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## **Export Competitiveness of Indonesia's Palm Oil Product**

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**Abstract:** This study analyzes the export competitiveness of Indonesia's palm oil product as compared to Malaysia's in three regions: Asia, Africa and Europe. Two palm oil products are analyzed: Crude Palm Oil (CPO) and refined palm oil. Market share is utilized as the measurement of competitiveness. The results indicate that Indonesia's palm oil export has increased significantly over the period from 1999-2001 and 2005-2007. The reasons for the increase in Indonesia's export are the increase in demand and the increase in export competitiveness of Indonesia's palm oil product compared to Malaysia's product.

**Key words:** Palm oil, export competitiveness, Indonesia

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### **INTRODUCTION**

World palm oil consumption has significantly increased over the years. From 1964 to 2008, consumption has increased an average of 8.7% annually (United States Department of Agriculture, 2009). In 2007/2008, the world consumption of palm oil reached almost 40 million tons and in 2050, it is forecasted to reach 93-256 million tons, depending on the edible oil substitute demand (Corley, 2009).

Meanwhile, in Indonesia, the palm oil industry has grown significantly over the years. By 2007, planted area and production had increased to 23 and 24.5 times their level in 1980. In addition, planted area grew, on average, 11% from 1980 to 2007, while production grew, on average, by 13%. Casson (1999) has argued that this tremendous growth was caused by several factors, especially the efficiency and high yield of the harvest combined with low production cost, a promising domestic and international market and government policy, which supports the development of the palm oil industry.

Seventy percent of the palm oil production in Indonesia is exported. As a result, the export market has played an important role in the growth of the palm oil industry. By 2007, palm oil export had increased to 23.6 times its level in 1980, with average growth of 28% in terms of quantity and 27% in terms of value annually (United Nations, 2009).

The main market destination of Indonesia's palm oil in 2007 was Asia, with 72.81%, followed by Europe with 18.61% and Africa with 7.17% (United Nations, 2009). Malaysia is the main competitor with Indonesia in terms of palm oil. The objective of this study is to analyze the competitiveness of Indonesia's palm oil product in the three regions: Asia, Europe and Africa. The change in market share is employed to analyze the competitiveness of Indonesia's palm oil product. In addition, Malaysia's change in market share is also calculated to facilitate comparison with Indonesia. In addition to market share calculations, Constant Market Share Analysis (CMSA) is utilized to search for the source of the change in market shares.

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### **Measuring Competitiveness**

Siggel (2006) have tried to define competitiveness. The definition varies depending on which level of approach is taken. For example, the definition of competitiveness on a country level will be different from that on the firm level. Additionally, the analysis of competitiveness will be different depending on the firm level. In this study, competitiveness will be analyzed on a product basis, with the product as palm oil and on a country level, with the countries as Indonesia and Malaysia.

After deciding the level of the analysis, the next problem is the method of measuring competitiveness. On a one-product and country level, there are two approaches to measuring competitiveness, the producer approach and market approach. The producer approach measures competitiveness from the producer side using measurements such as price (Durand and Giorno, 1987) and real effective exchange rate (Helleiner, 1991). Meanwhile, for the market approach, one of the most common measurements is market share or the change in market share (Fagerberg, 1988; Krugman and Hatsopoulos, 1987; Mandeng, 1991; Gopal, 1999; Hasan *et al.*, 2001; Jin and Won, 2003; Torok, 2008). In this study, the market approach will be employed in the analysis. Therefore, when a country has a greater market share or experiences an increase in market share, it can be inferred that the country is competitive with regard to the product in a certain period and area.

### **MATERIALS AND METHODS**

Two-step analyses are conducted in this study. The first step is calculating the market share of Indonesia and Malaysia's palm oil product in several countries in the three regions: Asia, Europe and Africa. Two average time periods are calculated, 1999-2001 and 2005-2007. The second step using the previous market share in the regions, Constant Market Share Analysis (CMSA) is taken in order to analyze the source of growth of palm oil export.

The analysis was applied for the first time in the international trade flow by Tyszynski (1951). The analysis basically decomposed export growth into four components (Richardson, 1971): the market size effect, the market composition effect, the commodity composition effect and the competitive effect.

The market size effect shows that the country's export growth is caused by the increase in market destination imports. The market size effect results from a shift in world demand. The market composition effect indicates that the country can concentrate on a relatively growing market compared to the world market. The commodity composition effect shows whether a country has concentrated on a commodity whose market is expanding rapidly. Lastly, the competitiveness effect is the residual of the CMSA, which is not explained by the other three effects. It is also assumed that the role of domestic factors of the exporting countries is dominant.

Many studies using the CMSA have employed a multi-product and multi-market focus. Only a few studies have applied the same approach to one product and multiple markets. These studies include Ongsritrakul and Hubbard (1996), Barbaros *et al.* (2007) and Turkekul *et al.* (2007). Because only one product is analyzed, only three components are included: market size, market composition and the competitive effect.

The CMSA will be calculated for two palm oil products, Crude Palm Oil (CPO) and refined palm oil. For the purposes of this study, CPO and refined palm oil export in the period from 2005-2007 were analyzed in comparison to those in the base period of 1999-2001, which represents the situation after the economic crisis.

Following Ongsritrakul and Hubbard (1996), the following equation is used:

$$q^1 - q^0 = S^0(Q^1 - q^0) + \sum_{i=1}^n (S_i^0 - S^0)Q_i^1 + (q^1 - \sum_{i=1}^n S_i^0 Q_i^1)$$

(1)                      (2)                      (3)

Where:

- q = The quantity of Indonesia's or Malaysia's palm oil product export to the region
- S = Indonesia's or Malaysia's palm oil product market share of total export to the region
- S<sub>i</sub> = Indonesia's or Malaysia's palm oil product market share of total export to the i-th countries in the region
- Q = The quantity of total palm oil product export to the region
- Q<sub>i</sub> = The quantity of total palm oil product export to the i-th countries in the region

The superscripts 0 and 1 refer to the base and subsequent period, respectively.

