

IMPACT OF CAPITAL STRUCTURE ON FIRMS PERFORMANCE DURING THE COVID-19 PANDEMIC

Ifa Nurmasari,
Adler Haymans Manurung
I Gusti Ketut Agung Ulupui
Gatot Nazir Ahmad

ABSTRACT

This study aims to find out how the capital structure decisions taken by companies affect the performance of industrial sector companies in Indonesia during the covid-19 period. This study also compares how the company's capital structure decisions were in the first and second years of the Covid-19 outbreak. The sample used in this study are industrial sector companies in Indonesia and provides complete data. The dependent variable used in this study is the company's performance which includes Earning per share, Return on Assets, Return on Equity, and net profit margin. The independent variable used here is the capital structure including the Debt, Equity, and Debt Equity ratio. The average value of the net profit margin of industrial companies is -0.028 in the first year of covid-19, and the average net profit margin value was -0.075. in the second year of covid-19, the average value of this net profit margin increased to 0.019. This shows that in general, industrial sector companies in Indonesia suffered losses, especially in the first year of the Covid-19 outbreak. In the second year, the company has begun to adapt and earn profits again. The results of this study show that debt and equity affect earnings per share in 2020-2021, and 2000. Meanwhile, in 2021 only equity affects earnings per share. The Debt-to-Equity Ratio give a negative effect on return on assets, return on equity, and net profit margin in 2020-2021 and 2021. Meanwhile, in 2020 the debt-to-equity ratio only affects return on equity. During the economic crisis, in this case, the Covid-19 pandemic, the capital structure affects the company's performance.

Keywords: capital structure, firm performance, covid-19, economy crisis

INTRODUCTION

The economic crisis has hit countries in the world, including Indonesia. America, Europe and other countries also experienced a crisis in 2008. Indonesia experienced a crisis in 1998. Not a few companies went bankrupt, one of which was because they had to pay off large corporate debts. And now Indonesia is experiencing economic problems due to the Covid-19 pandemic.

The Covid-19 pandemic that hit the world at the end of 2019 and Indonesia in March 2020 caused changes in the economic sector and various other sectors. Changes in these various sectors have caused many companies to experience problems with their finances. Discussions about finance are always related to the company's capital structure. So that the company's financial research discusses the company's financial structure more. The company's capital structure is the amount of debt and equity (Manurung, 2021: 241). In times of crisis, companies must choose the right composition of capital in order to provide maximum benefits to the company. The choice of capital structure can affect the company's performance (Wamiori et al., 2016; Basit & Hassan, 2017; Salim & Yadav, 2012; and Vätavu, 2015).

This research is important because it adds knowledge, especially when the country is experiencing an economic crisis. Companies must be able to choose the right capital structure so that they are not increasingly burdened by crisis conditions. This study aims to examine the effect of capital structure decisions on the performance of industrial companies in Indonesia in 2020-2021. In addition, this study also examines whether there are differences in the effect of capital structure on company performance in the first and second years of Covid-19.

LITERATURE REVIEW

Capital structure's decision that affects the company's performance is important in the company. There are several theories explaining this relationship. The theory of Modigliani-Miller (MM) (Modigliani & Miller, 1958), is a basic theory, stating that firm value is not influenced by its capital structure. In imperfect markets, three main theories have been proposed as alternatives to MM theory, namely trade-off theory, pecking order theory, and agency theory. Trade of theory (Alan & Litzenber, 1973; Myers & Majluf, 1984) states that firms will exchange the costs and benefits of debt to maximize firm value. The benefit of debt is a tax deduction (Modigliani & Miller, 1963). The pecking order theory (Myers & Majluf, 1984; Ross, 1977) states that corporate financing follows a hierarchy. That is, first using internal financing, then debt, and finally issuing equity when the company can no longer get debt. Agency theory, developed by (Jensen & Meckling, 1976; Jensen, 1986; Hart & Moore, 1994) argues that the optimal capital structure to maximize firm value should be able to minimize conflicts of interest among stakeholders.

Various studies on the effect of capital structure on company performance have indeed been carried out previously. Some use data in different industrial sector scales (Nasimi & Nasimi, 2018; Ullah et al., 2017; Braik & Messar, 2018; Le & Phan, 2017; Abdullah & Tursoy, 2019; H Abdullah & Tursoy, 2021; Islami & Iqbal, 2022) and some use country-scale data (Ramli et al., 2018; Riaz et al., 2022; Le & Phan, 2017).

