Factors Affecting the Performance of Indonesia’s Crude Palm Oil Export

Arifin Indra Sulistyanto  
Senior Managing Director  
Indonesia Eximbank  
Jakarta, Indonesia  
arifin@indonesiaeximbank.go.id

Roberto Akyuwen  
Finance Education and Training Center Yogyakarta  
Ministry of Finance Republic Indonesia  
Yogyakarta, Indonesia  
robertoakyuwen@yahoo.com

Abstract—Oil palm has played an important role in the economy. Since 2007, Indonesia has become the main CPO producer in the world with total production of 16.8 million tons. This research is aimed at analyzing factors affecting the performance of CPO export. The main tool of analysis was multiple regressions with 38 years data. It was found that government policies were not optimum in supporting CPO export, while export financing was the most important factor. The other factor was CPO price in the world market. Meanwhile, the black campaign has significant but negative impact. The prices of sunflower and soybean oil have had significant and positive impact on CPO export volume. Variables which have no impact were domestic price, domestic consumption, CPO production volume, exchange rate, GDP per capita of export destination countries, crude oil price, and government policy. Although affected by global crisis, Indonesia's CPO export still has a very bright prospect in the future.

Keywords—crude palm oil; export; performance

I. INTRODUCTION

The export performance is influenced by financial and non-financial factors. Financial factor is the availability of funds for export transactions (Gianturco, 2001). In practice, the demand for funds from exporters was exceed its supply from the financing institutions. Non-financial factors were related to government policies, such as regulations, protections, and export quotas. Internal industry factors related to production quality and quantity were also influenced the performance of exports.

According to the IFS, Indonesia ranked 30 with share of 0.83 % of total world export market. One of Indonesia’s fastest growing commodities was CPO with export volume 4.12 million tons and growth rate of 22.97 % per annum in 1990-2006. CPO export volume reached 12.10 million tons in 2006, ten times higher if compared to 1990. The annual export value of CPO was on average 27.13 % or USD 1.52 billion.

Contribution of CPO in Indonesia’s total non-oil and gas exports was tended to increase every year. In the period of 1990-2006, the contribution was 4.17 % per annum. The other important countries were China, Ceylon, and Tanzania.

Indonesia is competing with Malaysia, Nigeria, Thailand, Colombia, Ecuador, and Ivory Coast. Malaysia is in the first place until 2005 with CPO production of 15.38 million tons or 45.24 % of total world CPO production. Indonesia is in rank two with production of 13.80 million tons or 41.20 %. But, the growth rate of Indonesia’s CPO production is higher than Malaysia, i.e. 14.72 % compared to 6.06 % per annum. By that, since 2007, Indonesia has become the biggest CPO producer in the world.

The growth of CPO production and export was encouraged by its demand and price which competed with the other vegetables oils, such as soybean, sunflower, rapeseed, and coconut oils. CPO price was increased constantly in 1990-1998, but then continue to decrease until 2001. Afterwards, the price began to increase again until 2006, except in 2005. The world demand on CPO was decreased drastically in 2008 as a caused of global economic crisis.

Recently, more than half of foods and non-foods packing products in the supermarkets containing CPO and its derivatives (Chandran, 2009). Indonesia is hardly influenced by the decreased of CPO demand and price. The negative impacts were not only hit CPO industries and exporters, but also farmers. In November 2008, the price of the stem of fresh palm oil was decreased to 350 rupiahs per kg. In the normal situation, the price at farmer level was between 1,400 rupiahs to 1,600 rupiahs per kg.

CPO demand and price was decreased since mid 2008 to May 2009 and then recovered. According to the Indonesian Exporter Association, CPO export volume in January 2009 was 1.4 million tons with destination countries including India, China, and EU. In addition, the Indonesian Palm Oil Business Federation stated that CPO price was already stable at the beginning of 2009. About 70-75 % of Indonesia’s CPO was exported to China, India, and Europe (Kompas, 4 April 2009).

The development of CPO industry is influenced by the investment funds and other factors. Sources of funds were including banks and non-bank institutions, such as individual business actors or stock exchange. Sufficient funding was
also needed by CPO exporters and increased every year following the demand. There were many palm oil downstream industries in Indonesia which have great prospects, including, cooking oil and oleo chemicals, i.e. fatty acid, fatty alcohol, stearin, glycerin, and metallic soap.

Empirical evidences showing that financing was only played limited role in supporting exports in Indonesia. According to the Bank of Indonesia, national exports always grew every year, especially non-oil and gas exports, although export credits tend to sluggish. The role of banking system was not optimum in supporting export. Besides that, there were strong indication that exporters were utilized other sources of funds like foreign loans, supplier’s payment postponement, buyer’s down payment, stock exchange, and venture capitals.

