Covid-19 Pandemic Potential Risks for Indonesia's CPO Trade

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Abstract. Indonesian Crude Palm Oil (CPO) exports in 2019 amounted US$23 billion equivalent to Rp300 trillion, puts CPO as main contributor to country's foreign exchange, exceeding the oil and gas sector. Covid-19 pandemic impacts on Indonesia's CPO trade. The aim of this study is to analyze potential risks of Indonesia's CPO trade under Covid 19 pandemic. Methods used in this research are Porter's Diamond Theory and the comparative competitiveness using the Revealed Comparative Advantage (RCA) in 2012-2020. The results show Indonesian CPO commodities have strong competitive and comparative competitiveness in the international market. Although most of world commodities experienced a trade decline, Indonesia's CPO competitiveness can still survive in the international market. Indonesia's CPO export strategy to compete in the world market under the pandemic is to develop the CPO industry, its derivatives and CPO downstream, and to increase CPO productivity.

Keywords: Trade, CPO, competitiveness, porter diamond theory.

1 Introduction

Indonesia is a country that relies on the plantation sector for its economic activities [1]. The potential increase in Indonesia's Gross Domestic Product (GDP) cannot be separated from the performance of the plantation sub-sector. One of the plantation sub-sectors that guarantees economic growth is crude palm oil (CPO). In 2018, the oil palm plantation sub-sector distributed 3.5% of the country's GDP and became the main sub-sector in building people's welfare [2]. In 2017 Indonesia was able to meet the world's CPO needs of 54% of the total world CPO production (Agricultural Research and Development, 2018). This proves that Indonesian CPO commodities have the potential to be competitive in the world market. In international trade activities, to be able to dominate market share, the commodities produced must have high competitiveness [3]. UN COMTRADE reports that Indonesia's CPO export volume is always superior to other CPO producing countries. Indonesia's main competitor countries in producing CPO commodities are Malaysia and Thailand [2]. Figure 1 explains that Indonesia is the three countries that export the most CPO in the world in 2013 – 2017 [3].

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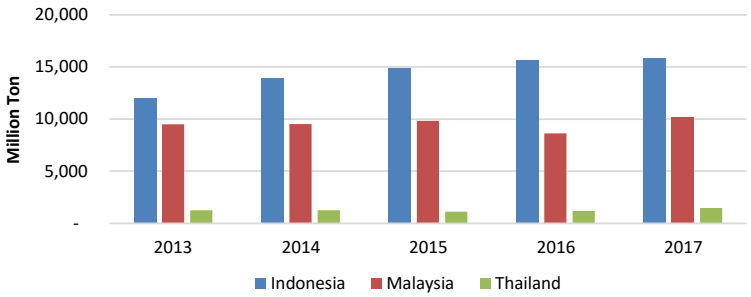

Fig 1. Three CPO Exporter in the world in 2013 – 2017 [3].

In 2017, Indonesia exported 15.83 million tons of CPO followed by Malaysia with 10.17 million tons. The increase in exports from year to year will provide opportunities for foreign exchange due to international trade and open up economic growth for Indonesia [4]. Even though as the largest CPO producer in the world with a large enough demand for CPO consumption for the global market, Indonesia is inseparable from government and foreign policy interventions [5]. If the demand for world CPO commodities increases every year, this is driven by public demand or reference to substitute goods. The savings policy by using CPO as a substitute for fossil fuels to renewable fuels carried out by the European Union considers that the CPO produced by the Indonesian state is not environmentally friendly and does not have high productivity [6].