The performance of an organization is sensitive to the type of capital structure adopted by the company. Nasimi & Nasimi (2018) and Ullah et al. (2017) conducted an experiment on Pakistani textile industry companies and found that if a company manages the right capital structure it can improve the company's financial performance. Braik & Messar (2018), used 15 banks listed on the Jordanian Amman Stock Exchange (ASE) from 2002-to 2015. The results show a significant positive effect of capital structure on bank performance in general. This implies that profitable Jordanian banks rely more on debt as their main source. Ramli et al. (2018), used companies in Malaysia and Indonesia from the period 1990 to 2010. The results show that only the Malaysian sample has a significant positive correlation between firm leverage and firm financial performance. Malaysian companies use external financing rather than internal financing to improve performance.

The Covid-19 pandemic has caused an economic crisis, not only in Indonesia but also in the world. According to Khodavandloo et al. (2017), the global financial crisis provides an opportunity to examine the effect of the crisis on the relationship between capital structure and company performance (2007-2009). The study shows that leverage has a strong negative impact on firm performance during the 2007-2009 economic crisis in trading and service companies in Malaysia. According to Akgün & Memiş Karataş (2020), in Europe, capital structure also has a negative effect on company performance during the 2008 economic crisis.

This study is different from others, where this study examines the effect of capital structure on company performance in conditions of economic crisis due to the covid-19 outbreak, namely in 2020-2021. This research model refers to the model carried out by (Basit & Hassan (2017); Nasimi & Nasimi (2018)), but made a few modifications.

Hypothesis

Various studies regarding the effect of capital structure on company performance have been done previously. Some use industrial sector-scale data and some use country-scale data and some even compare between various countries. This study uses industrial sector data by taking the years 2020 and 2021 when there is an economic crisis due to the Covid-19 case. The hypotheses of this research are:

H1: Capital structure affects the company's performance during the covid-19 pandemic.

H2: Capital structure affects the company's performance in the first and second years of the covid-19 pandemic.

METHODOLOGY

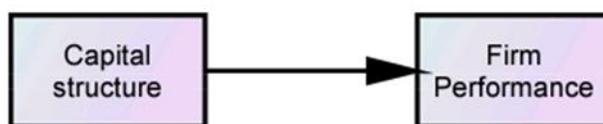
Research Design

This study uses the model that has been carried out by Basit & Hassan (2017) and has been slightly modified. In Basit & Hassan (2017), the capital structure used is debt and equity. Company performance is proxied by size, earnings per share, return on assets, return on equity and marketing. In this study, we slightly modified the variables used. Capital structure is proxied by debt, equity and debt to equity ratio. Company performance is proxied by earning per share, return on assets, return on equity and net profit margin. The data used in this study is data for 2020 and 2021, where the Covid-19 pandemic is currently happening.

The basic research model is following equation 1 and the basic research design can be seen in Figure 1. Variable Y is company performance, and X is capital structure. The company's performance used in this research is Earning per Share, Return on Assets, Return on Equity, and Net Profit Margin. While the capital structure used in the research is debt, equity, and Debt Equity Ratio. The model of this basic equation develops into equations 2, 3, 4, and 5. The research design can be seen in Figure 2.

$$Y = \beta_0 + \beta_1X + \varepsilon \dots\dots\dots(1)$$

Picture 1. Research Design



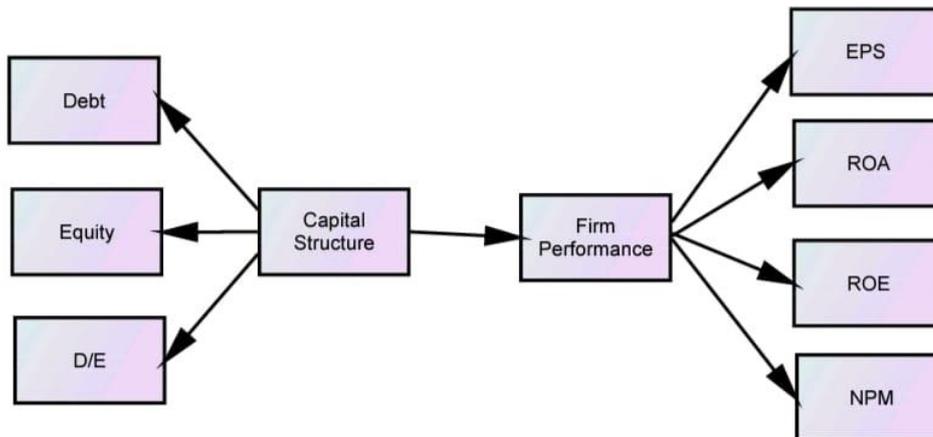
$$EPS = \beta_0 + \beta_1Debt + \beta_2Equity + \beta_3DER + \varepsilon \dots\dots\dots(2)$$