II. LITERATURE REVIEW

Several researchers have examined the impact of various variables on CPO production, price, and export. Setyowaty (1994) has analyzed factors affecting demand of Indonesia’s CPO export using multiple regressions. Based on quality aspect, the Indonesia’s CPO was found inferior when exported to developed countries, especially USA and Japan.

Most of previous researchers have not included financing and negative campaign in the model. Purba (1999) only used domestic and export prices of CPO, rate of production, and exchange rate. Hasan et al. (2001) has analyzed the impact of tax and price on Indonesia’s CPO export. The impact of tax was also studied by Ernawati (2007) by focusing on CPO export to India. Meanwhile, Basiron (2002) has identified the challenges in the world CPO market, such as self-sufficient policy in developing countries, subsidies in developed countries, establishment of trade standard and quality, non-tariff barrier, and exchange rate effects.

The other researcher like Talib and Darawi (2002) has examined Malaysia CPO market which influenced by planted area, domestic consumption, export, and import, CPO stock and price, production technology, and soybean oil price. Amiruddin (2003) has compared Malaysia and Indonesia CPO export volume and price by using export tax indicator. In addition to that, Afifuddin (2004) has found that the CPO export price, exchange rate, and soybean oil price were having significant impacts on CPO export.

Purba (1999) has used econometrics model in simulating the impact of internal and external policies on CPO performance. The world and domestic prices were having positive impacts on the productivity of small scale plantation, while medium and large scale plantations were more responsive only to the world CPO price. The increase of production has positive impact on CPO export. Indonesia’s CPO export was influenced by world CPO price and exchange rate.

Hasan et al. (2001) has analyzed the impacts of export tax on the competitiveness of Indonesia’s CPO industry by using vector autoregressive. He found that CPO export has decreased by tax imposition, because lowering the competitiveness. More than 83 % of forecasting errors was explained by export shock itself, while only 8.6 % and 8.4 % were described by export tax and price, respectively.

Talib and Darawi (2002) have examined CPO market in Malaysia. Variables used were included plantation area, domestic consumption, export, and import, while tools of analyses were OLS and 2SLS. Malaysia’s economic activities, exchange rate, and the world population were the most important factors in influencing the performance of CPO industry. There were also the other factors include the CPO stock and price, technology progress, and soybean oil price.

Amiruddin (2003) have compared CPO export volume and price between Malaysia and Indonesia. Total CPO productions of both countries, including processed palm oil (PPO), had market share of 89.6 % of total CPO in world market. Malaysia has imposed higher export tax on CPO compared to Indonesia, but did not imposed export tax on PPO. In the meantime, Indonesia has imposed low rate of export tax on PPO.

Barlow et al. (2003) has observed CPO industry prospects in Indonesia in 2000s as a result of large scale expansion undertaken by community and private plantations in 1990s. The main obstacles were include limited capital, inefficient use of laborers and other resources, low technology, land expansion, and security. These problems could be solved by government support in credit channeling.

Afifuddin (2004) has studied the impact of CPO market on palm oil plantation in North Sumatra by using a regression and structural equation model. No impact of domestic CPO demand on palm oil plantation, because most producers were export oriented. The CPO export quotas and exchange rate have positive and significant impacts on palm oil plantation. However, the domestic production and export quota of cooking oil have positive and significant impact on domestic CPO demand. The export price, exchange rate, and world soybean oil price have significant impacts on CPO export.

Zen et al. (2006) has analyzed CPO contribution in improving social economic conditions in Indonesia. The government has used CPO as a development tool in rural areas through the community plantations. More than 900.000 hectares of palm oil plantations have provided income for more than 500.000 farmers.

Kusuma (2006) has observed the impact of CPO on regional development in North Sumatra by focusing on domestic demand, export, domestic price, and CPO export price. The export market and price and domestic price have significant impact on either plantation areas or CPO production. On the reverse, domestic price only has significant impact on CPO production. Market structure of CPO in North Sumatra was oligopsony and dominated by the integrated wholesaler groups.