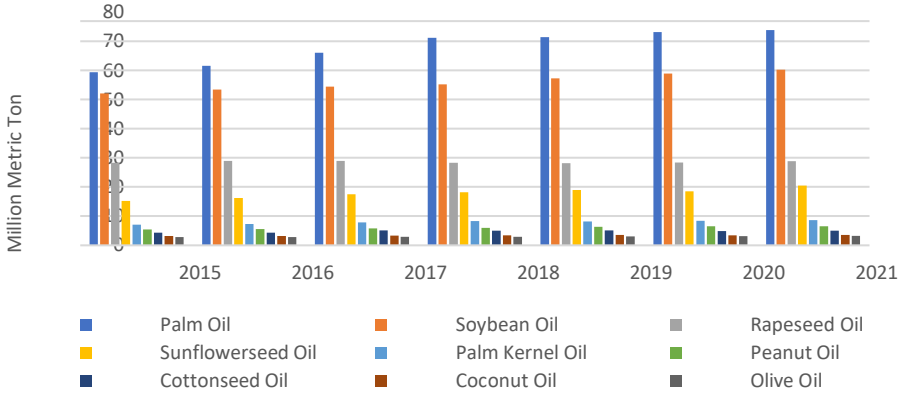

Fig 2. The world's consumption of vegetable oil for CPO world in 2013 – 2017

Based on derivative of vegetable oil, there are other types of vegetable oil, namely: soybean oil, rapeseed oil, sunflower seed oil, palm kernel oil, peanut oil, cottonseed oil (cottonseed), and olive oil (olive oil). Based on Figure 2, the world's consumption of vegetable oil for CPO commodities is the largest compared to other types of vegetable oil. The high consumption of CPO is triggered by large CPO production so that the price of CPO commodities is cheaper than the price of soybean oil, rapeseed oil and sunflower seed oil. With low prices, CPO commodities are considered the most needed of several other types of vegetable oils [7]. This actually proves that Indonesia's CPO commodity is have absolute advantage based on the demand of global consumption on CPO and big production from Indonesia.

In addition, to avoid a situation of dependence on fossil fuels, there is the development of renewable energy sources in Indonesia [8]. Among several other types of renewable energy, processed biofuel derived from CPO derivatives is one product that can be an alternative energy choice. Therefore, the Indonesian government is trying to implement blending palm oil with fossil oil. Biofuels from CPO are expected to make up 5% of the national energy mix by 2025 that could bring trade-off between renewable energy consumption and food industry for promoting sustainable development on green sectors [9].

The Indonesian Agency for the Assessment and Application of Technology (BPPT) predicts the country's dependence on fossil fuels will not decline if Indonesia's consumption fully meets its renewable energy targets from CPO. One of the basic weaknesses of this program target is that the condition of the people is still traditional with downstream CPO products [10]. Many previous studies that discussed the competitiveness of CPO commodities have been carried out. The research of [11], [12], [13], [14], and [15] focuses more on comparative advantage with the Revealed Comparative Advantage (RCA) and Trade Specialization Index (ISP) in explaining comparative competitiveness with several main destination countries. Meanwhile, with international trade barriers, this study focuses on discussing competitive advantage analysis by looking at local industry conditions before finally trading globally. This study aims to: analyze the competitiveness of competitive advantage CPO commodities, including factors that affect domestic demand for CPO commodities in Indonesia using Porter theory because research on the competitiveness of oil palm using the Porter's Diamond still limited.

2 Literature review

The research uses several sources from previous journals and theses, which are the basis of this research. Many researches or studies that discuss the analysis of the competitiveness of Indonesian CPO have been carried out. A study conducted by [3] using the RCA method, Trade Specialization Index (ISP) and Porter's Diamond concluded that Indonesian CPO has strong competitiveness in the international market. RCA and ISP analysis uses secondary data in the form of time series, namely the period 1999 – 2014.

The results show that Indonesia has a strong comparative and competitive advantage. Porter's Diamond results show the factors that support the competitiveness of CPO exports: production factors, supporting and related industries in Indonesia.

The research of [16] uses descriptive analysis and the Ordinary Linear Square (OLS) analysis method with variables that affect Indonesian exports, namely: domestic palm oil production, oil prices and acreage. Variables consist of: palm oil production, global CPO price, oil price, CPO plantation area, Malaysian export volume, soybean oil price and exchange rate. The results showthat the variables that have a positive effect on the competitiveness of Indonesian CPO are domestic palm oil production, oil prices and the area of oil palm plantations. The variable that has no significant effect is the volume of Malaysian exports.

