

PROFITABILITY, ADVERTISING INTENSITY AND CONCENTRATION RATIO IN INDONESIAN CIGARETTE INDUSTRY (2000 -2013)

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Abstract. *This study aimed to invest the relationship of structure, behavior and performance on cigarette industry in Indonesia. The variable used in this research is concentration ratio that used CR4 to measure industry structure, advertising intensity of four companies that included in CR4 to measure promotion behavior, Price Cost Margin (PCM) and profitability of four companies (ROS) included in CR4 to measure industry performance. Descriptive analysis between Price Cost Margin (PCM) and concentration of cigarette industry shows the direction of inconsistent relationship but for 23 years the direction of change is more positive than negative sign. Otherwise, the relationship between Return on Sales (ROS) with industrial concentration shows more negative sign than positive sign.*

Keywords: *advertising intensity, concentration ratio, price cost margin and return on sales.*

JEL Classification: D31, D57, E64

I. Introduction

The definition of cigarettes in article 1, paragraph 1 of Indonesia Government Regulation number 81/2002 is the output of processed tobacco wrapped including cigars or other forms produced from Nicotianatabacum plants, Nicotianarustica and other species or synthetics containing nicotine and tar with or without additional

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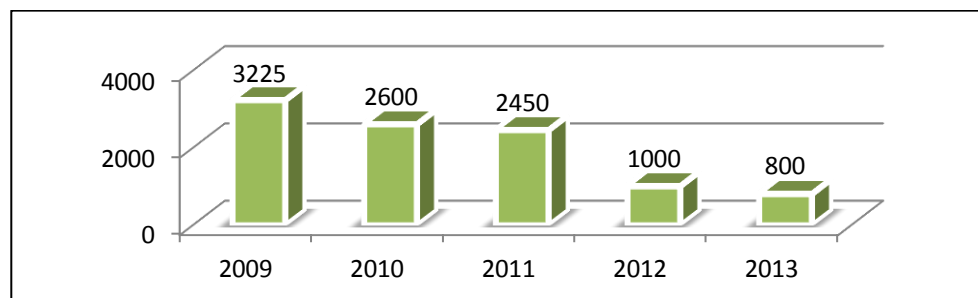
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ingredients. More 90% of cigarettes consumption in Indonesia is *kretek* type, cigarette with raw material that inserts cloves into tobacco mixture. Another 10% is consumption in white cigarettes, tobacco, klobot, and cigars. (<http://duniaindustri.com>).

The growth of the cigarette industry in Indonesia is marked by the birth of a large cigarette company that controls the market in this industry, such as PT. GudangGaram, Tbk based in Kediri, PT. Djarum based in Kudus, PT.HM Sampoerna, Tbk based in Surabaya, PT. Bentoel based in Malang and PT. Nojorono based in Kudus.

Indonesia is one of the countries with the largest number of smokers in the world after Japan and Thailand. The number of cigarettes consumed in Indonesia in 2013 was recorded at 341.9 billion cigarettes. The cigarette industry is one of the major contributors of the State's income, either developing or developed countries.

Figure 1. Number of Cigarette Industry in Indonesia



Source: Association of Indonesian Cigarette Producers (GAPRI), 2015.

Based on Figure 1, the cigarette companies listing on the Indonesia Stock Exchange are H.M Sampoerna, Ltd Gudang Garam, Ltd, Bentoel Internasional Ivestama, Ltd and Wismilak Inti Makmur, Ltd, cigarette factories in Indonesia experienced significant depreciation, data from the Association of Indonesian Cigarette Producers (GAPRI) explained the cigarette factory in 2009 which amounted to 3,225 units. That number decreased to 2600 units in 2010. In 2011 there was a decline of cigarette factory to 2540 units. Significant decrease of cigarette factory in 2012 is 1000 units. The decline continues to occur until the year 2013 left 800 units of cigarette factories in Indonesia.

The shrinking number of national cigarette industry becomes a serious problem, because in general the decrease in the number of industries will affect the decrease of production and excise income obtained by the government. Although the number of industries declined drastically, production performance and contribution of excise

contributed by national cigarette continue to experience positive growth. The bankruptcy of small and medium scale cigarette industry because of its products can not compete with large medium-sized industries. In contrast, large-scale industry is increasingly expanding the company mainly done by the four largest companies.

