

# Concentration Ratio, Advertising Intensity, Sales Growth, The Government's Regulation and Profitability in Indonesian Cigarette Industry

Yulia Saftiana, Bernadette Robiani, Syamsurijal, and Suhel  
*Faculty of Economic, Universitas Sriwijaya, Palembang, Indonesia*

**Keywords:** concentration industry, advertising intensity, price cost margin, regulation, sales growth

**Abstract:** This study examined the effect of concentration ratio, advertising intensity, and the government's regulation on profitability in Indonesian cigarette industry. This study used secondary data of the cigarette industry in Indonesia. It was from the Central Bureau of Statistics (BPS) and the Indonesia Stock Exchange (BEI). In this study, the population is the manufacturing industry sector in Indonesia during the period 1993 to 2013. Selection of this sample is based on the completeness of the data held. The results show Concentration, advertising intensity, regulation, and sales growth have an effect on long-term earnings stronger than short-term. The test results also show that Government Regulation No. 81 of 1999 has not significantly affected the structure, conduct and performance of the cigarette industry. Despite the descriptive earnings of cigarette companies listed on the Indonesia Stock Exchange tend to be smaller, but total sales are increasing. This means that government policy has not been effective in reducing cigarette consumption. Law No. 32 of 2002 on broadcasting is statistically significant affecting price cost margin in a positive direction. However, the descriptive ratio of earnings in cigarette companies listed on the Indonesia Stock Exchange tend to decline.

## 1 INTRODUCTION

The Indonesian cigarette industry contributes significantly to the state income, in the form of cigarette Excise. The following table shows the contribution of excise to total domestic income of cigarette is greater than the contribution of state income from the share of SOE profits during the period of 2007 to 2014. The contribution of the cigarette industry during that period averaged 3 times the contribution of income from the share of profit of SOEs.

When compared with contributions from natural resource income, from 2007 to 2015, contributions derived from natural resource income were seen to decline, initially 18.22% in 2007 and 22% in 2008, down in 2014 to 15.58%. The contribution of the cigarette industry to total domestic income was seen to increase, by 6.33% in 2007 and down 5.23 in 2008 and then gradually increasing to 7.64% by 2014. This shows that the state income from excise significant enough to total state income. 2.61

Table 1: The Contribution of Excise of Tax Income, Domestic Tax Income, Total Domestic Income in The Country compared to The Contribution of Natural Resource Income and The Share of SOEs' Profits (in percentage)

Year	Contribution of Excise on Total Tax Income	Contribution of Excise on Total Domestic Tax Income	Contribution of Excise on Total Domestic Income	Contribution Natural Resources Income on Total Domestic Income	Contribution of SOEs' Profit on Total Domestic Income
2007	0.09	9.51	6.33	18.82	3.29
2008	7.78	8.24	5.23	22.92	2.97
2009	9.15	9.43	6.70	16.40	3.08
2010	9.15	9.53	6.67	17.01	3.03
2011	8.81	9.39	6.39	17.74	2.34
2012	9.69	10.21	7.13	16.95	2.31
2013	10.07	10.53	7.57	15.81	2.38
2014	10.30	10.70	7.64	15.58	2.61

Source: Processed from Realization of State Income (in million rupiah) 20072016 <http://www.bps.go.id>

The development of the Indonesian Cigarette Industry creates a dilemma. In one hand the cigarette industry has contributed a substantial role of the country's income, through cigarette taxes. Whereas, cigarettes are harmful product for healthy, and can cause death. The government should make efforts to reduce cigarette consumption, but on the other hand the government must maintain substantial income from this industry (Muslim and Whardani, 2008).

