Determinants of Leverage in Manufacturing Companies: An Empirical Study in Indonesia

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Abstract

This study aims to examine the determinants of leverage in manufacturing companies listed on the Indonesia Stock Exchange. The investigation was carried out using panel data on manufacturing companies listed on the Indonesia Stock Exchange for the 2019-2021 period. The leverage variable in this study uses the debt-to-equity ratio (DER) as the dependent variable. The independent variable is profitability as measured by return on assets (ROA), liquidity is measured by the current ratio (CR) and operating assets is measured by operating assets turnover (OATO), while company size as a control variable is measured by the natural log of total assets. The data collection method used purposive sampling method to select data that met certain criteria according to research needs. Panel data analysis using e views software with multiple regression analysis model. The results of the analysis show that liquidity and operating assets have a negative effect on leverage, while return on assets and firm size have no effect, so firm size does not act as a controlling variable.

Keywords: firm size, leverage, liquidity, opeating assets, profitability

Introduction

Capital is a very important part in investment and business activities because it is related to financing for these activities. Sources of capital can come from internal and external sources of the company, every decision to determine the source of these funds will have an impact on the company's leverage. Therefore, the issue of funding becomes a very important part of the problem for the company because this problem does not only involve the company and the owners of capital, but also involves many parties with an interest in the company. Funding decisions will be related to determining the proportion of debt, this becomes important because it relates to the interests of shareholders. When management decides to use external funding sources from debt, namely by issuing bonds, the company's leverage will increase. The use of external sources of funds is expected to increase the company's return which has an impact on the increase in the company's stock price. This condition is in accordance with the financial theory as presented by Gitman (2003), which states that the main purpose of the company is to increase the value of the company or the prosperity of shareholders.

The company's ability to obtain sources of funds will determine the company's leverage and ability to carry out its activities. The greater the use of debt, the higher the company's leverage, and with increasing company leverage, the company's risk also increases. Therefore, companies with high leverage must be able to generate a rate of return that is higher than the cost of capital so that increased use of debt has an impact on the welfare of the owners as indicated by the increase in return on equity (ROE) and earnings per share (EPS). The benefit of using debt is a tax reduction, so there are tax savings on the use of debt. While this tax savings can still cover financial distress caused using debt, the use of debt still provides good benefits for the company, because it has an impact on increasing return on equity (ROE) and earnings per share (EPS), and this is in line with trade -off theory (Myers, 2001).

Under certain conditions the use of debt can reduce return on equity (ROE) earnings per share (EPS), this condition occurs if the company is not able to generate a rete of return that is higher than the cost of capital for the use of debt, so that the use of debt has an impact on the decline in firm value. , and this is in line with pecking-order theory (Myers, 1984). Therefore, this theory recommends that the fulfillment of funding needs is met by the company's internal sources rather than the use of external funds. Internal funding sources can reduce risk, because internal funding sources come from retained earnings as profits that are not

distributed to shareholders. This is in accordance with the concept of a funding hierarchy, which prioritizes internal funding, and if it is still lacking, it will be filled with low-cost debt, and if it is still lacking, it will issue shares.

This study was conducted to examine some of the key variables determining the company's leverage. It is important to show empirical evidence about the determinants of the use of debt in manufacturing companies in Indonesia. This study uses return on assets (ROA), current ratio (CR), operating assets turnover (OATO), and firm size as variables that determine the use of debt. Previous research conducted by Alkhatib (2012) and Chakma (2018) did not find empirical evidence that profitability, size and liquidity affect leverage. While the results of research from Ali, (2011) found empirical evidence that profitability has a negative effect, while size has a positive effect on leverage. Onofrei et al (2015) found empirical evidence that profitability and liquidity have a negative effect, as well as firm size has a negative effect but with a lower effect. The results of Chen et al's (2021) research also found empirical evidence that profitability has a negative effect, but firm size has a positive effect on leverage.