From the total 1,664 business units in the cigarette industry in Indonesia, it turns out that six cigarette companies that control the largest market share. The six cigarette companies are HM Sampoerna, Ltd (HMSP) with a market share of 31.1% in 2012, followed by Gudang Garam, Ltd (GGRM) with 20.7% share, Djarum, Ltd with 20.2% share, Bentoel International Investama, Ltd (RMBA) with 8.0% share, Nojorono, Ltd with a share of 5.8%, and Wismilak Inti Makmur, Ltd (WIIM) holds 1% share (<http://duniaindustri.com>).

II. Research elaboration

There are several studies that test the direct relationship between structure and performance. Peter's research (1981) tested the contribution of the advertising intensity on concentration changes over the period 1963-1967, and 1967-1972. Using multiple analysis techniques. The results indicated that the advertising intensity of consumer goods industry was higher (4.12) than the production goods industry (0.86) in 1967. Only slightly changed in 1972, such as (4.04) consumer goods industry and (0,90) for the production goods industry. There is a small and inconsistent difference in the level of advertising intensity between durable and non-durable consumer goods. The concentration growth in the consumer goods industry is not the highest durable (3.64) and the growth of concentration of durable production goods grows decreasing the concentration level (-2.74). The effect of advertising intensity (1967) on changes in concentration levels (1993-1972) was not significant, except in consumer durable goods. The effect of industrial concentration (1963) on changes in concentration levels (1963-1972) was negative and significant, except for durable goods producers. The effect of growth of value of shifts (VOS 1972 / VOS 1963) on changes in concentration levels for overall samples was not significant. The effect of advertising intensity (1963) on changes in concentration levels (1993-1972) was not significant.

Muslim et al. (2008), conducted a study to analyze the relationship of structure, behavior and performance of palm oil industry in Indonesia. The results showed that the market structure of the palm oil industry in Indonesia is oligopoly with a concentration ratio of more than 40% (CR4) during 2001 to 2005. There is collusive behavior among some major industries in Indonesia in determining the selling price (can be seen from PCM proxies that have value more than 0,20 - 0,30 The result of regression analysis is as follows:

$$PCM = 548,3 + 7,17 CR4 + 26,5 MES + 0,73 DGDROW3$$

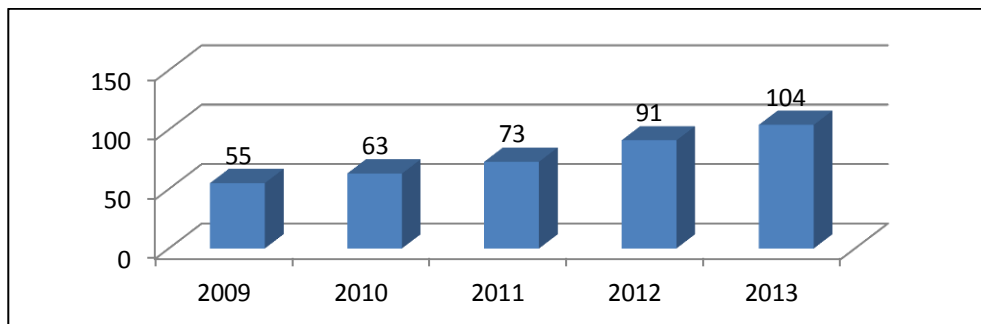
Strickland and Weiss (1976) tested the relevance of advertising intensity, industry concentration and price cost margin using simultaneous equations. One result of his research said the impact of concentration on price cost margin seems vague. The results of Martin (1979) showed the advertising intensity, concentration of sellers, and profitability are determined simultaneously. The seller's concentration is explained in terms of 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.

III. Findings

The Contribution of Cigarette Industries on Government Income

The cigarettes industry in Indonesia has been established by the government as one of 10 priority industries. This reflects the high absorptive power of labor and the contribution of industry to the government income. Although the duty is actively raised by the government, the volume of cigarette production in Indonesia continues to increase. Demand for cigarettes in Indonesia is categorized into demand that tends to be inelastic. The decrease of cigarette demand is relatively smaller compared to the increase of cigarette selling price by producers due to the increase of cigarette excise tax. Figure 2 explains about the growth of cigarette tax in Indonesia from year 2009 – 2013.

