

Transformation of Indonesia's Export Products Post-Global Financial Crisis

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Abstract

The recent global financial crisis (GFC) had negatively affected trade activities. The impacts varied across products. Post GFC, some commodities have become more important than before, whilst others have lacked their importance. Indonesia's trade to its trading partners had also been affected by GFC. In 2009, the country's total exports declined by 18% which was the largest export's drop in the past decade. This paper tries to map Indonesian export products portfolio, in order to understand its competitiveness after the GFC compared to the prior condition. ASEAN, China, Japan and Korea's markets were chosen to be observed in this analysis, as they have been the main trade destinations for Indonesian products in Asia. Constant market share analysis (CMSA) is equipped in this paper, in order to decompose Indonesian exports' growth to parts that were caused either by general change of the world's trade, demand fluctuation on certain products, market distribution and competitiveness level of the products. As conclusion, this paper recommends products that should be the main focuses for those markets and identifies products that need to be further developed.

1. Background

Trade can bring many economic benefits for a country, such as selling surplus products, creating employments and utilizing country's competitive advantages (i.e., knowledge, labor and technology). Indonesia, as an example, has had trade as one of its engines of growth for many years. Fuel products have been the country's major traded goods and contributed more than 33% of total export value to all countries. Specifically for Indonesia's fuels exports to ASEAN and China, in 2012 both accounted around one third of the total exports to those countries. Meanwhile, for Japan and Republic of Korea, fuel products were 53% and 71% of Indonesian exports to them.

However, the recent global financial crisis (GFC) had negatively affected trade activities. The impacts varied across products. Post GFC, some commodities have become more important than before, among others vegetables and minerals for China's market, whilst others have loosen their importance, e.g. miscellaneous products (HS 90-99) for the ASEAN markets.

This paper tries to map Indonesian export products portfolio, in order to understand its competitiveness after the GFC compared to the prior condition. ASEAN, China, Japan and Korea's markets were chosen to be observed in this analysis, as they have been the main trade destinations for Indonesian products in Asia. In 2012, Indonesian exports to ASEAN,

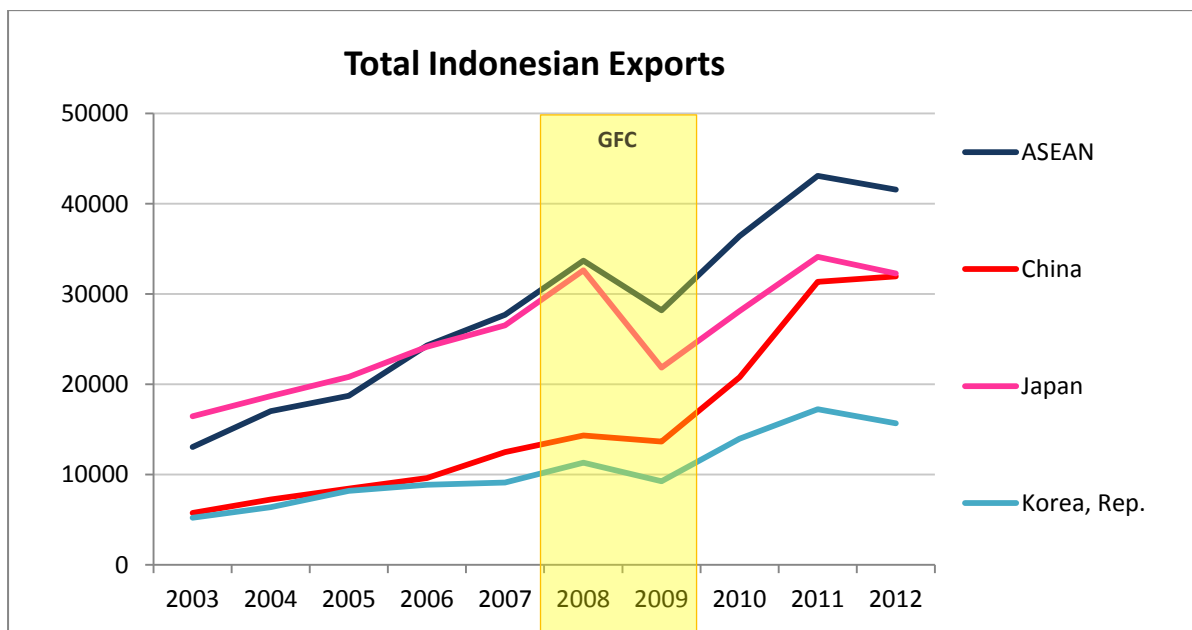
China, Japan and Korea accounted around 59% of the country's total exports. The conclusion of this study defines the list of products that is strategically important to Indonesia's trade, especially post GFC.

Constant market share analysis (CMSA) is used in this paper, in order to decompose Indonesian exports' growth to parts that were caused either by general change of the world's trade, demand fluctuation on certain products, market distribution and competitiveness level of the products. This paper will assemble the results into a quadrant mapping, which is well-known as the BCG matrix¹.

Indonesia Exports Trends to ASEAN, China, Japan and Republic of Korea

In general, trade patterns of Indonesia's exports to ASEAN, China, Japan and Korea have been positively trended in the past decade. Between 2003 and 2012, Indonesia export growth to those countries had tripled, from around USD 40 billion to USD 121 billion. ASEAN surpassed Japan as Indonesia largest export partner among the four in 2006. Meanwhile, China accelerated very quickly after 2009 and reached almost the same level as Japan in 2012. Korea increased steadily as the fourth largest in the group and reached around USD 15 billion of Indonesia's export value.

Figure 1. Indonesia Exports to ASEAN, China, Japan and Republic of Korea

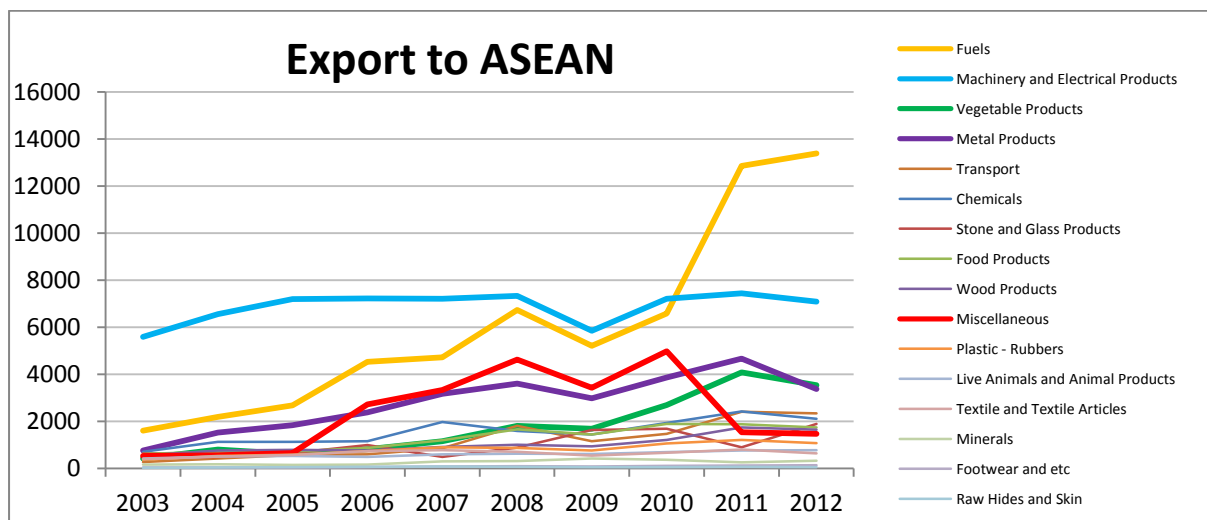


Indonesia exports to ASEAN increased to more than three times in the past decade. It was valued at USD 13 billion in 2003 and last year reached USD 41 billion. The huge jump of exports to ASEAN happened between 2009 and 2011. However, the trend has also experienced few negative trends in 2008-2009 and 2011-2012.

¹ Firstly introduced in 1970 by Bruce D. Henderson who was the founder of Boston Consulting Group (BCG).

Trends varied among products that Indonesia exports to ASEAN. Fuel products, which were the highest export value to ASEAN in 2012 with a value of USD 13 billion, were not always leading in the past decade. Fuels exceeded Machinery and Electrical products since 2010 due to the flat evolution of export value of the later products. Other than those two products, vegetable and metal products completed the group of four largest Indonesia export commodities to ASEAN market with a value slightly over USD 27 billion in 2012.