$$ROA = \theta_0 + \theta_1Debt + \theta_2Equity + \theta_3DER + \varepsilon \dots\dots\dots(3)$$

$$ROE = \alpha_0 + \alpha_1Debt + \alpha_2Equity + \alpha_3DER + \varepsilon \dots\dots\dots(4)$$

$$NPM = \gamma_0 + \gamma_1Debt + \gamma_2Equity + \gamma_3DER + \varepsilon \dots\dots\dots(5)$$

Picture 2. Impact of Capital Structure on Firms Performance



This study will also compare how the effect of capital structure on the company's performance in the early year of the Covid-19 outbreak with the second year of the Covid-19 outbreak.

Research Methodology

This study will examine how the effect of capital selection decisions on the performance of industrial sector companies in Indonesia in the first and second years of the Covid-19 case. The independent variables used are Debt, Equity, and Debt to Equity Ratio (DER). While the dependent variable used is the company's performance, namely Earning per share (EPS), Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM). This study will also look at how the capital structure decisions affect the company's performance at the beginning of Covid-19 (in 2020) and in the second year of Covid-19 (in 2021).

This study will examine how the effect of capital selection decisions on the performance of industrial sector companies. This research was processed using eviews program, using the Ordinary Least Square (OLS), Fixed Effect (FE), and Random Effect Models. Then from the three models, the most suitable model was chosen using the Chou test, Hausman test, and the Lagrange Multiplier test (LM). The results of data processing produce a random effect model used in this study.

Table 1. Variable Definition

No	Variabel	Devinisi
1	EPS	Earnings Per share is the profit per share.
2	ROA	Return on Assets is the profit from the assets used by the company.
3	ROE	Return on Equity is the profit obtained from share capital.
4	NPM	Net Profit Margin is the percentage of net profit.
5	Debt	Debt is the total debt of the company.
6	Equity	Equity is the amount of capital from shares.
7	DER	Debt to Equity Ratio is the ratio between the total debt and the company's capital.

Data Collection Method

The data used in this study is secondary data. The data is obtained from the annual reports of industrial companies obtained from IDX, namely for 2020 and 2021.

Population and Sampling

This study uses data from companies that went public from the year that Covid-19 began in Indonesia, namely in 2020 and also in 2021. The companies used are industrial sector companies. The data used is panel data, which consists of a combination of years (2020 and 2021) and a combination of industrial sector companies. There are 55 companies engaged in the registered industry in Indonesia. There are 41 companies that have complete data for 2020 and 2021. So the total data is 82.

RESULTS AND DISCUSSION

A summary of the data used in this study can be seen in table 2. During covid-19, company debt in the industrial sector averaged 7.097 trillion rupiahs. In the second year of Covid-19, the capital of industrial sector companies originating from debt increased from an initial average of 7.044 trillion rupiahs to 7.150 trillion rupiahs. Capital from shares, on average, also increased, from 8.719 trillion rupiahs to 9.799 billion. The average capital of industrial sector companies is 9.259 trillion rupiahs. The average debt to equity ratio is 1.772. The ratio of debt to equity also experienced an increase from 1.691 to 1.852. This shows that in the first and second years of Covid-19, the capital structure of industrial sector companies used more capital from shares than debt.

The company's performance shown by earnings per share has increased in the second year of covid-19, which was originally 48.221 rupiah to 145.686 rupiahs. The Rate of Return on Assets in the second year of Covid-19 cases increased from 0.003 to 0.039. The average return on equity for the first and second years of covid-19 is -0.009. In 2000, the average Return on Equity was -0.044 and in 2021 it increased by 0.026. The average NPM of industrial sector companies in the first year of Covid-19 was negative, meaning that the company suffered a loss. Meanwhile, in the second year, the average NMP Covid-19 cases increased to 0.019, meaning that the average company has started to adapt, rise and make profits. However, the average NPM in 2020 and 2021 still shows a negative value of -0.028.