Figure 2. The Growth of Cigarette Taxes in Indonesia (in trillion)



Source: Government Financial Statement, APBN 2015

According to 2009 data, government income from cigarette accounted for Rp 55 Trillion excise to the state or 6.4 percent of total government income. The existence of the government's policy plan to raise the excise tax, not fully reduce the consumption of cigarettes, in fact not only increased cigarette production but also threaten small and medium scale cigarette industry, of course small-scale cigarette production is shrinking because small-scale cigarette consumers can no longer afford to buy cigarette. The policy does not reduce the income of the country, in 2010 the income of customs duties of 63 trillion from tobacco tax.

In 2013 there was a significant increase of customs income of Rp. 104 trillion of the country's largest income from cigarette taxes, every year the receipt of customs and excise continues increase although the government has raised excise tariffs, not completely reduce the amount of tax income. Increased demand for cigarettes in the market can increase cigarette sales and contribute to the acceptance of customs and excise. Therefore the existence of cigarette industry can contribute to the national economy.

The Out Put and Industrial Concentration

Industrial concentration is one of the most important variables in determining industrial structure. Industrial concentration is a relative measure that takes into account the degree of market dominance by some firms in an industry that is in the market. The concentration in this study was calculated using the concentration ratio (CR4).

The market concentration ratio ranges from zero to one and is expressed as a percentage. A concentration ratio near zero indicates that a number of n cigarette industries have a relatively small market share. In contrast, a concentration ratio close to one indicates a relatively high concentration level. The concentration depends on the total number of cigarette companies in the industry. The concentration ratio will decrease if the number of companies in the industry increases. Concentration ratio can give an idea of the role of companies in the industry.

The measurement of market concentration by using CR4 shows that market domination of big industry group dominated by 4 big cigarette companies with average concentration of cigarette industry in Indonesia above 40 percent is 60,14 percent, thus the structure of cigarette industry in Indonesia can classified as oligopoly structure. This means that the four largest companies control about 60.14 percent of the total supply of a good in the market. The output growth of the 4 largest companies and the concentration of the cigarette industris from 1990 to 2013 is presented in Table 1 below:

Table 1. Output and CR4 of Cigarette Industries in Indonesia

Year	Output (Rp 000)				TOTAL INDUSTRY OUTPUT (Rp 000)	Total CR4
	The 1 st Biggest Company	The 2 nd Biggest Company	The 3 rd Biggest Company	The 4 th Biggest Company		
1990	2,135,000,000	329,977,205	486,423,670	35,543,727	5,209,424,204	57.34
1991	2,745,748,708	434,623,448	518,840,140	57,289,488	5,169,103,056	72.67
1992	3,298,756,774	1,019,286,510	518,840,140	69,085,728	7,150,636,053	68.61
1993	1,402,977,396	277,530,475	233,730,514	58,520,630	3,213,964,717	61.38
1994	4,640,038,000	1,292,754,098	515,301,106	104,102,456	9,588,901,530	68.33
1995	5,441,760,000	1,943,729,309	487,210,349	130,362,111	11,500,040,792	69.59
1996	6,432,942,436	2,377,702,014	443,838,076	183,953,546	13,438,543,243	70.23
1997	7,281,339,294	2,719,460,937	264,937,456	218,810,355	15,076,438,676	69.54
1998	8,598,014,720	3,643,572,994	743,691,927	510,975,083	22,940,853,883	58.83
1999	12,184,000,000	7,252,897,410	443,646,123	638,847,710	30,784,795,559	66.65
2000	14,299,265,000	5,896,086,441	508,971,524	1,188,126,406	33,019,013,719	66.30
2001	17,192,000,000	4,537,578,469	626,915,410	954,978,751	60,196,970,696	38.73
2002	20,321,000,000	12,000,000,000	759,326,033	740,278,633	51,659,566,250	65.47
2003	22,563,172,788	8,775,148,000	381,375,942	713,197,488	52,858,903,763	61.36
2004	23,638,089,000	5,932,398,758	1,128,710,340	709,076,415	50,234,589,299	62.52
2005	24,131,448,000	10,542,436,531	594,682,289	460,050,494	57,249,477,267	62.41
2006	23,988,346,000	13,734,911,887	839,559,854	317,031,902	68,703,383,811	56.59
2007	28,479,330,000	13,890,195,572	1,430,178,858	224,130,848	87,163,528,147	50.51
2008	26,743,776,000	15,487,113,468	1,314,009,293	272,833,351	114,155,456,809	38.38
2009	30,420,765,856	12,128,226,097	1,138,310,000	390,223,993	105,345,188,025	41.84
2010	33,560,611,000	10,186,623,915	1,260,223,001	549,810,377	100,366,200,842	45.39
2011	37,431,744,000	12,043,194,973	6,197,613,410	758,677,663	106,480,153,187	53.00
2012	38,179,962,028	55,000,000,000	6,697,211,810	1,190,000,000	146,212,864,799	69.12
2013	42,118,377,824	75,000,000,000	6,493,968,807	1,588,000,000	182,424,909,585	68.63

Source: Processed from the data of Statistics Central Bureau, 2016.