[17] conducted research with RCA, OLS and Porter's Diamond theory which showed the aviation industry has strong competitiveness and the variables that affect domestic demand for the aviation industry are gross domestic product, population, avtur prices, and fleets. Gross domestic product (GDP), population, avtur prices, fleets, and household consumption on

demand for aviation services. The national aviation service industry has a comparative advantage and a competitive advantage. Variables that have a significant positive effect on the demand for aviation services are: GDP, population, avtur price, and fleet. Household consumption has a significant negative effect on the demand for national aviation services.

[9] using Revealed Comparative Advantage (RCA) analysis, the results showed that Indonesia has good competitiveness among biodiesel exporters in the world. By using secondary data, the results of the gravity model show that the distance to the destination country has negative impact on exports. Meanwhile, prices, exchange rates, and GDP have a positive effect strong against exports.

3 Method

This study uses secondary data. The data used is from 2012 to 2020 by looking at some of Indonesia's competitor countries (Malaysia, Thailand, Nigeria, Cameroon, Ghana and Papua New Guinea) in CPO (data obtained from UN COMTRADE, WTO, WITS and other relevant sources). Commodities that are the focus in this case was CPO with HS code - 115111010 a commodity that has a high export value from Indonesia. There are two analytical tools applied in this study. First, Revealed Comparative Advantage analysis (RCA) is used to identify the competitiveness of Indonesia's CPO trade with several competing countries. The second analytical tool is to look the competitiveness with the Porter model approach.

RCA analysis is to see and analyze the comparative competitiveness, the variables used in measuring this method are looking at the performance of exports of goods and services (in this study, CPO commodities) to total regional exports and will compare the market share of product values in global trade. RCA that will be compared is by looking at the value of the RCA calculation results. If the RCA value> 1, then the country has a strong comparative advantage (excellent in world market share) for the CPO industry. However, if RCA < 1, then the commodity traded by a country in the international market shows that the commodity is low because its competitiveness is below the world average.

$$RCA = \frac{\frac{Xij}{Xt}}{\frac{Wij}{Wt}} \quad \text{.....(1)}$$

Where: RCA is comparative advantage (competitiveness) of Indonesian CPO commodities. Xij means value of Indonesian CPO commodity exports in destination countries ($). Xt is total value of Indonesia's exports in export destination countries ($). Wij is value of world CPO exports in destination countries ($). Wt is the total world export value in export destination country ($). The value of RCA<1 indicates that Indonesia's CPO commodities have experienced a decline in export performance, so that the value of CPO commodities in the current year is higher than the previous year. On the other hand, if the RCA value> 1 indicates that the competitiveness of CPO commodities in the current year has increased in export performance compared to the previous year.

The comprehensive explanation offered by Porter's will show the condition of the local Indonesian CPO industry in explaining the competitive advantage of CPO commodities. Therefore, this researcher will present: **(1)** general description of Indonesian local CPO

conditions, **(2)** demand conditions by looking at factors that affect domestic consumption of CPO or demand condition, **(3)** conditions of supporting and related industries, **(4)** production factors, **(5)** structural conditions, competition and industrial strategy, **(6)** government policy factors, and **(7)** opportunity factors using the Porter's Diamond Theory.

One of the main components of Porter's Diamond is the demand condition, which will be explained by calculation in order to be able to see the factors that affect the domestic consumption of Indonesian CPO. Porter's stated that the things that affect domestic consumption are the number of independent buyers (total buyers) and the rate growth of home demand (local economic growth). Domestic consumption is using Ordinary Least Square (OLS) method with data from 1980-2020 or 40 years. The variables used are: economic growth (%), inflation (%), and the total population of Indonesia. Theoretical approach Porter's Diamond in explaining the competitive advantage of CPO commodities. The source of data is from Index-mundi, Badan Pusat Statistik (BPS), and World Bank data.

$$Ln\_DCPO_t = \beta_0 + \beta_1 INFL_t + \beta_2 ECO_t + \beta_3 Ln\_TPOP_t + \varepsilon \quad \text{..... (2)}$$

Where: Ln_DCPO is Indonesian CPO consumption (1000 MT), INFL means Indonesia's inflation (%), ECO is annual economic growth rate (%), Ln_ TPOP is total population of Indonesia, β_0 is constanta, and e is error term.

