INFLATION AS A MODERATOR OF FINANCIAL RATIOS AND CAPITAL STRUCTURE IN MANUFACTURING COMPANIES

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ABSTRACT
This research aims to analyze the influence of financial ratios, such as tangibility, liquidity, assets growth, and earnings volatility on capital structure with inflation rate as the moderation variable. The research object is manufacturing companies listed on Indonesian Stock Exchange from 2014 to 2019. The number of samples in this research was 122 companies selected with purposive sampling. Data analysis in this research used multiple regression linear analysis processed using E-Views version 10. The result of this research shows that tangibility, liquidity, assets growth, earnings volatility and inflation rate have no significant effect on capital structure. The results of this study also show that the inflation rate as a moderator weakens the relationship between liquidity and capital structure. This is because if inflation occurs in a country, it will have an impact on the weakening of a country's economy and can cause an increase in interest rates. Therefore, companies tend to avoid debt because of the high interest that must be paid.

Keywords: Capital Structure, Financial Ratio, Inflation Rate
In late 2010, Metro-Goldwyn-Mayer Studios Inc. (hereinafter referred to as MGM), a Hollywood film company, filed for court protection after declaring bankruptcy. MGM was found to be in debt and unable to repay it as the company's profits declined significantly. During the last few years before the bankruptcy, MGM tried to find funding by finding new investors but was unsuccessful. Eventually MGM's rival Spyglass Entertainment acquired MGM and the creditors agreed to accept repayment in the form of stock (www.voaindonesia.com). In mid-2018, PT Tiga Pilar Sejahtera Food Tbk (hereinafter referred to as TPS Food) was threatened with bankruptcy as creditors filed a Debt Payment Obligation Postponement to the Central Jakarta Commercial Court related to the company's payment delinquency. The debts are related to the Bonds and Sukuk Ijarah issued by TPS Food in 2013. After 5 years had passed, at the time of repayment in 2018 TPS Food continued to delay payment so the matter was brought to the commercial court (www.cnbcindonesia.com).

The company's financial decisions are highly dependent on how the company organizes its capital structure (Al-Hunnayan, 2020). Companies that tend to use internal funding such as retained earnings will have high profitability (Myers, 1984). These companies avoid funding through debt to prevent future risks. Meanwhile, there are also companies that finance through debt but only until the value of tax savings obtained is equal to the value of the cost of financial distress (Myers, 2001).

**Theoretical Review**

Modigliani and Miller Theory. This theory is the first modern capital structure theory proposed in 1958. Modigliani and Miller (1958) argue that many ignore the cost of capital issue and believe that the assets acquired will generate a certain cash flow. MM theory states that there is no impact on firm value, either from capital structure or dividend policy (Sakti, et al., 2017). MM theory states that the value of a company that uses debt is equal to the value of a company that does not use debt in its capital structure (Zulvia and Linda, 2019). However, Myers (2001) says that MM theory is not credible because the capital market in reality is not a perfect market. The MM theory was further updated by Miller in 1963 by incorporating tax variables into the theory. If tax variables are included, then companies with a higher amount of debt will have a higher value as well (Modigliani and Miller, 1963). This can happen because interest payments are excluded from tax calculations. If taxes are considered in this theory, then the cost of capital can be minimized through increasing corporate debt to reduce tax-related expenses (Modigliani and Miller, 1963).

