The Effect of Corporate Debt Maturity on Performance Volatility in Manufacturing Companies Listed on the Indonesia Stock Exchange in 2014-2018

Khoirun Nisa Hsb, Dina Patrisia

Universitas Negeri Padang, Padang, Indonesia
Email: khairunnisa.kn821@gmail.com

ABSTRACT

The purpose of this study is to determine the effect of corporate debt maturity on performance volatility and examine the role of size and sales growth in moderating the relationship between corporate debt maturity on performance volatility. Based on the data adequacy criteria, The final sample of the study consisted of 239 observations. Companies in this study are companies in the basic and chemical industries registered from 2014-2018 on the Indonesia Stock Exchange. The type of data used in this study is secondary data obtained from IDX. Analysis of this research uses multiple linear regression analysis by using the SPSS program. The results of multiple regression analysis show that corporate debt maturity has a negative and significant effect on performance volatility. If performance volatility is measured using SDPBV, It has no significant effect if using SDROA. Furthermore, ize can strengthen the relationship between corporate debt maturity and performance volatility as measured with SDPBV, Meanwhile sales growth cannot moderate this relationship.

Keywords: *performance volatility, debt maturity, size, sales growth, age, leveragee and industry*

1. INTRODUCTION

The capital market is one of the main contributors to economic growth in Indonesia. Investment activities are activities that place funds in one or more than one asset in a certain period in the hope of making a profit(Purwanto & Agustin, 2017).To obtain high profits it will pose a risk(Margaritis & Psillaki, 2010). A form of uncertainty can be associated with volatility(Saldanha, Melville, Ramirez, & Richardson, 2013). High volatility indicates the possibility of greater profits or losses in the short term(Pomartia, Mulyadi, & Rachbini, 2018). Volatility occurs due to the entry of new information into the market or stock exchange. As

a result, Market participants revalued the assets traded(Santioso & Angesti, 2019). Generally, the greater the risk, the greater the rate of return(Tandelilin, 2010). Performance Volatility is one of the measurement tools in taking future risks. One of the most important things in finance is the return expected by the company through risk taking by management(Huang, Liu, Rhee, & Wu, 2012). Placement of a number of funds at this time in the hope of obtaining future profits(Christine & Yanti, 2017). Future performance cannot be predicted with certainty, so active management requires high risks(Livingston, Yao, & Zhou, 2019). According to Yeo (2016) in(Adhitya & Santioso, 2020)stated that a high level of volatility would make

management experience difficulties in obtaining external funds. This problem is related if the company fails to pay so the company can go bankrupt. Volatility is calculated by using a standard deviation based on a certain period or in a long time(Rakowski, 2010).

Sources of funding for non financial companies in the long run are very dependent on debt(Nidar, 2010). Volatility is the choice for future corporate financial predictions. Volatility is closely related to the maturity of certain assets(Li & Zakamulin, 2020). Volatility in performance explains a decrease in the use of long term debt(Keefe & Yaghoubi, 2016). Companies that have high volatility can use debt with a shorter maturity category.In this study, the company's risk is a decrease in debt maturity(Sato & Vithessonthi, 2019). Each country has different variations of the maturity of debt(Fan, Titman, & Twite, 2012). The characteristics of the funds must be adjusted to the risk taking that will be taken(Livingston et al., 2019). The greater the company uses debt to finance investments in assets, the greater the risk of the company(Prasetyorini & Fitri, 2013).

Debt maturity is the composition of short term debt and long term debt in the structure of debt capital in a company. Proportional relationship between debt instruments with variations in maturity in debt capital(Thottekat & Vij, 2013). Based on matching principles, long term assets must be financed using long term debt and short term assets are financed with short term debt. Creditors understand incentives and interpret debt maturity choices as a signal of company quality(Zheng, El Ghoul, Guedhami, & Kwok, 2012).Volatility is expected to have a negative effect on the optimal debt maturity because the company is very volatile and causes high bankruptcy costs (Dang, 2011). An increase in debt will also lead to an increase in bankruptcy risk if it is not matched by the proper use of debt(Jusriani & Rahardjo, 2013). Creditors regularly analyze company performance in order to determine volume and prices to provide financial resources. Debt ratios help creditors understand the company's risk management

strategy as well as various approaches to company assets and liabilities(Sadeghian, Latifi, Soroush, & Aghabagher, 2012).

