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## Government policy and cigarette industry performance in Indonesia

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**Abstract:** The objective of this study is to examine the level of performance differences of cigarette industry companies listed on the Indonesia Stock Exchange (IDX) before and after the implementation of government policy that called PP. 109 in 2012. The research was conducted by using paired t-test. The results showed that there were significant differences in the level of bankruptcy and profitability potential before and after the application of PP. 109 of 2012. The results of the study failed to find any significant differences in the level of liquidity and solvency before and after the application of PP. 109 of 2012. The implications of this study based on the conclusions of the research results indicate that the application of PP No. 109 of 2012 needs to be reviewed again and need other solutions that can be done to maintain the operational sustainability of tobacco companies.

**Keywords:** bankruptcy; government policy; liquidity; profitability; solvability; Indonesia.

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## 1 Introduction

Cigarettes is one of the many products consumed by people in Indonesia. Cigarette products themselves are currently not only consumed by men and adults, but women and children under age also many who consume cigarettes. Given the phenomenon, the government in 2012 issued a Government Regulation No. 109 of 2012 on the security of goods containing addictive substances contained in tobacco. This government regulation is issued with the aim of limiting production, marketing, and promotion of tobacco products to consumers. This is done on the basis of the existence of dangerous addictive substances in cigarettes.

Implementation of Government Regulation No. 109 of 2012 is automatically mandatory to be followed by all tobacco companies in Indonesia. This is in accordance with the explanation of the compliance theory that explains a person or an entity will tend to behave in accordance with the prevailing norms (Shiyana, 2009). Thus, the tobacco industry companies in Indonesia will also behave in accordance with the regulations applied, namely PP. 109 in 2012. This is because the company does not want to get sanction if it behaves not in accordance with applicable regulations.

The compliance of tobacco companies in Indonesia is against the implementation of Government Regulation No. 109 of 2012 should be proven by the restriction on the production, marketing, and promotion of tobacco products to consumers. Restrictions on cigarette production will affect the company's financial performance. This is because with limited production, the company's revenue will decrease, so the company's profit will decrease as well. The electronic information media of Kontan.co.id stated that in the first semester of 2017 there was a decrease of cigarette sales volume in Indonesia by 9% from 160.8 billion sticks to 146.6 billion (Forddanta, 2017). A drop in the sales rate and profitability will ultimately threaten the company's operational sustainability. Thus, this study is aimed to find out whether there is a significant difference in the performance of tobacco companies in Indonesia before and after the implementation of Government Regulation No. 109 of 2012.

Research with similar themes <sup>5</sup> has been done before by some researchers. The results of previous research indicate the different impact of the implementation of a rule or

standard on the performance of the company. The results of research from Santoso and Rita (2012), Naila (2012) and Sudaryono and Setiawan (2015) show that there is no difference from the performance of the company before and after the application of rules/standards and certain conditions prevail, while the results of research from Ahmed and Alam (2012), Mensah (2013), Nuariyanti and Erawati (2014), Umobong (2015) and Khatami et al. (2017) show the difference between the company's performance between before and after the application of certain rules, standards, or certain conditions. Thus, research related to the impact of the implementation of Government Regulation No. 109 of 2012 related to the cigarette industry becomes an interesting thing to be studied.

This study is based and developed from Pranjoto's (2014) research. Pranjoto (2014) is a researcher doing research related to the impact of the act related to non-smoking area on the performance of tobacco companies in Indonesia. The results of research Pranjoto (2014) states that PT. HM. Sampoerna and PT. Gudang Garam is a tobacco company in healthy condition, while PT. Bentoel is a tobacco company that has the potential to experience bankruptcy due to the act. Therefore, this study will conduct a re-research related to the implementation of regulations on the performance of tobacco companies by using other measurements more complete. This research will include potential variables of bankruptcy, liquidity, profitability and solvency in testing. So, the problem to be answered in this research is to prove a significant difference at the level of bankruptcy, liquidity, profitability, and solvency of tobacco companies before and after the implementation of government policy.

The results of this study can provide input to the government to conduct an evaluation of the rules that have been applied. The results of the research can also be used by the company to conduct a company performance evaluation and strategy that will be used to adjust to the rules that have been applied. The results of this study can also be a reference for future research to conduct research with similar themes.