Various efforts that have been done by the government to reduce the level of cigarette consumption and also maintain the country's income of this industry that affected on the number of cigarette industry in Indonesia. The explanation of Government Regulation No. 81 of 1999 on the safeguarding of cigarettes for health article 2 stated that smokers have a 2 to 4 fold risk for coronary disease and a higher risk for death. Passive smokers have a 30% greater risk of developing cancer than the smokers themselves. Furthermore, the government regulation also regulates the content of nicotine and tar in the territory of Indonesia should not exceed 1.5 mg of nicotine and 20 mg of tar. To increase the role of the government to maintain the role of the cigarette industry sector to the national economy and to increase public knowledge about the dangers of smoking for healthy, it is necessary to analyze the relationship between the basic condition, structure, behavior and performance of the cigarette industry with government-created regulations.

This study examines the effect of concentration ratio, advertising intensity, price cost margin in the

long run compared to short-term using Price Cost margin of the previous year (PCM t-1), government regulation, sales growth on Price cost Margin in The Indonesian cigarette industry.

### Structure-Behavior-Performance (S-C-P)

The basic approach of industrial economic paradigm emphasizes the relationship between market structure and business behavior in determining market performance. This relationship simply describes the causal relationship of market structure to behavior that affects performance (Clarke, 1990).

The simplest relationship of the three SCP variables is the linear relationship of structure affects behavior then behavior affects performance. In the SCP, the relationships of the three components affect each other including the presence of other factors such as technology, progressiveness, strategy and efforts to drive sales (Martin, 1994).

The SCP approach by Don E. Waldman and Elizabeth J. Jensen (1998) focused on Performance Behavior (SCP) industry (shown in figure 1). Under SCP basic conditions, the demand side is explained by price elasticity variables, sales growth, and sales methods. On the supply side focuses on technology, and product durability. The market structure is explained by the variety of sellers and buyers, product differentiation, diversification, vertical integration. Attitudes focus on collusion, merger, legal strategy, advertising, and pricing and performance strategies

measured by technological advances, and production efficiency. Waldman and Jensen (1998) emphasize that corporate policy actions are directly influenced

by government policies in the form of anti-trust policies, regulations, taxes and other government policies.