Funding through debt does not always have a positive impact(Damarjati & Fuad, 2018).Jensen (1986) notes that the positive impact of debt will only be optimal for companies with large free cash flow but have low growth rates. Rising debt will decrease corporate investment or underinvestment problems. Underinvestment problems can be overcome by shortening debt maturity (Myers, 1977). When the company is able to take advantage of all investment opportunities with positive returns, the company's financial performance will increase.

Short term debt can mitigate the cost of debt agencies by limiting managerial risk taking, so that increasing debt financing will encourage performance efficiency(Khurana & Wang, 2015). According to Jensen and Meckling (1976) said that the main root of agency theory is the difference in interests that lies in maximizing the benefits (utility) of shareholders (principal) with constraints of benefits (utility) and incentives that will be received by managers (agents). Agency conflict between shareholders and managers as well as financing risks, Debt holders tend to reduce the risk of loans to companies by limiting the length of debt maturity. (Saragih & Saragih, 2014).

Signal is an action taken by the management of a company to provide instructions to investors about how management assesses the company's prospects(Brigham & Houston, 2011). Managerial evaluates and predicts that companies with high performance volatility may experience a decline in the value of the company due to the availability of company information(Fu, Gao, Kim, & Qiu, 2017).An increase in debt is a good signal for the company's prospects in the future. An increase in debt means there is a change in the capital structure which results in an increase in risk adjusted return(Nidar, 2010). When the financial system can send timely signals about a company's economic wealth, loan contracts will be more effective(Nikolaev, 2010). Proper knowledge of

the financial status of the borrowing company reduces creditor risk. In general, the greater the debt, the higher the risk for creditors(Chen & Zhu, 2013).Companies with favorable prospects will avoid the sale of shares and try to get new capital in other ways(Adhitya & Santioso, 2020).

*1.1 Thereis a negative andsignificant relationship between corporate debt maturity on performance volatility*

The size of the company is a total reflection of the assets owned by a company(Pratama & Wiksuana, 2016). The size of the company will affect the ability to bear the risks that may arise from various situations facing the company. Large companies have lower risk than smaller companies. Large companies will easily obtain external funding(Nency & Muharam, 2017). Large companies have better control over market conditions, so they are able to face economic competition(Prasetyorini & Fitri, 2013).Companies use debt without regard to company size and other important factorscan't have good performance (Sadeghian et al., 2012).

1.2 There is a significant effect between corporate debt maturity on performance volatility which ismoderated by size

Company sales reflect the company's operational success in the past period and can be used as a prediction of future growth(Pantow, Murni, & Trang, 2015).Debt maturity has a considerable effect in a variety of literature because companies making financing choices tend to have a direct impact on a company's investment decisions and growth prospects(Zheng et al., 2012). To get optimal results the company can determine the right strategy for the financing risks used by the company(Twairesh, 2014). Sales growth can be considered as another indicator of future growth opportunities. Companies must incur lower agency costs than debt and must be able to carry more debt in their capital structure(Margaritis & Psillaki, 2010).

1.3 There is a significant effect between the corporate debt on performance volatility which is moderated by sales growth.