The equation shows that the changes in the quantity of Indonesia's or Malaysia's palm oil product export to the destination markets between the two periods ( $q^1 - q^0$ ) can be decomposed into three components on the right hand side of the equation, which represents (1) the size of market effect, (2) market composition effect and (3) competitive effect.

The analysis will be carried out with two commodities: palm oil product commodities, crude palm oil (SITC Rev 3 42221) and refined palm oil (SITC Rev 3 42229). The export data was compiled from the United Nations Commodity Trade Statistics (COMTRADE) Database.

## RESULTS AND DISCUSSION

The analysis will focus on three regions: namely, Asia, Europe and Africa. The characteristics of the palm oil market in these three regions are different, thereby, necessitating this classification.

### Asia

Asian countries are the largest producer of and market for palm oil product. Ninety-one percent of palm oil production in 2007/2008 was produced in this region and 64% of the world consumption came from Asia (United States Department of Agriculture, 2009). Palm oil production is dominated by two countries, Indonesia and Malaysia, which contributed 87% of the world's palm oil production; meanwhile, the largest consumer of palm oil is China, which consumes 13% of the world's palm oil, followed by Indonesia with 11.7% and India with 11.6% in 2007/2008 (United States Department of Agriculture, 2009). In terms of trade, 58% of the CPO and refined palm oil goes to Asian countries (United Nations, 2009).

According to Table 1 and 2, the Asian market is also the fastest growing market. Asia's imports of CPO increased by 264% in 2005-2007 over 1999-2001; meanwhile, the market for refined palm oil grew by 48%. Looking at individual countries, we see that the fastest growing CPO markets in Asia are Pakistan, Azerbaijan and China, which grew 6083, 2105 and 1564%, respectively. For refined palm oil, the fastest growing markets are Vietnam, United Arab Emirates and China, which grew 258, 249 and 230%, respectively.

There are several reasons for the tremendous growth of the Asian market for CPO and refined palm oil. First, the steady economic growth of Asian countries is supported by a large population. Countries like China, India, Pakistan, Vietnam and others have enjoyed stable economic growth over the years, especially after the Asian financial crisis in 1997-1998. Riffin

Table 1: Indonesia's market share of crude palm oil in Asian countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Indonesia	Market share	Total import	Import from Indonesia	Market share
India	939,397	531,489	0.5658	2,470,139	2,077,109	0.8409
Bangladesh	258,041	139,334	0.5400	1,475,603	846,323	0.5735
China	23,687	5,055	0.2134	394,058	174,770	0.4435
Pakistan	5,226	2,500	0.4784	323,150	156,238	0.4835
Vietnam	44,235	1,261	0.0285	194,657	75,980	0.3903
Saudi Arabia	89,989	2,948	0.0328	160,708	91,036	0.5665
Yemen	7,964	0	0.0000	88,635	18,830	0.2124
Sri Lanka	1,278	0	0.0000	70,970	14,194	0.2000
Japan	18,679	1,676	0.0897	26,461	7	0.0003
Jordan	32,410	242	0.0075	23,138	19,639	0.8488
Azerbaijan	424	0	0.0000	13,450	4,101	0.3050
Syria	4,510	0	0.0000	11,526	2,109	0.1830
RO Asia	23,082	169	0.0070	25,560	3,069	0.1200
Total	1,291,470	680,410	0.5268	5,278,055	3,483,405	0.6600

Table 2: Indonesia's market share of refined palm oil in Asian countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Indonesia	Market share	Total import	Import from Indonesia	Market share
China	1,343,501	385,127	0.2867	4,437,142	1,294,754	0.2918
Pakistan	944,719	32,553	0.0345	1,355,150	566,258	0.4179
Japan	358,462	7,762	0.0217	476,910	153	0.0003
India	1,946,093	565,554	0.2906	316,561	234,021	0.7393
Rep Korea	199,309	1,201	0.0060	215,354	5,042	0.0234
Vietnam	50,085	63	0.0013	179,310	36,925	0.2059
Iran	6	0	0.0000	161,410	24,167	0.1497
UAE	44,705	909	0.0203	155,931	15,898	0.1020
Hongkong	253,854	15,596	0.0614	151,516	30,432	0.2008
Philippines	53,269	1,543	0.0290	150,250	31,571	0.2101
Jordan	46,864	4,380	0.0935	110,706	95,823	0.8656
Saudi Arabia	45,541	383	0.0084	101,547	113	0.0011
RO Asia	146,733	34,020	0.2319	252,711	49,568	0.1961
Total	5,433,141	1,049,090	0.1931	8,064,497	2,384,724	0.2957

(2005) indicates that income elasticity for CPO is higher than its price elasticity, which implies that increase in income will cause higher increase in demand for palm oil than will other variables such as price. In addition, the growing food and oleo-chemical industry contributed to the growing demand for palm oil. In Pakistan, the refinery capacity doubled in 2007 from 2025 tons/day to 4225 tons/day, causing the significant increase in CPO export (Daily Times, 2006).

Secondly, several countries have undergone trade liberalization, which makes the inflow of goods easier and cheaper. India, China and Vietnam are among the countries that have liberalized their trade policies. The government of India imposed a trade liberalization policy in 1994. Before trade liberalization, the vegetable oil importation (including the importation of palm oil) was conducted by the Government State Trading Corporation, with annual import quantities determined by the government. After trade liberalization, import tariffs were imposed (Dohlman *et al.*, 2003; Srinivasan, 2005; Persaud and Landes, 2006). In 2006, China abolished the Tariff Rate Quota (TRQ) for several products, including palm oil (MPOC, 2007a). During the implementation of TRQ, a specified quantity of imports will be imposed at a lower tariff rate; meanwhile, an additional import that is over the quota will be assigned higher tariff rate (Hsu and Tuan, 2001). Vietnam liberalized its trade policies after

joining the ASEAN Free Trade Area (AFTA) in 2006, which made the import tariff for palm oil decrease at a maximum level of 5% for products coming from ASEAN countries; the prior level was 10% (MPOC, 2008a).

