

**EFFECTS OF SIZE, PROFITABILITY, AND GROWTH RATE TOWARDS  
CAPITAL STRUCTURE**

*(Pengaruh Ukuran, Kemampulabaan, dan Tingkat Pertumbuhan  
Terhadap Struktur Modal)*

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**ABSTRACT**

*This study was aimed to examine the influence of size, profitability, and growth rate toward capital structure. Our sample includes companies which were belonged to Consumer Goods Industry and Miscellaneous Industry listed in Indonesia Stock Exchange (IDX) on the year period 2009-2014. We utilize panel data regression analysis and show that the capital structure (proxied by the total debt ratio) of the companies is positively determined by their size (proxied by the total revenue). The results of the analysis also showed that capital structure is also positively determined by profitability (proxied by the return on equity), but negatively determined by their growth rate (proxied by the asset growth rate). These findings are consistent with the previous literature.*

**ABSTRAK**

Penelitian ini bertujuan untuk menguji pengaruh ukuran, profitabilitas, dan tingkat pertumbuhan terhadap struktur modal. Sampel penelitian meliputi perusahaan di sektor industri barang konsumsi dan sektor industri lain-lain yang terdaftar di Bursa Efek Indonesia (BEI) pada periode tahun 2009-2014. Penelitian ini menggunakan analisis regresi data panel, dan menunjukkan bahwa struktur modal (diproksikan dengan rasio total utang) dipengaruhi secara positif oleh ukuran perusahaan (diproksikan dengan total pendapatan). Hasil analisis juga menunjukkan bahwa struktur modal juga dipengaruhi secara positif oleh profitabilitas (diproksikan dengan return on equity), tetapi dipengaruhi secara negatif oleh laju pertumbuhan perusahaan (diproksikan dengan tingkat pertumbuhan aset). Temuan ini konsisten dengan literatur sebelumnya.

**Key Words:** Capital Structure, Debt to Equity Ratio, Panel Data, Indonesia

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**INTRODUCTION**

Capital structure can be defined as the composition of the company's capital which is seen from debt and from the owner (Rasyid, 2015). The optimal proportion between debt and equity has been subject of discussion for several decades. The right proportion of debt can helps company in achieving an optimal level of capital structure (Brigham, 2006). Furthermore, the optimal level of capital structure also helps company in increasing the value of the company.

The capital structure of a firm is determined by many factors such as profitability (Martin and Scott, 1974), firm size (Chittenden et al, 1996) and growth rate (Michaelas et al., 1999). For profitability, these findings are inconsistency. Based on The Pecking

Order Theory, the relationship between profitability and debt-to-assets ratio is negative. Furthermore, Fama and French (1998) state that using debt too much could result in a negative relationship between leverage and profitability. On the other hand, Taub (1975) found a significant positive relationship between profitability and debt-to-assets ratio.

For growth, there are uncertain and inconsistent findings. Michaelas et al. (1999) state that the relationship between growth and leverage might be either positive or negative. On the other hand, some studies state that the relationship between firm size and capital structure is positive (Bouallegui, 2006; Antoniou et al, 2008).

The effect of firm size toward capital structure is also inconsistent. Chen (2003) points out that the relationship between firm size and long-term debt for Chinese listed companies is negative. On the other hand, Deesomsak et al (2004) found a positive relationship between firm size and leverage for companies in the Asia-Pacific region.

Furthermore, the effect of profitability and firm size on capital structure also differs across countries in the Asia-Pacific region (Deesomsak et al, 2004). In Malaysian firms, profitability has a significant influence on the capital structure while firm size has no effect on Singaporean firms. In Chinese firms, they tend to have much lower long-term debt. The inconsistency of these findings in analyzing the influences of size, operating efficiency, and growth rate on capital structure across countries motivates researchers to conduct a re-examination of causality between the variables in Indonesia.

The hypotheses are tested using a sample of 9 companies determined through purposive sampling for the period 2009-2014. The way to investigate the effect of size, profitability, and growth rate on capital structure is panel data regression analysis. The results of this study should be useful for future empirical studies on the Consumer Goods Industry and Miscellaneous Industry sectors of countries with similar characteristics.

## LITERATURE REVIEW

Capital structure is very essential for a company in achieving its goals. The optimal capital structure could minimize the risk and maximize return. For that, the question of how a firm should apportion its financing is very essential and should be answered correctly. The debate on the topic of optimal capital structure has existed since several decades. The studies were proposed to explain the practical importance of the optimal capital structure for the value of the firm. Some studies point out that using debt at an optimal level will increase the share price because an optimal capital structure will reduce the cost of capital financial.

### Firm Profitability and Capital Structure Decision

According to Robert (1997) profitability is defined as the ability of a firm to produce earnings in the future and also can be an indicator of a company's operation success. The current profitability of a firm reflects its earnings in the future and represents the basic concern of its shareholders (Bouallegui, 2006).