Capital Structure. Capital structure in general is a combination of financing from both liabilities and equity in a company. According to Chandra, et al. (2019) the most optimal capital structure is when capital financing is charged by the company but the risk arising from it is small. According to Nathani and Kaur (2013), the optimal capital structure can generate the maximum rate of return without additional costs to shareholders. Trade off theory emphasizes on corporate tax, while pecking order theory focuses on information differences, and free cash flow theory emphasizes on agency costs. In the trade off theory, Myers (2001) states that the company will borrow funds from outside parties only until the tax savings obtained from the incurrence of interest is equal to the present value of the cost of financial distress that may arise in the future. Financial distress is the possibility of bankruptcy or reorganization of the company. Pecking order theory explains that companies prefer to use internal funding, and if additional funds are needed from external parties, companies will first issue debt securities with minimal risk (Myers, 1984). This theory also assumes that management acts in the interest of shareholders, namely increasing the value of the company's shares (Myers, 2001).
Tangibility. Al-Hunnayan (2020) defines tangibility as a guarantee when the company faces financial difficulties. Tangibility is also commonly known as asset structure or collateral. Alipour, et al. (2015) in his research stated that fixed assets include the company's debt capacity. This is because fixed assets are usually purchased using debt and used as reserves to pay creditors when the company is liquidated. Fixed assets themselves are usually used to refer to property (including land), plant, and equipment (Weygandt, et al., 2018). Fixed assets in general are assets that have a relatively long useful life (more than one year) that are being used in company operations.

Liquidity. According to Weygandt, et al. (2018), liquidity is the company's ability to pay off its debts that will mature in one year. This definition is supported by Al-Hunnayan (2020) who states that liquidity describes the company's ability to cover its short-term debt. Weygandt, et al. (2018) added that if a company's current liabilities are higher than its current assets, then the company loses its ability to pay off debt. However, a liquidity ratio that is too high is also not good, because it indicates that company funds are not being used effectively (Chandra, et al., 2019).

Asset Growth. Assets are all resources owned by the company. The characteristics of assets in general are that they have the ability to produce services or benefits for the company in the future (Weygandt, et al., 2018). Chandra, et al. (2019) state that high company asset growth indicates high profitability in the future. Therefore, asset growth can be said to be one of the determining factors for financial decision making (Khan, et al., 2021). According to Zulvia and Linda (2019), asset growth illustrates the company's potential ability to invest. This asset growth ratio reflects all investments in the company without distinguishing between expansion and economic growth (Alyousfi, et al., 2020).

Earnings Volatility. Earnings volatility is used to calculate the risk of profit stability of a company. Earnings volatility can also be used to calculate the company's ability to pay its fixed costs (Alyousfi, et al., 2020). Alipour, et al. (2015) state that earnings volatility is used to calculate the possibility of future financial difficulties. Therefore, earnings volatility is often referred to as business risk. According to Zulvia and Linda (2019), the high business risk can be influenced by the amount of fixed costs that exist in the company's operating costs.

Inflation Rate. According to the Badan Pusat Statistik (www.bps.go.id), inflation is obtained through the calculation of the percentage change in the Consumer Price Index (CPI). The CPI is an index to calculate changes in the prices of goods/services used by the population within a certain period of time. It can be said that inflation occurs if the percentage change in the CPI is positive, while if it is negative it is called deflation. Bank Indonesia defines inflation as a general and continuous increase in the prices of services and goods over a period of time (www.bi.go.id). Bolarinwa and Adegboye (2021) say that the inflation rate can be used as a tool to measure the macroeconomic stability of a country.

Tangibility and Capital Structure
Fixed assets owned by companies usually have a high value, so companies often use debt to obtain these assets (Alipour, et al., 2015). Al-Hunnayan (2020) in his research states that tangibility can be used as a guarantee in the future if the company experiences financial difficulties. A high proportion of fixed assets is also considered to make it easier for companies to...
to obtain loans from debtors (Chandra, et al., 2019). This is because debtors believe more if the company has many assets that can reduce tax payments, so it is considered to increase the company's ability to pay its debts (Alyousfi, et al., 2020). In addition to these reasons, Zulvia and Linda (2019) argue that these assets can be used as collateral for debt, so companies that have high asset values usually choose debt as a source of financing (external sources). Based on the research, it can be concluded that companies that have high tangibility will be more trusted by creditors. The company can use its fixed assets as collateral to obtain debt. In accordance with MM theory and trade off theory which says that the value of a company with external funding, especially debt, will be higher if it takes into account corporate taxes because there is interest that must be paid by the company (Modigliani and Miller, 1963; Myers, 2001).