Based on the results of these studies which resulted in various inconsistent findings, the problem in this study is how key variables such as profitability, liquidity, operations, and firm size affect leverage. As we know that profitability, liquidity, and company operations are important factors that are often considered by management in making funding policies. Likewise, the firm size reflects the value of the company's wealth, which can be used as collateral for the values of its assets to attract investors to join the company.

Literature Review

There are two theories that explain the relationship between profitability and leverage, namely trade-off theory and pecking order theory. The two theories have different views, the trade-off theory views the relationship between profitability and leverage as positive, while the pecking-order theory views the relationship as negative. The trade-off theory is a development of the Modigliani-Miller theory (1958) which was presented in his paper by arguing that capital structure does not affect firm value or is irrelevant. However, after receiving criticism from financial management associations, Modigliani-Miller (1963) included a tax element through his second proposition, with taxes, the capital structure becomes relevant, because debt interest paid can reduce taxable income. So companies that use debt will get tax savings, the greater the use of debt, the greater the tax savings. However, in practice it is difficult to find companies that use debt as much as possible - 100%, this is opposed by the trade-off theory, because in reality the greater the use of debt, the higher the burden that must be borne by the company, due to agency problems that have an impact on financial distress.

Based on the trade-off theory, companies base their funding decisions on an optimal capital structure. Myers (2001) states that the company will owe up to the limit of funds used in the activities and survival of the company at a certain level of debt, where tax savings from additional debt equal financial distress. Therefore, the optimal capital structure is achieved when there is a balance between tax savings as a benefit of using debt and financial distress as a result of using debt. On the other hand, the pecking order theory which describes a hierarchy in meeting funding needs, companies prefer to use internal funding sources. However, if the company will use external funding sources, as stated by Donaldson (1961), Myers (1984), and Myers & Majluf (1984), the company will choose low-cost debt, then external equity. Pecking order theory predicts that the issuance of common stock is the last alternative source of funding. As Myers (1984) explains, pecking order theory suggests that firms primarily prefer internal sources of finance, and they adjust their target dividend payout ratios to their investment opportunities.

The relationship between profitability and leverage

Return on assets as an indicator of profitability represents the net profit after tax generated by the company using operating assets, so the greater the return on assets, the higher the possibility that the company's net income is not distributed as dividends, and is used for retained earnings. With the retained earnings, there are internal sources of funds that can be used for investment opportunities, so that the use of external funds such as debt can be suppressed. This condition is in line with the concept of pecking order theory which prefers internal sources of funds such as retained earnings to finance company investments, because this is considered more profitable for the company (Vos et al., 2007, Degryse et al., 2012).

In contrast to the pecking order theory, according to the trade-off theory (Fama & French, 2002, and Delcoure, 2007), it is stated that it is more profitable for companies to choose sources of debt funds for

financing their investment opportunities, because using debt will get tax benefits. profitability relationship with positive leverage. However, from a dynamic perspective as presented by Flannery & Rangan (2006), Huang & Ritter (2009), and Haron & Ibrahim (2012) that the relationship between profitability and debt is negative. Thus, the relationship between profitability and leverage can be formulated as a research hypothesis as follows.

H_1: Profitability has a negative effect on leverage

Relationship between liquidity and leverage
Liquidity shows the company's ability to meet all obligations that are due to be paid, both short-term and long-term obligations. In accordance with the pecking order theory, companies with high liquidity can use liquid assets as a source of funds to finance their investment opportunities, so that liquidity has a negative impact on leverage. The results of research by Ozcan (2001), Onofrei et al (2015), and Chakrabarti (2019) show empirical evidence that liquidity has a negative effect on capital structure. However, several studies found different results, such as the results of research from Rani et al (2016), and Zafar et al (2019) which also found a negative but not significant effect. Thus, the research hypothesis can be formulated as follows.

H_2: Liquidity has a negative effect on leverage.