The increase in industrial concentration was relatively stable from 1990 to 2000 where the highest increase was in 1996 at 70.23 percent and the 1990 low was 57.34. In contrast to the previous year for 2001-2010 the value of industrial concentration was more varied indicative of the lowest decrease was in the year 2001 and 2008 with each CR4 of 38.72 and 38.38 percent. While for the year 2002 has a high level of industry

concentration of 65.46. This is because of the emergence of new competitors who enter into the cigarette industry.

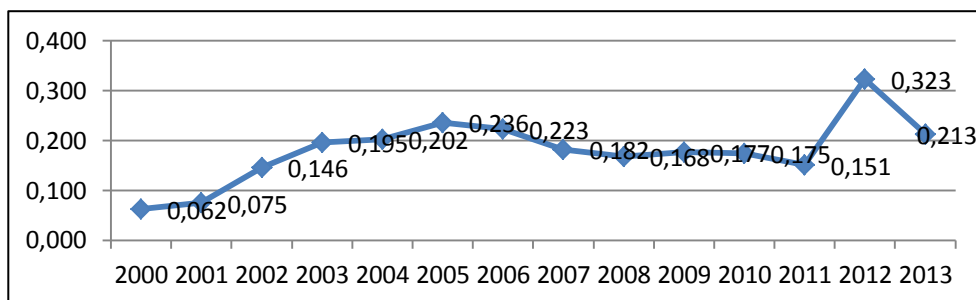
The industrial concentration from 2011-2013 has increased significantly which is 52.99 percent (2011) increased by 68.63 percent (2013). The company (2) has the highest market share of 41.11 percent while the company (4) has the lowest market share among the other 4 companies by 0.87 percent.

A high concentration ratio will indicate that the market is dominated by a small number of companies, which means the shape of the oligopoly structure. In oligopoly structures, large producers can influence prices by controlling production output. The lower concentration, the closer market is at perfectly competitive condition. The results of observations made in accordance with the report of the Association of Indonesian Cigarette Manufacturers (GAPPRI) showed the dominance of 6 cigarette companies Gudang Garam, Ltd., HM. Sampoerna, Ltd, Bentoel, Ltd, Djarum Kudus, Ltd, Nojorono, Ltd, and Wismilak Inti Makmur, Ltd from 800 companies throughout Indonesia.

Large-scale companies have the opportunity to gain higher efficiency, especially in production costs. Thus the total growth of fixed assets can illustrate the growth of factory size. Table 1 generally shows the observations on the average total fixed assets of 4 companies with the largest market goose (CR4) in Indonesia's tobacco industry. The average number of company fixed assets increased during 1990 to 2013. Several years decreased, ie in 1997, 2006, 2007, and 2010. From the trend in Table 1 shows that the fixed asset investment needs of the cigarette industries increase every year.

Advertising Intensity

Hitting your business for different types of products will lead to different advertising behavior. There are different sales efforts between search goods and experience goods. Search goods are the characteristics of the product before purchasing or not purchasing, the customer must first learn the product. The experience goods are goods purchased by the customer only when it has been using the product. Advertising in newspapers and magazines can be made to explain in detail the search goods. Experiential goods should be tested first by the customer before deciding to buy it. Advertising is needed to influence customer demand for experience goods because customers believe the advertised goods will be better for them to buy (Martin, 1994).

Figure 3. Advertising Intensity in Cigarette Industries in Indonesia


Source: Statistics Central Bureau Data 2016.

Table 2 explains total advertising cost on financial statement of three companies listed in Indonesian Stock Exchange.