**H$_1$:** Tangibility has a positive effect on capital structure.

### Liquidity and Capital Structure

Liquidity is a way to measure the ability to use current assets to pay short-term debt. According to Alyousfi, et al. (2020), companies that have a high liquidity ratio have the potential to borrow more debt, because these companies have a small risk of repayment inability. In contrast to the opinion of Bolarinwa and Adeboye (2021) who in their research stated that companies that have high liquidity usually prefer to use internal funding rather than external. Low liquidity causes creditors to limit the provision of debt because creditors assess the existence of cash flow limitations in companies that have poor liquidity (Loan, et al., 2020). Based on the research, it can be concluded that companies that have high liquidity are able to pay off their debts in the short term. With relatively small risks, companies are more willing to obtain external funding for their investment activities. Trade off theory assumes that the capital structure is optimal if the company balances the benefits and costs of debt procurement, so the company chooses to use debt as a source of funding (Modigliani and Miller, 1963).

**H$_2$:** Liquidity has a positive effect on capital structure.

### Asset Growth and Capital Structure

Companies with high asset growth rates usually prefer to use internal funds from their companies. However, if the existing funds are insufficient, the company will consider using debt (Chandra, et al., 2019). In contrast to Zulvia and Linda (2019) who state that a high level of asset growth will encourage companies to use external funding, because companies tend to avoid selling shares so that their company value does not decrease. Bolarinwa and Adeboye (2021) argue that investors are more interested in financing companies that have good asset growth prospects, so the possibility of using funds from external parties will also increase. Based on the research results, it can be concluded that companies with positive asset growth tend to have good prospects in the eyes of investors. Companies are also more likely to buy assets on credit to reduce cash out of the company. Myers (2001) states in the trade off theory that companies will borrow funds from outside parties only until the tax savings obtained from the incurring of interest are equal to the present value of the costs of financial distress that may arise in the future. Financial distress is the possibility of bankruptcy or reorganization of the company. To prevent this possibility, Myers (2001) states that companies that have tangible assets with high value tend to be safe to borrow money because these assets can be used as collateral.

**H$_3$:** Asset growth has a positive effect on capital structure.

### Earnings Volatility and Capital Structure

Zulvia and Linda (2019) in their research state that companies will reduce the use of funds through external sources if they have high risk. Alipour, et al. (2015) added that companies that have high earnings volatility have the potential for bankruptcy, so they have a low
creditworthiness value. In contrast to the opinion of Khan, et al. (2021) which states that monetary policy such as interest rates can affect earnings volatility. High earnings volatility can be caused by the value of debt and high interest expense. Based on the research, it can be concluded that companies with high earnings volatility have a risk of profit instability in the future. Unstable company profits cause the company to look for sources of capital funds through debt. If taxes are considered, then corporate profits can be maximized through an increase in corporate debt to reduce tax-related expenses (Modigliani and Miller, 1963).

**H4:** Earnings volatility has a positive effect on capital structure.

**Inflation Rate and Capital Structure**

Kahya, et al. (2020) state that a high inflation rate will have an impact on the economic environment making it more difficult to obtain funds from external parties. High inflation can also result in a decrease in the company's ability to repay its debts (Khan, et al., 2021). Bolarinwa and Adegboye (2021) argue that companies tend to borrow more funds from external parties during high inflation rates, because companies can benefit from these loans. While Alyousfi, et al. (2020) said that when inflation is high, companies tend to borrow external funds in order to avoid the tax burden through interest. Based on research, it can be concluded that a high inflation rate causes a country's economy to deteriorate. The company will maintain its existence by borrowing funds from investors.

**H5:** Inflation rate has a positive effect on capital structure.

**Inflation Rate as Moderating Variable**

Inflation is a macroeconomic factor that can be used to measure the economic stability of a country (Bolarinwa and Adegboye, 2021). So, it can be said that inflation is a factor that comes from outside the company, but can affect the internal factors of the company and will also have an impact on internal financial conditions. Individual analysis of the influence of inflation rate on capital structure which is positive, is also analyzed to strengthen the influence of other independent variables which also have a positive influence on capital structure. It has not been found in the previous research that uses inflation as moderating variable. However, since the hypothesis of individual variable has positive influence, then the inflation rate as moderating variable is analyzed to strengthen the influence of other independent variables on capital structure.