## 2 Literature review

This section will explain the basics of the literature used in this study. This research is based on compliance theory, Government Regulation No. 109 of 2012, and some previous studies related to this research. The following is a brief explanation of each of the literary basics used in this study.

### 2.1 Compliance theory

The theory of adherence has often been used in social science research. The theory of compliance has two basic views related to legal compliance called instrumental and normative (Sulistiowati, 2004). Research in the social field is more often associated with a normative perspective that is associated with compliance with applicable law or norms. The theory of compliance describes a person's tendency to be obedient to existing norms and rules. This compliance theory is intended to influence the behaviour of a person to conform to the prevailing norms (Shiyana, 2009). This compliance theory is also applied to the field of accounting based on normative perspectives (Ukago, 2005). Thus, based on this theory, tobacco industry companies in Indonesia must be able to comply with the applicable regulations related to cigarette production restrictions, marketing, and cigarette

product advertising campaign. The regulation governing such obligations is regulated in Government Regulation No. 109 of 2012 which explains about the delivery of goods containing addictive substances on tobacco.

## 2.2 Legitimacy theory

Every company in its operational activities should strive to gain legitimacy from various related parties. This is done because the legitimacy obtained by the company is a guarantee to ensure that the company's operational process has received approval from various parties. Firms can gain legitimacy if it has ensured that the company's operating activities are in compliance with the values and norms that exist in the environment where the company's activities (Mandaika and Salim, 2015). Tobacco companies in Indonesia are also companies that must pay attention to the legitimacy needed to ensure their operations are accepted by the public. Therefore, tobacco companies in Indonesia must know the rules made in Indonesia related to the cigarette industry, one of which is the Government Regulation No. 109 in 2012. This is done so that tobacco companies in Indonesia still get permission and recognition to continue to run its operational activities in Indonesia due to the conformity with norms and values applicable to the company's operational activities.

## 2.3 Government Regulation No. 109 years 2012

Government Regulation No. 109 of 2012 is a regulation that regulates the security of goods containing addictive substances contained in tobacco. Thus, this regulation to safeguard the tobacco products that are products of tobacco are widely consumed by many people. This government regulation automatically directly affects the cigarette industry in Indonesia. This is because in this regulation has been explained that the rules have been arranged from the production process to the circulation of the cigarette products. The arrangement is contained in Chapter 4 of operations containing five sections consisting of 44 articles (Chapters 8 through 52). Chapter 4 also discusses the prohibition of selling tobacco products to pregnant women and minors. In addition, there are also explanations related to non-smoking areas. These rules have a strong influence on the cigarette industry's cigarette sales which can ultimately lead to a decrease in corporate earnings.

## 2.4 Corporate performance

Assessment of company performance can be done by measuring the performance, company performance measurement can be done by using a method or approach. Given the performance measurement will be evaluated by comparing the performance set with the real. From the comparison result, management can know how much deviation happened and how far progress has been achieved and not achieved, so that action can be taken to handle it. According to Horngren et al. (2009), performance measurement can be grouped into measurement of non-financial performance and financial performance measurement.

Performance measurements carried out over a given period of time are very useful for assessing the progress the company has made and producing information that is very useful for management decision making and able to create the value of the company itself

to the stakeholders. Companies with better performance then the higher the value of the company owned because it is able to provide the expected return by investors (Pamadanu, 2013). The company's performance is one of the important indicators, not only for the company, but also for the investor. Performance shows the company's management capability in managing its capital. Performance is the result achieved for various activities carried out by utilising various available resources, as measured by a standardised standard size (Felisia, 2011).

### 2.5 Altman Z-score

An Z-score is an analytical model that aims to measure the company's financial health and tools to forecast the possibility of bankruptcy at the company. Here is the formula of the Altman model [Hanafi, (2008), p.656]:

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0X5$$

Information:

- Z bankruptcy index
- X1 work capital / total asset
- X2 retained earning / total asset
- X3 EBIT / total asset
- X4 stock value / total book value of debt
- X5 sales / total asset.

