

## PROFITABILITY, LIQUIDITY, LEVERAGE, AND FIRM RISK: EVIDENCE FROM INDONESIAN TOBACCO INDUSTRY

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**Abstract:** *This study examines the effect of profitability, liquidity, and leverage on company risk. The research sample used cigarette companies listed on the Indonesia Stock Exchange quarterly from 2013 to 2019. The data employed in this study are sourced from financial statements and stock information obtained from [www.finance.yahoo.com](http://www.finance.yahoo.com) and [www.idnfinancials.com](http://www.idnfinancials.com). Based on purposive sampling, this study obtained a total sample of 112 observations. The data analysis method used data regression analysis for panel data. The results showed that profitability and liquidity positively affect firm risk, while leverage does not affect firm risk. This study indicates that financial performance is closely related to stock price risk in the Indonesian cigarette industry.*

**Keywords:** *Leverage, Liquidity, Profitability, Risk.*

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### 1. Introduction

The tobacco industry is one of the largest industries in Indonesia. The sustainability of the tobacco industry, among others, is driven by the high level of public consumption, contributing 10% (2018) of state revenue, and the labor-intensive industry's characteristics supported by the government. However, the tobacco industry has a moral hazard risk in the health sector, leading to national losses. The government has increased tobacco excise rates several times to control this health impact and increased state revenue. The tobacco industry's strengths and weaknesses impact the increase and decrease in stock prices, leading to firm risk. High risk is reflected in the uncertainty of return that investors will receive in the future (Army, 2013).

According to the efficient market theory framework, stock prices will fully reflect the available information, and as an implication, the price will react immediately without bias to new information (Fama, 1970). Relevant information that can affect tobacco companies' stock price includes government policies and their financial performance. Financial performance can be reflected in indicators such as profitability, liquidity, and leverage.

According to previous studies, risk is influenced by several actors, including company size (Tan & Floros, 2014; Iqbal & Shah, 2012; Rowe & Kim, 2010; Kirana & Umanto, 2014), liquidity (Tan & Floros, 2014; Rinaldo, 2018; Iqbal & Shah, 2012; Latifah, 2012; Rowe & Kim, 2010; Kirana & Umanto, 2014; Sarinauli et al., 2015; Julduha & Kusumawardhani, 2013), leverage (Army, 2013; Iqbal & Shah, 2012; Latifah, 2012; Rowe & Kim, 2010; Rahmadina, 2012; Kirana & Umanto, 2014; Sarinauli et al., 2015; Julduha & Kusumawardhani, 2013), profitability (Army, 2013; Rinaldo, 2018; Iqbal & Shah, 2012; Rowe & Kim, 2010; Abadi et al., 2012; Kirana & Umanto, 2014; Julduha & Kusumawardhani, 2013), information (Rinaldo, 2018); operational efficiency (Iqbal & Shah, 2012; Rowe & Kim, 2010), dividend returns (Iqbal & Shah, 2012), market value (Iqbal & Shah, 2012), company growth (Iqbal & Shah, 2012; Rowe & Kim, 2010), interest rates (Latifah, 2012).

This study aims to examine the effect of profitability, liquidity, and leverage on company risk. Profitability is the company's effort to generate profits in the company's operational activities. Army (2013), Iqbal & Shah (2012), Kirana & Umanto (2014) found that profitability affects firm risk. These studies indicate that an increase in the profitability ratio indicates an increase in its net profit. The

increase in net profit will increase the company's stock price, and it will increase the company's risk because the stock return will also increase. Besides, the research results also concluded that profitability has a positive effect on company risk. However, Abadi et al. (2012) and Tan & Floros (2014) concluded that profitability has a negative effect on firm risk. The amount of net profit generated by the company shows the small risk that the company has. Meanwhile, Julduha & Kusumawardhani (2013) found that profitability does not affect firm risk.

Liquidity is the company's ability to meet its short-term obligations or, in other words, debt that must be paid immediately with current assets. Research by Iqbal & Shah (2012), Latifah (2012) states that the liquidity ratio has a negative effect on company risk. The study concluded that a company's high liquidity indicates its high ability to meet short-term obligations. This condition is in line with investors' expectations regarding their investment. However, Rinaldo (2018) found that liquidity has a positive influence on company risk. High liquidity reflects a large number of idle funds, which results in inefficient use of cash. If the cash owned by the company is not invested, this cash will have an impact on increasing the company's risk. The results of this study are inconsistent with research by Army (2013), Rowe & Kim (2010), and Sarinauli et al. (2015), Kirana & Umanto (2014), and Julduha & Kusumawardhani (2013), who concluded that liquidity does not influence company risk. This research indicates that investors do not pay much attention to the company's financial statements' structure. Some of the investors turned out not to give too much importance to the company's current ratio.