**H6:** Inflation rate strengthens the positive effect of tangibility on capital structure.

**H7:** Inflation rate strengthens the positive effect of liquidity on capital structure.

**H8:** Inflation rate strengthens the positive effect of asset growth on capital structure.

**H9:** Inflation rate strengthens the positive effect of earnings volatility on capital structure.
2. RESEARCH METHOD

This research methodology is quantitative research with secondary data obtained from the Indonesia Stock Exchange in the 2014-2019 period. Sample selection using purposive sampling method with criteria: 1) Manufacturing companies that are consistently listed on the Indonesia Stock Exchange from 2014 to 2019 and 2) Manufacturing companies whose financial statements end on December 31 from 2014 to 2019. The number of samples that passed these two criteria was 131 companies, then reduced by 3 companies that had not published financial reports and also reduced by outlier data as many as 6 companies. So that the total sample used in the study was 122 companies and multiplied by the study period to 610 data.

The operational variables and measurements used are:

<table>
<thead>
<tr>
<th>Dependend Variable</th>
<th>Capital Structure</th>
<th>CS = Total Liabilities/Total Assets</th>
<th>The financing structure through external liabilities/funding of a company.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables</td>
<td>Tangibility</td>
<td>TANG = Total Fixed Assets/Total Liabilities</td>
<td>The asset structure of a company, seen from the ratio of fixed assets to total assets.</td>
</tr>
<tr>
<td></td>
<td>Liquidity</td>
<td>LIQ = Current Assets/Current Liabilities</td>
<td>The company's ability to pay off short-term debt through current assets.</td>
</tr>
<tr>
<td></td>
<td>Asset Growth</td>
<td>GRO = (Total Assets_{t} – Total Assets_{t-1}) / Total Assets_{t-1}</td>
<td>The company's asset growth ratio every year.</td>
</tr>
<tr>
<td></td>
<td>Earnings Volatility</td>
<td>VOLAT = Std Deviation of EBIT / Total Assets</td>
<td>The future risk of the company, seen from the stability of the company's earnings.</td>
</tr>
<tr>
<td>Moderating Variable</td>
<td>Inflation Rate</td>
<td>INFL = Inflation Rate at Year</td>
<td>The year-on-year increase in the price of a country's goods/services, as measured by the Consumer Price Index.</td>
</tr>
</tbody>
</table>
3. RESULTS AND DISCUSSION

Classical Assumption Test. Before hypothesis testing is carried out, a classic assumption test is first carried out which consists of Normality Test, Autocorrelation Test, Multicollinearity Test and Heteroscedasticity Test. The normality test used in this research is the Jarque-Bera test and the process shows a Probability value of 0.0000 smaller than 0.05, which means the data is not normally distributed. The Autocorrelation test results have a Chi-square probability value of 0.0019 smaller than 0.05, which means there are indications of autocorrelation. In the Multicollinearity test results, the crossover value between the independent variables does not exceed 0.9, which means that there is no multicollinearity in the regression. Heteroscedasticity test uses ARCH test type and the Chi-square probability value is 0.3912 greater than 0.05, it can be concluded that there is no heteroscedasticity.

The results of the effect test (t test) results can be seen in the table below which is a fixed effect model.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.467312</td>
<td>2.980974</td>
<td>0.0030</td>
</tr>
<tr>
<td>TANG</td>
<td>0.035853</td>
<td>0.149149</td>
<td>0.8815</td>
</tr>
<tr>
<td>LIQ</td>
<td>0.011950</td>
<td>0.565572</td>
<td>0.5719</td>
</tr>
<tr>
<td>GRO</td>
<td>0.169147</td>
<td>0.737466</td>
<td>0.4612</td>
</tr>
<tr>
<td>VOLAT</td>
<td>-0.502828</td>
<td>-0.480499</td>
<td>0.6311</td>
</tr>
<tr>
<td>INF</td>
<td>7.868096</td>
<td>1.569207</td>
<td>0.1173</td>
</tr>
<tr>
<td>TANG*INF</td>
<td>-8.711699</td>
<td>-1.149941</td>
<td>0.2507</td>
</tr>
<tr>
<td>LIQ*INF</td>
<td>-1.936950</td>
<td>-2.712641</td>
<td>0.0069</td>
</tr>
<tr>
<td>GRO*INF</td>
<td>-5.959974</td>
<td>-0.820354</td>
<td>0.4124</td>
</tr>
<tr>
<td>VOLAT*INF</td>
<td>12.29236</td>
<td>0.389309</td>
<td>0.6972</td>
</tr>
</tbody>
</table>