Determination of the health level and potential bankruptcy of the company is divided into three categories. The three categories are among companies that are not bankrupt, vulnerable companies and companies that have the potential to go bankrupt [Hanafi, (2008), p.657]. The basis of this category determination is determined from the Z value generated from Altman Z-score calculations. The assessment criteria are as follows [Hanafi, (2008), p.657]:

- a Z-score value  $> 2.99$  indicates that the company is in very healthy condition.
- b  $1.81 < \text{Z-score} < 2.99$  indicates that the company's condition is in a bankrupt condition.
- c The Z-score  $< 1.81$  score indicates that the company is in a condition with very high bankruptcy potential.

### 2.6 Previous research

This study was conducted using the basis of several studies that have been done before. The research used as the basis in this study was chosen because it has a theme in accordance with this research. A summary of the results of previous research used in this study is presented in Table 1.

Table 1 Previous research summary

Name	Samples/research objects	Variable	Result
Ahmed and Alam (2012)	Local government entity in Australia	Accounting profits (loss), equity and assets, liabilities	The results show some differences between the two sets of accounts prepared under this different accounting standard. While the average surplus (losses) accounting for local government entities has declined, while equity, assets and liabilities have increased despite not significant overall positions, except for liabilities.
Santoso and Rita (2012)	Mining and mining services company in Indonesia Stock Exchange 2009–2009	Profitability ratio	The results showed that there was no difference in the level of profitability ratios from the sample before and after the implementation of Law No. 40 of 2007 concerning the obligations of limited liability company (PT).
Mensah (2013)	Companies listed on the Ghana Stock Exchange	Company size, profitability, debt to equity ratio (DER), liquidity, size of audit firm	The results showed that there was a difference in the quality of the financial statements before and after the adoption of IFRS. The results also show that the quality of the company's financial statements is influenced by the size of the firm and the type of auditor.
Naila (2012)	Companies listed on the Tanzanian Stock Exchange	Company performance	The results show that there is no relationship between environmental compliance and firm performance listed on the Tanzanian Stock Exchange.
Pahlévi et al (2013)	Tobacco companies listed on IDX 2009–2011	Company performance with EVA method	The results showed that the best performance is owned by PT. HM. Sampoerna marked with EVA value are always increasing. The next financial performance is PT. Gudang Garam and then followed by PT. Bentoel.
Nuariyanti and Erawati (2014)	PT. Bank Mandiri (Persero) 2002–2010	Company performance	The results showed that there was a difference of company performance before and after the convergence of IFRS.
Pranjoto (2014)	Tobacco companies listed on IDX	The security level of cigarette industry	The results showed that PT. Gudang Garam and PT. HM. Sampoerna is a tobacco company that is in safe condition. The results showed that PT. Bentoel is a company with unhealthy conditions and threatened bankruptcy.
Umohong (2015)	A food and beverage manufacturing company on the stock exchange in Nigeria	Company performance	The results show that the market performance difference of food and beverage manufacturing companies listed on the Nigerian Stock Exchange between the period before and after the IFRS implementation is insignificant.
Sudaryono and Setiawan (2016)	Non-financial companies in Indonesia Stock Exchange 2006–2010	Profit management, return on assets and leverage	The results show that there is no significant difference between earning management before and after the application of single tariff for tax. These results also found similar ROA effects on earnings management. High-earning companies are more aggressive in managing earnings. On the other hand, this study found no significant effect of firm size on earnings management.
Khatami et al. (2017)	Non-financial companies listed on Indonesia Stock Exchange (IDX) in 2011	Current ratio, debt equity ratio, debt ratio, total asset turnover, net profit margin, return on investment, and return on equity	The results showed that there are differences in current ratio (CR) and return on equity (ROE) before and after IPO. The results did not succeed to prove that there is a difference in debt equity ratio, debt ratio, total asset turnover, net profit margin, return on investment before and after IPO.

Source: Data processed

### 3 Hypothesis development

Cigarette companies in Indonesia are all in performing their operational activities based on the rules that apply. This is because cigarette companies in Indonesia are eager for the operational activities to get legitimacy from related parties. Firms can gain legitimacy if it has ensured that the company's activities (Mandaika and Salim, 2015). Thus, all kinds and types of rules related to the cigarette industry will definitely try to be obeyed by related companies so that operational activities can run well and without obstacles. Shiyana (2009) states that the existence of rules/norms will affect the behaviour of a person or group. This is what ultimately makes tobacco companies in Indonesia can certainly have compliance to follow government regulations related to cigarettes, one of which is the Government Regulation No. 109 of 2012.