4 Result and discussion

The savings policy by using CPO as a substitute for fossil fuels to renewable fuels carried out by the European Union considers that the CPO produced by the Indonesian state is not environmentally friendly and does not have high productivity [6]. Based on data from [3] the largest CPO producing countries are: Indonesia, Malaysia, Thailand, Nigeria, Cameroon,Ghana, and Papua New Guinea. Meanwhile, based on the results of the research calculations, the comparative advantage (RCA) of Indonesia's CPO commodities to the world is far above the average of its competitors and highly competitive because the RCA value is >1. This actually proves that Indonesia's CPO commodity is needed to meet global demand because it has a high comparative advantage. Based on Table 1 shows the competitiveness of Indonesian CPO and several competing countries from 2015 – 2020.

Table 1. The Comparative Advantage (RCA) of Major CPO Producing Countries from 2015-2020

Country	2015	2016	2017	2018	2019	2020	Average
Indonesia	3901.80	764.22	2744.10	264.67	3826.04	3018.89	2419.95
Malaysia	19.67	11.51	19.14	13.82	8.95	11.36	14.08
Thailand	19.99	12.46	12.43	1.18	1.88	1.12	8.18
Nigeria	25.75	18.21	4.68	10.08	23.70	16.82	16.54
Kamerun	102.04	50.30	36.50	64.54	60.92	64.21	63.09
Ghana	3.90	2.55	12.00	74.90	12.26	38.63	24.04

Papua New Guinea	17.25	17.30	13.09	12.03	16.77	9.37	14.30

The competitiveness of Indonesia's CPO commodities is quite strong in the Asian continent but not yet has high competitiveness potential in continental Europe due to the statement of the European Union that Indonesian CPO does not yet have a standard that meets the wishes of European consumers [4]. If we look at the RCA values of Malaysia, Cameroon, and Ghana, they have a downward trend when COVID-19 strikes. The down value tends to be minimal compared to some countries others, because thus three countries is trying to reduce theCPO surplus in the country and reduce import CPO by making a policy on the use of palm oil for power generation and heavy vehicles from this recent years. So that the results of CPO production are transferred to the use of fuel in other sectors. Demand for palm oil in Africa (Cameroon & Ghana) driven because they want to make changes by maintaining food security and sustainable energy. However, Indonesia's RCA value in 2019 - 2020 has a strong RCA trendwhen the pandemic occurs. This proves that the risk of trading CPO to the world market duringa pandemic is low risk because the RCA value of Indonesian CPO has a high value or has strongcompetitiveness in the world market despite the pandemic in 2019 - 2020.

Porter's theory explains the competitiveness of local or domestic companies in the face of international competition which ultimately gives a commodity superiority value from a country [18]. Things that are emphasized in creating competitive competitiveness according to Porter's Theory are (1) factor conditions, (2) demand conditions, (3) related and supporting industries,

(4) company strategy, structure and competition (firm strategy, structure, and rivalry). Countries with a strong comparative advantage in international competition must have competitive competitiveness through domestic industry innovations and the interaction of the 4 elements is influenced by government factors and opportunity factors (change events).

4.1 Factor condition (labor, capital and technology)

Labor. The CPO industry is one of the labor-intensive plantation sectors [19] that absorbs labor. Thus, the resulting CPO production will increase if a large number of workers are used. In 2015, the total workforce working under the oil palm plantation industry was 8.0 million people and increased in 2016 with a total of 8.2 million workers. The employment of the oil palm plantation industry almost reached 4.42 million in 2018. The number of workers used could come from private oil palm plantations, which was 4.0 million, while the workforce of state oil palm plantation workers was 91 thousand people [3]. The absorption of Indonesian palm oil workers who help the process of production growth can help oil palm entrepreneurs infinding labor workers. However, the workforce used in the CPO industry tends to have no skillsin processing palm oil derivatives [3]. In addition, Menteri Tenaga Kerja revealed that the oil palm plantation sector has involved as many as 2,673,810 farmers who are members of Gabungan Kelapa Sawit Indonesia (Gapki) in 2021. It requires understanding by workers and laborers through providing training and understanding socialization.