The third reason is the competitiveness of palm oil compared to other vegetable oils. Palm oil products are less expensive than other vegetable oils, such as soybean oil or sunflower oil. In July 2009, the international price of CPO was US\$ 601.95 ton<sup>-1</sup>; meanwhile, soybean oil is US\$ 750.65 ton<sup>-1</sup> and sunflower oil is US\$ 1021.87 ton<sup>-1</sup> (International Monetary Fund, 2009). In addition to competition between imported products, competition between domestically produced edible oil and imported palm oil has also occurred. Table 1 showed that in the Philippines, the largest producer of coconut oil, refined palm imports have increased significantly, by 182%. The main reason for the increase is that the price of coconut price has increased; hence, producers prefer to export the product, leaving the domestic supply to decrease. As a substitute for coconut oil, palm oil is imported because it less expensive than coconut oil (MPOC, 2008b).

Palm oil also has an advantage in terms of transportation cost, especially for Asian countries. The transportation cost of shipping the product to the destination countries is relatively cheaper because the main producers of palm oil are also Asian countries; meanwhile, the main producers of soybean oil and sunflower oil are non-Asian countries.

Fourth, several countries have served as hubs for other countries. Increases in refined palm oil imports by Jordan (at a rate of 136%) occurred because Jordan was serving as a hub for Iraq (MPOC, 2006). The same also applies for the United Arab Emirates. The country served as a major re-export hub, sending the product to neighboring countries, especially the Gulf Cooperation Countries (GCC). Trading between the GCC countries in edible oils and fats (including palm oil) does not entail customs duty, normally a minimum of 5% if the product comes from outside the GCC countries (MPOC, 2008c). For Central Asian countries, Pakistan has served as a hub. Many palm oil products distributed to Afghanistan, Kyrgyzstan, Kazakhstan and other countries came from Pakistan (Palmoilhq, 2009).

Finally, there is the question of operating a joint venture company in the export destination country. Malaysia set up a joint venture company refining CPO. The company, the MAPAK refinery, started operating in 2006 and has contributed to an increase of more than 50% in Malaysian CPO imports (MPOC, 2007b).

The choice of importing CPO or refined palm oil also depends on several factors. First is the availability of refineries. Countries like India, which mostly import CPO, have huge refinery industries that utilize CPO as their input (Srinivasan, 2005). Second is the price difference between CPO and refined palm oil. The buyer will choose the most profitable form to buy, according to whether buying the product in the form of CPO and refining it or buying it in the form of refined palm oil is more lucrative. The third factor is the import duty. Before the AFTA was imposed in Vietnam in 2006, the import duty for importing CPO was only 5%; meanwhile, importing it in the form of refined palm oil meant being charged a 10% import duty. Hence, the buyers would prefer to buy in the form of CPO (MPOC, 2008a).

From Table 1 it also showed that on the country level, it can be noted that Indonesia's CPO exports to Asian countries have increased by 409%; this change is larger than the increase in imports for Asian countries and therefore, Indonesia's market share has also increased, from 47 to 66%. Pakistan's CPO market has the highest growth level for Indonesia's CPO, with 6150%, followed by Vietnam at 5926% and China at 3358%. According to Table 2, for refined palm oil, Indonesia's exports to Asian countries increased by 127%, causing Indonesia's market share to increase from 19 to 30%.

Malaysia mainly focuses on the export of refined palm oil rather than CPO. The government of Malaysia imposed an export tax on CPO in order for the CPO to be refined locally and exported in the form of refined palm oil (Gopal, 1999; Amiruddin, 2003). Table 3 shows that Malaysia's CPO share of the Asian market has decreased from 49 to 33%, although in terms of quantity, Malaysia's CPO export has increased by 122%. The largest decrease in market share occurred in India, Saudi Arabia and Jordan. In those three countries, Malaysia's CPO export also decreased. In Table 4 which discussed the refined palm oil, Malaysia's export to Asian countries increased by 29% and because the increase was smaller than that of the increase in total imports by Asian countries, Malaysia's market share decreased from 77 to 67%.

Comparing the changes in market share for the two countries and the two products, one can conclude that Indonesia has gained competitiveness in CPO and refined palm oil in the Asian market. The main reason for the increase in Indonesia's market share is the price difference between Indonesia and Malaysia's palm oil product. Asian markets are price-sensitive and a slight difference in price will shift the supplier toward purchasing from other countries. In the case of Indonesia and Malaysia's palm oil, there exists a price difference of up to US\$ 5 ton<sup>-1</sup>, with Malaysian product priced higher (Subramani, 2005).

Table 3: Malaysia's market share of crude palm oil in Asian countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Malaysia	Market share	Total import	Import from Malaysia	Market share
India	939,397	376,691	0.4010	2,470,139	344,581	0.1395
Bangladesh	258,041	117,501	0.4554	986,369	618,092	0.4189
China	23,687	18,157	0.7666	394,058	173,931	0.4414
Pakistan	5,226	2,559	0.4897	323,150	166,787	0.5161
Vietnam	44,235	42,974	0.9715	194,657	89,854	0.4616
Saudi Arabia	89,989	84,012	0.9336	160,708	69,397	0.4318
Yemen	7,964	3,925	0.4929	88,635	60,184	0.6790
Sri Lanka	1,278	12	0.0095	70,970	7,020	0.0989
Japan	18,679	17,003	0.9103	26,461	26,415	0.9982
Jordan	32,410	31,844	0.9825	23,138	3,412	0.1474
Azerbaijan	424	35	0.0830	13,450	9,348	0.6950
Syria	4,510	4,510	1.0000	11,526	9,133	0.7923
RO Asia	23,082	15,523	0.6725	25,560	9,037	0.3536
Total	1,436,516	703,068	0.4894	4,774,042	1,584,580	0.3319