Table 2. Advertisement Cost of Cigarette Companies in Indonesia Stock Exchange

Year	Advertisement Cost (Rupiah)			Total
	PT. Gudang Garam	PT H.M. Sampoerna	PT. Bentoel	
1990	23,850,013,650	6,316,140,660	30,508,203	30,196,662,513
1991	9,558,320,564	4,011,992,440	33,198,638	13,603,511,642
1992	4,967,649,803	2,501,317,289	50,159,534	7,519,126,626
1993	3,507,152,758	106,324,798	55,356,137	3,668,833,693
1994	2,776,904,236	27,241,316,364	24,377,592	30,042,598,192
1995	2,046,655,713	34,468,845,664	312,650	36,515,814,027
1996	2,591,257,650	39,869,567,928	13,367,800	42,474,193,378
1997	2,837,078,200	59,292,233,101	30,910,575	62,160,221,876
1998	3,383,901,815	51,758,000,000	10,291,600	55,152,193,415
1999	17,737,000,000	75,809,000,000	596,391,192	94,142,391,192
2000	21,780,000,000	211,857,000,000	74,493,759,827	308,130,759,827
2001	650,347,000,000	219,157,000,000	65,873,104,158	935,377,104,158
2002	841,310,000,000	460,911,000,000	120,182,858,691	1,422,403,858,691
2003	971,722,000,000	583,400,000,000	100,928,436,508	1,656,050,436,508
2004	1,237,032,000,000	648,735,000,000	101,665,536,516	1,987,432,536,516
2005	1,178,423,000,000	829,860,000,000	141,433,308,973	2,149,716,308,973
2006	1,666,014,000,000	1,041,504,000,000	192,322,086,447	2,899,840,086,447
2007	913,384,000,000	1,082,855,000,000	238,265,492,700	2,234,504,492,700
2008	888,070,000,000	1,165,458,000,000	267,468,109,158	2,320,996,109,158
2009	798,872,000,000	1,190,429,000,000	378,757,000,000	2,368,058,000,000
2010	1,382,355,000,000	1,171,373,000,000	453,285,000,000	3,007,013,000,000
2011	1,443,992,000,000	1,268,329,000,000	709,450,000,000	3,421,771,000,000
2012	1,057,713,000,000	1,619,005,000,000	787,894,000,000	3,464,612,000,000
2013	1,573,209,000,000	1,611,652,000,000	1,373,161,000,000	4,558,022,000,000
2014	1,355,056,000,000	2,532,726,000,000	972,066,000,000	4,859,848,000,000

Source: Processed from Data of Indonesia Stock Exchange (2016).

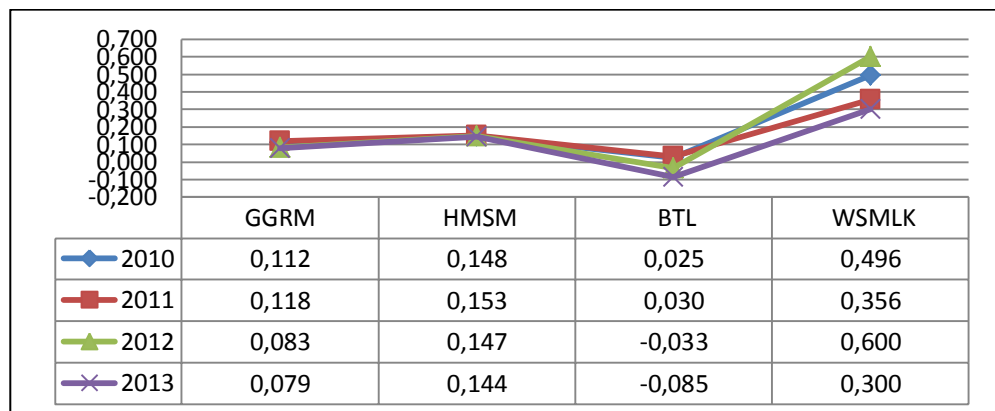
Measurement of the advertisement intensity made is seen from how much the advertising costs incurred in the sale of a product, from the figure above was seen that the advertising intensity issued by the cigarette industry in Indonesia an average of 0.18 percent of sales made. The advertising intensity has increased from year to year, recorded from 2000 to 2005 promotion costs reached 0.62 percent rose to 0.236 percent of sales made. Significant decrease occurred in 2013 where it decreased by 0.110 percent from 0.232 percent (2012) to 0.213 percent (2013).

From Table 2, it can be seen that after 1999 the advertisement cost of cigarette companies increased continuously, this indicates that cigarette companies keep trying to anticipate government policy which is issued in the form of Indonesia Government Regulation number 81/1999 about security of cigarette danger for health and reinforced by law number 31/2002 on Broadcasting.