Government Regulation No. 109 of 2012 regulates the existence of addictive substances contained in tobacco (Presiden Republik Indonesia, 2012). This regulation seeks to regulate the amount of tobacco products consumed by the Indonesian people. Thus, the existence of this regulation will automatically affect the cigarette industry in Indonesia. Cigarette companies in Indonesia must comply with rules related to the production and distribution of cigarette products. This is ultimately expected to affect performance of tobacco companies because of the limitations that have been set.

The performance of tobacco companies affected by this is due to the relationship between the amount of product produced and the amount of income received by the tobacco company. Ahmed and Alam (2012) and Nuariyanti and Erawati (2014) prove that the existence of rules or standards affects the company's performance. Pranjoto (2014) also proves that the non-smoking area law causes one of the tobacco companies to have potential bankruptcy. Thus, the existence of Government Regulation No. 9 of 2012 is suspected to have an impact on the financial performance of tobacco companies in Indonesia. Based on the explanation, the hypothesis of this research is as follows:

- H1 There is a difference in the level of bankruptcy potential before and after the implementation of government policy.
- H2 There is a difference in the level of liquidity before and after the implementation of government policy.
- H3 There is a difference in the level of profitability before and after the implementation of government policy.
- H4 There is a difference in the level of solvency before and after the implementation of government policy.

**Figure 1** Research model





## 4 Research method

### 4.1 Research object

The object of this research is the cigarette industry company listed on the Indonesia Stock Exchange (IDX) period 2009 to 2016. The reason for the use of this research object because the tobacco industry companies listed on the IDX has greater responsibility than others because the shares are owned by the public.

### 4.2 Data

This study uses secondary data from the company that is the company's financial statements at four years before and after the application of PP. 109 of 2012 is the year 2009 to 2016. Financial statement data obtained from the official website of IDX (<http://www.idx.co.id>). The research data used was collected by using documentation technique. Documentation techniques dilakukan on corporate financial statements that become the object of research.

### 4.3 Operational variable definition

This study will measure the level of differences in corporate financial performance before and after the implementation of government policy through PP No. 109 in 2012. The financial performance of this study measured using four measures of bankruptcy, liquidity, profitability, and solvency of the company. The measurement of each of the company's financial performance is as follows.

#### 4.3.1 Bankruptcy potency (Altman Z-score)

The potential variable of bankruptcy this study was calculated using the Altman Z-score formula. Here is the calculation formula Altman Z-score [Hanafi, (2008), p.656]:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

Information:

- Z bankruptcy index
- X1 work capital / total asset
- X2 retained earning / total asset
- X3 EBIT / total asset
- X4 stock value / total book value of debt
- X5 sales / total asset.

#### 4.3.2 Liquidity

The ratio of liquidity in this study is measured by the ratio of current ratio (CR). This ratio is chosen because it depicts the company's ability to pay-off its short-term liabilities. The formula for calculating this ratio is as follows (Khatami et al., 2017):

$$\text{Current ratio} = \frac{\text{Current asset}}{\text{Current debt}}$$

#### 4.3.3 Profitability

Profitability ratios in this study were measured using the net profit margin (NPM) ratio. This ratio is used because the regulation PP. 109 of 2012 is related to the restriction on the number of cigarette production, so it will affect the level of profit from the sale of the company. This ratio is calculated by the following formula (Khatami et al., 2017):

$$\text{Net profit margin} = \frac{\text{EAT}}{\text{Sales}}$$

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#### 4.3.4 Solvability

The level of solvency is a description of the company's ability to pay-off the company's debt. This research uses the ratio of debt to equity to measure the level of solvency company. This ratio is chosen because the debt to equity ratio (DER) ratio because the regulation of Government Regulation No. 109 of 2012 will impact on the retained earnings of the company. The formula for calculating the DER is as follows (Sudaryono and Setiawan, 2015):

$$\text{Debt to equity ratio} = \frac{\text{Debt}}{\text{Equity}}$$

#### 4.4 Data analysis

Data analysis in this research is done by using statistical method with the help of SPSS ver. 22. The process of data analysis conducted in this study there are three types. Here is an explanation of each of the testing process:

##### 1 Statistic descriptive

Descriptive statistics will be performed on the research data that has been successfully collected. The purpose of this descriptive statistic is to know and describe the data that has been collected without making a general conclusion or generalisation [Sugiyono, (2016), p.147].