Table 4: Malaysia's market share of refined palm oil in Asian countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Malaysia	Market share	Total import	Import from Malaysia	Market share
China	1,343,501	928,142	0.6908	4,437,142	3,132,541	0.7060
Pakistan	944,719	900,177	0.9529	1,355,150	770,712	0.5687
Japan	358,462	346,565	0.9668	476,910	475,108	0.9962
India	1,946,093	1,355,086	0.6963	316,561	52,293	0.1652
Rep Korea	199,309	194,608	0.9764	215,354	208,941	0.9702
Vietnam	50,085	7,490	0.1495	179,310	138,716	0.7736
Iran	6	6	1.0000	161,410	86,273	0.5345
UAE	44,705	28,878	0.6460	155,931	134,896	0.8651
Hongkong	253,854	228,272	0.8992	151,516	115,854	0.7646
Philippines	53,269	44,381	0.8331	150,250	116,687	0.7766
Jordan	46,864	41,941	0.8949	110,706	13,733	0.1241
Saudi Arabia	45,541	12,766	0.2803	101,547	11,975	0.1179
RO Asia	146,733	82,307	0.5609	252,711	138,923	0.5497
Total	5,433,141	4,170,619	0.7676	8,064,497	5,396,651	0.6692

The Malaysians realized that suppliers from Indonesia were offering lower prices and thus implemented other strategies. One of the strategies was the signing of trade agreements that would eventually benefit their product performance. The Malaysian government signed a Free Trade Agreement (FTA) with the government of Pakistan in November 2007 that took effect beginning on January 1, 2008. With this agreement, palm oil from Malaysia was to receive a 10% duty discount for the first two years and beginning in January 2010, the discount would increase to 15% (MPOC, 2007b). However, the Indonesians countered the Malaysian strategy by also signing a Preferential Trade Agreement (PTA) with Pakistan, where this agreement was signed in March 2009. The PTA specified that Pakistan agreed to cut 10% of its import duty on Indonesia's CPO and CPO-based product (Palmoilhq, 2009).

With almost all markets in Asia, Indonesia has a high market share; the only exceptions are Japan and South Korea. In Japan, Indonesia has less than 1% of the refined palm oil market; meanwhile, Malaysia is dominant with almost a 100% market share. The reason for this is that the Japanese buyer still perceives Indonesia as only producing CPO and not refined palm oil. Japan has mainly imported refined palm oil from Malaysia. The other reason is that Japanese tankers carrying palm oil are reluctant to enter Indonesian water because of security concerns.

The Constant Market Share Analysis (CMSA) is conducted to analyze the source of export growth for CPO and refined palm oil in the Asian market. Table 5 showed that for Indonesia, the increase in CPO exports is greater than the increase in refined palm oil exports. For CPO, the increase in demand is responsible for the increase in Indonesia's exports. Meanwhile, for refined palm oil export, the main source of Indonesia's exports is the competitive effect. Comparing the two commodities, it can be inferred that Indonesia's export growth in CPO is caused by the shift in demand, while the increase in refined palm oil export is occurring because Indonesia's refined palm oil is becoming more competitive in the Asian market. The main reason is that Indonesia palm oil is sold cheaper than that of its main competitor, Malaysia.

On the other hand, in Table 6, the increase in refined palm oil export is greater than the increase in CPO export for Malaysia. This is because Malaysia imposed export taxes on its

Table 5: Constant market share analysis of Indonesia's Crude Palm Oil (CPO) and refined palm oil export in Asia, 1999-2001 and 2005-2007

Palm oil	Quantity (ton)	Share (%)
<b>Crude</b>		
Size of market effect	1,809,422	59.26
Market composition effect	196,492	6.44
Competitive effect	1,047,354	34.30
Total	3,053,268	100.00
<b>Refined</b>		
Size of market effect	508,091	33.11
Market composition effect	83,735	5.46
Competitive effect	942,808	61.44
Total	1,534,634	100.00

Table 6: Constant market share analysis of Malaysia's Crude Palm Oil (CPO) and refined palm oil export in Asia, 1999-2001 and 2005-2007

Palm oil	Quantity (ton)	Share (%)
<b>Crude</b>		
Size of market effect	1,888,896	216.51
Market composition effect	-27,090	-3.11
Competitive effect	-989,363	-113.40
Total	872,443	100.00
<b>Refined</b>		
Size of market effect	2,019,896	164.75
Market composition effect	-167,129	-13.63
Competitive effect	-626,734	-51.12
Total	1,226,033	100.00



CPO export in order to supply the domestic refined palm oil industry; which will be then exported. For both CPO and refined palm oil, Malaysia is losing its competitiveness, as shown by the negative sign for the competitive effect. This is mainly caused by the price difference between Malaysia and Indonesia's palm oil product.

### **Europe**

European countries are the second largest consumer of palm oil after Asian countries. In 2007/2008, this region consumed 5.6 million tons, representing 14% of the world consumption of palm oil (United States Department of Agriculture, 2009). The European market is different from the Asian market. In the Asian market, palm oil is mainly used for making cooking oil; meanwhile in European countries, palm oil is mainly utilized in the food industry, such as for making margarine, biscuits, chocolate, snacks, chips and other similar products; it is also used in the soap, detergent and cosmetics industries (Van Gelder, 2004).

International traders play an important role in bringing palm oil product to Europe. According to Van Gelder (2004), there are four types of traders involved in palm oil trading in Europe:

- European trading subsidiaries of importing countries' oil palm plantation companies
- Trading arms of the major European edible oil refining companies
- The procurement divisions of major European food, detergent and chemical companies
- Independent edible oil traders and brokers

According to Table 7 and 8, the European market grew significantly over the period 1999-2001 to 2005-2007. CPO imports grew by 164%, while refined palm oil import grew by 63%. In Table 7, the largest CPO import increase occurred in the Ukraine, with 6442%, followed by Turkey (2665%) and Ireland (1388%). In addition in Table 8, for refined palm oil imports, the largest increase was Sweden with 541%, followed by Romania (469%) and Ukraine (282%).