The relationship between operating assets and leverage
Operating assets show the company's assets that are used directly to carry out the company's operations. To show how many times the capital invested in the asset rotates in each year, it is determined by calculating the asset turnover. So, operating asset turnover reflects the number of times the company's capital invested in rotating assets in each year to generate income. Therefore, this ratio is used to measure the effectiveness of the use of assets in generating income from sales each year. The higher the asset turnover, the more effective the use of assets, and the greater the income generated through sales each year.
As the company's income increases, the opportunity to use internal funding sources for investment financing is greater, this is in line with the pecking order theory. But on the other hand, the company's income can be used as a guaranteed magnet to attract external parties to join the company, so that alternative debt can also be used as a source of company funds, and this is in line with the trade-off theory. Research on operating asset turnover has been carried out by O'Brien & Vanderheijden (1987), and Hutchinson & Hunter (1995). The same research was also conducted by Kirshin & Volkov (2018), and Chakrabarti (2019) which found that asset turnover had an effect on capital structure. In response to this phenomenon, operating asset turnover has an impact on leverage, so the research hypothesis is formulated as follows.

H_3: Operating asset turnover influences leverage.

The relationship between firm size and leverage
Firm size shows the category of the size of the company's scale as measured by total assets, which are company assets. According to Ang et al (1982), Rajan & Zingales (1995), and Michaelas et al (1999), that large firms have access to greater credit at lower costs, this is in line with the trade-off theory. . Thus, large-scale companies tend to choose debt as a source of funding for financing their investment opportunities, because large companies will find it easier to obtain debt and equity. The results of the research from Chakrabarti (2019), stated that the larger the size of the company, the greater the level of risk for investors to invest in the company, so that if the financial performance is good, it is believed that the company will be able to fulfill all obligations and provide adequate benefits for investors. Large companies will need large capital to finance their operational activities, so that the choice of external funding sources is more likely as a source of financing. The results of research from Ozkan (2001) and Kirshin & Volkov (2018) also provide empirical evidence that firm size has a positive effect on capital structure. Thus, the size of the company has a positive impact in increasing the use of debt, so the research hypothesis is formulated as follows.

H_4: Firm size has a positive effect on leverage.

Method

This study uses panel data by taking a sample of manufacturing companies listed on the Indonesia Stock Exchange for the 2019-2021 period. The data collection method used purposive sampling, adjusting to the needs of the analysis. As the dependent variable is leverage which is proxied by debt-to-equity ratio (DER), while as independent variable is profitability which is proxied by return on assets (ROA), liquidity is proxied by current ratio (CR) and operating assets is proxied by operating assets. turnover (OATO). Meanwhile, firm size calculated by natural log is used as control variable.

Analysis of the data to examine the effect of profitability, liquidity, operating assets, and firm size used multiple regression analysis. Multiple regression analysis model is formulated as follows:

$$\text{Lev} = \alpha + \beta_1 \text{Proft} + \beta_2 \text{Liq} + \beta_2 \text{OA} + e \qquad \ldots\ldots\ldots 1)$$
$$\text{Lev} = \alpha + \beta_1 \text{Proft} + \beta_2 \text{Liq} + \beta_2 \text{OA} + \beta_3 \text{FS} + e \qquad \ldots\ldots\ldots 2)$$

Notes:
Lev = Leverage
Prof = Profitability
Liq = Liquidity
OA = Operatimg Assets
FS = Firm Size
α = Constanta
e = error

In equation 2 enter firm size (FS) as a control variable.