Several studies have investigated the relationship between capital structure and profitability. Taub (1975) points out that the relationship between debt ratio and measures of profitability is significant and positive. Other studies such as Ross (1977) and Noe (1988) found that by issuing debt for company financing is a positive signal about the firm's performance and value.

Firm's performance is often proxied via ROE which is a ratio of the firm's ability in making return for shareholders of the firm. Furthermore, increasing debt would increase bankruptcy and liquidation costs, only managers who expect that future performance of firm will be better than current.

According to The Pecking Order Theory, the higher profitability will correspond to lower debt-to-equity ratio which implies that relationship between debt-to-assets ratio and profitability is negative. It is consistent with Fama and French (1998) which demonstrate that using of debt excessively could creates agency problems between investors and creditor which could result negative relationship between profitability and profitability.

Antoniou et al (2008:86) showed that relationship between leverage ratio and profitability is negative. When leverage ratio of firm declines, profitability will increases. Other studies such as Chen (2003) suggest that relationship between profitability and debt is negative. Moreover, In 2005, Gaud et al examining the capital structure of Swiss companies found that profitability is negatively associated with leverage. Moreover we expect that relationship between profitability ratio of firm and capital structure is negative.

**Hypothesis 1:** *Firm profitability significantly negative influence the capital structure of the firm*

### **Firm Growth Rate and Capital Structure Decision**

The growth of the firm is one of the goals of company which expected by stakeholders because it will bring good influences for companies. Many research investigated the effect of firm growth. One of them is effect of growth toward leverage. There is uncertain and inconsistent relationship between growth and leverage. Consistent with result of research has done Michaelas et al. (1999) and found that growth might be either positively or negatively related with leverage. Bevan and Danbolt (2002) point out that firm had high levels of growth opportunities also had higher levels of debt. These findings consistent with result of Chen (2003) which found a positive relationship between growth opportunity and debt. Based on these findings, the relationship between growth and capital structure is positive.

On other hand, Deesomsak et al (2004) found growth has negative effect on leverage. It is consistent with Antoniou et al (2008:86) which found negative relation between leverage ratio and growth. This negative relationship because firms with high growth opportunities are more likely to require additional capital and result high fluctuation in their value. The firms have great fluctuations in the firm's value also have great the firm's risk. The firms have highrisk makes them hard to raise external borrowing. This statement implies that relationship between firm's growth and the leverage is negative.

Furthermore, Gaud et al (2005) also findings that in Swiss companies, the relationship between growth and leverage is negative. In summary, there might be either a positive or a negative relationship between the the firm's capital structure and firm's growth rate but most of research results show show that the relationship is negative. The negative relationship can be justified because many firms with considerable growth rate usually require additional capital which result high fluctuation in their value. Moreover, high fluctuation results great firm's risk which affect their ability to raise debt (Michaelas et al., 1999)

**Hypothesis 2:** *Firm growth significantly negative influence the capital structure of the firm*

### **Firm Size and Capital Structure Decision**

Many research investigated the relationship between firm size and capital structure decision such as Bouallegui (2006), Chittenden et al. (1996), Gaud et al. (2005), and Deesomsak et al (2004). Bouallegui (2006) found that the size of the firm has positive relationship with capital structure. This result in line with Chittenden et al. (1996) finding that firm's size of companies is positively related to its sources of financing.

Furthermore, Antoniou et al (2008) also found that the leverage ratio is positively related to the size of the firm. It is consistent with Gaud et al (2005) finding that the relationship between is positive.

There are several explanations for the positive relationship between size of companies and leverage. First, larger firms tend to be much lower transaction cost associated with debt than small firm. Second, the probability of default tends to be much lower in case of larger firm because larger firms tend to be more diversified. Finally, the cost of information tend to be much lower in case of larger firm because increasing of quality of financial information which leads to be considered as trustworthy company by the lenders (Bouallegui, 2006). In summary, most of prior research shows that the relationship between the firm size and its ability to rely on debt is positive.

**Hypothesis 3:** *Firm growth significantly positive influence the ability to rely on debt financing.*

## **SAMPLE, DATA AND EMPIRICAL MODEL**

### **Sample selection**

Population in this research was the whole companies of Consumer Goods Industry Miscellaneous Industry listed in Indonesia Stock Exchange (IDX) in the period 2009-2014. The sample in this research was selected by using purposive sampling technique that consists of 9 companies. All companies in our sample close their books at December 31 and all accounting periods covered in the sample are composed of twelve months.

### **Variable definitions**

The following is definitions for all variables are used in this research.

Independent variables:

TDR = Total Debt Ratio = Total Liabilities (LT) ÷ Total Assets (AT)

Dependent variables:

ROE = Return on Equity = Income Before Extraordinary Items (IB) ÷ Shareholders' Equity-Total (SEQ)

Ag = Assets Growth Ratio = Total Assets (AT)<sub>t</sub> ÷ Total Assets (AT)<sub>t-1</sub>

Ln\_Rev = natural logarithm of Total Revenue Earned = Ln (Revenue-Total (REVT))

**Descriptive statistics**

Table 1. presents univariate statistics for the defined above variables for Consumer Goods Industry Miscellaneous Industry listed in Indonesia Stock Exchange (IDX) in the period 2009-2014.