Capital. In order to maintain the sustainability of an environmentally sound industry, the [20] seeks to channel credit or financing to help Indonesian CPO producers. Credit distributionis expected to create a sustainable carrying capacity that creates a trickle down effect from the

CPO production process. Development activities through capital are expected to facilitate social mobility, equitable development and have a direct impact on the community. It was recorded that until 2016 the bank with the largest credit channel for the palm oil sector was Bank Mandiri with an average total lending of IDR 57.6 trillion, followed by Bank Rakyat Indonesia (BRI) at 18% and Bank Negara Indonesia (BNI) at 17% (OJK, 2017) with total credit for the palm oil sector touched IDR 215.5 trillion.

Technology. In order to achieve the growth of palm oil production that has low carbon emissions, the creation of environmentally friendly technology is demonstrated through the implementation of the Indonesia Sustainable Palm System (ISPO) system under the policy of the [27] which is the application of an industrial sustainable system. global scale palm oil. The technology involved in this system emphasizes the correlation of business and productivity that is friendly to the environment so as to reduce greenhouse gas emissions from the production process of palm oil mills [21]. RSPO certified palm oil land continued to increase from 2011 –2020. In 2019 the number of certified land was 3.05 million hectares and in 2020 the certified land was 3.26 million hectares.

4.2 Demand conditions

The condition of demand for Indonesian palm oil is reflected in the consumption of palm cooking oil which has high nutrition and is also supported by the lifestyle of people who cook with cooking oil [22]. To see the factors of domestic demand for Indonesian CPO, OLS analysis is used.

Based on the results obtained from the regression model, the F value has a value of 392.44 with a significance level of 0.0000. Because the significance value is smaller than the level of = 0.05, then reject H0 which means that the independent variables (inflation, economic growth and total population) together have a significant effect on the dependent variable (Ln_DCPO). Meanwhile, the value of the coefficient of determination or R - Square is 0.9735 or if interpreted it means that 97.35% of the Ln_DCPO variation can be explained by the 3 independent variables. While about 0.0265 or 2.65% the rest is explained by other variables or external variables that are not related to the independent variables in the study.

Table 2. Regression Results Factors Affecting Indonesia's Domestic CPO Demand

Model	***Unstandardized Coefficient***		**T**	**P > |t|**	**Significance**
	Coef.	***St.Err.***			
Ln_TPOP	5,3298	0,1552	34,11	0,000	***
ECO	0,0254	0,0121	2,10	0,044	*
INFL	0,0072	0,0036	1,96	0,058	**
Konstanta	-94,323	3,0053	-31,39	0,000	***
R-*square*	0,9735	**Obs**			39
F Statistic	392,44	**Prob > F**			0,0000

Based on the hypothesis of this research that inflation has an influence on Indonesia's domestic consumption. The inflation variable has a positive influence on Indonesia's domestic CPO consumption, which is 0.007 percent (cateris paribus). So, this result is in accordance with the

economic theory that inflation will increase if it is followed by an increase in aggregate public consumption [23]. When the increasing demand for commodities will encourage inflation to increase (within normal limits) and indicate a country is carrying out economic activities well. In addition, rising inflation indicates that the growth of people's purchasing power is experiencing an increase in demand for an item.

Through the results of the regression analysis, it is found that the ECO variable or economic growth has a positive relationship with Indonesia's CPO domestic consumption. Based on the analysis, it was found that the variable of economic growth has a positive influence on Indonesia's domestic CPO consumption, which is 0.0254 percent (cateris paribus). The increase in economic growth indicates that the production of a country is increasing and will trigger production results for export and domestic needs [24]. In addition, economic growth shows that rising production will open up investment opportunities that can improve industry performance in producing products. This encourages CPO consumption to increase, so that economic growth can have a positive influence on Indonesia's CPO consumption.