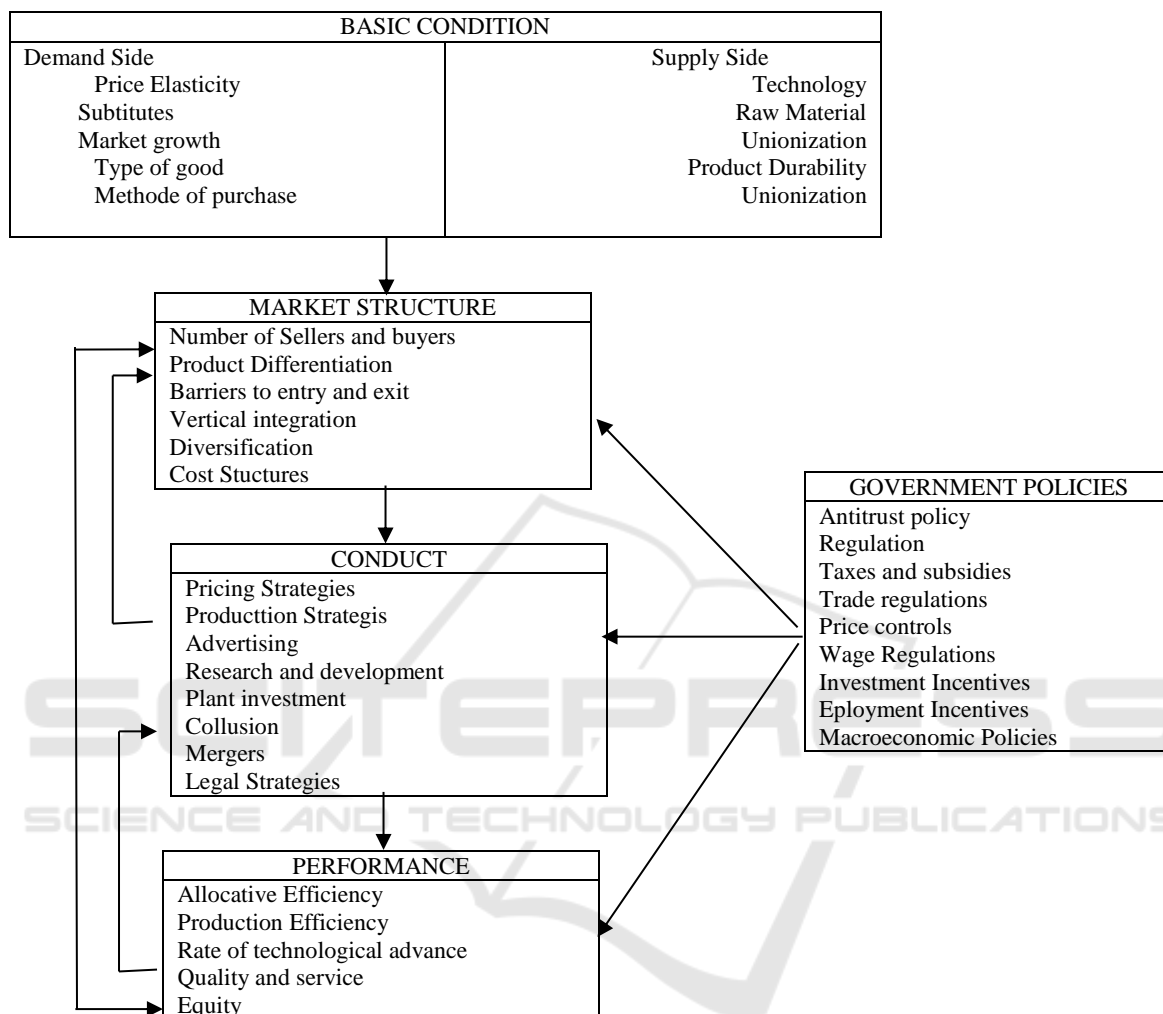


Figure 1: The Framework of Structure-Conduct-Performance (SCP)

Source: Don E. Waldman dan Elizabeth J. Jensen (1998)

## 2 LITERATURE REVIEW

Martin (1979) examined a system of equations that explained profitability, market concentration and ad intensity using a 4 digit SIC Indsutri U.S sample in 1967. The results showed that the intensity of advertising, concentration, concentration of sellers, and profitability were determined simultaneously. The seller's concentration is explained in long-term dynamic adjustment, and profitability and advertising depend on the current level of concentration and the variable that measures the demand side of the market, when the seller's concentration is explained at a long-term adjustment level.

The Pagoulatos and Sorensen (1981) study used data from 47 food industries with a 4-digit SIC census in 1967 examining the simultaneous relationship of concentration, behavior and industrial performance. The results of Pagoulatos and Sorensen (1981) showed that the advertising intensity affects concentration and profitability. In the food processing industry, the intensity of advertising acts as an industry barrier. Industrial concentration and profitability are proven to significantly affect the intensity of advertisements according to the previously hypothesized feedback relationships.

Result of Pagoulatos and Sorensen research (1981) for profit margin equation found price elasticity of demand (EL) is important variable

determine profit margin. Ratio concentration coefficient (CR), demand growth (GVS), asset intensity (K / S) results are significant and direction is as expected. The import variables M / S and X / S only slightly affect the earnings of local companies and their positive direction is not as hypothesized. The export-oriented variable is negative as expected but the effect is also insignificant.

Although some theories in industrial economics textbooks mention the effect of regulation on industrial structure, industrial behavior and industrial performance, for example in the book *Industrial Organization* written by Waldman and Jensen (1998), but in the research of Performance Behavior Structure (SCP) in industrial sector manufacturing that has been in the previous study, no one uses the regulatory variables in his research. This study uses dummy variable Reg1 (Regulation no. 81 of 1999) on safeguarding cigarette language and dummy Reg 2 (Act number 32 year 2002) about broadcasting.