Cigarette Industries Profit

Profit in the field of accounting is the difference between income and expenses. The observation on the performance of the 4 largest companies in the cigarette industry is done using the ratio of earnings to total sales, the amount of profit for every Rp 1, - sales of cigarettes that can be produced. Profits used in this observation are net income after tax, ie sales minus cost of goods sold, general and administrative costs, and corporate income tax.

Figure 4. Profit per Sales Ratio (ROS) of Cigarette Companies Listed in Indonesia Stock Exchange 2000 – 2013 (2016)



Source: Collecting data from Indonesia Stock Exchange (2016).

The observations in Figure 4 show the value of ROS in each cigarette industry company in Indonesia Stock Exchange during the period of 2000-2013. Profit (ROS) to four companies listed on the Indonesia Stock Exchange has decreased. In 2012 only PT Wismilak TBK is experiencing the blessing of its profit ratio, and by 2013 all four companies are back on profit (ROS). Even for PT Bentoel TBK its profit ratio is minus, which shows its cost is greater than income.

In 2010 the highest Return On Sales is owned by WSMLK company with Return On Sales value of 0.49 percent and the lowest is owned by BTL company of 0.025 percent, while for 2013 the highest Return On Sales is owned by a WSMLK company with a value of 0.3 percent while the lowest value of (-0.085) percent was in the BTL company.

The results of descriptive analysis in the figures show the value of ROS was fluctuated. H.M Sampoerna, Ltd is Cigarette Company that has biggest number of sales in Indonesia and higher profitability ratio than other two companies. Gudang Garam, Ltd is higher total asset than H.M Sampoerna, Ltd and has lower profitability ratio. Bentoel, Ltd has deficit profitability ratio. Even though Bentoel, Ltd has deficit profitability ratio, but company still exist because the four cigarette companies has biggest market share, which means the reason of deficit is because the amount of fixed asset company.

Effect of Advertising Intensity on Concentration Ratio

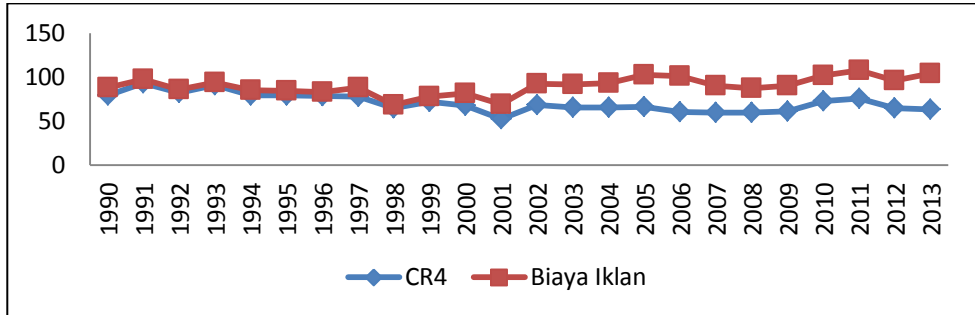
Companies in one type of industry selling a truly uniform standard product will never happen. In the consumer goods industry, for example a standard product is mineral water. In fact there are various brands of mineral water that have different standards with different prices. In the cigarette industry, there are three kinds of standard cigarette products, namely clove cigarettes, white cigarette and cigar. The fact is each type of cigarette has a specific difference for each brand.

One of the advertising goals is to create a "brand perception" to strengthen consumer loyalty to the brand. Cigarette products have consumers who are very loyal to a brand. Habitual and cultural factors of society also greatly affect the strong level of consumer loyalty. So the purpose of cigarette industry promotion behavior in the form of advertising to maintain and increase market share is positive.

The results of descriptive analysis in the following figures support the results of the estimated advertising intensity and concentration of cigarette industry. The picture shows an inconsistent relationship between the change in the advertising intensity of 4 cigarette companies listed on the Indonesia Stock Exchange with changes in industrial concentration. The increase in the intensity of advertising is not always followed by an increase in industrial concentration. Conversely, the decrease in the level of advertising intensity is also not always followed by a decrease in industrial concentration. This

means there is inconsistency in the relationship between the intensity of advertising with the concentration of the cigarette industry.