In the same province, Ginting (2006) has analyzed the impact of CPO’s downstream industry on regional development. Raw materials have positive impact on the production capacity of CPO downstream industry, while, investment and labor cost have no impacts. Nevertheless, while the investment have significant impact, the CPO downstream industry has no impact on the regional development.
Erningpraja and Kurniawan (2007) have examined factors affecting the respective price of palm oil. The respective price of CPO in 2007 was around $489.35 per ton CIF Europe, an increase of USD 11.02 per ton CIF Europe in 2006. The respective price of CPO was calculated based on a ratio of CPO and vegetable oils. CPO price trend to increase in 2008-2010, i.e. USD 522.97 per ton, USD 562.46 per ton, and USD 606.76 per ton CIF Europe, respectively.

PT. Capricorn Indonesia Consultant, Inc. (2007) has studied the prospect of palm oil industry in Indonesia. CPO roles become stronger in the world market and able to replace the other vegetable oils. CPO price is constantly increased in the market. This was not only influenced by the increased demand of cooking oil industry and the like, but also by the higher demand of other industries, such as biofuels.

Ernawati (2007) has examined the impact of export tax on Indonesia’s CPO export to India by using an error correction model (ECM). Export volume to India was influenced by the changed ratio of soybean oil price and world CPO price, production index, and previous CPO demand. Elasticity for each coefficient was 2.74, 2.69, and 0.69. Nevertheless, ECM those variables were not influenced demand for export in the long run.

This research is more comprehensive. The analysis is started by describing plant oil plantation development. Analysis is then continued by the production and consumption of Indonesia’s CPO in world and domestic markets. The performance and role of CPO export in the Indonesia’s economy are the next subjects. The performance of CPO export is represented by CPO export volume. Factors affecting the performance of CPO export are derived from Setyowati (1994), Purba (1999), Talib and Darawi (2002), Tan (Santosa et al., 2002), and Affiuddin (2004). The government policy is also included in the model and represented by export tax. The estimation model is finally completed by adding export financing and negative campaign.

III. METHODOLOGY

The main data used were Indonesia’s CPO export volume and value, CPO export volume and value by destination countries, CPO export financing, CPO export and domestic prices, CPO production, CPO domestic consumption, other vegetable oils price and consumption, crude oil price, exchange rate, per capita GDP and the main destination countries, government regulations, and negative campaigns.

The econometric model developed is

\[
y_t = \alpha_0 + \alpha_1 x_{1t} + \alpha_2 x_{2t} + \alpha_3 x_{3t} + \alpha_4 x_{4t} + \alpha_5 x_{5t} + \alpha_6 x_{6t} + \epsilon_t
\]

where \( y_t \) = Indonesia’s CPO export volume (thousand tons), \( x_{1t} \) = Indonesia’s CPO price in the world market (dollar per ton), \( x_{2t} \) = domestic CPO price (dollar per ton), \( x_{3t} \) = domestic CPO consumption (thousand tons), \( x_{4t} \) = Indonesia’s CPO production volume (thousands ton), \( x_{5t} \) = exchange rate (rupiah per dollar), \( x_{6t} \) = per capita gross domestic product (GDP) of India (dollar), \( x_{7t} \) = per capita GDP of the Netherlands (dollar), \( x_{8t} \) = per capita GDP of Malaysia (dollar), \( x_{9t} \) = per capita GDP of China (dollar), \( x_{10t} \) = CPO financing in Indonesia (billion rupiahs), \( x_{11t} \) = deregulation policy (dummy variable), \( x_{12t} \) = world crude oil price (dollar per barrel), \( x_{13t} \) = other vegetable oils price in the world market (dollar per ton), \( x_{14t} \) = negative campaign (dummy variable), \( s = 0, 1, 2, 3, \ldots \), time lag, and \( \epsilon_t \) = error term.

IV. RESULT

Total potential lands for palm oil plantations in Indonesia is around 31.8 million hectares in 2006. The land potentials are mainly located in Sumatra island (38.65 %), Kalimantan (38.42 %), and Papua (20.09 %). There are also potential lands in Sulawesi (1.85 %) and Java (0.99 %). In 2006, the largest plantation was in Riau Province, (1,383,477 hectares), followed by North Sumatara Province (964,257 hectares). The other province with significant land area of palm oil plantation are South Sumatra (532,365 hectares), West Kalimantan (466,901 hectares), and Jambi (466,709 hectares).

The growth of palm oil plantation area is very fast in 2000-2005, that is 20.5 % per annum. This is faster than the period of 1990-1997. In 2000, total area was 4.2 million hectares and increased to 6.07 hectares in 2006. If compared to the other CPO producers, Indonesia has comparative advantage by having abundant area, fertile lands, and suitable geography conditions (Risza, 1997).