There are several factors that affect the significant increase in CPO and refined palm oil imports in the European market. First is the increase in demand for biodiesel. The European

**Table 7: Indonesia's market share of crude palm oil in European countries, 1999-2001 and 2005-2007 (ton)**

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Indonesia	Market share	Total import	Import from Indonesia	Market share
Netherlands	444,925	245,152	0.5510	1,341,898	441,647	0.3291
Germany	185,400	91,655	0.4944	485,769	224,676	0.4625
UK	357,992	42,257	0.1180	440,932	124,191	0.2817
Spain	65,882	51,851	0.7870	218,687	91,768	0.4196
Italy	117,179	23,589	0.2013	217,830	107,036	0.4914
France	41,507	19,434	0.4682	105,904	38,848	0.3668
Belgium	73,663	13,249	0.1799	88,436	9,860	0.1115
Ukraine	829	0	0.0000	54,224	54,224	1.0000
Deumark	11,173	1,865	0.1669	53,840	19,892	0.3695
Poland	22,009	18,597	0.8450	39,409	16,967	0.4305
Finland	1,012	0	0.0000	24,875	0	0.0000
Turkey	803	800	0.9958	22,213	17,390	0.7829
Ireland	1,139	0	0.0000	16,949	379	0.0223
Sweden	3,139	197	0.0627	15,850	0	0.0000
Norway	376	0	0.0000	6,956	2,978	0.4281
RO Europe	20,927	6,627	0.3167	21,451	7,687	0.3583
<b>Total</b>	<b>1,347,954</b>	<b>515,272</b>	<b>0.3823</b>	<b>3,155,222</b>	<b>1,157,543</b>	<b>0.3669</b>

Table 8: Indonesia's market share of refined palm oil in European countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Indonesia	Market share	Total import	Import from Indonesia	Market share
Russia	171,757	42,926	0.2499	570,064	189,695	0.3328
Germany	327,930	32,185	0.0981	495,821	188,979	0.3811
Turkey	207,797	74,689	0.3594	428,060	215,250	0.5029
Netherlands	334,536	73,308	0.2191	369,327	152,093	0.4118
Belgium	155,790	10,733	0.0689	311,662	10,647	0.0342
Italy	146,991	15,113	0.1028	279,068	75,476	0.2705
France	121,348	7,945	0.0655	213,704	24,374	0.1141
Ukraine	49,570	6,774	0.1367	189,416	101,384	0.5352
UK	193,798	34,758	0.1794	168,164	38,315	0.2278
Deumark	84,029	81	0.0010	123,327	334	0.0027
Poland	27,562	9,777	0.3547	106,246	285	0.0027
Sweden	14,531	66	0.0046	93,161	13	0.0001
Spain	95,611	54,838	0.5735	92,101	40,130	0.4357
Greece	24,335	4,889	0.2009	63,636	34,527	0.5426
Romania	7,955	772	0.0970	45,306	2,134	0.0471
RO Europe	144,257	9,075	0.0629	235,495	35,112	0.1491
Total	2,107,798	377,929	0.1793	3,440,121	1,036,977	0.3014

Union agreed to increase the use of biofuels to a minimum of 2% of total liquid fuel consumption by 2005 and to 5.75% in 2010, although these targets are non-mandatory. In order to meet the targets, about 2.5 million tons of biodiesel (for the 2% target) and then approximately 14 million (for the 5.75% target) needed to be produced (Ahmad and Sue, 2005). In Turkey, the increase in palm oil imports was mainly caused by the increase in palm oil usage in the biodiesel industry. Annually, almost 10,000 to 12,000 tons of palm oil are utilized in the biodiesel industry in Turkey (MPOC, 2007c).

The second factor is the decrease in local vegetable oil production. The main vegetable oil products in European countries are rapeseed oil and sunflower oil. Over the years and in several countries, the production of these local vegetables has decreased for various reasons. In seeking a substitute for the locally produced vegetable oil, consumers found palm oil, which is cheaper and widely used worldwide. The tremendous increase in palm oil imports by the Ukraine has been partially impacted by this factor. The main vegetable oil product in the Ukraine is sunflower oil. Over the years, the production of sunflower oil has shown poor performance, causing the price to increase. In looking for a substitute for sunflower oil, the processing industry has turned to palm oil, which is cheaper than sunflower oil (Foodnavigator.com, 2004).

The third factor is the increasing demand in the food industry. The increasing demand in the food industry has not been followed by an increase in the local production of vegetable oil. Hence, the food industry searched for imported vegetable oil that could be used in the process. Sunflower oil is the main vegetable oil in Russia, but with the growing demand from the food industry, the production of sunflower seeds cannot meet the demand from the food industry. In 2007, palm oil accounted for 54% of total vegetable oil imports. Palm oil products are mostly utilized in making margarine, which is the most important fat in a Russian consumer's diet and are even used as cooking oil for some segments (MPOC, 2008d).

Lastly, several countries serve as re-export points for other countries. The Netherlands has traditionally served as a hub for the other European countries. Recently, the Ukraine has also taken on this role for other countries, such as Russia and other eastern European countries.

On exporter side, Table 7 indicates that Indonesia's exports of CPO to European countries have increased by 125%. Despite the export quantity increase, the market share of Indonesia's CPO has decreased from 38 to 37% because the total import increase is higher than the increase in Indonesia's exports to European countries. On the other hand, from Table 8 showed that the market share of Indonesia's refined palm oil in Europe has increased from 18 to 30% and in terms of quantity, exports have increased by 174%.

Indonesia suffered a decrease in CPO market share in several western European countries, such as the Netherlands, Germany, Spain, France and Belgium. According to the Indonesia's Palm Oil Company Association, the decrease in CPO market share has been mainly caused by the negative campaign initiated by the non-governmental groups (NGOs) in the European countries. In 2005, the government of Indonesia planned to build a palm oil plantation along the border of Indonesia and Malaysia on the island of Borneo, which mainly consists of tropical forest. It was claimed that the opening of the palm oil plantation would destroy 1.8 million ha of tropical forest. After further research, the plan was terminated for a different reason: because the geographic and soil conditions were not suitable for the plantation. Despite this, many people think that the plan was implemented, especially people in European countries (The Jakarta Post, 2009).