Table 2. Descriptive statistics

	DEBT	EQUITY	DER	EPS	ROA	ROE	NPM
2020 dan 2021							
Mean	7.097	9.259	1.772	96.954	0.021	-0.009	-0.028
Median	0.579	0.714	0.700	12.715	0.020	0.035	0.030
Maximum	152.663	209.556	16.330	2794.260	0.310	0.520	0.400
Minimum	0.007	0.028	0.080	-2006.660	-0.170	-0.930	-1.100
Std. Dev.	23.990	32.954	2.919	482.412	0.077	0.227	0.248
2020							
Mean	7.044	8.719	1.691	48.221	0.003	-0.044	-0.075
Median	0.579	0.744	0.660	5.890	0.010	0.010	0.020
Maximum	146.239	195.025	16.330	1908.160	0.200	0.340	0.350
Minimum	0.007	0.028	0.080	-2006.660	-0.170	-0.930	-1.100
Std. Dev.	23.649	31.829	2.719	481.735	0.074	0.215	0.279
2021							
Mean	7.150	9.799	1.852	145.686	0.039	0.026	0.019
Median	0.579	0.685	0.720	20.710	0.030	0.050	0.060
Maximum	152.663	209.556	16.330	2794.260	0.310	0.520	0.400
Minimum	0.010	0.035	0.080	-443.010	-0.110	-0.930	-0.540
Std. Dev.	24.620	34.431	3.137	484.069	0.077	0.235	0.205

Debt and Equity in trillion rupiah, EPS in rupiah, DER, ROA, ROE and NPM in ratio.

Table 3, answering the first hypothesis, examines the effect of the capital structure of industrial sector companies on company performance. This test was carried out on data from the first and second years of Covid-19 cases that occurred in industrial companies in Indonesia. In the table, the numbers shown show the coefficient values, while those in brackets indicate the significance values. The company's capital originating from debt has a negative effect on earnings per share. Meanwhile, the amount of equity has a positive influence on earnings per share during the Covid-19 period, meaning that companies with a larger equity ratio will generate higher earnings per share.

Debt to Equity Ratio has a negative effect on Return on Assets. The higher the debt, the smaller the return from the company's asset management. The Return on Equity value is also strongly influenced by the Debt to Equity Ratio. The average debt to equity ratio is 1.772, indicating that the company's average capital originating from debt is about 1.8 times greater than that from equity. The value of the debt to equity ratio has a negative effect on Return on Equity. The Debt to Equity Ratio also has a negative effect on the net profit margin.

Table 3. Effect of capital structure on company performance in 2020 and 2021

	EPS	ROA	ROE	NPM
Debt	-40.030 (0.015)**	-0.003 (0.334)	0.002 (0.689)	-0.009 (0.285)
Equity	33.706 (0.005)***	0.002 (0.299)	-0.001 (0.734)	0.008 (0.227)
D/E	1.405 (0.943)	-0.008 (0.039)**	-0.062 (0.000)***	-0.023 (0.055)*
R²	0.165	0.092	0.498	0.097

* means significant below 10%
** means significant below 5%
*** means significant below 1%

Table 4. answers questions from hypothesis 2. In the table, the numbers shown show the coefficient values, while the numbers in brackets show the significance values. In the first year (in 2020) of Covid-19, the company's equity and debt greatly affect Earning per Share. Debt has a negative effect, while equity has a positive effect on Earning per Share. Meanwhile, in the second year of Covid-19, only Equity has a positive effect on Earning per Share. In the first year of Covid-19, there were no independent variables used in this study that affected the Return on Assets. The average value of ROA in the first year is 0.003. This shows that during an economic crisis, return on assets is not affected by the capital structure, but by how the company's management manages existing assets. While in the second year the ratio of Debt to Equity has a negative effect on Return on Assets.

In the first and second years of Covid-19 cases, Return on Equity is influenced by the Debt to Equity ratio. In the first year of the Covid-19 case, the Net Profit Margin was not affected by the independent variables used in this study. The average value of the Net Profit Margin shows a value of -0.075. This shows that the average industrial company in Indonesia suffers losses. Meanwhile, in the second year of Covid-19, the Net Profit Margin value is influenced by the Debt to Equity Ratio. This value has a negative effect on the Net Profit Margin. In the second year of the Covid-19 case, the average industrial company has already gotten its profit back, which is 0.019.