The regression results obtained on the Ln_TPOP variable or the total population have a positive relationship to Indonesian CPO domestic consumption. Based on the results of processed data that the total population variable significantly affects the dependent variable. The total population value obtained is 5.3298 percent (cateris paribus) of Indonesia's CPO domestic consumption. An increasing population indicates that consumption will also increase.Based on the BPS report (2010) in the period 1990 – 2000 shows that the Indonesian populationcontinues to increase at a rate of 1.49 percent annually. Until 2000 – 2005 population growth was 1.34% and from the period 2020 – 2025 Indonesia's population growth is predicted to decrease to 0.92% annually. The increase in household consumption had increased in 2014 – 2018 but decreased in 2018 due to the data taking into account the inflation factor. However, cumulatively, it can be concluded that the consumption of cooking oil per capita has increased despite a decrease in 2018. Thus, in terms of quantity, there is an increase in the consumption of cooking oil per capita of the Indonesian population every year. Then, if it is connected between Indonesia's population growth which increases every year with CPO consumption, according to a report from the Indonesian Vegetable Oil Industry Association (GIMNI) in 2010 that public consumption of CPO derivative products, namely cooking oil, is 4 million tons or has an average increase of 4 million tons. by 4.76% per year. This is in line with the results of the study that the increase in the total population (total population) will be in a positive direction with Indonesia's domestic consumption of CPO.

4.3 Related and supporting industries

Supporting industries are industries that are influenced by the sustainability of their production from the supply of related industrial inputs. Related industries of Indonesian CPO are industrial and private companies that play a role in the supply of raw materials. Based on the report of [29] the related industry that provides raw palm oil with the State Large Plantation (PBN) is PTPN. The high carbon emission lies in the distance between the production of palm oil which is brought to the palm oil processing plant to become a CPO derivative product. Emissions from palm oil production are lower than other vegetable oils, due to the high yield per hectare. However, the high carbon emission of CPO lies in the distance between carrying large quantities of oil palm fruit to the palm oil processing site to becoming a CPO derivative product. The way to reduce carbon emissions is by processing better productivity will create higher yields and the

use of organic fertilizers can reduce emissions at the cultivation stage and ensure RSPO land certification on oil palm land.

Then, downstream CPO has been attempted in Indonesia as a raw material for the food industry and leads to biofuels [25]. Figure 4.8 shows the growth of export value and export volume of palm oil in 2013 – 2019. In 2020 the growth of CPO export value is 18.4% and palm oil export volume is 7.5%. If we compare 2017 to 2018 that the value of palm oil exports in 2017 touched the figure of 27.32% but showed a downward trend in 2018 of -12.03% and reached -12.32% in 2019. It is very unfortunate that palm oil products have not yet achieved sufficient industrial added value, so the palm oil derivative industry must be developed so that this commodity has added value for both domestic and foreign needs.

4.4 Firm strategy, structure, and rivalry

The development of the palm oil industry can emphasize the downstream of derivative products from CPO such as: cooking oil, margarine, or oleo-chemical products that can be processed into production goods with added value. The market structure of the CPO industry is competitive and is reflected in the varied utilization of CPO derivatives. Several companies have intense competition that encourages innovation and diversity of CPO derivative products. Production produced by private plantation companies results in dominant CPO production compared to state and private plantation companies. In 2017, private plantations produced around 56.92% or around 19.89 million tons of palm oil (CPO) while smallholder plantations produced 37.75% or 13.19 million tons and state plantations only 5.33% or 1.86 million tons. The increase in private plantation yields continued to show an upward trend in 2018, which was around 56% or 20.49 million tons. The more companies that produce differentiated products, the competition leads to a competitive market [25].