Based on the problem, it can be stated that there is a contribution in this research, which is the focus of this research on basic industrial and chemical manufacturing companies. This research also adds proxy performance volatility variables. In the previous researchers there were only a few researchers who examined corporate debt maturity on performance volatility, using more performance and investment. The difference in evidence from the results of debt maturity research on performance volatility is different from other studies. This research strongly emphasizes that performance volatility is related to the risk taken by the company. Companies must change the debt proportion to overcome the problem of underinvestment. Through the results of this study can help investors and management in decision making.
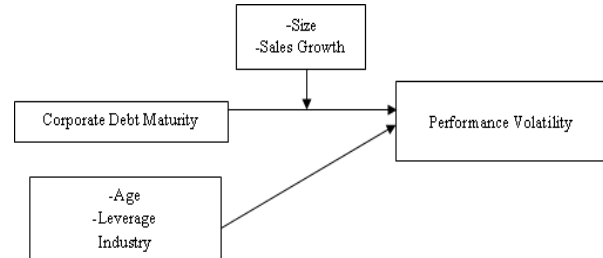
Figure 1. Theoretical Thinking Framework

2. METHODS

The population in this study is the industrial and basic and chemical sectors which were listed on the Indonesia Stock Exchange in 2014-2018. The company is sampled if the data are related to the variables used namely SDROA and SDPBV for Performance Volatility, Debt Maturity, Size, Sales Growt, Age; Leverage and Industry. Data is secondary data in the form of a summary of financial performance and financial statements of the company. Operational definitions and measurement variables are listed in Table 1. The

main analysis used in this study is multiple regression analysis.

Table 1. Operational Definitions and Measurement Variables

Variable	Operational Definition	Measurement	Source
Performance Volatility (SDROA and SDPBV)	Performance volatility is a fluctuation in the company's performance in the future. Performance Volatlity is operated using the ROA Standard Deviation and the PBV Standard Deviation for 3 years.	$SDROA=\sqrt{\dfrac{\sum_{t=1}^{t=T}(ROA_t=\frac{\sum_{T=1}^{t=T}ROA_t}{T+1})^2}{T+1}}$ $SDPBV=\sqrt{\dfrac{\sum_{t=1}^{t=T}(PBV_t=\frac{\sum_{T=1}^{t=T}PBV_t}{T+1})^2}{T+1}}$	(Sato & Vithessonthi, 2019)
Debt Maturity (DebtMat)	The debt maturity ratio of a company compares long-term debt to total debt	$DebtMat=\dfrac{\text{Long Term Debt}}{\text{Total Debt}}$	(Sato & Vithessonthi, 2019)
Size	The size of the company is measured by the log value of the company's total assets	*Size*= Log n Total Asets	(Sato & Vithessonthi, 2019)
Sales Growth (SG)	The company's growth is calculated using the percentage of sales growth in the current year compared to the sales of the previous year	$SG=\dfrac{\text{Sales t-Sales t-1}}{\text{Sales t}}$	(Harahap, 2015)
Age	The age ratio of the company is measured by the number of years the company started up to the year of observation.	*Age* = (Research Year - Year of Company Establishment)	(Yazdanfar & Öhman, 2015)
Leverage (Lev)	The ratio in the company's funding is measured by the ratio between total debt to total equity	$Lev=\dfrac{\text{Debt}}{\text{Equity l}}$	(Harahap, 2015)
Industry (ID)	Metal industry sector and similar types are included in the constants and become a comparison for other industrial sectors.	0 = Other Industry Sectors 1= Related industrial sector	(Yazdanfar & Öhman, 2015)

Source: Articles

The main analysis used in this study is multiple regression analysis using two regression equations. The following formulated multiple linear regression equation in this study are:

$SDROA = \alpha+\beta_1 DEBTMAT_{t\text{-}3}+\beta_2 SIZE_{t\text{-}3} +\beta_3 SG_{t\text{-}3}+ \beta_4 AGE_{t\text{-}3} +\beta_5 LEV_{t\text{-}3}+ \beta_6 ID+ \beta_7 DEBTMAT_{t\text{-}3}*SIZE_{t\text{-}3t\text{-}3} + \beta_8 DEBTMAT_{t\text{-}3}*SG_{t\text{-}3}+ \varepsilon\ldots\ldots (1)$