Figure 2. Trend of Indonesia Export Products to ASEAN



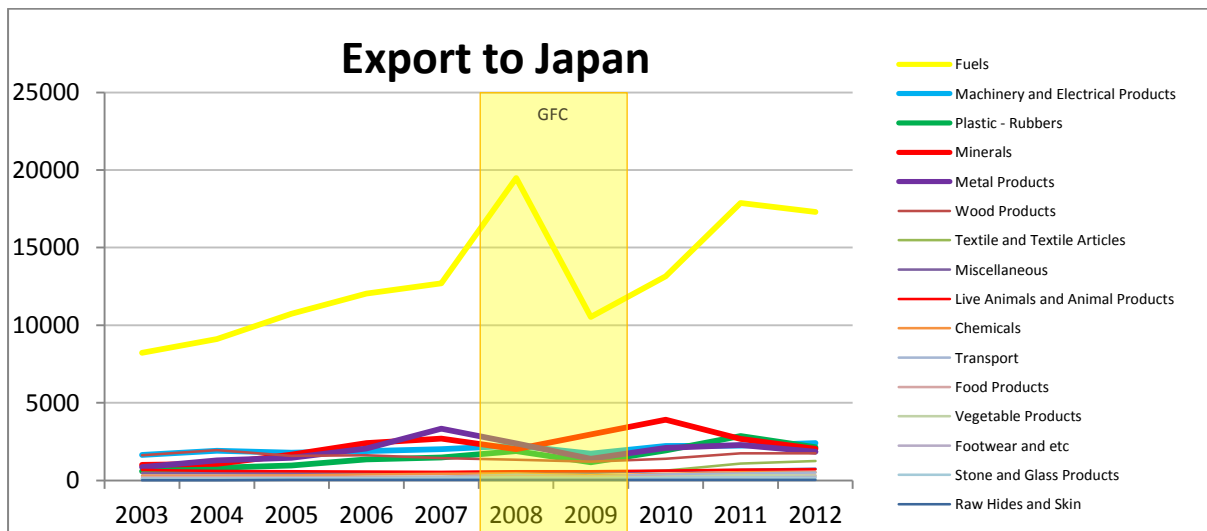
Indonesia exports pattern to China was not much different compared to ASEAN. Fuel products were dominating the exports with a value of USD 12 billion in 2012. The trend of fuels was accelerating rapidly since 2008 and leaving the values of other products very far away. Second in line in export value hierarchy was mineral products. In 2012, it reached a value of USD 5.4 billion. Just like fuels, minerals were not always the second highest in value, they started the position since 2010. Important to note that there is a chance that vegetable products would exceed minerals in the short future as minerals were trending negatively in the past couple of years while vegetables was relatively stable in its positive growth. In 2012, Indonesian vegetables accounted a USD 4.2 billion of export to China. Meanwhile, the fourth largest Indonesia export product to China was plastic and rubber products with 2012's value of USD 2.1 billion.

Figure 3. Trend of Indonesia Export Products to China



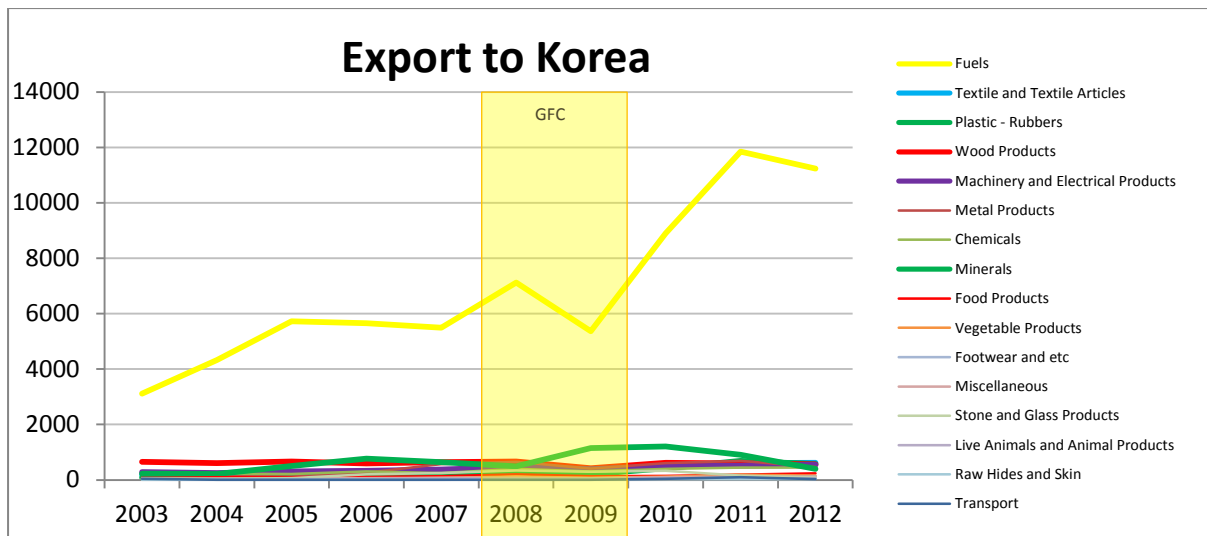
As the second largest exports destination among the four main partners in Asia, Japan has also been mainly importing fuel products from Indonesia. In 2012, it recorded a value of USD 17.3 billion. The peak of this export was in 2008 at USD 19.4 billion. Major export products of Indonesia to Japan are Fuels, Machinery and Electrical, Plastic and Rubbers, and Minerals. Last year they documented a total export value of USD 23.8 billion.

Figure 4. Trend of Indonesia Export Products to Japan



Republic of Korea mostly has always been importing fuels from Indonesia. Its value was always largely different with the rest of the products. In 2012, it reached USD 11.2 billion. The gap between fuels and other products became even larger in the past few years. Statistics showed that export of fuel was 18 times larger compared to textiles, which was the second largest in 2012. Other than fuels, the competing products were Textiles, Plastic and Rubbers, Woods, and Machinery and Electrical products. All together, they accumulated a value of USD 2.3 billion in that same year.

Figure 5. Trend of Indonesia Export Products to Republic of Korea



2. Research methodology and data

Constant market share analysis

This paper employs the Constant Market Share Analysis (CMSA). The CMSA provides information on the competitiveness of the country or region analyzed (Tyszynski, 1951; Zebregs, 2004; Athanasoglou, et al., 2010). The market share can be decomposed into four criteria, competitiveness effect, initial country or regional/market effect, initial product/commodity effect, and adaptation/world growth effect (Leamer & Stern, 1970; Gilbert, 2010a; Spence & Karingi, 2011).

Competitiveness effect is calculated as the change in the exporting country/region's share in destination market imports, multiplied by the initial share of the partner countries'/ region's import in world trade. Initial product effect is calculated as the change in partner countries'/region's imports in world trade multiplied by difference between the initial share of the exporting country/region and the initial market share of the exporting country/region in destination market imports. Initial country or regional effect is calculated as the initial market share of the exporting country/region multiplied by the change in the share of partner country/region in destination market. Meanwhile, adaptation effect is obtained by calculating the cross variation of changes in exporting country's/region's market share and the change in its share of partner countries'/region's markets on a specific product in world imports. Table 1 shows the brief explanation about the CMSA.

Table 1. Brief explanation on the Constant Market Share Analysis (CMSA)

Effects	+	-
Competitiveness Effect	the certain product is competitive	the certain product is not competitive
Initial Effect		
Country Effect	positive demand of certain product because of the high demand from the specific country or region	negative demand of certain product because of the low demand from the specific country or region
Product Effect	positive demand of certain product because of the high demand from the world as a whole	negative demand of certain product because of the low demand from the world as a whole
Adaptation Effect	positive response or adaptation	negative response or adaptation

The competitiveness of Indonesia's products is necessary to be observed to find out the market share and how competitive their products in the selected markets. Using the Constant Market Share Analysis (CMSA), it can be used to resolve the right policy option for Indonesia to gain more advantages in doing trade with strategic partner countries/regions.

Furthermore, this paper uses the United Nations Statistical Division Commodity Trade (UN COMTRADE) database, especially Harmonized Commodity Description and Coding System (HS) nomenclature or product classification 2002 version. There are 16 products that utilized by this paper based on two (2) digit product classification as shown below.

Table 2. Product classification

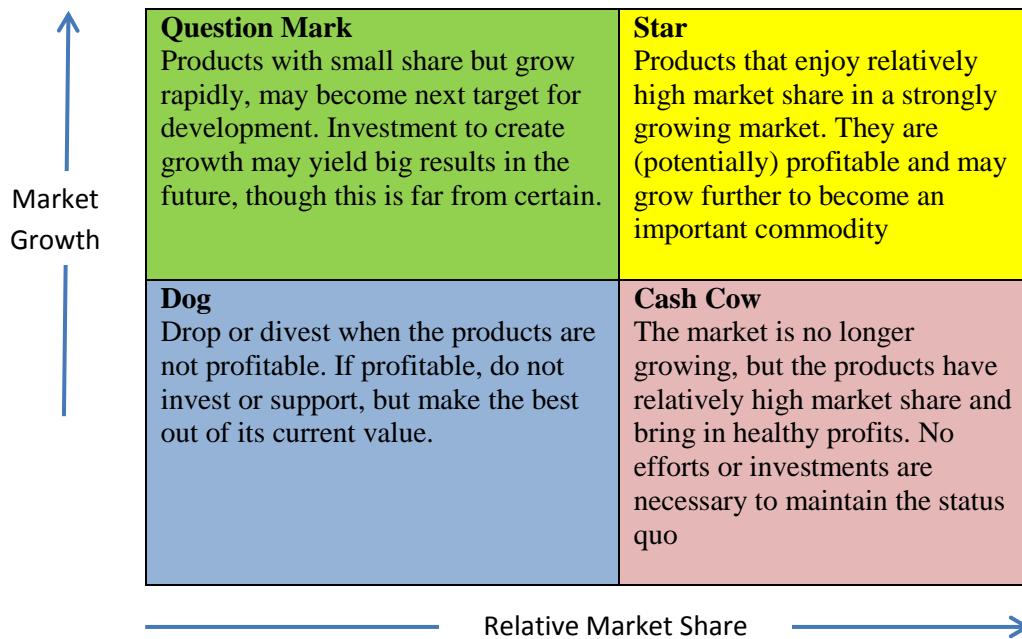
HS 2 digit product classification	
01-05_Animal Products	44-49_Wood Products
06-15_Vegetable Products	50-63_Textile and Clothing Products
16-24_Food Products	64-67_Footwear
25-26_Mineral Products	68-71_Stone and Glass Products
27-27_Fuels	72-83_Metal Products
28-38_Chemical Products	84-85_Machinery and Electrical Products
39-40_Plastic and Rubber Products	86-89_Transportation Products
41-43_Hide and Skin Products	90-99_Miscellaneous Products

BCG matrix

The Growth-Share matrix or widely-known as BCG Matrix is a chart to analysis units of business or line of products either they have performed well, need to be improved or even need to be dismissed. The products will be ranked according to their conditions and mapped into a four quadrants figure where the best products will in top-right quadrant and be called as “star”. Figure 6 explains the categories in BCG matrix².