##### 2 Normality

The data is said to have a normal data distribution if it has a significance value greater than 0.05. Normality testing process in this study was conducted by using Kolmogorov-Smirnov test. The results of this normality test are used as the basis for determining the different test types to be used.

##### 3 Different test

Different test process in this study was conducted by using different test of T-test in pairs or Wilcoxon signed rank test. Different T-test pair test is used if the normality test results indicate that the data is normally distributed, whereas if the normality test

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results show abnormal data distribution then the different test used is Wilcoxon signed rank test. The research hypothesis will be accepted if the significance value is less than 0.05.

## 5 Results and discussion

### 5.1 Description of research data

Tobacco companies listed on the IDX amounted to four companies namely PT. Handjaya Mandala Sampoerna Tbk, PT. Gudang Garam, PT. Bentoel International Investama Tbk and PT. Wisnilak Inti Makmur, Tbk. However, this study does not use PT. Wisnilak Inti Makmur Tbk because the company is newly listed on the IDX in 2012. Thus, peneitian is only using data from three companies namely PT. Handjaya Mandala Sampoerna Tbk, PT. Gudang Garam, and PT. Bentoel International Investama Tbk with observation time from 2009 to 2016.

### 5.2 Company performance

The next part of the results of this study is an explanation of the company's performance data into the sample research. Here is each brief description of the company's performance data which has been presented in tabular form.

#### 5.2.1 Liquidity

The level of corporate liquidity in this study is measured using the size of CR. Data on the level of corporate liquidity during the year 2009 to 2016 has been presented in Table 2.

**Table 2** Liquidity

Company	Current ratio								
	2009	2010	2011	2012	2013	2014	2015	2016	Average
PT. HM. Sampoerna	188%	161%	177%	178%	175%	153%	657%	523%	277%
PT. Gudang Garam	246%	270%	224%	217%	172%	162%	177%	194%	208%
PT. Bentoel	208%	250%	112%	164%	118%	100%	220%	240%	177%

Source: Data processed

Table 2 shows that all firms have high CR. It is claimed that the three companies have good ability to pay-off their short-term debts with current assets. The highest average CR is owned by PT. HM. Sampoerna Tbk amounted to 277%. This value indicates that the average number of current assets owned by PT. HM. Sampoerna Tbk amounted to 2.77 times greater than the amount of short-term debt that must be settled. The average value of the lowest CR is owned by PT. Bentoel Group Tbk at 177%. This value indicates that the average number of current assets owned by PT. Bentoel Tbk is 1.77 times larger than the amount of short-term debt that must be settled.

### 5.2.2 Profitability

The level of profitability in this study was measured using NPM size. Data on the level of profitability of the company during 2009 to 2016 has been presented in Table 3.

**Table 3** Profitability

Company	Net profit margin								
	2009	2010	2011	2012	2013	2014	2015	2016	Average
PT. HM. Sampoerna	13%	15%	15%	15%	14%	13%	12%	13%	14%
PT. Gudang Garam	10%	11%	12%	8%	8%	8%	9%	9%	9%
PT. Bentoel	-2%	2%	3%	15%	-8%	-16%	-10%	-11%	-6%

Source: Data processed

Table 3 shows that the profitability level of PT. HM. Sampoerna Tbk, PT. Gudang Garam Tbk, and PT. Bentoel Group Tbk experienced fluctuations during the year 2009 to 2016. The highest average profitability level is owned by PT. HM. Sampoerna Tbk is 14%. The value of this profitability indicates that PT. HM. Sampoerna Tbk from 2009 to 2016 has a high level of efficiency by reducing the average cost incurred, so the company can produce an average net profit of 14% of total net sales of the company. The lowest average profitability level is owned by PT. Bentoel Group Tbk is -6%. The value of this profitability indicates that PT. Bentoel Group Tbk suffered a loss of 6% because the total cost is greater than the total net sales obtained by the company.