The conditions regarding CPO exports have not affected refined palm oil exports. The CPO in Europe is mainly consumed by the western European countries, which are more sensitive to environmental issues; meanwhile, the main consumers for refined palm oil export are the eastern European countries (i.e., Russia), which are less sensitive to environmental issues.

Malaysia has benefited from the decrease in Indonesia's CPO market share; more specifically, the country has experienced an increase in market share from 17 to 36%. This is shown in Table 9. In terms of quantity, Malaysia's CPO exports to European countries have increased by 391%. In countries where Indonesia has suffered decrease in market share, Malaysia has increased its market share. This shows that the negative campaign has been effective in these countries and that buyers have shifted their supplier to Malaysia.

**Table 9: Malaysia's market share of crude palm oil in European countries, 1999-2001 and 2005-2007 (ton)**

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Malaysia	Market share	Total import	Import from Malaysia	Market share
Netherlands	444,925	119,238	0.2680	1,341,898	799,683	0.5959
Germany	185,400	37,836	0.2041	485,769	101,779	0.2095
UK	357,992	33,080	0.0924	440,932	69,672	0.1580
Spain	65,882	5,014	0.0761	218,687	15,323	0.0701
Italy	117,179	7,233	0.0617	217,830	18,888	0.0867
France	41,507	7,783	0.1875	105,904	51,068	0.4822
Belgium	73,663	8,367	0.1136	88,436	13,791	0.1559
Ukraine	829	781	0.9419	54,224	0	0.0000
Deumark	11,173	2,432	0.2177	53,840	26,389	0.4901
Poland	22,009	3,171	0.1441	39,409	20,024	0.5081
Finland	1,012	0	0.0000	24,875	5	0.0002
Turkey	803	3	0.0042	22,213	4,823	0.2171
Ireland	1,139	18	0.0160	16,949	6,269	0.3699
Sweden	3,139	2,294	0.7309	15,850	15,110	0.9533
Norway	376	0	0.0000	6,956	3,569	0.5130
RO Europe	20,927	7,063	0.3375	21,451	3,446	0.1606
Total	1,347,954	234,314	0.1738	3,155,222	1,149,838	0.3644

Table 10: Malaysia's market share of refined palm oil in European countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Malaysia	Market share	Total import	Import from Malaysia	Market share
Russia	171,757	83,978	0.4889	570,064	248,736	0.4363
Germany	327,930	141,135	0.4304	495,821	77,192	0.1557
Turkey	207,797	129,983	0.6255	428,060	211,969	0.4952
Netherlands	334,536	235,510	0.7040	369,327	188,802	0.5112
Belgium	155,790	22,392	0.1437	311,662	24,976	0.0801
Italy	146,991	109,653	0.7460	279,068	128,476	0.4604
France	121,348	2,952	0.0243	213,704	34,085	0.1595
Ukraine	49,570	37,424	0.7550	189,416	80,035	0.4225
UK	193,798	85,567	0.4415	168,164	48,975	0.2912
Deumark	84,029	57,466	0.6839	123,327	82,516	0.6691
Poland	27,562	475	0.0172	106,246	4,229	0.0398
Sweden	14,531	5,834	0.4015	93,161	87,591	0.9402
Spain	95,611	33,638	0.3518	92,101	25,808	0.2802
Greece	24,335	16,216	0.6663	63,636	19,290	0.3031
Romania	7,955	1,520	0.1910	45,306	21,005	0.4636
RO Europe	144,257	52,754	0.3657	235,495	42,790	0.1817
Total	2,107,798	1,016,496	0.4823	3,440,121	1,243,390	0.3614

Table 11: Constant market share analysis of Indonesia's Crude Palm Oil (CPO) and refined palm oil export in Europe, 1999-2001 and 2005-2007

Palm oil	Quantity (ton)	Share (%)
<b>Crude</b>		
Size of market effect	690,851	106.68
Market composition effect	180,985	27.95
Competitive effect	-224,250	-34.63
Total	647,586	100.00
<b>Refined</b>		
Size of market effect	238,886	36.25
Market composition effect	20,368	3.09
Competitive effect	399,794	60.66
Total	659,048	100.00

Meanwhile according to Table 10, with regard to refined palm oil products, it can be noted that Malaysia's exports to European countries have increased by 22% but that their market share has decreased from 48 to 36%. This decrease has been caused by the price difference between its product and Indonesia's refined palm oil, as well as by the aggressive marketing strategy of Indonesia's palm oil company.

Although Indonesia's exports to Europe have increased, the CMSA in Table 11 shows that Indonesia's CPO lost competitiveness in the European market. This is indicated by the negative value for competitive effect, which was caused by the negative campaign initiated by the NGO in Europe. Meanwhile, the increase in Indonesia's refined palm oil exports is mainly caused by the competitive effect, which contributed 66% of increase in exports.

Malaysia benefited from the loss of competitiveness of Indonesia's CPO exports in Europe. Table 12 showed that although Malaysia concentrated on refined palm oil exports, CPO exports gained competitiveness. On the other hand, refined palm oil exports lost their competitiveness, although the export quantity increased.