² Steven Ten Have, 2003. *Key Management Models*. Financial Times Press.

Figure 6. BCG Matrix Categories



In this study, the relative market share (the horizontal axis of BCG matrix) is represented by competitiveness effect from CMS analysis. Basically, competitiveness effect has the same meaning with relative market share as the value will be positively larger when a product successfully gains more market share in its trade destination.

3. Global economic crisis in 2008-2009

The global financial crisis (GFC) in 2008 – 2009 had affected international trade around the globe. WTO reported a 12% decline of world trade volume in 2009³. This decline channeled from financial collapse that decreased demand for merchandise trading and created shortage in trade financing.

Indonesia's trade to its trading partners had also been affected by GFC. In 2009, the country's total exports declined by 18% which was the largest export's drop in the past decade. The largest value was coming from fuel products, which was dropping by USD 13 billion. Meanwhile by percentage, the largest drop happened for transportation products that accounted 37% decline.

Exports of Indonesia to ASEAN declined slightly lower than to the whole countries. It accounted 16% of decline between 2008 and 2009. Fuels were the highest value in the dropping, with a value of USD 1.5 billion. However, the value was slightly different with the one from Machinery and Electrical products which was accounted USD 1.4 billion of decline. The largest decline by percentage was also coming from transportation products which were 36% in that period.

Meanwhile, Indonesian exports to China declined much less than to the world and ASEAN between 2008 and 2009. The export value was only declining by 4.6%. This was mostly due to fuel products, which was surprisingly gaining more trade by USD 1.6 billion and reached USD 4.2 billion in exports. The largest export drop in value was happening in mineral products that accounted USD 1.3 billion of decline. Meanwhile, the sharpest exports' drop in percentage happened in transportation product with 85%.

Indonesia's total export to Japan experienced decline by 33% during the GFC period. The largest value of this decline was coming from fuel products with a negative change of USD 8.9 billion. It was also the highest percentage drop in the exports flow (46%). All product categories experienced declines, which therefore accumulated to total decline larger in percentage compared to Indonesia's exports to world.

Republic of Korea, as one of the important Indonesia trade partners in Asia, was also experience of decline in demand for Indonesia export products during the GFC period. Indonesia exports to Korea fell by 18% from 2008 to 2009. The largest decline in value came from fuel products with a change of USD 1.7 billion. However the most negative percentage change was happening for vegetable products which were around 39%.

³ WTO, 2010. *Trade to Expand by 9.5% in 2010 After a Dismal 2009, WTO Reports. WTO Press Release. 26 March 2010.* Retrieved from http://www.wto.org/english/news_e/pres10_e/pr598_e.htm.

4. The transformation of Indonesia's products before and after GFC 2008-2009

The CMSA is a straightforward tool to illustrate the structure of country/region export and its competitiveness (Zebregs, 2004). In this section, this paper observes the transformation of Indonesia's products before and after global financial crisis 2008-2009 in several markets, including ASEAN, China, Japan and South Korea. The characteristics of the transformation can be showed by examining the CMSA output consist of competitiveness, initial and adaptation effect. In addition, it tries to suggest policy recommendation for the Indonesian government, especially in promoting its products so that they could compete with the same products from other countries and the most important thing is Indonesia's trading activities with the partner countries could gain advantages.

Indonesia's products in ASEAN

As we mentioned before that this paper tries to analyze the country, product and adaptation effect of Indonesia's products before and after global financial crisis 2008-2009. Table 3 shows the CMSA of Indonesia's products in the ASEAN market before economic crisis 2008-2009, specifically during 2005-2007. It shows that there are four Indonesia's products that have negative signs in their competitiveness index. It means that four products, namely animal products, wood products, stone and glass products, and machinery and electrical products, are not competitive with respect to the same products from other countries in the ASEAN market. The rest of products seem to be more competitive based on the positive sign provided by the CMSA output.

Table 3. CMSA output of Indonesia's products in ASEAN market during 2005-2007

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2005-2007	2005-2007	2005-2007	2005-2007	2005-2007
01-05_Animal	-0.000247314	2.10E-05	8.49E-06	1.25E-05	-5.08E+02
06-15_Vegetable	8.62372E-05	2.97E-04	1.17E-04	1.72E-04	-1.19E+04
16-24_FoodProd	6.84508E-05	1.74E-04	7.64E-05	1.13E-04	-8.13E+03
25-26_Minerals	1.53171E-05	1.13E-04	5.50E-05	8.13E-05	-2.09E+03
27-27_Fuels	0.000773736	4.46E-04	4.73E-04	6.99E-04	-4.39E+05
28-38_Chemicals	0.000547308	-2.93E-05	-3.12E-05	-4.61E-05	9.22E+03
39-40_PlastiRub	8.76924E-05	1.69E-05	1.92E-05	2.84E-05	-3.45E+03
41-43_HidesSkin	2.18645E-05	-8.87E-06	-1.50E-05	-2.22E-05	2.34E+02
44-49_Wood	-0.000311865	-2.96E-05	-1.11E-05	-1.64E-05	8.09E+02
50-63_TextCloth	1.40849E-05	-7.54E-05	-6.76E-05	-9.99E-05	7.09E+03
64-67_Footwear	3.1259E-05	-4.37E-06	-3.45E-06	-5.10E-06	2.22E+01
68-71_StoneGlas	-0.000525163	-2.19E-04	-1.82E-04	-2.69E-04	1.38E+04
72-83_Metals	0.00024092	5.17E-04	4.43E-04	6.55E-04	-2.59E+05
84-85_MachElec	-0.003978045	-8.58E-04	-1.01E-03	-1.49E-03	1.90E+06
86-89_Transport	1.08054E-05	3.08E-05	4.54E-05	6.71E-05	-1.10E+04
90-99_Miscellan	0.003347212	5.89E-05	7.99E-05	1.18E-04	-1.67E+04

From Table 3, we also can see that chemical products, hide and skin products, wood products, textile and clothing products, footwear products, stone and glass products, and machinery and electrical products have negative signs in their initial product effect, including

the country and product effects, before economic crisis 2008-2009. It means that these products have low demand due to the low demand from the ASEAN market and the world market as a whole, respectively, during 2005-2007. Furthermore, in response to this kind of situation, Indonesian government responses positively the low demand of the products mentioned above showed by the positive value of their adaptation effects. The actions taken by the Indonesian government, including trade facilitation, are expected to stimulate more demand from the ASEAN market.

Meanwhile, Indonesia's products, such as animal, vegetable, food production, mineral, fuels, plastic and rubber, metal, transportation, and miscellaneous products have positive sign in their initial effects. It means that the demand of these products are high because of the high demand from both ASEAN and world market. Moreover, the adaptation effects of these products shows negative value that means there are negative responses from the Indonesian government due to the positive demand of those products in ASEAN market.

Table 4 shows the CMSA of Indonesia's products in the ASEAN market after economic crisis 2008-2009, specifically during 2010-2012. It shows that there are nine Indonesia's products that have negative signs in their competitiveness index. It means that nine products, namely animal, food products, mineral, plastic and rubber, hide and skin, stone and glass, metal, machinery and electrical products, and miscellaneous products are not competitive with respect to the same products from other countries in the ASEAN market. The rest of products seem to be more competitive based on the positive signs provided by the CMSA output.