Result and Discussion
Descriptive Statistic

Descriptive statistical analysis displays the distribution of the data used in the study which shows the minimum, maximum, mean and standard deviation values for each variable in the model. The following Table 1 shows descriptive statistics of all variables used in the model with N samples of 390.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DER	390	.07	13.55	.9808	1.01599
ROA	390	-.40	.61	.0445	.09150
CR	390	.37	206.86	3.1719	10.68754
TATO	390	.04	11.39	.9744	.80759
SIZE	390	23.94	33.54	28.2892	1.64612
Valid N (listwise)	390				

Source: FEM output processed by Eviews September 2022

Table 1 shows that the minimum DER is 0.07 and the maximum is 13.55 with an average of 0.9808 and a standard deviation of 1.02. Thus, the use of debt in manufacturing companies in Indonesia is very volatile and differs quite a lot between companies. The minimum return on assets (ROA) is -0.40 and the maximum is 0.61 with an average of 0.0445 or 4.45% and a standard deviation of 0.0915 or 9.15%. This also shows a high level of fluctuation between companies in generating net profit for every dollar generated from sales, there are even companies that experience large enough losses to generate a negative ROA of 0.40 or -40%. The current ratio as an indicator of liquidity is a minimum of 0.37 and a maximum of 206.86 with an average of 3.17 and a standard deviation of 10.69. Liquidity conditions also show a fairly large variation, there are even companies whose conditions are not liquid, namely 0.37 or 37%. The operating asset turnover showed a better condition although still relatively low, with a minimum asset turnover of 0.04 and a maximum of 11.39 with an average turnover of 0.97 and a standard deviation of 0.81. The size of the

company shows a fairly low fluctuation with a minimum number of 23.94 and a maximum of 33.54 and an average of 28.29 and a low standard division of 1.65.

Hausman Test Results – Regression Equation 1

Correlated Random Effects - Hausman Test			
Pool: POOLDER1			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	3	1.0000
* Cross-section test variance is invalid. Hausman statistic set to zero.			
** WARNING: robust standard errors may not be consistent with assumptions of Hausman test variance calculation.			
Hasil Uji Hausman – Persamaan Regresi 2 Correlated Random Effects - Hausman Test			
Pool: POOLDER1			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000
* Cross-section test variance is invalid. Hausman statistic set to zero.			
** WARNING: robust standard errors may not be consistent with assumptions of Hausman test variance calculation.			

From the results of the Hausman test, the Chi-Square Statistic value in both equations is significant with a significance level of 0.000 so that both regression equation 1 and regression equation 2 recommend using the Fixed Effect Model (FEM).

Coefficient of Determination

The results of testing the coefficient of determination model for regression equation 1 and regression equation 2 are shown in Table 2 below.

Table 2. Coefficient of Determination

No	Equation Model	Adjusted R Square
1	Regression Equation 1	0.1512 atau 15.12%
2	Regression Equation 2	0.1483 atau 14.83%

Source: FEM output processed by Eviews September 2022

The value of the coefficient of determination (Adjusted R-squared) of regression equation 1 without including firm size as a control variable is 0.1512 or 15.12%. However, after including firm size as a control variable, the adjusted R-square value is 0.148364 or 14.83%, indicating that the contribution of the influence of the independent variables to the dependent variable (DER) is only 14.83%, decreasing so that firm size does not act as a control variable.

Signification F Test

The second model test is the F significance test, this test is intended to test whether the regression model used meets the goodness of fit requirements. The results of the F significance test for regression equation 1 and regression equation 2 are presented in Table 3 below.

Table 3. Result of Signification F Test

No	Equation Model	F-statistic	Prob(F-statistic)
1	Regression Equation 1	1.525030	0.002162
2	Regression Equation 2	1.509532	0.002656

Source: FEM output processed by Eviews September 2022

The results of the significance F test for regression equation 1 and regression equation 2 show a probability value (F-statistic) of 0.003 which means that it meets the goodness of fit requirements as required in the OLS. Thus, the regression model used is good for further analysis.

Regression Results

The results of multiple regression analysis with the eviews program for regression equation 1 and regression equation 2 recommend the use of the Fixed Effect Model (FEM). These results are shown in Table 4 below.