### 5.2.3 Solvability

The solvency level in this study was measured using the DER measure. Data solvency level of the company during the year 2009 to 2016 has been presented in Table 4.

**Table 4** Solvability

Company	Debt to equity ratio								
	2009	2010	2011	2012	2013	2014	2015	2016	Average
PT. HM. Sampoerna	69%	101%	88%	97%	94%	110%	19%	2%	73%
PT. Gudang Garam	48%	44%	59%	56%	73%	75%	67%	59%	60%
PT. Bentoel	156%	130%	182%	260%	947%	-834%	-502%	43%	382%

Source: Data processed

Table 4 shows that the average solvency ratio with a value below 100% is PT. HM. Sampoerna Tbk and PT. Gudang Garam Tbk, while PT. Bentoel Group Tbk has an average solvency rate of more than 100%. The lowest solvency average value is owned by PT. Gudang Garam Tbk is 60%. This value indicates that the average total debt owned by PT. Gudang Garam Tbk during the year 2009 to 2016 is equal to 0.6 times of total equity owned by PT. Gudang Garam during the year 2009 to 2016. The highest solvency average value is owned by PT. Bentoel Group Tbk is 382%. This value indicates that the average total debt owned by PT. Bentoel Group Tbk during the year 2009 to 2016 is 3.82 times of total equity owned by PT. Gudang Garam during the year 2009 to 2016.

#### 5.2.4 Bankruptcy potency (Altman Z-score)

The potential level of bankruptcy in this study was measured using the Z-score size. Data on the level of potential bankruptcy of the company during 2009 to 2016 has been presented in Table 5.

**Table 5** Potential level of bankruptcy research samples

Company	Altman Z score								Average
	2009	2010	2011	2012	2013	2014	2015	2016	
PT. HM. Sampoerna	5.12	4.85	5.28	5.46	5.71	5.48	5.06	4.97	5.24
PT. Gudang Garam	3.31	3.34	3.04	3.02	2.69	2.71	2.82	3.01	2.99
PT. Bentoel	2.18	3.12	2.42	1.93	1.09	1.11	1.10	1.21	1.77

Source: Data processed

Table 5 shows the potential value of bankruptcy from Altman Z-score. Companies that have the highest bankruptcy potential are PT. Bentoel Group Tbk because it has an average value Altman Z-score of 1.77. PT. Gudang Garam Tbk has a warning signal indicating the company should also be alert to the potential for bankruptcy. This is because PT. Gudang Garam Tbk has an average value of Altman Z-score 2.99 which is the minimum value of the safe value determined by Altman. Company PT. HM. Sampoerna Tbk does not have the potential to go bankrupt because it has an Altman Z-score value of more than 2.99 is 5.24. Thus, the company must be aware of the potentialities of this bankruptcy in order to make improvements to the company's operations.

## 6 Data analysis

This research conducted three stages of data analysis that are descriptive statistic, normality test and different test. Here is a brief explanation of each test that has been done.

### 6.1 Statistic descriptive

This test will provide information on the description of the research data that has been collected. Table 6 shows the results of the descriptive statistical tests that have been conducted in this study.

**Table 6** Descriptive statistics test results

Variable	Number	N. min.	N. max.	Averages	Std. deviation
Z-score	24	1,22	5.71	3.51	1.44
Liquidity	24	1	6.57	2.20	1.23
Profitability	24	-0.16	0.15	0.06	0.09
Solvability	24	0.024	9.47	1.72	2.44

Source: Output SPSS

Table 6 shows that the lowest and highest Z-score values of the 24 samples examined in this study were 1.22 and 5.71. The lowest value of 1.22 is the z-score value of PT. Bentoel in 2016, while the highest score of 5.71 is the Z-score value of PT. HM. Sampoerna in 2013. This indicates that PT. Bentoel in 2016 has a very high bankruptcy potential, while PT. HM. Sampoerna is the healthiest tobacco company in 2013. Table 6 also shows that the average score of Z-score of 3.51 indicates that the average cigarette company in the study sample is in very healthy condition during 2009 to 2016.