## Africa

The palm tree originated in Africa and until the 1960s, African countries such as Zaire (formerly the Belgian Congo) and Nigeria dominated the palm oil export industry, before Malaysia and Indonesia took their place. In the 1980s, the two African countries stopped

Table 12: Constant market share analysis of Malaysia's Crude Palm Oil (CPO) and refined palm oil export in Asia, 1999-2001 and 2005-2007

Palm oil	Quantity (ton)	Share (%)
<b>Crude</b>		
Size of market effect	314,156	34.22
Market composition effect	98,986	10.78
Competitive effect	504,799	54.99
Total	917,941	100.00
<b>Refined</b>		
Size of market effect	642,519	283.18
Market composition effect	-7,729	-3.41
Competitive effect	-407,897	-179.77
Total	226,893	100.00

Table 13: Indonesia's market share of crude palm oil in African countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Indonesia	Market share	Total import	Import from Indonesia	Market share
Kerya	206,626	85,412	0.4134	364,099	269,886	0.7412
Tanzania	1,516	233	0.1539	104,860	70,338	0.6708
Mozambique	53	0	0.0000	65,616	14,622	0.2228
Uganda	34,821	323	0.0093	46,802	1,898	0.0405
Algeria	37,182	10,839	0.2915	28,631	18,652	0.6515
Tnnisia	11,426	1,199	0.1049	26,517	18,774	0.7080
Madagascar	68	0	0.0000	17,171	8,984	0.5232
Ghana	3,486	1,466	0.4205	16,435	6,257	0.3807
Morocco	33	0	0.0000	13,677	10,042	0.7342
Niger	2,349	0	0.0000	10,272	29	0.0028
Mauritania	1,427	0	0.0000	10,030	0	0.0000
Egypt	9,740	0	0.0000	8,608	3,360	0.3904
RO Africa	37,521	25,682	0.6845	29,275	9,792	0.3345
Total	346,901	125,153	0.3608	741,991	432,632	0.5831

exporting palm oil (Corley and Tinker, 2003; Martin, 2006). Corley and Tinker (2003) explain that there are four reasons why Nigeria stopped exporting palm oil. Those reasons are as follows: high population growth, which caused demand to increase; low farm gate prices; traditional plantations and government mismanagement. In 2007/2008, African countries only produced 6.7% of the world's palm oil (United States Department of Agriculture, 2009). The largest producer of palm oil in Africa is Nigeria, followed by the Ivory Coast and the Congo.

African countries consumed 11.47% of the world's palm oil in 2007/2008 (United States Department of Agriculture, 2009). Palm oil is mainly used for cooking oil, margarine and soap. In order to fulfill its needs with regard to palm oil consumption, it imports 61.4% of its palm oil (United States Department of Agriculture, 2009).

Table 13 and 14 showed that African countries' CPO imports grew 114% during the period from 1999-2001 to 2005-2007; meanwhile, refined palm oil imports grew by 151% during the same period. Several countries increased their CPO imports significantly; imports for Morocco grew by 41,012%, while those for Madagascar grew by 25,184% and for Mozambique by 9190%. For refined palm oil imports, the three countries that experienced tremendous growth were Algeria (41,749%), Uganda (3257%) and Tunisia (1709%).

The significant increase in the CPO and refined palm imports in the African countries is caused by several factors. First is the increase in demand from the food industry. In South Africa, the main contribution of the increase in refined palm oil imports is the increase in demand from the food industry. With increases in income, the demand for snacks and ice cream has also increased (MPOC, 2008e).

Table 14: Indonesia's market share of refined palm oil in African countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Indonesia	Market share	Total import	Import from Indonesia	Market share
Egypt	216,820	16,232	0.0749	648,888	295,995	0.4562
S. Africa	175,160	52,379	0.2990	287,989	101,838	0.3536
Tanzania	114,549	73,817	0.6444	232,723	143,708	0.6175
Uganda	2,278	29	0.0127	76,475	3,714	0.0486
Algeria	151	18	0.1206	63,298	52,776	0.8338
Kenya	62,266	20,765	0.3335	48,924	21,617	0.4419
Ethiopia	3,527	118	0.0334	46,933	686	0.0146
Senegal	7,565	2,964	0.3918	42,474	6,694	0.1576
Sudan	2,578	0	0.0000	32,637	575	0.0176
Zambia	9,868	702	0.0712	28,197	0	0.0000
Niger	23,770	0	0.0000	25,747	40	0.0015
Tunisia	1,213	796	0.6568	21,940	15,483	0.7057
RO Africa	51,095	14,207	0.2781	126,062	17,846	0.1416
Total	670,840	182,029	0.2713	1,682,287	660,971	0.3929

Second, trade liberalization has played a crucial role in the increase in several countries' palm oil imports. Trade liberalization has increased the competitiveness of palm oil as compared to other edible oil but also between CPO compared to refined palm oil which makes CPO more competitive than refined palm oil. In Tunisia, the government eliminated the import duty on CPO, sunflower seed oil and corn oil and also reduced the Value-Added Tax (VAT) on those products from 18 to 6% in 2006 (MPOC, 2008f). In Algeria, the government also reduced the import duty for refined palm oil from 30% to only 2.5% in 2005 (MPOC, 2008g). Meanwhile, in Morocco, the government imposed different import duties on CPO and refined palm oil, causing the installation of new physical refineries that make CPO into refined palm oil. The government imposed a 2.5% import duty on CPO and one of 25% on refined palm oil. As a result, buyers tend to import CPO rather than refined palm oil (MPOC, 2008g). The same is also occurring in Kenya, Tanzania and Uganda. These countries subscribe to the East African Countries (EAC) Customs protocol, which has imposed no tariff on imported raw materials and intermediate goods, including palm oil. The protocol has been in effect since 2005 (Wambura, 2009).

Lastly, several countries serve as a hub for other countries. In Africa, Benin serves as a hub for palm oil to enter other nearby countries, especially countries located in the western part of Africa (MPOC, 2007d).

On the exporter side, which is shown in Table 13, it should be noted that Indonesia's CPO exports to African countries have increased by 246% and that market share has also increased, from 36 to 58%. Tanzania, Tunisia and Ghana are the countries with the largest increase in imports from Indonesia. These three countries' import have increased by 30,047, 1,466 and 327%, respectively. In several countries, Indonesia's market share is relatively small; these countries include Uganda, Niger and Mauritania. Interestingly for Uganda, most of the imports have come from Singapore, which is not a producer of CPO. Singapore just re-exports the CPO that has come from Indonesia or Malaysia.

Meanwhile, Table 14 indicates that Indonesia's refined palm oil exports have increased by 263% to African countries and its market share has also increased from 27 to 39%. Algeria, Uganda and Egypt are the countries with the largest increase in imports from Indonesia. These three countries have seen imports increase by 289,251, 12,729 and 1,723%, respectively.