Table 4. Comparison of the effect of capital structure on company performance in 2020 and 2021

Year		EPS	ROA	ROE	NPM
2020	Debt	-66.042 (0.009) ^{***}	-0.004 (0.291)	0.000 (0.987)	-0.008 (0.603)
	Equity	53.561 (0.005) ^{***}	0.003 (0.254)	0.000 (0.937)	0.007 (0.524)
	D/E	5.920 (0.824)	-0.005 (0.225)	-0.058 (0.000) ^{***}	-0.018 (0.291)
	R ²	0.264	0.113	0.564	0.080
2021	Debt	-30.124 (0.131)	-0.001 (0.710)	0.005 (0.446)	-0.009 (0.253)
	Equity	26.229 (0.069) ^{**}	0.001 (.701)	-0.004 (0.442)	0.007 (0.224)
	D/E	1.396 (0.956)	-0.008 (0.061) [*]	-0.0612 (.000) ^{***}	-0.022 (0.037) ^{**}
	R ²	0.184	0.125	0.620	0.214

* means significant below 10%

** means significant below 5%

*** means significant below 1%

CONCLUSION

Covid-19 has caused significant changes in various sectors. Indonesian industrial companies, on average, suffered losses in the first and second years of COVID-19. The average value of the Net Profit Margin of industrial companies is -0.028. in the first year of covid-19, the average Net Profit Margin value was -0.075. in the second year of covid-19, the average value of the Net Profit Margin increased to 0.019.

The results of this study show that debt and equity affect Earning per Share in 2020-2021, and 2000. Meanwhile, in 2021 only equity affect Earning per Share. Debt has a negative effect, while equity has a positive influence on Earning per Share. The Debt to Equity Ratio has a negative effect on Return on Assets, Return on Equity, and Net Profit Margin in 2020-2021 and 2021. Meanwhile, in 2020 the debt to equity ratio only affects return on equity.

In the second year of Covid-19, the average value of the dependent and independent variables used increased. Even the company's net profit margin, which initially had a loss in the first year of Covid-19, has already experienced a profit in the second year. In the second year of covid-19, the company has been able to adapt to the situation. In addition, this also shows good cooperation in handling Covid-19 from various parties. Starting from the government, health services, the community, and others related to handling Covid-19. So that the company in the second year of the covid-19 period can improve its performance and increase the value of its net profit margin.

REFERENCES

- Abdullah, H., & Tursoy, T. (2021). Capital structure and firm performance: a panel causality test. *MPRA Paper*, 105871.
- Abdullah, Hariem, & Tursoy, T. (2019). Capital structure and firm performance: evidence of Germany under IFRS adoption. *Review of Managerial Science*, 15(2), 379–398. <https://doi.org/10.1007/s11846-019-00344-5>
- Akgün, A. İ., & Memiş Karataş, A. (2020). Investigating the relationship between working capital management and business performance: evidence from the 2008 financial crisis of EU-28. *International Journal of Managerial Finance*, 17(4), 545–567. <https://doi.org/10.1108/IJMF-08-2019-0294>
- Alan, K., & Litzenber, R. (1973). A State-Preference Model of Optimal Financial Leverage. *The Journal of Finance*, Vol. 28(No. 4 (Sep., 1973)), 911–922.
- Basit, A., & Hassan, Z. (2017). Impact of Capital Structure on Firms Performance: A Study on Karachi Stock Exchange (KSE) Listed Firms in Pakistan Impact of Service Quality on Customer Satisfaction In Maldives Tourism Industry View project.