Table 4. CMSA output of Indonesia's products in ASEAN market during 2010-2012

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2005-2007	2010-2012	2010-2012	2010-2012	2010-2012
01-05_Animal	-1.45682E-05	1.56E-05	9.94E-06	5.65E-06	-2.66E+02
06-15_Vegetable	0.000868566	-2.08E-04	-6.10E-05	-3.46E-05	-1.50E+02
16-24_FoodProd	-0.000361919	-5.70E-05	-2.66E-05	-1.51E-05	1.06E+03
25-26_Minerals	-3.56371E-05	-5.62E-05	-3.38E-05	-1.92E-05	-6.89E+01
27-27_Fuels	0.003298508	2.47E-03	2.51E-03	1.43E-03	-3.33E+06
28-38_Chemicals	0.000171798	-1.93E-04	-2.50E-04	-1.42E-04	5.39E+03
39-40_PlastiRub	-1.48806E-05	-1.09E-04	-1.57E-04	-8.90E-05	2.14E+03
41-43_HidesSkin	-9.78889E-07	-1.06E-05	-2.88E-05	-1.63E-05	-1.40E+02
44-49_Wood	0.000752597	-2.76E-04	-1.27E-04	-7.24E-05	-4.51E+03
50-63_TextCloth	0.000246432	-2.72E-04	-3.77E-04	-2.14E-04	-4.36E+04
64-67_Footwear	4.60417E-05	-2.09E-05	-1.37E-05	-7.78E-06	-3.96E+01
68-71_StoneGlas	-5.9508E-05	8.11E-05	6.26E-05	3.56E-05	-5.89E+03
72-83_Metals	-0.000572332	-5.18E-04	-4.16E-04	-2.36E-04	-1.43E+03
84-85_MachElec	-0.000230055	-8.04E-04	-1.55E-03	-8.82E-04	1.18E+05
86-89_Transport	0.000275673	4.58E-04	5.20E-04	2.96E-04	-1.56E+05
90-99_Miscellan	-0.004467226	-1.84E-04	-6.38E-05	-3.62E-05	9.16E+03

From Table 4, there are only four Indonesia's products which have positive signs in their initial product effects, such as animal, fuels, stone and glass, and transportation products after the economic crisis 2008-2009. It means that these products have high demand due to the high demand from the ASEAN market and the world market as a whole, respectively, during

2010-2012. Furthermore, in response to this kind of situation, Indonesian government responses negatively the high demand of the products mentioned above showed by the negative value of their adaptation effects. Meanwhile, the rest of Indonesia's products have negative signs in their initial effects. It means that the demand of these products are low because of the low demand from both ASEAN and world market. Moreover, the adaptation effects of these products shows positive value that means there are positive responses from the Indonesian government due to the low demand of those products in ASEAN market.

Figure 7 and 8 shows the market growth of Indonesia's products and their competitiveness in the ASEAN market before and after economic crisis 2008-2009. As we can see, most of Indonesia's products are experiencing positive market growth in the ASEAN market. Meanwhile, the competitiveness of Indonesia's products seem to be neither not competitive not competitive.

Figure 7. Indonesia's products in ASEAN before 2008-2009 crisis

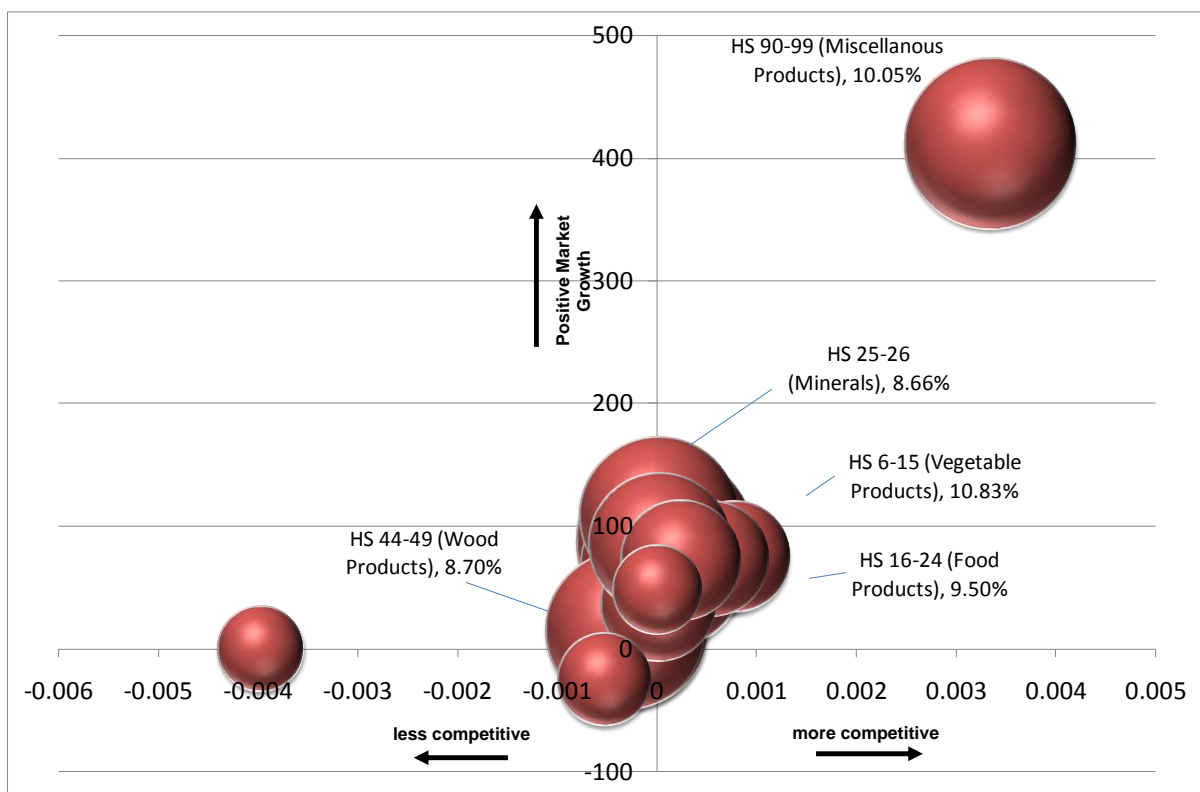


Figure 8. Indonesia's products in ASEAN after 2008-2009 crisis

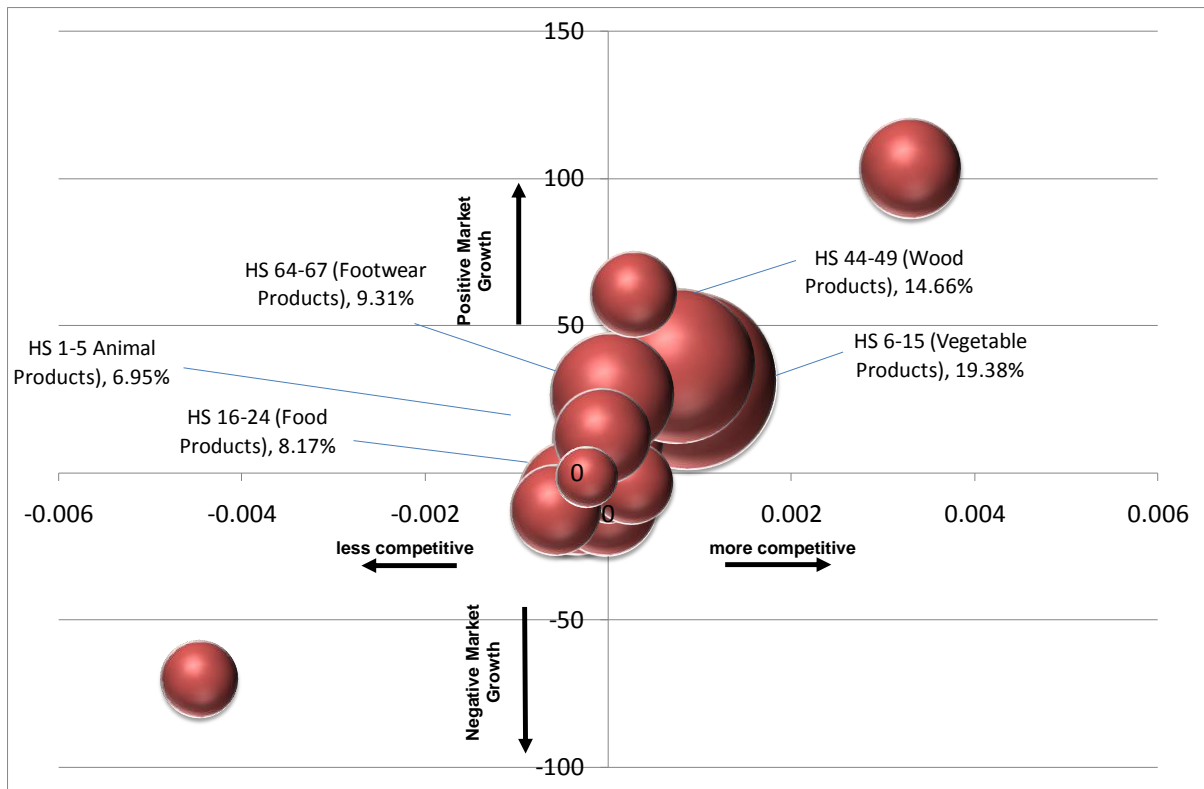


Table 5. Market share of Indonesia's products in the ASEAN market

Highest market share of Indonesian products in the ASEAN market (%)			
2005 - 2007		2010 - 2012	
Vegetable Products	10.83	Vegetable Products	19.38
Miscellaneous Products	10.05	Wood Products	14.66
Food Products	9.50	Footwear	9.31
Wood Products	8.70	Food Products	8.17
Mineral Products	8.66	Animal Products	6.95

(in progress)

Indonesia's products in China

Table 6 shows the CMSA of Indonesia's products in the Chinese market before economic crisis 2008-2009. There are eight (8) Indonesia's products that have negative signs in their competitiveness index. It means that eight products, namely animal products, fuels, chemical, wood products, textile and clothing, stone and glass products, metal products and machinery and electrical products, are not competitive with respect to the same products from other countries in the Chinese market. The rest of products seem to be more competitive based on the positive signs provided by the CMSA output.