Final products of CPO are including cooking oil, margarine, dry oil for snacks and fast foods, shortening, non-dairy creamers, and ice cream. CPO nutrient contain is very good for human include calorie, vitamin, digestion, essential and FFA, and low cholesterol. CPO only contains low cholesterol, i.e. 3 mg per kg. This amount of cholesterol is similar to the other vegetable oils but much lower than animal oils. For example, there is 220 mg of cholesterol per kg butter produced from animal oil.

According to Oil World, the use of CPO for food products is competing with soybean oil (Pahan, 2007). Apart from that, CPO for non-food products is competing with fatty acid produced from cow fat (tallow). Even though, consumption of CPO and PKO in world market are increase rapidly. In 2003, total consumption of CPO and PKO was 19.13 % of total world oil consumption. In 2005, consumption of CPO and PKO has increased to 23.53 % of total world oil consumption. Reverse fact was found for animal oils.
In 2008, Indonesia has become the biggest CPO producer in the world replacing Malaysia. This fact has been predicted by Pahan (2007). Total production of Indonesia’s CPO in 2005 was 12.6 million tons or equal to 38.77 % of total production of CPO in the world (32.5 million tons) and increase rapidly.

Indonesia has a tropical climate which is appropriate for palm oil plants. The climate is similar to Malaysia, Brazil, India, Cameroon, Zaire, Ivory Coast, Kenya, and Ghana. However, potential lands for palm oil plantation in Indonesia are much larger than Malaysia, but competing with Brazil, Colombia, Papua New Guinea, and Cameroon.

Palm oil plantations are labor intensive which requires a lot of labors. Besides, labor skills and wages are the other factors which determined the comparative advantages of palm oil producers. In this regard, Indonesia, India, Cameroon, Zaire, and Ghana are classified as the countries with superior labors for palm oil plantations (FAO Country Tables 1992).

World CPO supply has increased rapidly following its demand. In 1987-2007, world CPO production has increased from 7,743,000 tons to 38,163,000 tons or 392.87 %. Malaysia’s CPO production was increased from 4,533,000 tons to 15,740,000 tons, while Indonesia’s CPO production has increased from 1,380,000 tons in 1987 to 16,800,000 tons in 2007. This fact means that Indonesia has exceeded Malaysia in producing CPO. Total production of Indonesia’s CPO is equal to 44.02 % of total world CPO production in 2007, while Malaysia contributes 41.24 %.

CPO production in Indonesia is grew more than 10 times or 1,117.39 % in 1987-2007. Plantation area has increased from 425,000 hectares in 1987 to 4,540,000 hectares in 2007. Meanwhile, the productivity has also increased from 3.25 tons to 3.70 tons per hectare in the same period. However, the productivity of palm oil plants in Indonesia is still lower than other countries. Productivity of palm oil plants in Malaysia is 4.15 tons per hectare and in Colombia is 3.90 tons per hectare.

Total production of Indonesia’s CPO was 13.39 million ton in 2006 with total plantation area of 6.07 million hectares. The CPO/TBS ratio was relatively low, i.e. 22.21 %. As comparison, total plantation area in Malaysia in 2006 was only 3 million hectares, but able to produce CPO as much as 15 million tons. To increase the productivity, Indonesia’s CPO producers have significantly increased the CPO/TBS ratio and also improve post harvests management.

Growth rate of Indonesia’s CPO export is on average 28.7 % per annum in 1996-2006. Total export volume has increased from 1.7 million tons in 1996 to 11.1 million tons in 2006. In the same period, the export value has also increased substantially from USD 825.4 million to USD 4.3 billion.

There are several main importers of Indonesia’s CPO include the Netherlands, Malaysia, India, China, Spain, Germany, USA, Italy, Singapore, and Turkey. In addition to that, there are other potential countries for export expansion such as Egypt, Kenya, Greece, Pakistan, Bangladesh, Brazil, England, Myanmar, Saudi Arabia, Canada, and Australia. In the future, Indonesia should expand its CPO export markets to reduce demand dependency on certain countries.

The most important importer was India with the share of 42 % of total Indonesia’s CPO exports in 2005. The EU was the second largest importer with 20.6 %. However, the highest growth of import was found in China, Ceylon, and Tanzania. In 2005, CPO export volume to China has reached 511,000 tons or increased 41.55 % from previous export volume. India and China are very important importers because both countries were having large population.

Indonesia also imports some amount of CPO and PKO to meet domestic demand. In 1990, Indonesia has imported 26,183 tons of CPO with the value of USD 7.7 million. Import volume increased to 49,785 tons with the value of USD 48.1 million in 1995. In 2005, import volume has decreased to 3,775 tons with the value of USD 915,000. In 2006, import volume has increased again to 10,975 tons with the value of USD 1.7 million.