4.5 Government factor

As one of the production products that have an important contribution to the country's economy, the government has implemented various policies that support the utilization of Indonesian CPO opportunities. The government's long-term vision in 2025 is **"Development of Competitive, Populist, Sustainable and Decentralized Oil Palm Agribusiness Systems and Businesses".** A number of policies carried out by the government according to a report by Badan Penelitian dan Pembangunan (Litbang) are as follows: policies in increasing oil palm productivity and quality, development of downstream industry and increasing value added of palm oil, cooking oil industry policy, funding support, and application of ISPO and RSPO certification. In addition, the government also determines spatial planning for oil palm plantations, but there are still obstacles [18]. The step taken by the government is to seek plantation expansion by developing a more structured layout of oil palm plantations and no overlapping with forests. Law No. 26 of 2007 regulates spatial planning so that there is harmonization of nature and the use of natural resources.

4.6 Chance factor

As a major world producer, Indonesia's opportunity to gain global market share almost controls half of the world's palm and vegetable oil market share [26]. The palm oil industry continues to have a high contribution in maintaining food security in the world. However, even though Indonesia is the largest producer of Indonesian CPO, it has not been able to set the world CPO

price. The increase in CPO prices on the international market has actually become an opportunity for Indonesia to export with added value from downstream products [25].

In setting the world CPO price, there is price intervention from the physical market of Rotterdam and Bursa Malaysia Derivatives (BMD [27]. Indonesia as the largest producer should be the price maker in regulating the world CPO market price. However, placing Indonesia as a price maker is still not affordable, because world CPO prices have not recognized Indonesian CPO as a reference [27]. If Indonesia (small country) is the country that regulates CPO prices and exports, the increase in CPO prices will increase real exports quickly. This will lead to a strengthening of the currency and changes in the currencies of small countries will not be as large as large countries or large countries. Therefore, prices in the international market will remain competitive.

So, with Porter's analysis summary using Porter's Theory, results from Indonesian CPO commodities is obtained as follows Figure 3:

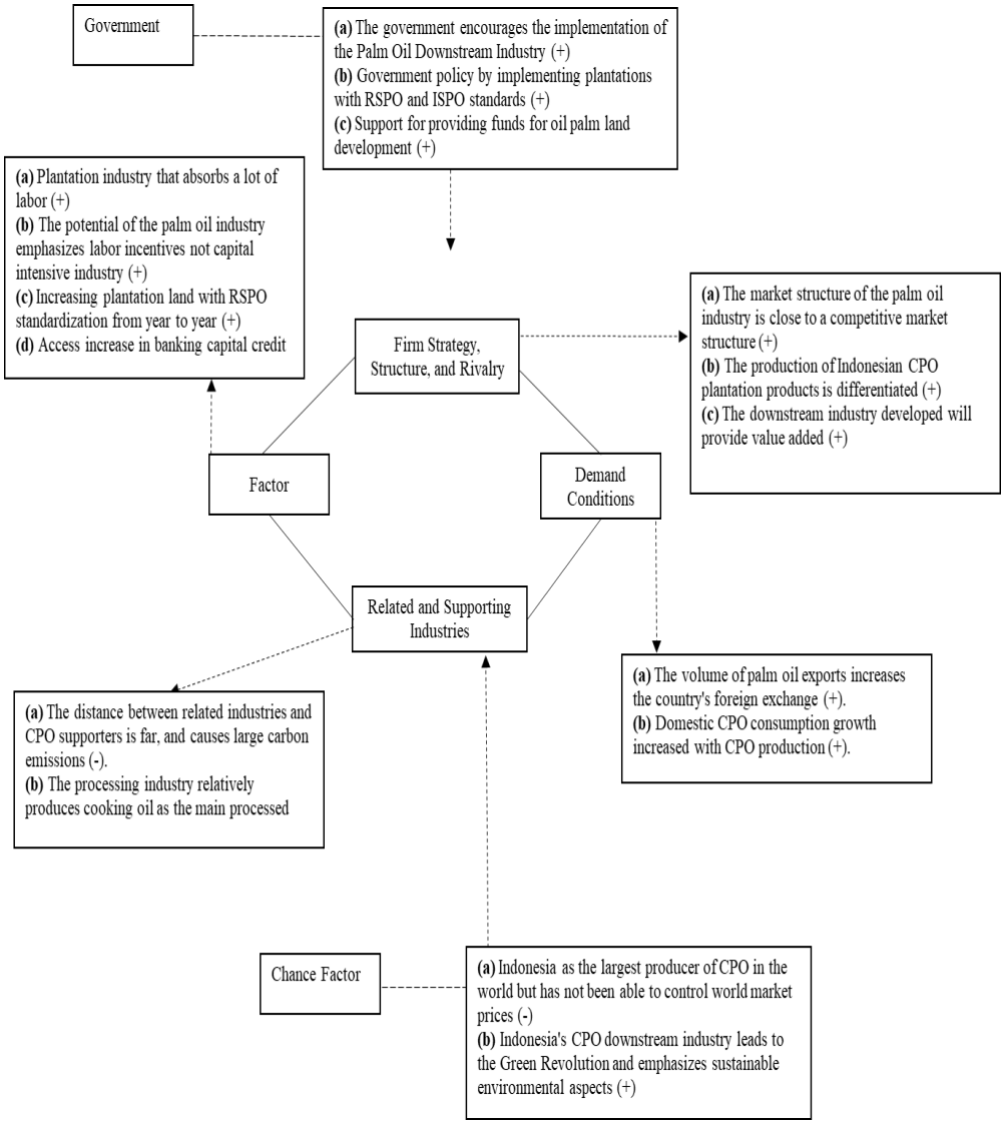

Fig 3. Porter's Theory results from Indonesian CPO Commodities

5 Conclusion

Throughout the period 2013 - 2020 by conducting RCA analysis that CPO commodities Indonesia has strong competitiveness compared to several competitors other. CPO commodity competitiveness (HS - 151110) with several countries, namely: Malaysia, Thailand, Nigeria, Cameroon, Ghana, and Papua New Guinea showed that commodities CPO has strong comparative competitiveness in the main competitor's market share or largest CPO producer in the world. Indonesian CPO commodities have an average RCA value above than 1. Through the

analysis of Porter's theory that Indonesia's CPO commodity has a strong competitive edge, it is supported by four elements: condition factors, government factors, opportunity factors, demand conditions, and strategies, structures and domestic industry competition. However, there are still weaknesses from Porter's analysis: (a) The European Union policy which states that Indonesia's carbon emissions are large because the distance between palm oil production and the output processing site has a long distance, (b) in addition, there are weaknesses in competitive competitiveness, namely downstream of CPO products which are still dominated by cooking oil products, (c) then, even though as the world's largest producer, Indonesia has not been able to regulate the world CPO market price.

The factors that influence Indonesia's domestic consumption of CPO are: inflation, economic growth and total population. Based on the results of regression analysis using time series data, it can be concluded that the variables of inflation, economic growth and the total population have a significant relationship. In addition, the 3 variables have a positive direction on the Indonesian CPO domestic consumption variable. Analysis of domestic demand factors is used to prove the condition of domestic demand (as an element of Porter's theory) which is reflected through the regression results of domestic consumption of CPO. From the 3 regression variables, it is found that the variable that has a large enough influence on domestic consumption of CPO is the total population of the Indonesian people.

6 Suggestion

The suggestions given in this research are: **(1)** the competitiveness of Indonesian CPO commodities has a high value in international trade. This proves that Indonesia's CPO commodity should have the potential as a price determinant or price maker of world trade regardless of international intervention. So, Indonesia needs to seek international diplomacy and regulation in regulating the market price of Indonesian CPO. This is because, almost half of the world's CPO market or 54% of the total CPO production is controlled by Indonesia. **(2)** As the largest producer, the government's program is to accelerate the downstream of CPO products with product innovations that are recognized locally and internationally. It is necessary to accelerate the type of CPO derivatives so that they have high added value. This is because vegetable oil from CPO is consumed more often than some other types of vegetable oil. **(3)** In order to reduce the greenhouse gas effect that has been rumored by the European Union on Indonesian CPO commodities, economic stability is needed. This is done by paying attention to environmentally friendly products. So, even though the total population increases, the demand can be met with sustainable CPO products.

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