Table 6. CMSA output of Indonesia's products in Chinese market during 2005-2007

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2005-2007	2005-2007	2005-2007	2005-2007	2005-2007
01-05_Animal	-2.12614E-05	-1.24E-06	-1.63E-06	3.86E-07	2.06E+02
06-15_Vegetable	0.000427403	1.19E-04	2.89E-05	-6.86E-06	-1.51E+04
16-24_FoodProd	8.52807E-06	-4.89E-06	-7.04E-06	1.67E-06	5.34E+02
25-26_Minerals	0.001256108	1.90E-04	2.65E-04	-6.27E-05	-5.13E+05
27-27_Fuels	-0.000811543	4.65E-04	2.08E-04	-4.92E-05	-6.04E+05
28-38_Chemicals	-0.000483866	-9.50E-05	-7.04E-05	1.67E-05	8.93E+04
39-40_PlastiRub	0.000234042	-2.15E-05	-2.16E-05	5.13E-06	2.29E+04
41-43_HidesSkin	3.35218E-05	-4.42E-06	-1.29E-05	3.07E-06	1.22E+03
44-49_Wood	-0.000739329	-1.33E-04	-2.32E-05	5.49E-06	9.83E+03
50-63_TextCloth	-3.98552E-05	-1.03E-04	-1.26E-04	2.98E-05	1.13E+04
64-67_Footwear	2.53958E-05	-2.65E-06	-1.03E-06	2.44E-07	1.22E+01
68-71_StoneGlas	-3.94746E-05	5.93E-06	1.41E-05	-3.34E-06	-3.79E+03
72-83_Metals	-0.000183989	-2.90E-05	-5.46E-05	1.29E-05	8.04E+04
84-85_MachElec	-8.94086E-05	-1.23E-04	-2.46E-04	5.83E-05	1.51E+06
86-89_Transport	4.81078E-06	1.38E-05	1.02E-04	-2.42E-05	-1.10E+05
90-99_Miscellan	4.01657E-06	-6.40E-06	-5.34E-05	1.27E-05	6.74E+04

Vegetable products, mineral, fuels, stone and glass products, and transportation products have positive signs in their initial product effect, including the country effects, before the economic crisis 2008-2009. It means that these products have high demand due to the high demand from the Chinese market during 2005-2007, even though the demand of those products from the world market are low that proven by the negative signs of their product effect's value. Furthermore, Indonesian government unfortunately not responses positively the high demand of the products mentioned above showed by the negative value of their adaptation effects.

Other products not mentioned above have negative signs in their initial effects. It means that the demand of these products are low because of the low demand from the Chinese market even though the demand from the world market is high. Moreover, the adaptation effects of these products shows positive value that means there are positive responses from the Indonesian government due to the low demand of those products in the Chinese market.

Table 7 shows that there are seven Indonesia's products that have negative signs in their competitiveness index. It means that seven products, namely food products, mineral, fuels, chemical, hide and skin, textile and clothing, stone and glass, and machinery and electrical

products are not competitive with respect to the same products from other countries in the Chinese market. The rest of products seem to be more competitive based on the positive signs provided by the CMSA output.

Table 7. CMSA output of Indonesia's products in Chinese market during 2010-2012

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2005-2007	2010-2012	2010-2012	2010-2012	2010-2012
01-05_Animal	2.70421E-05	8.40E-06	1.65E-05	-8.12E-06	-4.51E+03
06-15_Vegetable	9.03498E-05	3.53E-04	8.92E-05	-4.38E-05	-1.12E+05
16-24_FoodProd	-7.26754E-06	1.54E-05	1.78E-05	-8.74E-06	-5.14E+03
25-26_Minerals	0.001311154	-1.14E-04	-7.64E-05	3.76E-05	1.11E+05
27-27_Fuels	-1.85787E-05	1.56E-03	6.50E-04	-3.20E-04	-4.81E+06
28-38_Chemicals	-8.07965E-05	-2.57E-05	-2.80E-05	1.38E-05	4.26E+04
39-40_PlastiRub	0.000151491	-1.88E-04	-1.37E-04	6.72E-05	7.45E+04
41-43_HidesSkin	-1.42349E-05	2.62E-07	5.89E-07	-2.90E-07	-8.22E+01
44-49_Wood	0.000108726	-5.28E-05	-1.93E-05	9.47E-06	8.12E+03
50-63_TextCloth	-4.5552E-06	3.08E-05	3.33E-05	-1.64E-05	-2.29E+04
64-67_Footwear	2.08615E-05	1.78E-05	4.09E-06	-2.01E-06	-1.67E+02
68-71_StoneGlas	-8.54939E-06	-7.52E-07	-5.64E-06	2.77E-06	1.55E+03
72-83_Metals	0.000148941	-9.15E-05	-2.14E-04	1.05E-04	1.02E+05
84-85_MachElec	-8.60453E-05	-2.19E-04	-7.25E-04	3.56E-04	2.03E+06
86-89_Transport	3.92435E-05	3.42E-06	5.83E-05	-2.87E-05	-9.24E+04
90-99_Miscellan	2.09438E-05	2.22E-05	3.35E-04	-1.65E-04	-1.37E+06

From Table 7, there are seven Indonesia's products which have negative signs in their initial product effects, such as mineral, chemical, plastic and rubber, wood, stone and glass, metal, and machinery and electrical products after the economic crisis 2008-2009. It means that these products have low demand due to the high demand from the Chinese market during 2010-2012. Furthermore, in response to this kind of situation, Indonesian government responses positively the low demand of the products mentioned above showed by the positive value of their adaptation effects. Meanwhile, the rest of Indonesia's products have positive signs in their initial effects. It means that the demand of these products are high because of the high demand from the Chinese market. Moreover, the adaptation effects of these products shows negative value that means there are negative responses from the Indonesian government due to the high demand of those products in the Chinese market.

Figure 9 and 10 shows the market growth of Indonesia's products and their competitiveness in the Chinese market before and after economic crisis 2008-2009. As we can see, most of Indonesia's products are experiencing positive market growth in the Chinese market, especially during 2010-2012.