### Hypothesis

The hypothesis of this research is the ratio of concentration, the intensity of advertisement, the previous year's performance, the regulation and the sales growth affect the performance of the cigarette industry in Indonesia.

### 3 RESEARCH METHODOLOGY

The scope of this study is limited to issues related to the behavioral structure, performance and government regulation of the cigarette industry in Indonesia. The variables used in this study concentration ratio using CR4 to measure the industrial structure, the advertising intensity of 4 firms included in CR4 to measure promotional behavior, , cigarette industry sales growth and profit of 4 companies included in CR4 to measure industry performance . Data required is data from 1990 to 2013. Data for 2014 is not yet available in the Central Bureau of Statistics (BPS).

This study uses secondary data of the cigarette industry in Indonesia sourced from the Central Bureau of Statistics (BPS) and the Indonesia Stock Exchange (BEI). In this study the population used as the object of research is the cigarette manufacturing industry sector in Indonesia during the period 1993 to 2013. Selection of this sample is based on the completeness of the data held. Secondary data available will be processed to obtain the basic conditions, market structure, behavior and

performance of the cigarette industry in Indonesia. The model of this research is :

$$PCM = \gamma_0 + \gamma_1 CR_4 + \gamma_2 PCM_{t-1} + \gamma_3 Iklan + \gamma_4 Reg_1 + \gamma_5 Reg_2 + \gamma_6 GVS + v_i$$

PCM	= Price Cost Margin
Advertising	= Advertising Intensity
CR4 <sub>t</sub>	= Concentration Ratio
PCM <sub>t-1</sub>	= Price Cost Margin previous year
Reg 1	= PP No 81 Year 1999
Reg 2	= UU No. 32 Year 2002
GVS	= Sales Growth

### 4 FINDINGS

The model test results show :

$$PCM = 0.142641 - 0.000536CR_4 - 0.751464IKLAN - 0.019394REG_1 +$$

(0,0522)      (0,00005)      (0,5276)      (0,01447)

$$0.067699REG_2 + 0.109153GVS + 0.277654PCM_{t-1}$$

(0,0212)      (0,062822)      (0,1712)

The Value of R2 = 0,56329

F Count > F Table (131,564 > 2,70)

The determination value of Price Cost Margin (PCM) is 0.56329. The estimation results show the variation of the changes. *Price Cost Margin* (PCM) can be explained by variations of Industrial Concentration (CR4), Ad Intensity, Dummy Government Regulation No. 81/1999 (Reg1), Dummy Law No. 23 of 2002 (Reg2), Sales Growth (GVS) and Price Cost Margin last year (PCM<sub>t-1</sub>) of 56.3%. The remaining of 43.7% is caused by other factors.

The simultan test result (F test) with alpha 0,05 Fcount test result > from F table, that is (131,564 > 2,70), it means all independent variables have statistically significant affected to variable Price Cost Margin cigarette industry in Indonesia.

Concentration of industry (CR4) affects Price Cost Margin (PCM) with negative direction and very small coefficient value (-0.000536). Statistically, its effect has not significant at 10% confidence level with probability value 0,2626. This means that the higher Concentration of Industry, the Price Cost Margin (PCM) will decrease with a very small effect. The direction of this relationship is supported by data on income statistic (Return on Sales / ROS) four (4) companies listed on the Indonesia Stock Exchange for several periods which have declined pattern, and there are the periods that the ratio of companies' earnings shows a negative value.

Advertising Intensity indicates a negative effect on Price Cost Margin (PCM) with a large coefficient value (- 0.751464) and in statistically, it is not

significant at 10% confidence level, but significant at 20% confidence level, as indicated by probability value of 0.1607. The estimation results indicate that the higher the Advertising Intensity of Cigarette Industry, so Price Cost Margin (PCM) will decrease. This estimation results conflict with advertising goals, as Advertising Activity is expected to drive demand that will increase sales. However, if an increase in the Intensity of Advertising accompanied by an increase in the average cost of production which is bigger than an increase in the selling price of the product, then this will tend to encourage a decrease in profits.