The equilibrium of CPO export and import is determined by CPO price in the world market. The CPO price always fluctuated and tended to increase, especially in 2007. The average CPO price in the world market in 1986 was around USD 257 per ton and has increased significantly to USD 742 per ton in 2007. Meanwhile, the lowest CPO price was in 2001.

The impact of global crisis has shaded Indonesia’s export include CPO. To anticipate the impacts, the government has provided appropriate regulations to create conducive climate for palm oil industries. For CPO trading, the fundamental policy is the fxtiy of export price tax. The standard export price tax of Indonesia’s CPO is around 1.2-15.3 %. The standard export price tax is dynamic according to the fluctuation of CPO export volume. The government also has established export tax which has been imposed since 3 September 2007. The export tax is 10 % if CPO export price is maximum USD 850 per ton and 15 % if the price is higher to maximum USD 1,100 per ton. Afterwards, the export tax will become 20 % until maximum CPO export price is USD 1,200 per ton. Finally, the export tax is 25 % is the export price has reached USD 1,300 per ton.

Other than export, the government also establishes regulations on import. As the main CPO producer in the world, Indonesia did not provide special treatments to block CPO import (barrier to entry). Import tax for CPO is 0 % in several years although there is a 10 % income tax for all palm oil products. However, only limited amounts of tax collected are used for the development of palm oil industry.

According to the economists and analysts, this is a golden period of palm oil, because CPO price in the world market tend to increase. The CPO producers in Indonesia should make use of this momentum to develop the palm oil derivative products. However, the government regulations are crucially important to establish Indonesia as the main palm oil producer in the world as well as its derivative industries (Amri and Yulianto, 2008). The government should produce an integrated policy and the export tax should be reallocated to develop palm oil industries. As a comparison, the Government of Malaysia has used CPO
export tax in amount of 15 ringgits per ton to support researches on palm oil development.

At the beginning of 2007, the Government of Indonesia has implemented Domestic Market Obligation (DMO) to secure domestic supply. Big producers are required to sell 20% of their CPO production in domestic market. Nevertheless, the DMO policy did not effective, because the government did not firm in enhancing the policy. In addition, the CPO producers have to obey the floor price for domestic market.

Since 1999, CPO export volume was always increased. Before 1999, there were 3 times decrease of CPO, i.e. in 1992, 1995, and 1998. In 2007, CPO export volume has reached 13.1 million tons or about 8.26% higher than export volume in 2006 (12.1 million tons). The behavior of CPO export volume is not linear, so the exponential smoothing is the most suitable trend method used to forecast the export volume. Although tend to be under estimate, the growth rate of export volume of Indonesia’s CPO is faster after 1998. The export volume is projected to increase 9% to 14.3 million tons in 2008.

The best performance of Indonesia’s CPO export was in 1999 where the export volume has increased 123.01%. The second best was 1997 and 1993 where the export volumes have increased 77.49% and 58.41%, respectively. However, the increase of CPO export volume was slower in the last 3 years. There are at least two factors which contribute to the lower rate of CPO export volume. First, there is an accumulation of world palm oil stocks in Indonesia and Malaysia. Second, in the mid of 2007, global economic crisis has lowering the purchasing power in the main importer countries.

India is the most important destination for Indonesia’s CPO export. Total volume of CPO exported to India has reached 2.8 million tons or equal to 20.51% of total Indonesia’s CPO export in 2006 (12.1 million tons). This amount is decrease if compared to 2004 (2.8 million tons) and 2005 (2.6 million tons). The other 2 important importers are China and the Netherlands. Export volume to China in 2002 was 0.5 million tons and increased to 1.8 million tons or 14.54% of total Indonesia’s CPO export volume in 2006. Meanwhile, total export to the Netherlands in 2006 was 1.2 million tons or 10.02%. The percentage of CPO export to the other countries is less than 1%.

The Indonesia’s CPO export concentration has been shifted from European to Asian countries. This shift is a logic consequence of faster economic growth and population in Asian countries. CPO consumption is highly related to the economic growth and population size, because CPO is a multifunction vegetable oil (Chandran, 2009).

Recently, many countries have become destination of Indonesia’s CPO export. Indonesia’s CPO has been accepted widely in the middle of negative campaigns in the world market. However, continued increase of market expansion was not followed by CPO price control in the world market. Rotterdam is still used as a standard of CPO price in the world market. The Government of Indonesia has made every effort to have own price reference (Kompas, 24 April 2009).