Table 1: Sample variables for All years (2007-2013)

	Min	Max	Median	Mean	St. Dev.
<i>TDR</i>	0.650	0.920	0.857	0.840	0.065
<i>Ln_Rev</i>	5.485	9.721	7.678	7.661	1.156
<i>ROE</i>	-0.042	0.306	0.128	0.165	0.061
<i>Ag</i>	0.875	2.657	1.112	1.178	0.239

**Empirical Specifications**

Our three hypotheses specified imply three independent such as company’s performance, size, and growth rate. Furthermore, company's performance is proxied via *ROE*, growth is proxied by assets growth rate - *Ag*, and leverage is measured by total debt ratio (*TDR*). The dependent variable is the size of firm which proxied via the natural logarithm of the total revenue earned in the specific year (*Ln\_Rev*). The logarithmic transformation is used for best fit purposes because all independent variables are ratio.

This generates the following equations for testing of the hypotheses:  
 $TDR_{it} = \beta_0 + \beta_1 ROE_{it} + \beta_2 Ln\_Rev_{it} + \beta_3 Ag_{it} + v_{it} + \epsilon_{it}$

Where,

- TDR<sub>it</sub>* = total debt ratio of the company i at time t
- ROE<sub>it</sub>* = return on equity of the company i at time t
- Ln\_Rev<sub>it</sub>* = natural logarithm of total revenue of the company i at time t
- Ag<sub>it</sub>* = percentage change in assets of the firm i between time t and t-1
- v<sub>it</sub>* = random effects error term
- ε<sub>it</sub>* = conventional error term.

**Analysis of Results**

**Total Debt Ratio**

After computation using SPSS, the result is presented below:

$$TDR_{it} = 13,99 + 1,76ROE_{it} + 1,67 Ln\_Rev_{it} - 0,06 Ag_{it} + \epsilon_{it}$$

According to the the result of our empirical test for the model above, the *ROE* appear to be strongly postive effect on *TDR*. This result consistent with Taub (1975) who point out that the relationship between measures of profitability and debt ratio is significant positive. The result also in line with Ross (1977) and Noe (1988) who found that by issuing debt for company financing is a positive signal about the firm's performance and value.

Based on the result above, *Ln\_Rev* is also strongly positively effect on *TDR* in the entire sample period. This result in line with Bouallegui (2006) finding that the size of the firm has positive relationship with capital structure. This result also in line with

Chittenden et al. (1996) finding that firm's size of companies are positively related to its sources of financing.

Furthermore, Antoniou et al (2008) also found that the leverage ratio is positively related to the size of the firm. It is consistent with Gaud et al (2005) finding that the relationship between is positive.

This finding in line with Deesomsak et al (2004) found growth has negative effect on leverage. It is also consistent with Antoniou et al (2008) which found negative relation between leverage ratio and growth. Finally, the constant value of equation is also strongly negatively associated with *TDR*.

## DISCUSSION

This study aims to examine the effects size, profitability and growth on capital structure of Consumer Goods Industry and Miscellaneous Industry listed at Indonesia Stock Exchange (IDX) on the year period 2009-2014. Based on regression output, the Wald chi-square statistics results is significant.

Based on the empirical results above, the return on equity (*ROE*) is significantly and positively affect total debt ratio for entire sample periods at the 5% level. This significant indicating that the higher the *ROE* the higher the total debt ratio. Total revenue earned (*Ln\_Rev*) affect total debt ratio positively and significantly at 10% level. It implies that the total debt ratio increases as total revenue earned (*Ln\_Rev*) increases. Agreeing with Ross (1977) and Noe (1988) who found that by issuing debt for company financing is a positive signal about the firm's performance and value.

For Growth ratio of earnings (*Ag*), it is significantly and negatively related to total debt ratio. It means that the lower the assets growth ratio the higher the total debt ratio. This is in line with the outcomes of Deesomsak et al (2004) research that found low levels of growth opportunities also had higher levels of debt. It is also agreement with Antoniou et al (2008) which found negative relation between leverage ratio and growth.

## CONCLUSION

The objective of this study is to examine the effect size, profitability and growth on capital structure of Consumer Goods Industry and Miscellaneous Industry listed in Indonesia Stock Exchange (IDX) on the year period 2009 -2014. Three hypothesis were developed and analyzed by panel data estimations.

Key findings show that the two independent variables (*ROE* dan *Ln\_Rev*) of companies is positively affect capital structure. These findings are in agreement with prior literature which examines this relationship between profitability, firm asset, and capital structure. The other result also shows that firm growth is significantly and negatively related to total debt ratio. It means that the lower the assets growth ratio the higher the total debt ratio.

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