According to Table 15, Malaysia's CPO exports to African countries have suffered a decrease of 25% and its market share has decreased from 37 to only 13%. The largest

Table 15: Malaysia's market share of crude palm oil in African countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Malaysia	Market share	Total import	Import from Malaysia	Market share
Kenya	206,626	49,918	0.2416	364,099	667	0.0018
Tanzania	1,516	667	0.4399	104,860	27,607	0.2633
Mozambique	706	204	0.2882	65,616	13,884	0.2116
Uganda	34,821	29,127	0.8365	46,802	455	0.0097
Algeria	37,182	26,195	0.7045	28,631	9,096	0.3177
Tunisia	11,426	10,227	0.8951	26,517	7,389	0.2787
Madagascar	68	62	0.9086	17,171	6,528	0.3802
Ghana	3,486	813	0.2331	16,435	4,091	0.2489
Morocco	33	33	1.0000	13,677	3,523	0.2576
Niger	2,349	0	0.0000	10,272	2,113	0.2057
Mauritania	1,427	1,333	0.9343	10,030	7,824	0.7801
Egypt	9,740	4,319	0.4435	8,608	3,597	0.4179
RO Africa	37,521	4,990	0.1330	29,275	9,587	0.3275
Total	346,901	127,887	0.3687	741,991	96,362	0.1299

Table 16: Malaysia's market share of refined palm oil in African countries, 1999-2001 and 2005-2007 (ton)

Country	Annual average 1999-2001			Annual average 2005-2007		
	Total import	Import from Malaysia	Market share	Total import	Import from Malaysia	Market share
Egypt	216,820	187,441	0.8645	648,888	345,065	0.5318
S. Africa	175,160	119,847	0.6842	287,989	184,091	0.6392
Tanzania	114,549	33,825	0.2953	232,723	86,975	0.3737
Uganda	2,278	724	0.3178	76,475	62,657	0.8193
Algeria	151	106	0.6995	63,298	9,724	0.1536
Kenya	62,266	14,047	0.2256	48,924	5,979	0.1222
Ethiopia	3,527	2,007	0.5690	46,933	30,483	0.6495
Senegal	7,565	1,225	0.1620	42,474	12,722	0.2995
Sudan	2,578	2,129	0.8256	32,637	1,984	0.0608
Zambia	9,868	19	0.0019	28,197	93	0.0033
Niger	23,770	303	0.0128	25,747	11,640	0.4521
Tunisia	1,213	395	0.3255	21,940	6,207	0.2829
RO Africa	51,095	15,873	0.3106	126,062	41,026	0.3254
Total	670,840	377,941	0.5634	1,682,287	798,644	0.4747

decrease has occurred in Kenya, Uganda and Algeria, where imports decreased by 99, 98 and 65%, respectively. In Kenya and Uganda, Malaysia lost its competitiveness to Indonesia meanwhile in Uganda, Indonesia's CPO lost its competitiveness to Singapore.

On the other hand, Table 16 showed that Malaysia's refined palm exports to African countries have increased by 111%, but the country's market share has declined from 56 to 47%.

The CMSA result in Table 17 and 18, indicate the source of export growth of CPO and refined palm oil of Indonesia and Malaysia. In Africa, the increase in Indonesia's refined palm oil export is greater than that of its CPO. In addition, the competitiveness effect is responsible for most of the growth of Indonesia's CPO and refined palm oil exports. On the other hand, the value of the market composition effect of both CPO and refined palm oil is negative. This shows that Indonesia's market destination has lower export growth than overall growth.

Malaysia's exports of CPO to African countries decreased over the period, while refined palm oil exports have increased, although the market share has decreased. In the case of both products, Malaysia has lost its competitiveness to Indonesia and to some extent to Singapore. The increase in exports of refined palm oil has mainly been caused by an increase in demand for the product.

Table 17: Constant market share analysis of Indonesia's Crude Palm Oil (CPO) and refined palm oil export in Africa, 1999-2001 and 2005-2007

Palm oil	Quantity (ton)	Share (%)
<b>Crude</b>		
Size of market effect	142,539	46.36
Market composition effect	-69,500	-22.60
Competitive effect	234,440	76.25
Total	307,479	100.00
<b>Refined</b>		
Size of market effect	274,451	57.30
Market composition effect	-91,827	-19.17
Competitive effect	296,318	61.87
Total	478,942	100.00

Table 18: Constant market share analysis of Malaysia's Crude Palm Oil (CPO) and refined palm oil export in Africa, 1999-2001 and 2005-2007

Palm oil	Quantity (ton)	Share (%)
<b>Crude</b>		
Size of market effect	145,653	-462.02
Market composition effect	16,188	-51.35
Competitive effect	-193,366	613.37
Total	-31,525	100.00
<b>Refined</b>		
Size of market effect	569,833	135.45
Market composition effect	54,758	13.02
Competitive effect	-203,887	-48.46
Total	420,704	100.00

## CONCLUSION

Indonesia has experienced a significant increase in exports and market share for CPO and refined palm oil in the three regions, except in the case of CPO in European countries. The increase can be explained by the shift in demand and increasing competitiveness. The shift in demand is mainly caused by the stable economic situation and trade liberalization policy imposed by the importing countries, which reduces trade barriers in the form of import duties. The other reason is that Indonesia is gaining competitiveness over Malaysia. The main reason is that palm oil products coming from Indonesia are sold at lower prices than in Malaysia; the aggressive marketing strategy by Indonesia's exporter company is also a factor.

In the future, Indonesia must penetrate the existing market in which it has a low market share. This includes Japan and South Korea in Asia, eastern European countries, Uganda in Africa and new markets such as United States. In order to penetrate these markets, Indonesia exporters must coordinate their actions. Malaysia has its own agency called the Malaysia Palm Oil Council (MPOC), which promotes Malaysia's palm oil promotion in several countries. Indonesia might emulate Malaysia's strategy by setting up such kind of agency that would have representatives in potential market countries. This agency could promote Indonesia's palm oil and counter campaigns against Indonesia's palm oil.

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