CPO demand in the world market is influenced by the CPO and the other vegetable oils price. The soybean, sunflower, rapeseed, and coconut oils are the competitors. These oils are substituted one to the others, because all of them are having almost similar contents and functions.

Consumer preferences to buy CPO are sensitive to various negative issues and campaigns. First issue is that CPO is danger for health. The second issue is that the CPO is produced by destroying the environment, especially in land clearing. In addition, the increase of export financing is assumed to have significant impact on the CPO export. Besides, deregulation policy is also considered as an important factor.

There are 5 variables which have significant impacts on the CPO export volume, i.e. export financing, CPO export price, negative campaign, sunflower oil price, and soybean oil price. On the contrary, variables which have no impacts are domestic CPO price, domestic CPO consumption, CPO production volume, exchange rate, per capita GDP of the main importer countries, crude oil price, and deregulation policy.

The export financing has positive impact on CPO export volume, while the price has negative impact. The small number of coefficient indicates that CPO export volume is inelastic to export financing. The Government has to increase the provision of credit funds to both CPO producers and exporters. The export financing is extremely needed because there are extraordinary prospects of CPO in the world market. The performance of CPO export is influenced by globalization and many foreign banks are willing to finance CPO industry. Recently, there are a lot of CPO producers which have received credit facilities form national banks.

The export price has negative impact on the CPO export volume which is in line with the demand theory. However, it is only significant with 3 years lag meaning the CPO export price did not have an instant impact on the demand change. It is also found that the export volume is elastic to the CPO price in the world market. The increase of CPO price is determined by various factors include crude oil price or economic conditions.

Until 2006, the CPO price is strongly determined by the other vegetable oils prices, especially soybean. Since 2007, the dominant factor is the demand for biodiesel and the increase of crude oil price. If compared to the other vegetable oils, the CPO is the most appropriate vegetable oil
to replace crude oil as the energy source. The supply of Indonesia’s CPO is basically sufficient, but only limited investors are willing to involve in the biofuel industry. The subsidy on diesel fuel price is considered as the main obstacle.

Price is one of the weakness points of Indonesia’s CPO trading in the world market. National producers are facing free market price mechanism. Although Indonesia and Malaysia have contributed 80 % of total world CPO, however, they are price takers. The situation is almost the same even their market penetration are stronger. Uncontrollable price is also caused by limited efforts provided by the government and CPO industries. There are no strategic policies provided to increase the bargaining position of Indonesia’s palm oil products in the international market.

The ease substitution among vegetable oils has increased the competition in the world market. This competition is often marked by negative campaigns in order to aggravate the image of certain vegetable oils. Common themes of black campaigns on Indonesia’s CPO are high cholesterol and non-environmentally friendly production processes. In many cases, negative campaigns have blocked Indonesia’s CPO export, especially to Europe and USA.

The next variable which has significant impact is the price of vegetable oils represented by soybean and sunflower oils. The soybean oil price has significant impact with 3 years lag, while the sunflower price had 2 years transmission period. On the reverse, the prices of coconut oil and rapeseed oil were not significant. In addition, the crude oil price was also not significant.

According to the Oil World (Janurianto, 1998), consumption of vegetable oils in 2007 was 129.2 million tons or 84.06 % of total world oil. Meanwhile, total consumption of animal oils is only 24.5 million tons or equal to 15.94 %. The share of CPO has reached 37.99 million tons or 29.6 % of total consumption of vegetable oils, slightly higher than soybean (36.72 million tons or 28.6 %). Total consumption of rapeseed oil is 18.43 million tons, while sunflower oil is 11.17 million tons. Finally, total consumption of all other vegetable oils is 23.94 million tons or 18.7 %. The price of soybean oil or sunflower oil has inelastic relationship with the CPO export volume. The impact of soybean oil and sunflower oil prices is positive. This sign is different to the CPO price (negative).

The CPO export value tends to increase in 1990-2006, although there were decreases in 1998, 2000, and 2001. In 1990, total export value of Indonesia’s CPO was USD 203.5 million and then increased to USD 4.8 million in 2006. A dramatical increase has created positive impacts on the development of CPO industry as well as provided multiple effects to the economy.

The highest increase of Indonesia’s CPO export value was occured in 2002, which is 93.58 %. While, a high increase percentage of CPO export value also found in 1997 (72.2 %). The CPO export value has increased substantially in 1997, but then decrease sharply in 1998 (negative 48.46 %). Afterwards, the CPO export value has increased 49.51 % in 1999, and decreased again in 2000 (2.42 %) and 2001 (0.59 %).