Table 6 shows that the lowest and highest liquidity values of 24 samples that have been studied are 1 and 6.57 in 2009 to 2016. Liquidity value of 1 is the value of liquidity of PT. Bentoel in 2014, while the value of 6.57 is the liquidity value of PT. HM. Sampoerna in 2015. This value indicates that the company's ability to sample in this study in paying short-term liabilities is high because it still has the lowest value is 100% to 657%. Meanwhile, the average ability to pay short-term liabilities from this research sample is 220%.

Table 6 shows that the profitability level of the study sample has the lowest and highest values of  $-0.16$  and  $0.15$ . Profitability of  $-0.16$  is the level of profitability of PT. Bentoel in 2014 and the highest profitability of  $0.15$  is owned by PT. HM. Sampoerna in 2010 and 2011. This shows that the level of profitability of tobacco companies is very low, even have a great chance to lose. Overall, the average profitability level of this research sample is only 6%.

Table 6 also shows the amount of solvency level of the research sample with the lowest and highest values being  $0.024$  and  $9.47$ . Solvency value of  $0.024$  is owned by PT. HM. Sampoerna in 2016, while the solvency value of  $9.47$  is owned by PT. Bentoel in 2013. This indicates that the lowest debt level is owned by PT. HM. Sampoerna in 2016, while the company with the highest debt is owned by PT. Bentoel in 2013. Overall debt levels owned by the average study sample were  $1.72$  (172%). This figure shows a high debt level because it is above 100%.

## 6.2 Normality testing

Normality test in this research was done by using Kolmogorov-Smirnov test. Here are the results of the normality test that has been done.

**Table 7** Normality test results

		<i>Unstandardised residual</i>	
N		24	26
Normal parameters	Mean	.0000000	
	Std. deviation	.62675861	
Most extreme differences	Absolute	.144	
	Positive	.144	
	Negative	-.076	
Test statistic		.144	
Asymp. sig. (2-tailed)		.200	

Source: SPSS output

This study uses Kolmogorov-Smirnov test to test the normality of the distribution of research data. Table 7 shows the results of normality test data that has been done. The result shows that the value of significance is greater than 0.05, i.e., 0.2. Thus, the research data is normally distributed. This normal distributed research data indicates that different test processes will be performed using paired t-test.

### 6.3 Different test

Different test conducted in this study is a paired test t-test different. This is because the research data is normally distributed. Here are the results of different tests that have been done in this study.

Table 8 shows that there is a significant difference in the potential bankruptcy of cigarette industry companies before and after the application of PP. 109 in 2012. This is indicated by the decrease of Altman Z-score value from 3.59 to 3.07 and significant value of 0.039 (less than 0.05). Thus, Hypothesis H1 of this study is accepted.

Table 8 shows that there is no difference in the level of liquidity of tobacco industry before and after the application of PP. 109 of 2012. This is shown from the significant value of liquidity that is equal to 0.467 (more than 0.05). Thus, Hypothesis H2 of this study was rejected.

**Table 8** Different test results

Variable	Averages		Significant
	Before	After	
Altman Z-score	3.59	3.07	0.039
Liquidity	2	2.41	0.467
Profitability	0.083	0.035	0.012
Solvency	1.075	2.35	0.187

Source: SPSS output

Table 8 shows that there is a significant difference from the level of profitability of the company before and after the application of PP. 109 in 2012. This is indicated by the decrease of Altman Z-score value from 0.083 to 0.035 and significant value of 0.012 (less than 0.05). Thus, Hypothesis H3 of this study is accepted.

Table 8 shows that there is no difference in solvency level of tobacco industry before and after the application of PP. 109 of 2012. This is shown from the significant value of solvency that is equal to 0.187 (more than 0.05). Thus, Hypothesis H4 of this study was rejected.

**Table 9** Result of hypothesis testing

Hypothesis	Significant	
H1	0,039	Accepted
H2	0,467	Rejected
H3	0,012	Accepted
H4	0,187	Rejected

Source: Data processed

## 7 Discussion

Hypothesis H1 of this study was accepted because it has a significant value of 0.039. Thus, the potential level of bankruptcy of tobacco companies experienced a significant difference between before and after the application of PP. 109 of 2012. The decline in Z-score most kirtis seen at PT. Bentoel which after 2011 the value of Z-score decreased, so this indicates that PT. Bentoel is experiencing financial difficulties and has the potential bankruptcy it needs to watch out for. The value of Z-score in two companies namely PT. HM. Sampoerna and PT. Gudang Garam is still included in the safe category, but still needs to be considered because every year has a Z-score value that fluctuates. The overall average Z-score score from 2009–2016 shows a significant decline from 3.59 to 3.07. Thus, the application of PP. 109 of 2012 proved to have an impact on the potential bankruptcy of tobacco companies in Indonesia. The results of this study are in line with the results of research from Mensah (2013) and Nuariyanti and Erawati (2014).