$SDPBV =\alpha+\beta_1 DEBTMAT_{t\text{-}3}+ \beta_2 SIZE_{t\text{-}3} + \beta_3 SG_{t\text{-}3}+ \beta_4 AGE_{t\text{-}3} + \beta_5 LEV_{t\text{-}3}+ \beta_6 ID+ \beta_7 DEBTMAT_{t\text{-}3}*SIZE_{t\text{-}3t\text{-}3} + \beta_8 DEBTMAT_{t\text{-}3}*SG_{t\text{-}3} + \varepsilon\ldots..(2)$

3. RESULTS AND DISCUSSION

Based on the descriptive statistics contained in Table 2 it can be seen that the final sample size

used in this study as many as 239 observations during the 2014-2018 period.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SDROA	239	.060	30.28	3.5333	3.80674
SDPBV	239	.001	10.95	.6374	1.30812
DEBTMAT	239	.000	98.70	33.3347	23.46331
Size	239	10.951	14.01	12.2506	.72720
Sales Growth	239	-73.412	192.53	8.3076	24.23595
Age	239	16.000	68.00	33.9456	10.45484
Leverage	239	-3.530	11.25	1.4859	1.85513
Cement Sector	239	.00	1.00	.0628	.24304
Chemical sector	239	.00	1.00	.1590	.36644
Metals and Similar Sectors	239	.00	1.00	.2720	.44591
Plastics and Packaging Sector	239	.00	1.00	.1423	.35005
Ceramic, Porcelain and Glass Sector	239	.00	1.00	.1046	.30668
Animal Feed Sector	239	.00	1.00	.0711	.25758
Timber Industry Sector	239	.00	1.00	.0251	.15677
The Pulp Sector	239	.00	1.00	.1632	.37031
Valid N (listwise)	239				

Source: Processed Data

Before conducting a regression analysis, First testing the classical assumptions which include Outlier tests using the Z-score, Normality test, Multicollinearity test, Autocorrelation test and Heterokedasticity test. The results of the normality test with Kolmogorov Smirnov show the error term has a significance value greater than 0.05, So it can be concluded that the data has been normally distributed. Multicollinearity test results show the toll value of the Debt maturity, Size, Sales growth, Age, Leverage and industry variable values from various sectors> 0.01 and the value of Variance Influence Factor <10. Then it can

be concluded that there are no symptoms of multicollinearity between variables. The autocorrelation test results showed that the durbin watson value was between the dU and 4-Du values. So the regression model does not have an autocorrelation problem. Furthermore, The heteroscedasticity test results show the level of significance of unstandardized residuals is above 0.05 so that it can be concluded that there is no heterocedasticity problem. Data were processed using Z-score data to avoid multicollinearity caused by the formation of moderating variables. The results of the multiple linear analysis test are shown in Table 3.

Table 3. Effect of Debt Maturtiy on Performance Volatility

	1	2	3	4
	SDROA	SDROA	SDPBV	SDPBV
Debt Maturity	0.034 (0.060)	0.025 (0.061)	-0.242*** (0.045)	-0.226*** 0.045)
Debt Maturity*Size		-0.043 (0.056)		0.085** (0.042)
Debt Maturity*Sales Growth		0.054 (0.041)		-0.013 (0.030)
Size	-0.105* (0.067)	-0.092 (0.069)	0.095* (0.051)	0.070 (0.052)
Sales Growth	-0.027* (0.051)	-0.071 (0.060)	0.061 0.038	0.073 (0.045)
Age	-0.182*** (0.054)	-0.186*** (0.054)	0.076* (0.041)	-0.071* 0.041
Leverage	-0.030 (0.058)	-0.015 (0.059)	0.026 (0.044)	0.011 (0.044)
Cement Sector	0.074 (0.064)	0.078 (0.064)	0.203*** (0.048)	0.204*** (0.048
Chemical sector	0.031 (0.060)	0.047 (0.062)	0.080* 0.045	0.063 (0.046)
Metals and Similar Sectors	1.679*** (0.050)	1.691*** (0.055)	-0.673*** 0.037	-0.706*** 0.041
Plastics and Packaging Sector	-0.168*** (0.059)	-0.162*** (0.059)	-0.007 0.044	-0.014 (0.044)
Ceramic, Porcelain and Glass Sector	0.218*** (0.058)	0.223*** (0.058)	0.175*** (0.403)	0.166*** (0.043)