The contribution of CPO export value was on average 4.33 % of total export value of Indonesia in the period of 2002-2006. Although the CPO export value is fluctuated, however, the other commodities have also grown in almost similar percentage. Processing rubber was the only commodity which has export value close to CPO. Average contribution of processing rubber was 2.57 % in the same period. Meanwhile, the share of export value of coffee, tea, tobacco, and cocoa were less than one percent of total export value of Indonesia.

The CPO performance has been challenged by global economic crisis in 2007-2008. The crisis has brought various negative impacts to the economy of developed, developing, and less developed countries. The signal of crisis has been visible since March 2007 when the property markets in the USA were facing huge non-performing loan problems. The problems was then influenced many big financial companies.

Global crisis has had direct impact on the performance of Indonesia’s CPO export volume and value in 2008. Indonesia has cancelled their order in amount of 300.000 tons at the end of 2008. This cancellation has inflicted CPO exporters in Indonesia with the financial loss is predicted around USD 300-400 million (Koran Tempo, 4 March 2008). Apart from global crisis, there is also an environmental issue related to CPO export, which is the European Union Directive. The EU Directive on Renewable Energy has restricted CPO consumption for biodiesel and bioethanol. Although, the Netherlands is increasing their investments up to £ 150 million to support the development of second generation biofuel industry with the production target of 200 million litres of ethanol per annum (Amri, 2009).

The export volume of Indonesia in 2009 was similar to 2008, which is around 1-1.4 million tons per month. In January 2009, total export of CPO to India, China, and EU was 1.4 million tons. In European market, share of Indonesia’s CPO has declined from about 15 % in 2005 to only 9 % in 2008. In 2005, Indonesia has exported 2.5 million tons of CPO to various countries in Europe through Rotterdam port. That amount of CPO has been reduced about 50 % to only 1.2 million ton in 2008. As an alternative, some of Indonesia’s CPO exporters will expand their market to ex Soviet Union, East Europe, Middle East, and Asia Pacific.

A sharp fluctuation in 2008 was also experienced by CPO export price. The CPO price was increased every month from January 2007 to March 2008. The increase was caused by the increase of world demand on CPO and its derivative products. According to Chandran (2009), the increase of consumption was occured because CPO is: (1) feeding the world: palm oil was consumed in over 150 countries; (2) provides crucial source of food and energy to developing world; (3) scientifically proven nutritional and health benefits and durability; (4) provides bio-energy: environmentally-friendly alternative fuel source; and (5) highly productive: significantly more palm oil produced per hectare compared to other oil seed crops. CPO is classified
as “highly efficient producers of oil and require less land
then other oil crops”.

Productivity of CPO is more than ten times of the other
vegetable oils. Each year, palm oil plants can produce 3.66
tons per ha, while soybean, sunflower, and rapeseed oils can
only produce 0.36 tons per ha, 0.46 tons per ha, and 0.60
tons per ha, respectively. Inputs required to produce CPO is
also 3.8 lower than the other vegetable oils (Oil World
Annual 2008).

After reaching the peak on March 2008, CPO price has
decreased, although there were increases in May and June
2008. Price decline has continued until November 2008
(USD 433.1 per ton). In December 2008, there was a
reversal of CPO price, although global economic crisis is
still taking place. The price recovery is continuing at the
beginning of 2009. Most of the export price of Indonesia’s
primary products have been increased include rubber, coffee,
and CPO (Kompas, 2 June 2009).

CPO price fluctuation is influenced by the world
commodity condition and speculative actions. According to
Bloomberg, the CPO price in Rotterdam port has reached its
peak on March 2008 (USD 1,395 per ton). This is the
highest in the history of CPO trading. Within 8 months, the
CPO price has declined into USD 435 per ton in 29 October
2008. The CPO price was then improved gradually to USD
540 per ton in 31 December 2008 and reached USD 800 per

Amri (2009) has argued that the improvement of
Indonesia and Malaysia CPO export prices is encouraged
by the reduction of CPO stocks in both countries. CPO stocks
in Malaysia has declined from 1.5 million tons to 1.36 million
tons in April 2009. In the same period, CPO stocks in
Indonesia has decreased from 1.2 million tons to 0.8 million
tons. Besides, the increase of world CPO price is also caused
by the decrease of soybean production in Argentina (dry
season). The other important factor is the increase of CPO
demand from India. In March 2009, India’s importers have
imported 641,141 tons of CPO. This amount of CPO is 28 %
higher if compared to the import volume on March 2008.