Furthermore, leverage is the company's ability to meet its long-term obligations such as interest payments on debt, final principal payments on debt, and other fixed liabilities. Rinaldo (2018), Iqbal & Shah (2012), Latifah (2012) proved that leverage has a negative effect on company risk. The amount of productive debt owed by the company reflects the small risk of company return. However, Army (2013) found that leverage has a positive effect on firm risk. For investors, high leverage is a signal that the company has a risk of inability to pay the debt, so that there is a possibility that creditors will take over the company. Meanwhile, Rinaldo (2018), Sarinauli et al. (2015), Kirana & Umanto (2014) concluded that leverage does not affect corporate risk. The size of the company's ability to meet its long-term debt or obligations does not affect the size of the risk the company has.

The difference in testing profitability, liquidity, and leverage on company risk need to be re-tested with different company data. This study uses cigarette company data because the cigarette industry has a role in driving the Indonesian economy. The cigarette industry is a significant contributor to state revenue through tobacco excise revenue. Tobacco excise revenue continued to increase from 2017 to 2020, with an average increase of 5.7% (processed from Databoks). Two of the five cigarette companies listed on the Indonesia Stock Exchange (IDX), namely Gudang Garam Tbk and HM Sampoerna Tbk, are included in the LQ 45 (most liquid shares), big-cap (largest market capitalization), and blue-chip (quality and reliable company) according to IDX, TradingView, dan CNBC Indonesia. However, the Indonesian cigarette industry is still limited by various kinds of regulations. Government Regulation (PP) Number 109 of 2012 concerning Safeguarding of Materials Containing Addictive Substances in the Form of Tobacco Products for Health regulates how the cigarette industry must sell its products to the public.

Meanwhile, on the business side, the cigarette business is also limited by Government Regulation No. 39/2014 concerning the List of Business Fields Open to Requirements in the Investment Sector. The Indonesian Broadcasting Commission (KPI) limits the airing hours of cigarette advertisements from 21.30 to 05.00 am with advertising content not showing smoking people's activity. The government also requires warning packaging for the dangers of cigarettes that display horrific examples of smoking-related illnesses. Even so, the income of various cigarette industries is still relatively good, so investing in the cigarette industry is an attractive investment option for most investors.

This study also uses control variables to improve the research model, namely company size and profitability, based on investment return. Iqbal & Shah (2012), Rahmadina (2012), and Kirana & Umanto (2014) concluded that firm size has a positive effect on firm risk. Meanwhile, Rinaldo (2018) proved that profitability based on return on investment influences company risk.

## 2. Research Method

This study uses a descriptive quantitative approach. The data to be processed in this study are secondary data types. Secondary data used are in tobacco companies' financial statements listed on the Indonesia Stock Exchange (IDX). The financial statements were obtained from the official IDX website with the page [www.idx.co.id](http://www.idx.co.id) and data from [www.finance.yahoo.com](http://www.finance.yahoo.com) and [www.idnfinancials.com](http://www.idnfinancials.com) and the official websites of each company. From 2013 up to 2019, the timeframe to fulfill the amount of sample should be between 30 and 200 (Roscoe, 1982; in Sugiyono, 2016). There are four tobacco companies used as samples, and the last seven years are selected. The data sample that will be used in this research is panel data (pooled data). Panel data is a combination of data from several companies (cross-sectional) and data reports that are more than one year (time series).

The population used in this study are tobacco companies listed on the Indonesia Stock Exchange. The sampling technique used is non-probability sampling with a purposive sampling technique. Sample selection is conducted by selecting a population that has four predefined criteria. First, the company is the tobacco industry listed on the Indonesia Stock Exchange, making it easier to collect information related to companies used as research objects. Second, the company has conducted an Initial Public Offering (IPO) on the Indonesia Stock Exchange before January 1, 2013, to meet the recommended minimum sample criteria: thirty samples. With the limitation of the year the company was registered on the Indonesia Stock Exchange, the sample is certainly more diverse because it involves companies that have long been listed and those that have just been listed on the IDX. Besides, 2013 was chosen because the accounting profession institute IAI (Indonesian Accountants Association) determined that Indonesia carried out IFRS's full adoption on January 1, 2012. Therefore, the selection of years was made one year apart after implementing IFRS convergence in Indonesia, assuming that all the research object has carried out the convergence. Third, the company did not experience stock suspension during the sampling period. Fourth, the company has complete data (quarterly financial reports) during the 2013-2019 period. It aims to ensure the availability of data needed to calculate the variables in this study.