Hypothesis H2 of this study was rejected because it has a significant value of 0.467. Thus, the level of liquidity of tobacco industry companies in Indonesia did not experience significant differences between before and after the application of PP. 109 of 2012. The value of liquidity level before the application of PP. 109 of 2012 is 2, whereas after the application of PP No. 109 of 2012 is 2.41. Research data shows that cigarette industry companies in Indonesia still have a good level of liquidity despite the application of PP. 109 of 2012. This is shown from the liquidity ratio of each company in Table 2 which is still above 100%. The results of this study are in line with the results of research from Santoso and Rita (2012), Naila (2012), Umobong (2015) and Sudaryono and Setiawan (2015).

Hypothesis H3 of this study was accepted because it has a significance value of 0.012. This shows that there is a significant difference in the profitability level of cigarette industry companies between before and after the application of PP. 109 in 2012. This is evident from the research data related to the ratio of NPM of the company after the PP No. 109 in 2012 is declining. PT. Bentoel is a company with the value of NPM which experienced the most significant decrease until it reaches minus value. Significant differences are also evident from the average level of profitability before and after the application of PP. 109 of 2012 from 0.083 to 0.035. The results of this study are in line with the results of research from Mensah (2013) and Nuariyanti and Erawati (2014).

Hypothesis H4 of this study was rejected because it has a significance value of 0.187. Thus, there is no significant difference from the solvency level of cigarette industry companies in Indonesia between before and after the application of PP. 109 of 2012. This is evident from the average value of solvency before the application of PP. 109 of 2012 which amounted to 1.075 to 2.35. This increase in average value indicates that after implementation of PP No. 109 of 2012 cigarette companies in Indonesia have increased the amount of debt larger than the amount of equity owned. The results of this study are in line with the results of research from Santoso and Rita (2012), Naila (2012), Umobong (2015) and Sudaryono and Setiawan (2015).



## 8 Conclusions, implications and limitations

This study aims to determine differences in performance of the cigarette industry in Indonesia before and after the application of PP. 109 of 2012. The results of this study indicate that there is a significant difference from the potential level of bankruptcy and profitability of the cigarette industry in Indonesia before and after the application of PP. 109 in 2012. The result of the study did not find any significant difference in liquidity level and solvability of cigarette industry before and after the PP No. 109 of 2012.

The results showed that after the implementation of regulation PP. 109 year 2012 level of profitability obtained by tobacco companies to decline. This is due to reduced production because tobacco companies must comply with the regulations that have been applied. This in turn has an impact also on the increasing potential bankruptcy of tobacco companies. The high potential of this bankruptcy will have a negative impact on many people. This is because cigarette companies in Indonesia have a high number of workers. Thus, if the tobacco company is bankrupt, it will result in the increase of unemployment in Indonesia.

The increased unemployment rate will ultimately have an impact on the decreasing purchasing power and saving ability that is declining because when the workers stop working, the amount of money they have will be reduced. This condition will ultimately impact on the level of sales made by traders and producers are declining. This condition will also impact on the decrease of funds collected by financial institutions from the community. Thus, this condition will increasingly cause many economic and social problems in Indonesia.

The implications of this study based on the conclusions of the research results indicate that the application of PP No. 109 of 2012 needs to be reviewed again and need other solutions that can be done to maintain the operational sustainability of tobacco companies. It aims to avoid any parties who are harmed from the implementation of the regulation and avoid the bankruptcy of tobacco companies that will be followed by increasing unemployment rate in Indonesia.

The results of this study can not be separated from the limitations. Limitations in this study are expected to be considered for further research. The main deficiency in this study is the number of companies used. This research is only able to use three of four companies listed on IDX. Thus, further research is expected to maximise the number of companies used by combining secondary data and the company's primary data.

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