Figure 9. Indonesia's products in China before 2008-2009 crisis

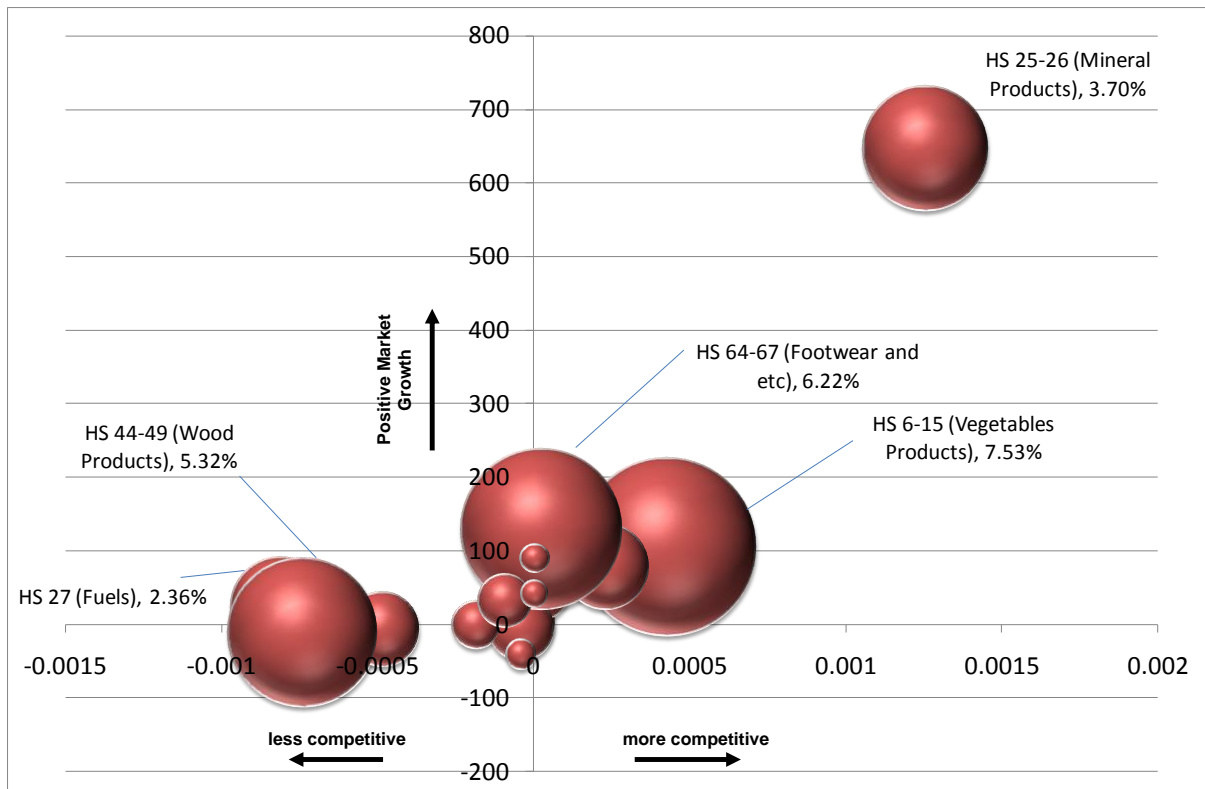


Figure 10. Indonesia's products in China after 2008-2009 crisis

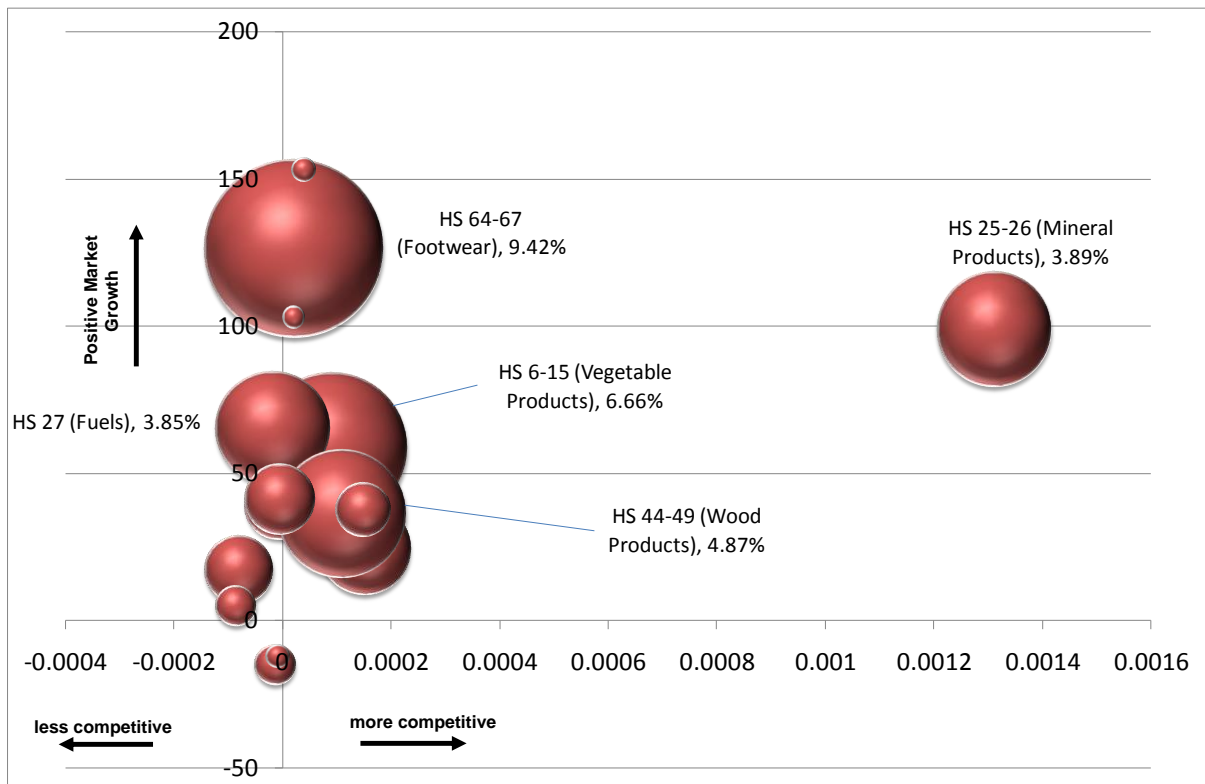


Table 8. Market share of Indonesia's products in the Chinese market

Highest market share of Indonesian products in the China market (%)			
2005 - 2007		2010 - 2012	
Vegetable Products	7.53	Footwear	9.42
Footwear	6.22	Vegetable Products	6.66
Wood Products	5.32	Wood Products	4.87
Mineral Products	3.70	Mineral Products	3.89
Fuels	2.36	Fuels	3.85

(in progress)

Indonesia's products in Japan

Table 9 shows that there are 50-50 Indonesia's products that have negative and positive signs in their competitiveness index in the Japanese market during 2005-2007. Animal, vegetable, chemical, plastic and rubber, hide and skin, stone and glass, metal, and transportation products have positive signs which means that those products are competitive in the Japanese market before the economic crisis 2008-2009. The other eight products have negative signs in their competitiveness index.

From Table 9, there are five Indonesia's products which have positive signs in their initial product effects, such as mineral, fuel, plastic and rubber, stone and glass, and metal products during 2005-2007. It means that these products have high demand due to the high demand from the Japanese market during 2010-2012. Furthermore, in response to this kind of situation, Indonesian government responses negatively the positive demand of the products mentioned above showed by the negative value of their adaptation effects. Meanwhile, the rest of Indonesia's products have negative signs in their initial effects. It means that the demand of these products are low because of the low demand from the Japanese market. Moreover, the adaptation effects of these products shows positive value that means there are positive responses from the Indonesian government due to the low demand of those products in the Japanese market. Only animal products that responded negatively by the Indonesian government.

Table 9. CMSA output of Indonesia's products in Japanese market during 2005-2007

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2005-2007	2005-2007	2005-2007	2005-2007	2005-2007
01-05_Animal	6.28667E-05	-2.95E-04	-4.36E-04	1.41E-04	-2.45E+04
06-15_Vegetable	2.39325E-05	-8.04E-06	-4.14E-05	1.34E-05	2.69E+03
16-24_FoodProd	-3.86715E-05	-4.81E-05	-1.56E-04	5.05E-05	5.28E+03
25-26_Minerals	-0.000150237	1.32E-03	5.12E-04	-1.65E-04	-1.29E+05
27-27_Fuels	-0.001858647	1.58E-03	7.92E-04	-2.56E-04	-7.40E+05
28-38_Chemicals	3.44059E-05	-3.64E-06	-1.49E-05	4.80E-06	2.42E+03
39-40_PlastiRub	0.000428577	4.44E-05	2.18E-05	-7.03E-06	-1.22E+03
41-43_HidesSkin	3.62675E-06	-3.73E-06	-3.48E-05	1.12E-05	4.18E+02
44-49_Wood	-0.000452287	-3.67E-04	-1.49E-04	4.81E-05	4.23E+03
50-63_TextCloth	-5.31839E-06	-1.08E-04	-2.47E-04	7.98E-05	1.12E+04
64-67_Footwear	-4.27266E-05	-1.48E-05	-2.27E-05	7.34E-06	3.12E+02
68-71_StoneGlas	8.5136E-06	1.90E-05	7.43E-05	-2.40E-05	-6.78E+03
72-83_Metals	0.001587628	6.22E-04	4.46E-04	-1.44E-04	-1.14E+05
84-85_MachElec	-4.52889E-05	-1.96E-04	-5.04E-04	1.63E-04	1.93E+05
86-89_Transport	7.24037E-05	-1.62E-05	-7.39E-05	2.38E-05	4.97E+03
90-99_Miscellan	-6.08565E-05	-4.33E-05	-1.66E-04	5.37E-05	2.53E+04

Table 10 also shows that there are 50-50 Indonesia's products that have negative and positive signs in their competitiveness index in the Japanese market during 2010-2012. Vegetable, food product, chemical, hide and skin, wood, textile and clothing, footwear, and miscellaneous products have positive signs which means that those products are competitive in the Japanese market after the economic crisis 2008-2009. The other eight products have negative signs in their competitiveness index.

From Table 10, there are thirteen Indonesia's products which have negative signs in their initial product effects after the economic crisis 2008-2009. Meanwhile, there are only three Indonesia's products that have positive initial product effects, namely food product, fuels, and transportation products in the Japanese market during 2010-2012. Furthermore, for the three products that have positive initial product effect, Indonesian government responses negatively the high demand of the products showed by the negative value of their adaptation effects.

Table 10. CMSA output of Indonesia's products in Japanese market during 2010-2012

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2010-2012	2010-2012	2010-2012	2010-2012	2010-2012
01-05_Animal	-5.90656E-05	-6.57E-05	-9.33E-05	2.76E-05	9.49E+03
06-15_Vegetable	3.88183E-05	-1.34E-05	-5.21E-05	1.54E-05	6.04E+03
16-24_FoodProd	4.71192E-06	3.81E-06	1.45E-05	-4.29E-06	-2.35E+03
25-26_Minerals	-0.003026868	-6.86E-04	-2.39E-04	7.07E-05	3.54E+04
27-27_Fuels	-0.002575498	3.61E-03	2.22E-03	-6.56E-04	-5.44E+06
28-38_Chemicals	1.94533E-05	-3.80E-05	-1.98E-04	5.86E-05	5.16E+04
39-40_PlastiRub	-0.000248851	-1.25E-04	-4.79E-05	1.42E-05	4.50E+03
41-43_HidesSkin	2.97666E-06	-1.64E-06	-1.35E-05	4.00E-06	4.18E+02
44-49_Wood	0.000174901	-1.82E-04	-8.93E-05	2.64E-05	5.17E+03
50-63_TextCloth	0.000507569	-9.59E-06	-2.00E-05	5.90E-06	3.98E+03
64-67_Footwear	7.97115E-05	-6.54E-06	-1.21E-05	3.58E-06	3.69E+02
68-71_StoneGlas	-6.39458E-06	-4.04E-05	-1.68E-04	4.97E-05	3.68E+03
72-83_Metals	-0.00052369	-4.95E-04	-3.17E-04	9.38E-05	1.96E+04
84-85_MachElec	-0.000138603	-3.71E-04	-9.65E-04	2.85E-04	4.38E+05
86-89_Transport	-5.55812E-05	9.64E-05	2.02E-04	-5.98E-05	-4.84E+04
90-99_Miscellan	4.77471E-05	-6.49E-05	-2.18E-04	6.45E-05	4.92E+04

Figure 11 and 12 shows the market growth of Indonesia's products and their competitiveness in the Japanese market before and after economic crisis 2008-2009. As we can see, most of Indonesia's products are experiencing positive market growth in the Japanese market.