- International Journal of Management, Accounting and Economics*, 4(2), 118–135. www.ijmae.com
- Braik, F., & Messar, M. (2018). INFLUENCE OF CAPITAL STRUCTURE ON FIRM PERFORMANCE: EMPIRICAL EVIDENCE FROM JORDANIAN BANKING INDUSTRY. *Les Cahiers Du Cread*, 34(2), 31–52. <https://doi.org/10.5539/ijbm.v9n5p184>
- Hart, O., & Moore, J. (1994). A Theory of Debt Based on the Inalienability of Human Capital. *The Quarterly Journal of Economics*, 109(4), 841–879.
- Islami, Z. ul, & Iqbal, M. M. (2022). The Relationship Between Capital Structure and Firm Performance: New Evidence from Pakistan. *Journal of Asian Finance, Economics and Business*, 9(2), 81–91. <https://doi.org/10.11648/j.jfa.20130103.11>
- Jensen, M. C. (1986). Journal of Social and Personal. *Journal of Social and Personal Relationship*, 15(6), 755–773.
- Jensen, M. C., & Meckling, W. H. (1976). THEORY OF THE FIRM: MANAGERIAL BEHAVIOR, AGENCY COSTS AND OWNERSHIP STRUCTURE. *Journal of Financial Economics*, 305–360.
- Khodavandloo, M., Zakaria, Z., & Nassir, A. M. (2017). International Journal of Economics and Financial Issues Capital Structure and Firm Performance During Global Financial Crisis. *International Journal of Economics and Financial Issues*, 7(4), 498–506. <http://www.econjournals.com>
- Le, T. P. V., & Phan, T. B. N. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance*, 42(October 2016), 710–726. <https://doi.org/10.1016/j.ribaf.2017.07.012>
- Manurung, P. D. A. H. (2021). *Keuangan Perusahaan* (Vol. 5, Issue 1). PT Adler Manurung Press.
- Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, 48(3), 261–297. <https://doi.org/10.1136/bmj.2.3594.952>
- Modigliani, F., & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital : A Correction Author (s): Franco Modigliani and Merton H . Miller Source : The American Economic Review , Vol . 53 , No . 3 (Jun . , 1963) , pp . 433-443 Published by : American Economic Association Stable. *The American Economic Review*, 53(3), 433–443.
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
- Nasimi, A. N., & Nasimi, R. N. (2018). Effect of Capital Structure on Firms' Profitability: An Empirical Evidence from Pakistan Stock Exchange (PSX). *Research Journal of Finance and Accountin*, 9(11), 57–68. https://d1wqtxtslxzle7.cloudfront.net/52083152/UK_JOURNAL-with-cover-page-v2.pdf?Expires=1639259056&Signature=QtGRuYwpkHBGrmZZ85EPa7WK7liP1F55dK7uXdS0jeHeeXCrpWLkQWeAGWGx78LxIG5Jqqtfn8n-BgLrIoRwfBsiP-ncMQQloqkks9BLiEGMvgGKvQTg5vp7k8KPwnIQdKkorJ56NVbtL6qL
- Ramli, N. A., Latan, H., & Solovida, G. T. (2018). Determinants of capital structure and firm financial performance—A PLS-SEM approach: Evidence from Malaysia and Indonesia. *Quarterly Review of Economics and Finance*, 71, 1–33. <https://doi.org/10.1016/j.qref.2018.07.001>
- Riaz, M., Jinghong, S., & Akhtar, M. N. (2022). Antecedents of capital structure and firm performance: evidence from G-7 countries. *Journal of Money and Business*. <https://doi.org/10.1108/jmb-09-2021-0034>
- Ross, S. A. (1977). The Determination of Financial Structure: The Incentive-Signalling Approach. *The Bell Journal Of Economics*, 8(1), 23–40. <https://doi.org/10.2469/dig.v27.n1.2>
- Salim, M., & Yadav, R. (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies. *Procedia - Social and Behavioral Sciences*, 65(ICIBS0S), 156–166. <https://doi.org/10.1016/j.sbspro.2012.11.105>
- Ullah, A., Kashif, M., & SaifUllah. (2017). Impact of Capital Structure on Financial Performance of Textile Sector in Pakistan. *KASBIT Business Journal (KBJ)*, 10(1), 1–20.
- Vätavu, S. (2015). The Impact of Capital Structure on Financial Performance in Romanian Listed Companies. *Procedia Economics and Finance*, 32(15), 1314–1322. [https://doi.org/10.1016/s2212-5671\(15\)01508-7](https://doi.org/10.1016/s2212-5671(15)01508-7)
- Wamiori, G. M., Namusonge, G. S., & Sakwa, M. M. (2016). Effect of Capital Structure on Financial Performance of Listed Manufacturing Firms in Kenya. *SSRN Electronic Journal*, 42986–43005. <https://doi.org/10.2139/ssrn.3492011>

Ifa Nurmasari
Graduate student, Jakarta State University;
Faculty of Economics and Business Pamulang University
Email : dosen01550@unpam.ac.id.

Adler Haymans Manurung
Bhayangkara Jakarta Raya University

I Gusti Ketut Agung Ulupui
Jakarta State University

Gatot Nazir Ahmad
Jakarta State University