Table 4. Regression Results

Variabel*	Regression Equation 1			Regression Equation 2		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
C	1.454938			7269.699		
ROA	-2.552454	-1.3952 84	0.1641	-2.426268	-1.440294	0.1510
CR	-0.600869	-2.318827	0.0212	-0.511511	-2.777927	0.0059
OATO	-0.168612	-2.318827	0.0382	-0.205739	-2.877080	0.0044
SIZE	-	-	-	-4.218379	-1.001966	0.3173

*Dependend variable: DER.
Source: FEM output processed by Eviews September 2022

Based on Table 4, it is known that return on assets (ROA) and firm size have a negative but not significant effect. Thus, hypothesis 1 (H_1) and hypothesis 4 (H_4) are rejected, return on assets (ROA) and firm size have no impact on leverage. Current ratio (CR) and operating assets turnover (OATO), have a significant negative effect on leverage, so hypothesis 2 (H_2) and hypothesis 3 (H_3) are accepted. Current ratio and operating asset turnover have a negative impact on leverage.

Discussion

From the results of the regression test as shown in Table 3, it shows that return on assets (ROA) as an indicator of profitability has a negative but not significant effect on leverage. Thus, profitability is not a determining factor in determining debt policy. This condition is not in line with the pecking order theory that the higher the profitability, the less likely the company is to use debt, because management prioritizes internal funding sources. The results of this study are also not in accordance with research from Ozkan (2001), Ali (2011), Onofrei et al (2015), Rani et al (2016), Kirshin & Volkov (2018), Zafar et al (2019), and Chen et al. al (2021), who found a negative effect. However, the results of this study support and are in accordance with research from Alkhatib (2012), Chakma (2018), and Chakrabarti (2019) which did not find this effect.

Current ratio (CR) as an indicator of liquidity has a negative and significant effect on leverage, the higher the liquidity, the lower the leverage, the company's liquidity is an important factor considered in determining debt policy. This condition is in line with the pecking order theory, companies with high liquidity prefer to use their excess cash to finance the company's investment opportunities. The results of this study provide empirical evidence that manufacturing companies in Indonesia carry out the concept of pecking order theory, which prefers internal sources of funds to meet financing needs for investment opportunities. The results of this study are also in line with the results of research from Ozkan (2001), Onofrei et al (2015), and Chakrabarti (2019), but are not in accordance with research conducted by Kirshin & Volkov (2018), which found a positive effect. While the results of research from Alkhatib (2012), Rani et al (2016), Chakma (2018), and Zafar et al (2019) did not find any effect of liquidity on leverage.

Operating assets are assets used to carry out the company's operating activities, these assets directly contribute to the production process and produce the company's main products. Operating asset turnover (OATO) as an indicator of operating assets represents how much capital invested in these assets rotates to generate income through the company's sales proceeds. The results of this study indicate that operating asset turnover has a negative and significant effect on leverage, which means that the higher the asset turnover, the lower the use of debt. Thus, in deciding the funding policy for investment costs, manufacturing companies in Indonesia tend not to choose external financing from debt as a source of financing investment into their assets. Therefore, the results of this study provide empirical evidence supporting the pecking order theory and are in line with research from Chakrabarti (2019), but not in accordance with the results of research from Kirshin & Volkov (2018) which found a positive effect.

Firm size as a representation of company scale has no effect on leverage, which means that in determining debt policy the company size factor is not considered. Large assets for manufacturing companies are not an important thing to consider in deciding external funding sources from debt, although companies with large assets have a greater opportunity to get credit. The results of this study are not in line with the trade-off-theory, and also not in accordance with research from Ozkan (2001), Ali (2011), Kirshin & Volkov (2018), Zafar et al (2019), Chakrabarti (2019), Chen et al. al (2021) which found a positive effect, and research from Onofrei et al (2015) and Rani et al (2016) which found a negative effect. However, the results of this study are consistent with and support research from Alkhatib (2012) and Chakma (2018) which did not find this effect.