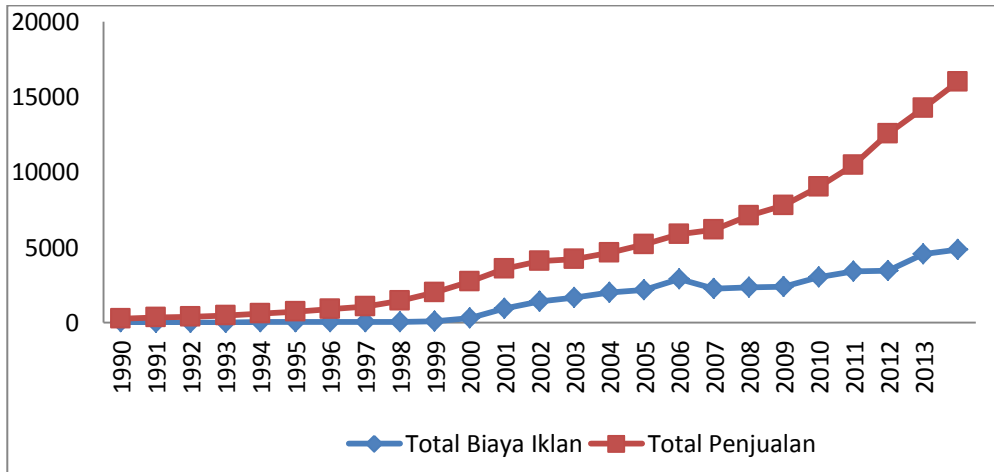
Figure 6. CR4 and Advertisement Cost



Source: CR4 was processed from BPS data and Advertising Intensity from Financial Statement of Companies Listed in Indonesia Stock Exchange.

The analysis of relationship of total advertisement cost changes with total sales is available in Figure 7 below:

Figure 7. The Average of Advertisement Cost and Average of Total Sales of Cigarette Companies Listed in Indonesia Stock Exchange



Source: Processed from Financial Statement of Cigarette Companies Listed in Indonesia Stock Exchange.

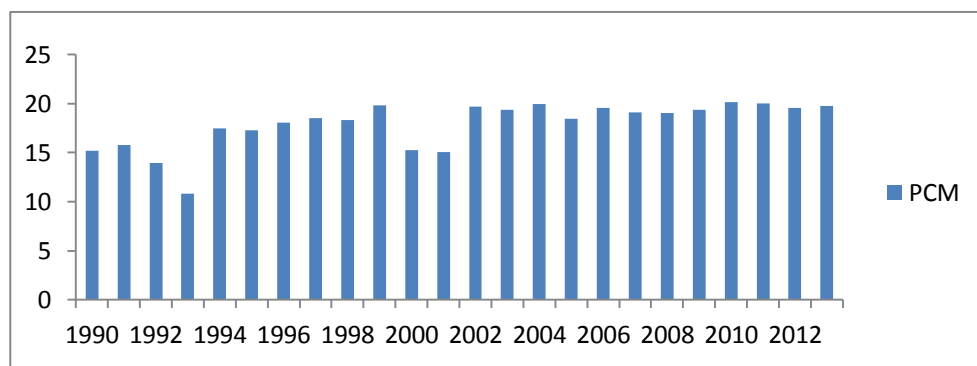
The results of the analysis show that sales of three (3) companies listed on the Indonesia Stock Exchange from 1990 to 2013 continue to increase, while the number of advertising costs several times decreased. But, in general the relationship of advertising intensity and the concentration of industry although the direction is positive as expected, but still very weak.

Effect of Profit on Cigarette Industries Concentration

The industry performance that used to estimate industry concentration equation proxied by price cost margin (PCM) calculated by divide sales minus salary and raw material cost on sales. The higher number of Price Cost Margin (PCM) show better performance of cigarette industry. Better performance industry will interact potential competitor enter market, the result is lower of industry concentration level.

The results of the analysis based on data from Statistics Central Berausurvey results are presented below as follows price margin of cigarette industry are fluctuating.