Adjusted R-squared: 0.852714
F-statistic: 28.12164
Prob(F-statistic): 0.000000

Based on the coefficient values in the table above, the regression equation used in this research is as follows:

\[
CS = 0.467312 + 0.035853TANG + 0.011950LIQ + 0.169147GRO - 0.502828VOLAT + 7.868096INF - 8.711699TANGINF - 1.936950LIQINF - 5.959974GROINF + 12.29236VOLATINF + e
\]

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Coefficient</th>
<th>Prob.</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Tangibility has a positive effect on capital structure.</td>
<td>0.0359</td>
<td>0.8815</td>
<td>H1 is rejected</td>
</tr>
<tr>
<td>H2: Liquidity has a positive effect on capital structure.</td>
<td>0.0120</td>
<td>0.5719</td>
<td>H2 is rejected</td>
</tr>
<tr>
<td>H3: Asset growth has a positive effect on capital structure.</td>
<td>0.1691</td>
<td>0.4612</td>
<td>H3 is rejected</td>
</tr>
<tr>
<td>H4: Earnings volatility has a positive effect on capital structure.</td>
<td>-0.5028</td>
<td>0.6311</td>
<td>H4 is rejected</td>
</tr>
<tr>
<td>H5: Inflation rate has a positive effect on capital structure.</td>
<td>7.8681</td>
<td>0.1173</td>
<td>H5 is rejected</td>
</tr>
<tr>
<td>H6: Inflation rate strengthens the positive effect of tangibility on capital structure.</td>
<td>-8.7117</td>
<td>0.2507</td>
<td>H6 is rejected</td>
</tr>
<tr>
<td>H7: Inflation rate strengthens the positive effect of liquidity on capital structure.</td>
<td>-1.9370</td>
<td>0.0069</td>
<td>H7 is rejected</td>
</tr>
<tr>
<td>H8: Inflation rate strengthens the positive effect of asset growth on capital structure.</td>
<td>-5.9600</td>
<td>0.4124</td>
<td>H8 is rejected</td>
</tr>
<tr>
<td>H9: Inflation rate strengthens the positive effect of earnings volatility on capital structure.</td>
<td>12.2924</td>
<td>0.6972</td>
<td>H9 is rejected</td>
</tr>
</tbody>
</table>

Source: Results of data processing
Based on the table above, it can be seen that tangibility variable (TANG) has probability value 0.8815 greater than 0.05, and has coefficient value 0.0359. The result shows that tangibility variable has a positive influence on capital structure. This is in accordance with the trade-off theory which states that companies with high tangibility tend to be easier to obtain loans from creditors because the tangible assets owned can be used as collateral for creditors. However, the probability value shows that the effect of tangibility on capital structure is not significant. This shows that in Indonesia creditors no longer consider the tangibility of the company when providing loans (Chandra, et al., 2019). If moderated by the inflation rate variable, the probability value is 0.2507 with a coefficient of -8.7117. These results indicate that the inflation rate does not moderate the effect of tangibility on capital structure because it is not significant (0.2507>0.05), so H6 is rejected.

Inflation rate cannot strengthen or weaken the effect of tangibility on capital structure because inflation rate is a macro variable, so it cannot directly influence a decision making at the company level. Things that can directly influence decision making in a company are usually variables that are close to the company, or what can be called micro variables.