Animal Feed Sector	0.175***	0.179***	0.168***	0.162***
	(0.059)	(0.059)	(0.044)	0.044)
Timber Industry Sector	0.050	0.045	0.058	0.062
	(0.055)	(0.055)	0.041	0.041
The Pulp Sector	-0.083	-0.069	0.103**	0.069
	(0.065)	(0.069)	(0.049)	(0.052)
R2	0,174	0,175	0,221	0,221
F	5.183***	4.613***	6.617***	6.029***
N	239	239	239	239

Source: Processed Data

Information:

Numbers in parentheses indicate the standard error ***, **, * respectively show significance at alpha 1, 5 and 10%.Based on the results of these tests it can be seen that H_1 and H_2 are supported in this study, while H_3 is not supported.

3. RESULT AND DISCUSSION

3.1 The Effect of Corporate Debt Maturity on Performance Volatility in Manufacturing Companies listed on the Indonesia Stock Exchange in 2014-2018

Debt maturity has a significant effect on performance volatility as measured with SDPBV, but not withSDROA. This means that high debt maturity can reduce the volatility of the company's financial performance. Investors and management can use debt maturity as the main proxy in assessing the level of investment risk or maybe companies tend to use internal funds for risk taking (Prasetyorini & Fitri, 2013).

High debt maturity will reduce risk for investors, Because companies use external funds for corporate investment. Short term debt can mitigate agency costs by limiting managerial risk taking(Khurana & Wang, 2015). If short term debt

has priority over long-term debt, Companies tend to invest in more risky projects. Research shows that when debt maturity has a negative effect on performance volatility, Companies tend to use long term debt with low corporate risk. Therefore, if a company wants to increase risk, it must use short term debt.Agency theory states that there are differences in interests between various parties in the company. The effect of debt maturity on performance volatility is consistent with the view of agency theory that predicts a relationship between debt and performance volatility. Using debt will put pressure on management to improve efficiency.

Myers (1977) states that when debt is high, debt holders will need a higher interest rate to offset the risk. Thus the value of the company can rise with the level of debt increasing market perception about the company's situation. According toLa Rocca, et al (2008) states that rising debt will cause a decrease in corporate investment or underinvestment problems (Damarjati & Fuad, 2018). Underinvestment problems can be overcome by shortening debt maturity.

Based on this signal theory, if managers expect a high level of company growth in the future, They will try to give that signal to investors through accounts in their financial statements. An increase in debt is a good signal for the company's prospects in the future(Nidar, 2010). that companies with high performance volatility can cause a decrease in the value of the company. This depends on how much the company's information is available to outside parties.Evidence results(Fu et al., 2017)explained that high volatility indicates the availability of information (financial) companies that tend to be low. Results of this study are not relevant to previous studieswhich shows that debt maturity does not affect the volatility of firm value(Sato & Vithessonthi, 2019). The results of this study are relevant to research(Pomartia et al., 2018)states that the level of corporate debt has no effect on corporate volatility.Research result(Rahmawati, 2016)shows that the optimal structure of the debt period increases due to a decrease in the value of the company's volatility.

3.2 The Effect of Corporate Debt Maturity on Performance Volatility with Size as a moderating variable in Manufacturing Companies listed on the Indonesia Stock Exchange in 2014-2018

Size has a positive and significant effect measured with SDPBV, but not with SDROA. This means that company size can moderate debt against performance volatility. The size of the company describes the size of the company that can be assessed from the total value of the company's assets. Large company size shows that the company experienced good growthand has the potential to get debt.