Government regulation (Reg1) number. 81 of 1999 on the Security of Cigarettes for Health turned out to be inversely (negative) with the level of profit of cigarette Industry. Partial model test results (t test) shows a confidence level of 5% or 10% statistically affect government regulation no. 81 of 1999 that has not been significant to Price Cost Margin (PCM), but it is significant at 20% confidence level. This indicates by a probability value of 0.1863. These results indicate that regulation about the maximum threshold of nicotine, tar and other substances in cigarettes that are caution to health affects the declining performance of the cigarette industry.

The government regulation (Reg2) number 32 of 2002 on broadcasting is proportional to the level of profit of the cigarette industry. Partial model test results (t test) shows that a 5% confidence level of the effect of this regulation on Price Cost Margin (PCM) that is statistically significant. This indicates by a probability value of 0.0024.

Law number 32 of 2002 concerning the broadcasting in article 46 letter 3c. Mentions that commercials are prohibited from promoting cigarette smoking. Estimation results indicate an increase in Price Cost Margin (PCM) after the issuance of the Law. Despite the descriptive earnings of cigarette companies listed on the Indonesia Stock Exchange tend to be smaller, but total sales are increasing. This means that government policy has not been effective in reducing cigarette consumption. Law No. 23 of 2002 on broadcasting is statistically significant affecting price cost margin in a positive direction. However, the descriptive ratio of earnings in cigarette companies listed on the Indonesia Stock Exchange tend to decline.

Sales Growth (GVS) has a positive effect on Price Cost Margin (PCM). Statistically this relationship is not significant at 5% confidence level, but it is significant at 10% confidence level with probability value of 0,0886. These results indicate that an increase in sales growth, will slightly increase the

Price Cost Margin (PCM) with a coefficient of 0.10953.

Price Cost Margin years ago (PCMt-1) has positive effect of current period of Price Cost Margin variable (PCM), and in statistic, this effect is significant at 5% confidence level with probability value of 0.1113. The estimation results show that earnings expectation in PCMt-1 is able to boost the current profit increase (PCM). These results also suggest that earnings in the long run are more affected than in the short term.

## 5 CONCLUSION

Price cost margin is more affected by the concentration variable, advertisement, regulation, and sales growth in the long term than the short term, in meaning that there is more possibility of companies in the cigarette industry in making the adjustments in the long run so that the effect of concentration, advertising, regulation and sales growth on earnings can be more flexible / elastic in the long run.

Law number 32 of 2002 concerning on broadcasting has positive significant effect on price cost margin. This indicates that there is an increase in advertising costs due to the law, and also followed by an increase in price cost margin even though descriptively the ratio of earnings in cigarette companies listed on the Indonesia Stock Exchange is declining. This is because the Law is not only focusing the cigarette industry but regulating the broadcasting for all industries.

Government Regulation number 81 of 1999 affects Price Cost margin and concentration of industry with negative direction, but statistically it has not been significant. The goal of issuing this regulation is to protect people from the dangers of smoking.

The observations in this study show that regulations made by the government have not been able to reduce the rate of sales growth, It's mean that cigarette consumption continues to increase even though the growth rate is getting smaller. The policies made by the government, both the limit of advertising and the increase in excise rates, are only able to influence the cost of producing cigarettes, consequently even though the volume of sales increases but the profits of cigarette companies are getting smaller. The results of this study can be taken into consideration by the government to increase cigarette excise rates, and make new, more effective policies reduce the volume of cigarette consumption.

Test results of the effect of Advertising Intensity on Price Cost margins have a negative direction that is not significant. This result is contrary to the purpose of advertising behavior. This article examines the influence of advertising in the same period on profits. the following research can consider the effect of time to test the effect of advertising on profit.

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