance value (sig) of 0.393 was obtained for the dependent variable (GDP and Interest Rate). This significance value is greater than 0.05, indicating that the dependent variables (X) do not have a significant influence on the Speed of Recovery of Capital Structure simultaneously. This is further reinforced by an R2 result of 0.004, which indicates that the Speed of Recovery of Capital Structure is only influenced by 0.4% by GDP and Interest Rate, signifying a very small or even insignificant influence.

One of the factors contributing to the lack of concurrent impact is the sample period utilized in this study, which encompasses the Covid-19 pandemic period from 2019-2021. During this period, most economic sectors experienced a downturn due to the restrictions on activities implemented to control the spread of the pandemic, resulting in a decrease in production and a large number of job layoffs. Although the Gross Domestic Product (GDP) registered a significant decline during 2020-2021, the decrease in interest rates (Interest Rate) led to an increase in the company's capital structure, as companies required additional capital for production, particularly through bank loans. As a result, it can be deduced that GDP has a limited influence on the company's capital structure, while Interest Rate exerts a more significant influence. Furthermore, these two factors offset each other, resulting in an insignificant concurrent effect.

The correlation between the research variables also plays a role in the absence of a discernible relationship between the dependent and independent variables.

## 4 Conclusion

The results of this study indicate that the impact of the Covid-19 pandemic on the recovery of a company's capital structure is contrary to previously established theories. It was anticipated that economic factors such as GDP, inflation, exchange rate, and interest rate would have both partial and simultaneous effects on the recovery process. However, during the pandemic period, only a few economic factors had a partial influence and no simultaneous influence. This was due to the Indonesian government's efforts to maintain financial stability by stabilizing inflation, exchange rates, and interest rates, despite the decline in GDP and negative growth.

A limitation of this study is the use of data that includes the pandemic period (2020-2021), which experienced significant declines in company production, employee layoffs, and decreased public purchasing power. As a result, the secondary data used exhibits effects that are opposite to the expected conditions, potentially leading to bias in the generalization of the findings to a broader population. Therefore, it is recommended that future research utilize economic data from normal conditions.

Theoretically, the implications of this study are expected to contribute to advanced discussions on the recovery speed of a company's capital structure. Methodologically, this study serves as a benchmark for similar studies or for different observational settings.

## References

1. Sirojudin, Gatot Ahmad; Nazaruiddin, I. Pengaruh Modal Intelektual dan Pengungkapannya Terhadap Nilai dan Kinerja Perusahaan. *J. Akunt. dan Keuang.* (2014). doi:10.18196/JAI-2015.0035
2. Byoun, S. How and when do firms adjust their capital structures toward targets? *J. Finance* (2008). doi:10.1111/j.1540-6261.2008.01421.x
3. Dang, V. A., Kim, M. & Shin, Y. Asymmetric capital structure adjustments: New evidence from dynamic panel threshold models. *J. Empir. Financ.* (2012). doi:10.1016/j.jempfin.2012.04.004
4. Lockhart, G. B. Credit lines and leverage adjustments. *J. Corp. Financ.* (2014). doi:10.1016/j.jcorpfin.2013.12.011
5. Antoniou, A., Guney, Y. & Paudyal, K. The determinants of capital structure: Capital market-oriented versus bank-oriented institutions. *J. Financ. Quant. Anal.* (2008). doi:10.1017/s0022109000002751
6. Drobetz, W. & Wanzenried, G. What determines the speed of adjustment to the target capital structure? *Appl. Financ. Econ.* (2006). doi:10.1080/09603100500426358
7. Kim, H., Heshmati, A. & Aoun, D. Dynamics of capital structure: The case of Korean listed manufacturing companies. *Asian Econ. J.* (2006). doi:10.1111/j.1467-8381.2006.00236.x
8. Löff, H. Dynamic optimal capital structure and technical change. *Struct. Chang. Econ. Dyn.* (2004). doi:10.1016/j.strueco.2003.05.001
9. Reinhard, L. & Li, S. A note on capital structure target adjustment - Indonesian evidence. *Int. J. Manag. Financ.* (2010). doi:10.1108/17439131011056242.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