Based on the signaling theory, that investors could have obtained greater information in terms of company shares by looking at the size of the company through a total asset proxy that large companies will definitely produce a high return or return in terms of corporate profits.Large companies tend to be associated with larger agency problems than small companies, So the impact will be greater for large companies. The

greater the size of the company reflects that the company is relatively stable and produces greater when compared to smaller companies. Young companies are more volatile than time(Fu et al., 2017).Related to agency conflicts between shareholders and managers, There will be risks in financing. Debt holders tend to reduce loan risk to small companies by limiting the length of debt maturity(Thottekat & Vij, 2013). Theoretically, Agency conflicts affect several financial variables, One of which is capital structure. Through Financing through debt will have a disciplined effect if ownership and management are separated this usually occurs in large companies(Yazdanfar & Öhman, 2015).Size will make management performance more active in increasing company assets, So it will give consideration by creditors.

The size of the company is related to debt taking because relatively large companies will relatively fund their companies with diversified sources of funds aimed at getting the right risk distribution (Sudarmanto & Pengestuti, 2017).This research is relevant to(Sadeghian et al., 2012)explained that companies only pay attention to assets and debt without company size and other important factors will not have good performance.Research result (Rahmawati, 2016)states that firm size has a positive and significant effect on debt maturity. Therefore measures need to be considered in determining funding decisions.

3.3. The Effect of Corporate Debt Maturity on Performance Volatility with Sales growth as a moderating variable on Manufacturing Companies listed on the Indonesia Stock Exchange in 2014-2018

Based on the results of sales growth testing does not have a significant effect. It means that sales growthcannot strengthen the influence of corporate debt maturity on performance volatility. Companies with high sales growth tend not to need debt, because the company already has the advantage of the company's internal investment (Sudarmanto & Pengestuti, 2017).Therefore, sales

growth cannot be used as a proxy for taking corporate debt.

Based on the Pecking order theory states that companies will tend to choose the company's internal funding over funding using debt(Myers, 1984).Companies with long-term debt are able to take advantage of growth opportunities if compared to companies with short term debt. If sales are increased, assets must be added. Whereas on the other hand, if the company knows for certain the future sales demand. The results of the receivables and the company's production schedule will be able to adjust the maturity schedule of the debt to match the net cash flow in the future. As a result, Profits will be maximized.

Signal theory can be applied in every market with asymmetric information included in the capital market. Companies with large growth will find it easy to enter the capital market because investors catch positive signals to companies that have large growth so that the positive response reflects the increasing value of the company. Investors in making investment decisions rely more on price to book value (stock market value) .This is due to the higher price book value, the higher the level of market confidence in the company's prospects, the attraction for investors to buy it. So the demand for these shares goes up, then pushes the company's stock price up. Volatility of company performance will be more prominent in high company growth than low company growth(Sato & Vithessonthi, 2019). The results of this study are relevant to(Sudarmanto & Pengestuti, 2017). Shows that Sales Growth is not related to leverage (debt).While(Kazemi & Ansari, 2012). shows conflicting results that the rate of growth (growth) is positive significant to the debt ratio.

4. CONCLUSIONS

Corporate debt maturity has a negative and significant effect on performance volatility, as measured by SDPBV. Size moderation has a positive and significant effect on performance volatility as measured by SDPBV. Age has a significant negative effect on performance

volatility.Moderation in sales growth has no effect on performance volatility. Leverage has no significant effect on performance volatility. The potential included in constants (Metal and Similar Sectors) has a greater influence on performance volatility when measured by SDROA and the influence of other industrial sectors is greater when measured by SDPBV**.**

This study still has a number of limitations and indirectly influences the results of the study. Therefore, the next researcher is expected to add research periods, add research objects that are not limited to manufacturing companies and can use other variable proxies. For companies, this research can be used as a consideration for companies to see fluctuations in company performance and how to overcome high company volatility by paying attention to debt maturity in funding in the form of debt. Through debt ratio can determine investment decision making.

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