CPO is the most prospective plantation commodity
in Indonesia. The performance of Indonesia’s CPO export is
highly dependent on the level of consumption of importer
countries. Foreign demand is very important, because more
than 75 % of Indonesia’s CPO have been exported in 2008
(19.2 million tons).

Demand on CPO for food and non-food products has
been recovered at the beginning of 2009. Chandran (2009)
has written that CPO has become more important in trading,
because it is: (1) a highly versatile vegetable oil; (2) used in
many food and non-food products; (3) produced in tropical
countries; (4) rapidly growing market share; and (5) world’s
top selling vegetable oil. Chandran also emphasized that
“palm oil is used in more than half packaged of supermarket
products today”. The World Oil has stated that the
contribution of CPO has reached 25.5 % of total oil and fat
consumption in the world market in 2008. Meanwhile, the
share of soybean, rapeseed, sunflower, and other oils are
24.8 %, 12.2 %, 6.2 %, and 31.3 %, respectively.

Asian countries are the main CPO importers. In May
2008, total imports of CPO in Asian countries were 55 % of
total CPO in the world market. This percentage is much
higher than total CPO import by European Union (16 %),
Africa (12 %), and others (17 %). The most important
importer is China with the share of 18 %. India and Pakistan
are the next two largest CPO importers with the share of
13 % and 7 % of total CPO import by Asian countries.

CPO export is very prospective. With total plantation
area of 6.7 million hectares, there are 1.3 million workers
involved in palm oil industries in Indonesia. If the
revitalization of national palm oil plantation (targeted 2
million hectares) is succeeding, there will be jobs available
for about 340,000 workers in 2011 (Amri, 2009). Total
employment absorbed at the upstream side of palm oil
plantation was 2,225,050 people in 2009. About 911,600
people are working in the private and state-owned palm oil
plantations and 1,250,000 people are farmers. In addition,
63,450 people are working in palm oil factories. At the
intermediate industry, about 24,000 people are working in
the cooking oil factories. Meanwhile, at the downstream
industries, 3,300 people are working in the biodiesel industry
and 4,000 people are working in oleochemical industry.

Learning from the previous trends, Chandran (2009) has
projected that the average oil and fat consumption will reach
25 kg per capita in 2010. This amount has increased from
21.4 kg per capita in 2005. In 2015, the oil and fat
consumption is predicted to increase to 27 kg per capita and
30 kg per capita in 2020. To meet the demand, about 200
million tons of oils and 234 million tons of fats have to
produced. More than half quantity of oils demand is CPO.
Indonesia and Malaysia have undertaken various efforts to
accelerate CPO production. Total additional plantation area
in the two countries is 0.7 million hectares per annum. About
450,000 hectares per annum or 64.29 percent are located in
Indonesia.

V. CONCLUSION

1. Export volume of Indonesia’s CPO has grown
22.11 % per annum in 1990-2007. In the middle and
at the end of 2008, CPO export volume has
decreased drastically as an impact of global
economic crisis. CPO export volume was then
recovered and increases since 2009.
2. Government policies have not fully supported
the development of palm oil industry. The export tax has
been changed frequently and burdened CPO
producers. Most of export tax is not reallocate
sufficiently to support more modern and productive
palm oil industry. Government did not have specific
policies to reduce negative campaigns which
hampered the CPO export.
3. Export volume of Indonesia’s CPO is inelastic and
influenced significantly and positive by export
financing with 1 year transmission period.
4. World CPO price has significant and negative
impact on the CPO export volume with 3 years
transmission period.
5. Negative campaigns have significant and negative impact on the CPO export volume. The increase of negative campaigns intensity will decrease Indonesia’s CPO export volume.

6. Sunflower and soybean prices in the world market are inelastic and have significant and positive impacts on the CPO export volume with 3 years transmission period.

7. CPO price in domestic market, domestic consumption, production volume, exchange rate, per capita GDP of main destination countries, crude oil price, and deregulation policy have no impacts on the CPO export volume.

8. Performance of Indonesia’s CPO export is influenced by global crisis. World demand on CPO has decreased sharply since the mid of 2008 but then recover at the beginning of 2009.

9. Export volume of Indonesia’s CPO is predict to increase continuously in the coming years, although not as high as in the period of 1990-2006 (27.13 % per annum).

10. Abundant lands (31.8 million hectares) are still available to support the expansion of palm oil plantations in Indonesia.

11. Total volume of Indonesia’s CPO production has exceeded Malaysia in 2007. As the main producer of CPO, Indonesia’s share has reached 44.02 % of total world CPO production.

REFERENCES