**Figure 5. Price Cost Margin (PCM) of
The 4 Highest Market Share Cigarette Companies**



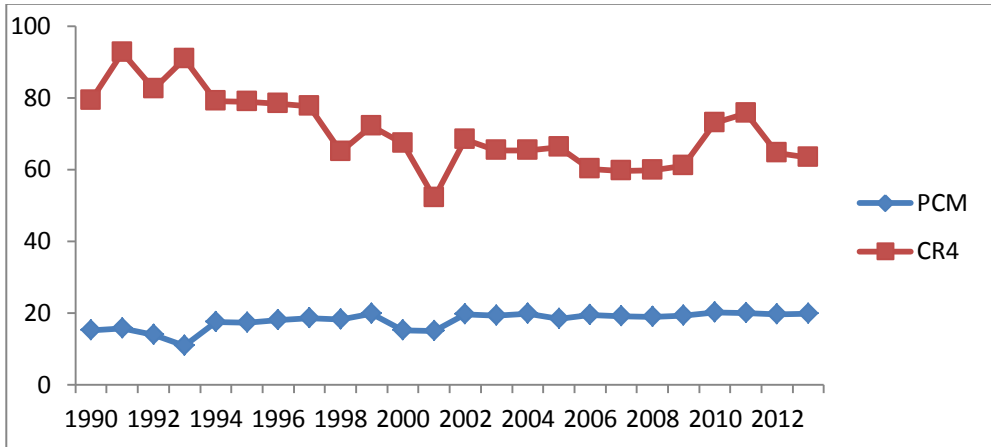
Source: Processed from Statistics Central Bureau, 2016.

Industrial performance used in estimating industry concentration equation in proxy with Price Cost margin (PCM) value which is calculated by dividing sales value in reducing wage and raw material cost to sales. The higher the value of Price Cost Margin (PCM) shows the better performance of the tobacco industry, the more attractive for potential competitors to enter the market, the lower the concentration of the industry.

The result of descriptive analysis of Price Cost Margin (PCM) relationship with industry concentration (CR4) in Figure 8 and the relationship of Return on Sales (ROS) of

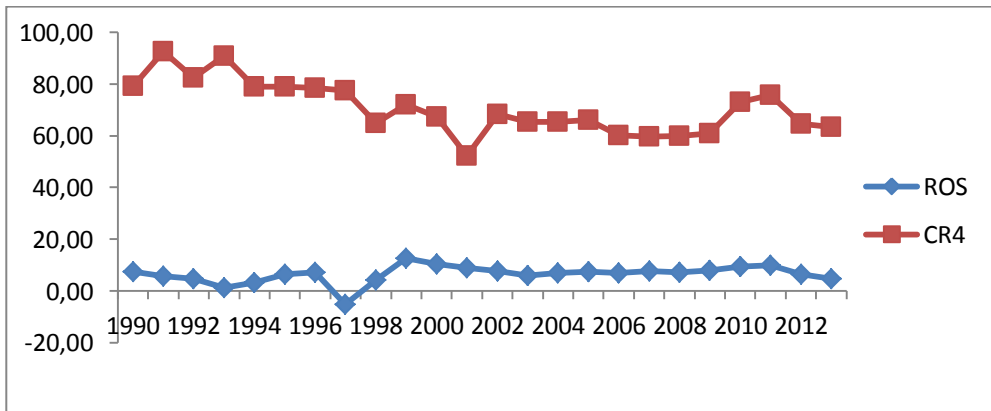
companies listed on Indonesia Stock Exchange (IDX) with concentration ratio (CR4) in Figure 8.

Figure 8. Price Cost Margin and CR4



Source : Processed from Statistics Central Bureau.

Figure 9 Relationship of Return on Sales (ROS) of Companies Listed in Indonesia Stock Exchange with Concentration Ratio (CR4)



Source: **CR4** processed from BPS data and **Return on Sales (ROS)** from financial statement of companies listed in Indonesia Stock Exchange.

Descriptive analysis between PCM and concentration of cigarette industry shows the direction of inconsistent relationship but for 23 years the direction of change is more positive (13) than negative sign (10). The relationship between Return on Sales (ROS) with industrial concentration (CR4) shows more negative sign (12) than positive sign (11). Descriptively the relationship of Return on Sales (ROS) with the concentration of cigarette industry (CR4) is more in line with the theory and previous studies than the result of estimation test of Price Cost Margin (PCM) with industry concentration (CR4), although both are less consistent. Price Cost Margin (PCM) uses data from Central Bureau of Statistics survey results, and Return on Sales (ROS) resulted from financial statements that have been audited by Public Accounting Firm.

IV. Conclusion

This research shows the relationship of advertising intensity and industry concentration has positive and insignificant effect. The result of analysis between price cost margin (PCM) and concentration ratio of cigarette industry shows insignificant relationship but for twentythree years there is change relationship from positive to negative relationship. In contrast the relationship between return on sales with concentration industry (CR4) show negative effect than positive effect.

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