Table 3 also shows that liquidity variable (LIQ) has a probability value of 0.5719 greater than 0.05, and has a coefficient value of 0.0120. The result shows that liquidity variable has positive influence on capital structure. The positive direction is in accordance with trade-off theory which states that firm with high liquidity level is easier to get loan because it is considered capable to pay off its debt in the future. However, the result also states that the effect is not significant, which means H2 is rejected. According to Chandra, et al. (2019), the liquidity of a company does not affect decisions related to its capital structure, because companies with high liquidity may use debt as a source of funds or companies may instead prioritize the use of their internal sources of funds. If moderated by the inflation rate, it is found that the probability has a value of 0.0069 with a coefficient value of -1.9370. It means that inflation rate weakens the relationship between liquidity to capital structure significantly and H7 is rejected. Inflation rate can weaken the effect of liquidity on capital structure because if there is inflation in a country, then the economy of a country will weaken and can cause an increase in interest rates. Therefore, companies tend to avoid debt because of the high interest that must be paid.

Meanwhile, asset growth variable (GRO) has probability value of 0.4612 with coefficient value of 0.1691. The result shows that asset growth has a positive but insignificant effect on capital structure, so H3 is rejected. Companies that have significant asset growth are considered capable of managing their funding effectively, so they are more trusted by creditors. This is in accordance with the trade-off theory which states that companies prefer to use external funding. However, the effect of asset growth on capital structure is not significant, it can be caused by creditors no longer make the company's assets as a basis for lending consideration. If moderated by inflation rate, the probability value is 0.4124 with coefficient value -5.9600. It shows that inflation rate does not moderate the relationship between asset growth and capital structure, so H8 is rejected.

The result also shows that earnings volatility variable (VOLAT) has probability value of 0.6311 and coefficient of -0.5028. Earnings volatility that has a negative influence on capital structure is in accordance with trade-off theory and pecking order theory. Both theories state that companies with high earnings volatility have a high probability of bankruptcy, so they do not have the ability to fund their companies independently (Alipour, et al., 2015). The possibility of bankruptcy is also high, so creditors hesitate to lend funds to the company. The results of this study also show that earnings volatility has no significant effect on capital structure, which
means that H4 is rejected. This shows that profit instability or financial risk in the future does not affect a company in determining its funding decisions. If moderated by inflation rate, the probability value is 0.6972 and the coefficient is 12.292. It means that inflation rate does not moderate the effect of earnings volatility on capital structure, so H9 is rejected. Inflation rate cannot influence the capital structure in a company, because the company will tend to consider micro variables as the basis of decision making because it has a more significant impact on the company.

Table 3 also shows that inflation rate variable (INFL) has probability value of 0.1173 with coefficient of 7.8681. The test result shows that inflation rate has an insignificant positive influence on capital structure, so H5 is rejected. High inflation rate will cause economic difficulties, so the company tends to need external funding. External funding can also be used by the company to be able to reduce tax payments due to additional interest costs in the financial statements. This supports the trade-off theory which states that companies tend to prefer using external funding. However, the inflation rate in a country, especially Indonesia, does not affect the company's decision whether to use internal or external funding. This can happen because the inflation rate in Indonesia is still in a reasonable stage so that it does not affect national economic conditions.

4. CONCLUSIONS AND SUGGESTIONS

The result of research on the influence of tangibility variable, liquidity, asset growth and inflation rate toward capital structure is in accordance with Trade-Off Theory which states that companies tend to prefer using external funding. While the result for the influence of earnings volatility variable toward capital structure which is negative is in accordance with Trade-Off Theory and Pecking Order Theory which states that companies with financial risk are difficult to obtain funding from creditors or independently. Based on the research result, the moderation variable of inflation rate only moderates the relationship between liquidity variable toward capital structure. It is found that inflation rate weakens the influence of liquidity to capital structure.

For future research, it is possible to add other independent variables, such as profitability or market capitalization. In addition, future research can use other moderating variables that may moderate more of the influence of the independent variables on the dependent. Future research is also recommended to extend the research year to 10 years to get long-term results.

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