The dependent variable in this study is a firm risk. The risk context referred to in this study is the possible difference between the return obtained and return the expected. Arthur & Camile (2013) used a standard deviation proxy to evaluate risk on risk-adjusted stock return. Tan & Floros (2014) used a standard deviation proxy for return on assets (ROA). However, Rinaldo (2018) used a stock beta proxy, which describes stocks' sensitivity to market risk. This study will use a standard deviation proxy for stock returns, along with Arthur & Camile (2013). This proxy was chosen because it best describes the risk context in this study and is directly related to stock returns. It is relevant to Firmansyah & Muliana (2018) and Firmansyah et al. (2020). The proxy is as follows.

$$FIRM\_RISK_{it} = \sqrt{\frac{\sum_{i=1}^n (P_i - P_{it})^2}{n - 1}}$$

where:

FIRM\_RISK<sub>it</sub> = standard deviation of shares i quarterly t

n = the number of working days quarters i

P<sub>i</sub> = daily stock price of firm i

P<sub>it</sub> = average daily stock price of the company i quarter t

The independent variables used in this study are profitability, liquidity, and leverage. Subramanyam (2014) divided the proxies of profitability into three categories, namely operational performance (margin), asset utilization (turnover), and return on investment (ROI). Research by Abadi et al. (2012) used return on investment (ROI). The proxy of profitability in this study shows that the results do not significantly affect stock returns. Army (2013) uses return on equity (ROE), which measures the return obtained on the investment of common stockholders in the company. Rinaldo (2018) uses return on assets

(ROA), which measures the return on assets. Kirana & Umanto (2014) use proxy earnings per share (EPS), which measures the level of profit per share. Julduha & Kusumawardhani (2013) use the net profit margin (NPM), which compares net income to sales.

This study will use the same proxy as Julduha & Kusumawardhani (2013) because it describes its performance to streamline operational costs in generating profits. The formula is as follows.

$$NPM_{it} = \frac{NI \text{ after tax }_{it}}{Sales_{it}} \times 100\%$$

where:

$NPM_{it}$  = net profit margin of the company i quarter t

$NI_{\text{after tax }_{it}}$  = net profit after tax company i quarter t

$Sales_{it}$  = sales of the company i quarter t.

According to Subramanyam (2014), proxies that can measure liquidity include the current ratio, acid-test ratio (quick ratio), collection period, and days to sell inventory. The quick ratio shows the proportion of assets that can be quickly converted into cash (quick assets) to current debt. The quick ratio was chosen as a proxy because inventory accounts for many current tobacco industry assets. The company's performance in managing the most easily converted assets into cash will be more visible if the inventory is removed. This proxy follows Rowe and Kim (2010), who use a quick ratio to measure liquidity. The formula is as follows.

$$QR_{it} = \frac{CA_{it} - INVENTORY_{it}}{CL_{it}}$$

where:

$QR_{it}$  = quick assets of the company i quarter t

$CA_{it}$  = current assets of the company i quarter t

$INVENTORY_{it}$  = the company inventory i quarter t

$CL_{it}$  = current liabilities of the company i quarter t

Several proxies can be used to evaluate firm leverage. Debt to equity ratio (DER) evaluates the level of leverage that focuses on solvency and capital structure. Palepu et al. (2003) describe that financial leverage uses an equity multiplier, namely dividing assets to shareholders' equity. Army (2013) and Kirana & Umanto (2014) use the proxy debt to equity ratio (DER), which compares debt to equity. Iqbal & Shah (2012) and Rowe & Kim (2010) use proxy debt ratios that compare liabilities to total assets. There are differences in results in the use of the proxies. In this study, DER's leverage is proxied to determine how much the debt level is used in maximizing the return on profits and the risk of solvency on the company's stock price. This proxy used is the same as Army (2013) and Kirana & Umanto (2014) with the following formula.

$$DER_{it} = \frac{TLT}{Tet}$$

where:

$Deri, t$  = debt to equity ratio of the company i quarter t

$TLT$  = total liabilities of the company i quarter t

$Tet$  = total equity ordinary shares i quarter t

Furthermore, this study's control variables are firm size and profitability based on return on assets. Firm size is a classification scale of the size of a company based on total assets. Firm size is used to accommodate differences in Indonesian tobacco companies' size, such as between GGRM and WIIM. Kirana & Umanto (2014) and Iqbal & Shah (2012) use the natural logarithmic proxy of total assets. Besides, Rowe and Kim (2010) use a market capitalization proxy. The proxies showed significant

positive results. The proxies used in this study are the natural logarithms of total assets, the same as Kirana and Umanto (2014) and Iqbal and Shah (2012). The formula can be written as follows.

$$\text{FIRM\_SIZE}_{it} = \ln \text{TA}_{it}$$

where:

$\text{FIRM\_SIZE}_{it}$  = firm size i quarter t  
 $\ln \text{TA}_{it}$  = natural logarithm of total assets of the company i quarter t

As previously stated, Subramanyam (2014) divided the profitability ratio into three categories: the return on investment (ROI). ROI is subdivided into returns on equity (ROE) and return on asset (ROA). Rinaldo (2018) uses the ROA proxy, which measures asset utilization return with a significant positive result. Rowe and Kim (2010) use the same proxy but produce significant negative conclusions. ROA was chosen because it more describes the company's operational performance in utilizing assets to generate profits. This study uses the same proxy as Rinaldo (2018) and Rowe & Kim (2010) with the following formula.

$$\text{ROA}_{it} = \frac{\text{Nl}aftertax\ it}{\text{TA}_{it}}$$

where:

$\text{ROA}_{it}$  = return on assets of the company i quarter t  
 $\text{Nl}aftertax\ it$  = net profit of company i quarter t  
 $\text{TA}_{it}$  = total assets of the company i quarter t

Based on the variables described, the following research model is obtained.

$$\text{FIRM\_RISK}_{it} = \alpha_0 + \beta_1 \text{NPM}_{it} + \beta_2 \text{QR}_{it} + \beta_3 \text{DER}_{it} + \beta_4 \text{FIRM\_SIZE}_{it} + \beta_5 \text{ROA}_{it} + \varepsilon_{it}$$

where:

$\text{FIRM\_RISK}_{it}$  = firm risk i quarter t  
 $\text{NPM}_{it}$  = profitability (net profit margin) company i quarter t  
 $\text{QR}_{it}$  = company liquidity (quick ratio) i quarter t  
 $\text{DER}_{it}$  = company leverage (debt to equity ratio) i quarter t  
 $\text{FIRM\_SIZE}_{it}$  = firm size i quarter t  
 $\text{ROA}_{it}$  = profitability based on company investment (return on assets) company i quarter t  
 $\varepsilon_{it}$  = error  
 $\alpha_0$  = constant

### 3. Results and Discussion

#### 3.1. Results

The period used in this study is the quarterly period during the 2013- 2019 or for seven years so that the time series data used in this study were 28 periods (7 years x 4 quarters). Thus, the total sample in this study was 112 observations (firm-year). The company data employed in this study are HMSP, GGRM, RMBA, and WIIM. Furthermore, Table 2 shows the descriptive statistics from the variables used in this study.

**Table 2. Descriptive statistics**

	FIRM_RISK	NPM	QR	DER	FIRM_SIZE	ROA
Mean	0.0239	0.0519	0.7953	3.6707	30.2380	0.0342
Median	0.0210	0.0784	0.5782	0.5248	30.6642	0.0246
Maximum	0.0658	0.2813	2.5754	387.55	31.9959	0.7071
Minimum	0.0054	-0.3189	0.1529	-49.0879	27.6424	-0.1151

Observations	112	112	112	112	112	112
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Source: Processed with Eviews 9

The hypothesis test result can be seen in Table 3, which uses the fixed-effect method.

**Table 3.Hypothesis Test Results**

Variable	Coefficient	t-Statistic	Prob.	
C	0.0486	0.2942	0.7692	
NPM	0.0334	2.1421	0.0345	**
QR	0.0065	3.0541	0.0029	***
DER	-1.77E-05	-0.7826	0.4357	
FIRM_SIZE	-0.0010	-0.1891	0.8504	
ROA	-0.0022	-0.1828	0.8553	
R2	0.4269			
Adj. R2	0.3823			
F-stat.	9.5906			
Prob(F-stat.)	0.0000			

Source: Processed with Eviews 9

### 3.2. Discussion

#### Effect of profitability on firm risk

The results of hypothesis testing indicate that profitability has a positive effect on company risk. The results of this test are in line with Army (2013), Iqbal and Shah (2012), and Kirana & Umanto (2014), but not in line with Abadi et al. (2012), Tan & Floros (2014), and Julduha & Kusumawardhani (2013).