Figure 11. Indonesia's products in Japan before 2008-2009 crisis

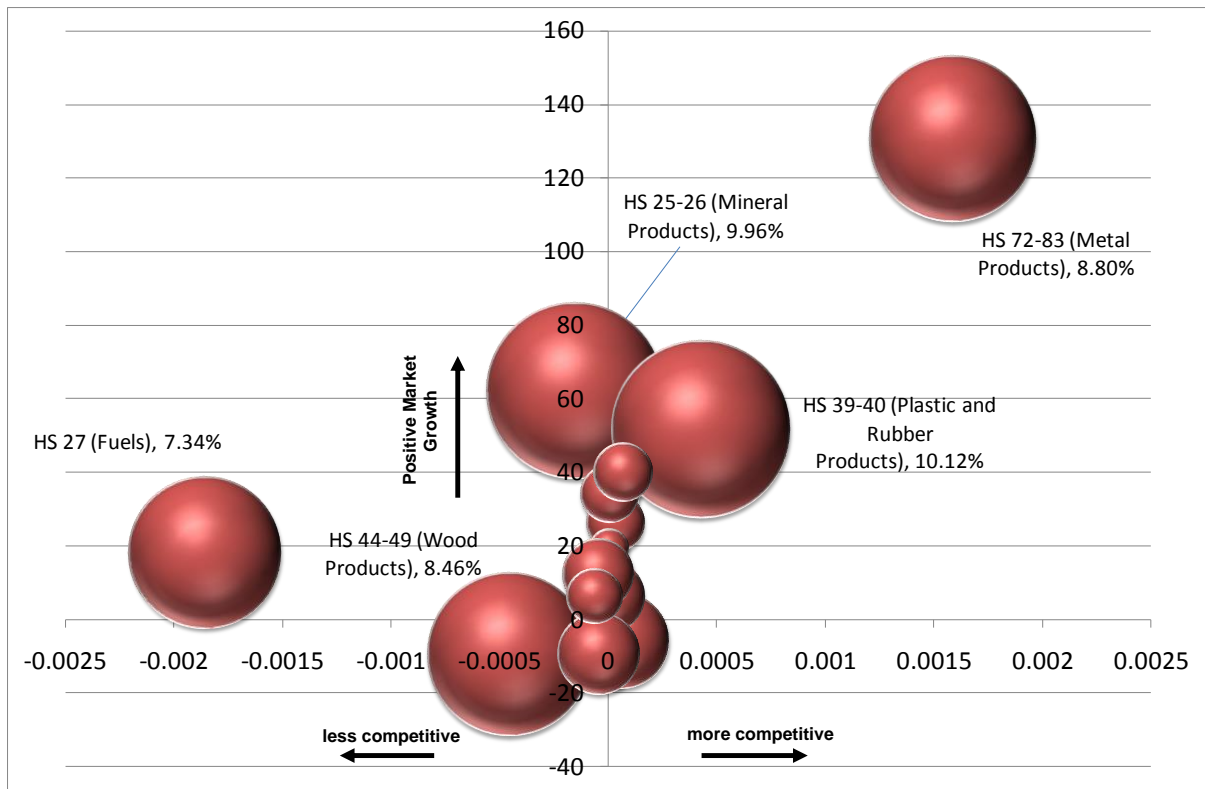


Figure 12. Indonesia's products in Japan after 2008-2009 crisis

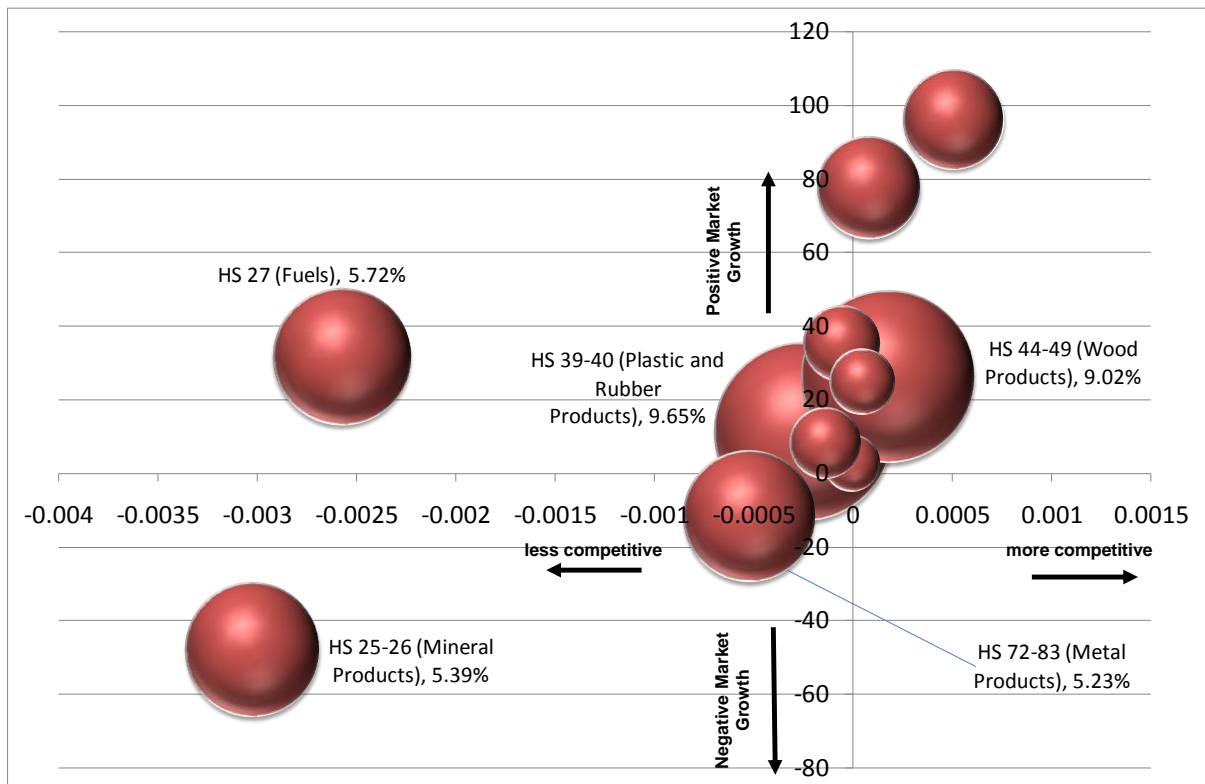


Table 11. Market share of Indonesia's products in the Japanese market

Highest market share of Indonesian products in the Japan market (%)			
2005 - 2007		2010 - 2012	
Plastic and Rubber Products	10.12	Plastic and Rubber Products	9.65
Mineral Products	9.96	Wood Products	9.02
Metal Products	8.80	Fuels	5.72
Wood Products	8.46	Mineral Products	5.39
Fuels	7.34	Metal Products	5.23

(in progress)

Indonesia's products in South Korea

(in progress)

Table 12. CMSA output of Indonesia's products in South Korean market during 2005-2007

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2005-2007	2005-2007	2005-2007	2005-2007	2005-2007
01-05_Animal	6.92822E-06	-2.22E-06	-9.78E-06	7.57E-06	4.07E+02
06-15_Vegetable	8.40861E-05	4.13E-07	2.01E-06	-1.55E-06	-1.05E+02
16-24_FoodProd	1.6826E-05	-5.51E-06	-6.91E-06	5.34E-06	2.69E+02
25-26_Minerals	-0.000490574	4.80E-04	1.75E-04	-1.35E-04	-2.25E+04
27-27_Fuels	-0.007187548	1.00E-03	3.71E-04	-2.87E-04	-3.45E+05
28-38_Chemicals	-5.91238E-05	-3.36E-05	-1.06E-04	8.20E-05	2.19E+04
39-40_PlastiRub	0.000152889	-2.56E-05	-3.87E-05	3.00E-05	2.47E+03
41-43_HidesSkin	9.35743E-06	-2.57E-06	-1.76E-05	1.36E-05	2.07E+02
44-49_Wood	-0.000665983	-1.04E-04	-2.33E-05	1.80E-05	1.11E+03
50-63_TextCloth	-2.29868E-05	-5.44E-05	-5.57E-05	4.31E-05	3.29E+03
64-67_Footwear	2.26414E-05	3.18E-06	2.97E-06	-2.30E-06	-2.92E+01
68-71_StoneGlas	0.000349776	4.21E-05	1.12E-04	-8.65E-05	-1.05E+04
72-83_Metals	0.000966534	5.97E-05	4.45E-04	-3.44E-04	-2.18E+05
84-85_MachElec	-5.29495E-05	-7.89E-05	-6.19E-04	4.79E-04	4.14E+05
86-89_Transport	1.16464E-05	1.52E-06	1.72E-04	-1.33E-04	-2.45E+04
90-99_Miscellan	7.98822E-05	-4.33E-05	-4.03E-04	3.12E-04	1.48E+04