Conclusion

From the analysis of the previous discussion, it can be concluded that profitability and firm size have no impact on leverage, so profitability and operating assets are not determinants of debt policy. Meanwhile, liquidity and operating assets have a negative effect on leverage, so liquidity and operating assets are the determining factors in debt policy. The results of this study provide empirical evidence supporting the pecking order theory that manufacturing companies in Indonesia tend to use internal capital to finance their investments when there is an opportunity to expand their business or invest.

Although this study makes an important contribution in supporting the pecking order theory, with the results of the coefficient of determination model test showing the Adjusted R-square value of 14.83%, this study still has limitations that must be corrected in future studies, because there are still 85.17% of other factors. outside the model that determines leverage or debt policy. Therefore, in the next research it is recommended to add other variables that are also important to consider, especially macro variables such as inflation and gross domestic growth (GDP), because after all these variables are often considered in making investments. In addition, the ownership factor also needs to be considered, because this factor will determine the composition of the company's management which is also often considered by investors in investing.

References

1. Ali, L. (2011). The determinants of leverage of the listed-yextile company in India. *European Journal of Business and Management, 3*(12), 54-59. https://core.ac.uk/download/pdf/234624136.pdf

2. Alkhatib, K. (2012). The determinants of leverage of listed companies. *International Journal of Business and Social Science, 3*(24), 78-83. https://www.academia.edu/4494387/The_Determinants_of_Leverage_of_Listed_Companies

3. Ang, J.S., Chua, J.H., & McConnell, J.J. (1982). The administrative costs of corporate bankruptcy: A note. *Journal of Finance, 37*(1), 219-226. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1540-6261.1982.tb01104.x

4. Chakma, S. (2018). Determinants of firm's leverage and theoritical examination: A study on the food and allied companies in Bangladesh. *Asian Finance & Banking Review, 2* (2), 42-62. https://www.cribfb.com/journal/index.php/asfbr/article/view/468/665

5. Chakrabarti, A. (2019). The Capital structure puzzle – evidence from Indian energy sector. *International Journal of Energy Sector Management*, *13*(1), pp.2-23. https://www.deepdyve.com/lp/emerald-publishing/the-capital-structure-puzzle-evidence-from-indian-energy-sector-RJDk10WXqd

6. Chen, Y., Sensini, L., & Vazquez, M. (2021). Determinants of leverage in emerging markets: Empirical evidence. *International Journal of Economics and Financial Issues, 11*(2), 40-46. https://www.econjournals.com/index.php/ijefi/article/view/10997/pdf

7. Degryse, H., Goeij, P., & Kappert, P. (2012). The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics, 38*, 431-447. https://link.springer.com/content/pdf/10.1007/s11187-010-9281-8.pdf

8. Delcoure, N. (2007). The determinants of capital structure in transitional economies. *International Review of Economics and Finance, 16*(3), 400-415. https://www.sciencedirect.com/science/article/abs/pii/S1059056006000086

9. Donalson, G. (1961). *Corporate debt capacity: A study of corporate policy and the determinant of corporate debt capacity*. Boston, Division of Research, Harvard Graduate School of Business Administration.

10. Fama, E., & French, K. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies, 15*(1), 1-33. https://www.jstor.org/stable/2696797

11. Flannery, M.J., & Rangan, K.P. (2006). Partial adjustment toward target capital structures. *Journal of Financial Economics, 79*(3), 469-506. https://www.sciencedirect.com/science/article/abs/pii/S0304405X05001571

12. Gitmann, Lawrence. 2003. *Principles of Managerial Finance* 10th *edition*. Prentice Hall.

13. Haron, R., & Ibrahim, K. (2012). Target capital structure and speed of adjustment: Panel data evidence on Malaysia Shariah compliant securities. *International Journal of Economics Management and Accounting, 2*(2), 87-107. https://www.researchgate.net/publication/279182292_Target_capital_structure_and_speed_of_adjustment_Panel_data_evidence_on_Malaysia_Syariah_compliance_securities