Profitability reflects the company's ability to generate profits. Anyone can very easily access information about profit through various platforms. For investors, the company's profit information can be used as a basis for assessing how much return they will make on their investment. This condition can indicate market activity that responds quickly to earnings information to form dynamic stock prices and returns. High profitability indicates good company performance. Therefore, investors will have high confidence in the company so that investors expect a high expected return. However, the high expected return can lead to a high risk of not achieving the expected return (Army, 2013). Investors are willing to buy shares of companies that have high profitability because they expect to get more significant cash inflows in the future (Army, 2013).

#### Effect of liquidity on firm risk

Based on the results of the hypothesis testing, liquidity has a positive effect on firm risk. Based on the results of hypothesis testing, liquidity has a positive effect on company risk. The results of this test are in line with Rinaldo (2018), but not in line with Iqbal & Shah (2012), Army (2013), Rowe & Kim (2010), Sarinauli et al. (2015), and Latifah (2012).

Liquidity generally describes a company's ability to pay off short-term liabilities with current assets. Information regarding liquidity is reflected in the section on its financial position report, which is published quarterly and is easily accessible to the public on its official website and the financial information platform. Investors will process the company's liquidity information and determine its prospects in share valuation responsively in line with efficient market theory. This change in share price affects the return rate changes in the future, summarized in firm risk.

However, liquidity can show performance information in addition to the ability to pay off short-term liabilities. The positive effect of liquidity in this study may indicate weak management of excess current

assets that can be utilized in short-term investments. If the company fails to get a higher term investment return than cash gain, the company risk will increase (Rowe & Kim, 2010).

#### **Effect of leverage on firm risk**

The results of hypothesis testing indicate that leverage does not affect company risk. The results of this test are in line with Rinaldo (2018), Sarinauli et al. (2015), and also Kirana & Umanto (2014), but not in line with Iqbal & Shah (2012), Latifah (2012), and Army (2013).

Leverage describes the company's ability to fulfill all of its obligations. In cigarette companies, there is a large amount of debt compared to the amount of equity. The increase in debt of cigarette companies was generally contributed largely by debt excise stamps. Some analysts can see it as a signal that the company will do more cigarette production with these excise stamps. Besides, this study's results can also be linked to the government's interest in excise revenue is driving the government's response. In the latest situation, the government is trying to compensate for increasing excise by providing leeway for postponement of excise payments with bank guarantees for 90 days. It is based on the Minister of Finance Regulation Number 21 / PMK.04 / 2020 concerning Tobacco Products Industrial Estates.

#### **4. Conclusion**

This study finds that profitability and liquidity have a positive effect on firm risk. Meanwhile, leverage does not affect firm risk. Profitability and liquidity are the indications that can capture the firm risk, but leverage information is not related to firm risk.

This study has several limitations. First, most of the previous research that became the reference for this study did not use the tobacco companies as the research object because it was not widely found. It can lead to a lack of accuracy or relevance of the references. Second, the number of companies used in this study is relatively small, namely four companies, because of the tobacco industry's small population. This limitation means that the sampling period must be expanded quarterly from 2013 to 2019. Third, there are outlier data (observed data with extreme value) on the independent variable. This problem cannot be handled by eliminating the outlier companies due to the limited number of populations. Fourth, the growth in the tobacco company sector is closely related to government policies regarding excise taxes. Government excise policy changes every year (dynamic) and can indirectly impact the particular policy period.

This study's results can be used as information for investors and analysts in making investment decisions or recommendations that consider firm risk based on company profitability, liquidity, and leverage. The results of the research can also be considered by company management in making managerial decisions. In terms of profitability, companies can improve their operational performance to maintain investor expectations through operational cost-efficiency. The company is also expected to manage current assets other than inventories that exceed liquidity requirements and transfer them to short-term investments. The company is expected to manage debt risk well and maintain a large portion of the productive debt of excise tapes regarding leverage.

Several suggestions can be applied in future research to develop the discussion and fill in this study's limitations. Future studies can use or include tobacco and tobacco companies from abroad to accommodate a limited company sample size. Additionally, future research may explore different proxies. The difference in proxies can be used as a comparison to produce a more comprehensive explanation of similar studies.

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