(in progress)

Table 13. CMSA output of Indonesia's products in South Korean market during 2010-2012

HS	Competitiveness Index	Initial Product	Country Effect	Product Effect	Adaptation
	2010-2012	2010-2012	2010-2012	2010-2012	2010-2012
01-05_Animal	-1.70917E-05	5.67E-06	2.21E-05	-1.64E-05	-1.05E+03
06-15_Vegetable	1.4578E-06	3.20E-05	7.06E-05	-5.24E-05	-6.06E+03
16-24_FoodProd	0.000112122	5.10E-06	7.62E-06	-5.66E-06	-3.35E+02
25-26_Minerals	-0.00213353	2.28E-04	9.30E-05	-6.91E-05	-1.59E+04
27-27_Fuels	-0.003554429	5.09E-03	2.30E-03	-1.71E-03	-4.29E+06
28-38_Chemicals	-3.63627E-05	-4.42E-05	-1.23E-04	9.14E-05	2.05E+04
39-40_PlastiRub	0.000185225	-8.08E-05	-7.88E-05	5.86E-05	3.41E+03
41-43_HidesSkin	-1.21168E-05	4.52E-06	1.31E-05	-9.76E-06	-2.97E+02
44-49_Wood	-0.000115024	-2.76E-04	-9.61E-05	7.14E-05	-4.36E+01
50-63_TextCloth	0.000118809	-4.41E-06	-3.04E-06	2.26E-06	1.80E+02
64-67_Footwear	4.00573E-05	2.59E-05	1.82E-05	-1.35E-05	-3.08E+02
68-71_StoneGlas	-0.000583351	-7.59E-05	-7.10E-05	5.28E-05	2.56E+03
72-83_Metals	-0.000354447	-2.32E-04	-5.90E-04	4.39E-04	2.37E+04
84-85_MachElec	0.00012864	-1.94E-04	-1.45E-03	1.07E-03	7.26E+04
86-89_Transport	-3.95787E-05	-1.25E-05	-1.45E-04	1.08E-04	3.90E+03
90-99_Miscellan	-1.06464E-05	3.63E-06	2.52E-05	-1.87E-05	-3.64E+03

(in progress)

Figure 13. Indonesia's products in South Korea before 2008-2009 crisis

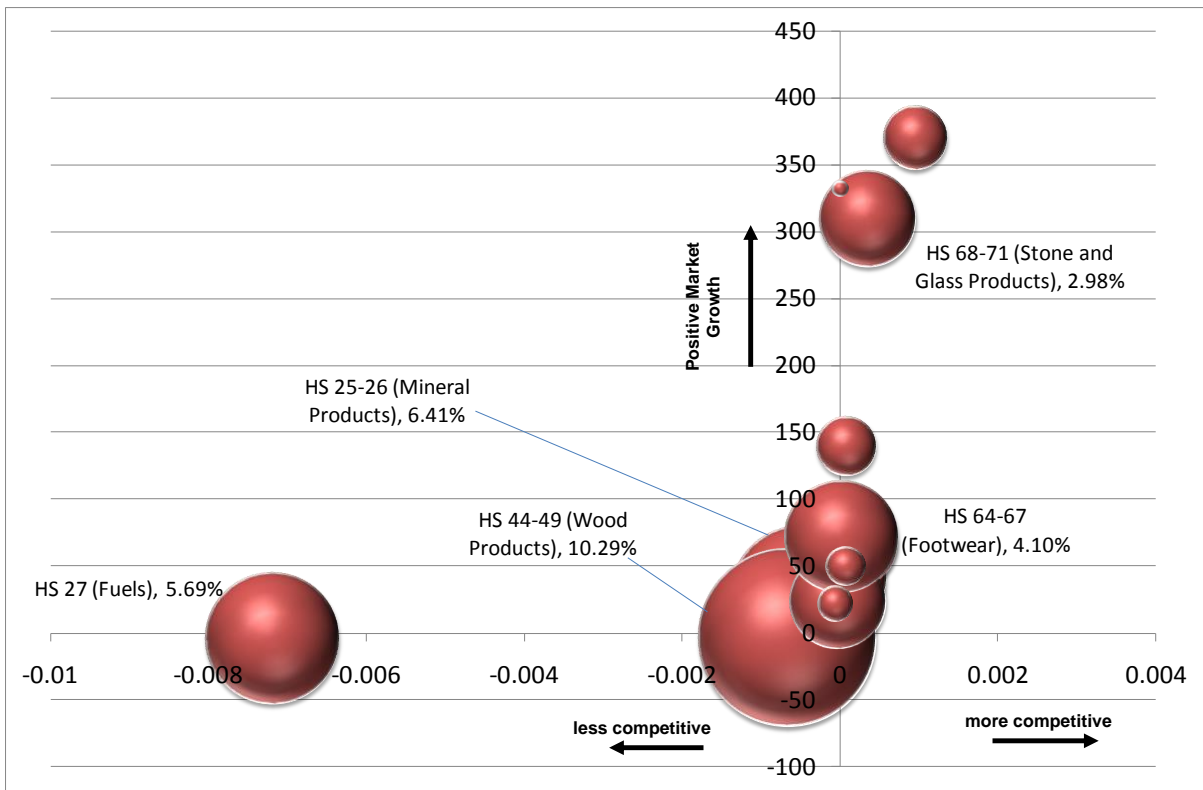


Figure 14. Indonesia's products in South Korea after 2008-2009 crisis

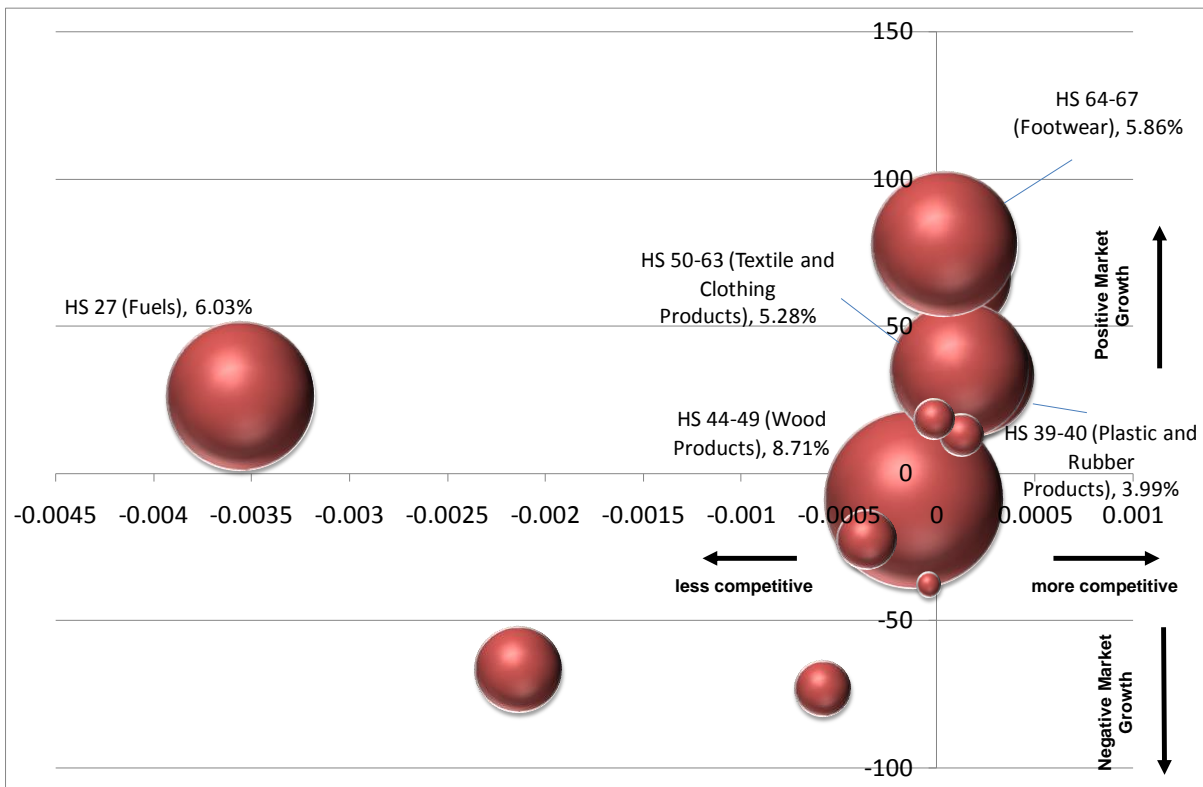


Table 14. Market share of Indonesia's products in the South Korean market

Highest market share of Indonesian products in the Korean market (%)			
2005 - 2007		2010 - 2012	
Wood Products	10.29	Wood Products	8.71
Mineral Products	6.41	Fuels	6.03
Fuels	5.69	Footwear	5.86
Footwear	4.10	Textile and Clothing Products	5.28
Stone and Glass Products	2.98	Plastic and Rubber Products	3.99

(in progress)

5. Conclusion and policy recommendations

(in progress)

References

(in progress)