14. Huang, R., & Ritter, J.R. (2009). Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative Analysis, 44*(2), 237-271. https://www.jstor.org/stable/40505924

15. Hutchinson, R., & Hunter, R. (1995). Determinants of capital structure in the retailing sector in the UK. *The International Review of Retail, Distribution and Consumer Research, 5*(1), 63-78. https://doi.org/10.1080/09593969500000004

16. Kirshin, I., & Volkov, G. (2018). The determinants of corporate capital struscture: Evidenve from Russian panel data. *Espacios, 39*(44), 16. http://www.revistaespacios.com/a18v39n44/a18v39n44p16.pdf

17. Michaelas, N., Chittenden, F., & Poutzioris, P. (1999). Financial policy and capital structure choice in U.K. SMEs: Empirical evidence from company panel data. *Small Business Economics, 12*(2), 113-130. https://link.springer.com/article/10.1023/A:1008010724051

18. Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance, and the theory of investment: Reply. *The American Economic Review, 49*(4), 655-669. https://www.jstor.org/stable/1812919

19. Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *The American Economic Review*, *53*(3), 433-443. https://www.jstor.org/stable/1809167

20. Myers., S. C. (1984). The capital structure puzzle. *Journal of Finance*, *39*, 575-592. https://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.1984.tb03646.x

21. Myers, S, C. (2001). Capital Structure. *Journal of Economics Perspectives, 15*(2) 81-102. https://www.aeaweb.org/articles?id=10.1257/jep.15.2.81

22. Myers, S, C., & Majluf, N. S. (1984). Corporate financing and investment decision when firms have information investors don't have. *Journal of Financial Economics*, *13*, 187-221.

23. O'Brien, T. & Vanderheiden, P. (1987). Empirical measurement of operating leverage for growing firms. Financial Management, 16(2), 45-53. https://www.semanticscholar.org/paper/Empirical-Measurement-of-Operating-Leverage-for-O'Brien-Vanderheiden/62610a8d8bca20f8cb176cd43b517e04ff886e38

24. Onofrei, M., Tudose, M. B., Durdureanu, C., & Anton, S. G. (2015). Determinant factors of firm leverage: An empirical analysis et Iasi Country Level. *Procedia Economics and Finance, 20,* 460-466. https://doi.org/10.1016/S2212-5671(15)00097-0

25. Ozkan, A. (2001). Determinants of capital structure and adjustment to long run target: Evidence from UK company panel data. Journal of Business Finance & Accounting, 28(1-2), 175-198. https://onlinelibrary.wiley.com/doi/epdf/10.1111/1468-5957.00370
26. Rajan, R., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance, 50*, 1421-1460. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1540-6261.1995.tb05184.x
27. Rani, S., Narain., & Dhawan, S. (2016). Determinants of leverage decision on Indian firms: An empirical study. *Business Analyst, 37*(1) 19-30. https://www.srcc.edu/system/files/Pg%2019-30%20Asha%20Rani%2C%20Narain%20and%20Swati%20Dhawan%3B%20Determinants%20of%20Leverage%20Decision%20of%20Indian%20Firms%3B%20An%20Empirical%20Study.pdf
28. Vos, E., Andy, J.Y., Carter, S., & Tagg, S. (2007). The happy story of small business financing. *Journal of Banking and Finance, 31*(9), 2648-2672. https://www.sciencedirect.com/science/article/abs/pii/S0378426607000556
29. Zafar, Q., Wongsurawat, W., & Camino, D. (2018). The determinants of leverage decisions: Evidence from Asian emerging markets. *Cogent Economics & Finance, 7*, 1-28. https://doi.org/10.1080/23322039.2019.1598836