COMPETITIVENESS ANALYSIS OF INDONESIA'S PROCESSED COCOA EXPORTS

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Abstract

This research is backgrounded by the export value of processed cocoa commodities which fluctuates and tends to increase after the issuance of the Exit Duty Policy by the government. Processed Indonesian cocoa has been widely exported abroad but the quality is still lower than in other cocoa exporting countries because Indonesian cocoa beans are still not widely fermented. This study aims to analyze the trade position of Indonesian cocoa processing in the main export destination country. Analyze the structure of the cocoa processed market in the main export destination country. Analyze the comparative and competitive competitiveness of Indonesian cocoa processing in the main export destination country. The scope of this study includes processed cocoa with the codes HS 1802, HS 1803, HS 1804, HS 1805, and HS 1806 with each four export destination countries. The data used in this study is secondary data from 2009 to 2018.

The results of the *Herfindahl Index* (HI) test obtained the oligopoly market structure in all destination countries of cocoa skin, cocoa paste (except China), cocoa powder, and cocoa fat in Germany and Australia. The monopolistic market structure is found in all chocolate destination countries, including China (cocoa paste), and the American and Dutch markets (cocoa fat). The result for RCA is that all Indonesian processed cocoa commodities except chocolate in Malaysia and Arabia (RCA values of 0.99 and 0.66 respectively) have a comparative advantage with RCA values that are entirely more than one. The results of the EPD test found that Indonesian cocoa processing was in the *Rising Star* position in the Philippines (cocoa shells and chocolate), China (cocoa paste), India, and the Philippines (cocoa powder). *Falling Star's* position is in Malaysia and Germany (cocoa shells), all cocoa paste destination countries except China, all cocoa fat destination countries, and Malaysia (cocoa powder and chocolate). Lost *Opportunity's* position in China (cocoa powder) and Thailand (chocolate). *Retreat* positions are in the markets of South Korea (cocoa shells) and Saudi Arabia (chocolate).

Keywords: **Cocoa**, Processed Cocoa, Comparative Advantage, Competitive Advantage, Market Share, Trade Specialization

INTRODUCTION

Cocoa is used as an export superior commodity because Indonesia is one of the countries with the largest cocoa bean production in the world. According to the Food and Agriculture Organization of the United Nations (FAO) from 20013-2019,

Indonesia ranks third after Côte d'Ivoire and Ghana. According to the *International Cocoa Organization* (2020), in 2019 Indonesia is still the third largest cocoa producer producing 15% of the world's cocoa. Indonesia generally exports cocoa commodities still in the form of cocoa beans or still raw. Most Indonesian cocoa farmers do not carry out the cocoa fermentation process and only carry out the drying process of cocoa beans, even though the quality of the fermented beans will be better than those that have not been fermented. This causes the quality of Indonesian cocoa in the international market to be lower even though Indonesian cocoa has the advantage of not melting easily even though the taste is a bit sour, making it suitable for *blending* (Ministry of Industry, 2007). Therefore, Indonesian cocoa exported to the European Union is subject to tariffs of up to 15% of the average world cocoa price and for exports to the United States, Indonesian cocoa faces *automatic detention* due to quality that cannot be met so it is necessary to carry out a *pre-conditioning* process (Ministry of Industry, 2007).

To increase cocoa production as a source of raw materials for the domestic cocoa processing industry, the government through the Minister of Finance Regulation No. 67 / PMK.011 / 2010 dated March 22, 2010, imposed an Exit Duty (BK) on cocoa bean exports. In addition to reducing imports of cocoa products, this policy is also for the development, development, and research of cocoa plants. The amount of cocoa exit fee tariff for the international average price < 2,000 US$ Ton/ 0% exit duty, >2,000-2,750 US$/ ton by 5%, >2,750 – 3,500 US$/ton by 10%, and > 3,500 US$/ton by 15% (Director General of Plantations, 2010). The lowest world cocoa price was 2.03 US$/kg in 2017 and the highest was 3.14 US$/kg in 2015 (Ministry of Agriculture, 2020). The implementation of the Exit Duty policy has caused cocoa producers in Indonesia to switch from exporting only cocoa beans to cocoa that is already in processed form, to increase the added value and competitiveness of other processed cocoa products whose export value is still fluctuating. Imports of cocoa beans themselves are subject to import duties of 5%, VAT (Value Added Tax) of 10%, and Income Tax (Income Tax) of 2.5% which are considered burdensome for the cocoa processing industry, while imports of processed cocoa from Southeast Asian countries are subject to a 0% import duty since the enactment of the *ASEAN Free Trade Area* (AFTA) (Ministry of Industry, 2018). Indonesia as one of the world's largest cocoa bean producers has a considerable opportunity to increase the competitiveness of processed cocoa exports to be able to compete with commodities from other countries. The market share of cocoa and its preparations which is still lower than in other countries will affect the development of Indonesian cocoa.

Based on this description, research on the competitiveness analysis of Indonesian processed cocoa exports to the main destination countries is felt to be important to know about the competitiveness of Indonesian cocoa. Based on the problems described, it aims to (1) Identify the position of export trade in processed cocoa (cocoa shells, cocoa paste, cocoa fat, cocoa powder, and chocolate) in Indonesia as the main export destination country. (2) Analyze the market structure of Processed cocoa (cocoa shells, cocoa paste, cocoa fat, cocoa powder, and chocolate) of Indonesia in the main destination countries. (3) Analyze the comparative and competitive competitiveness of Indonesia's processed cocoa trade (cocoa shells, cocoa paste, cocoa fat, cocoa powder, and chocolate) in the main export destination countries.

RESEARCH METHODS

Data Types and Sources

The *time series* data selected for 2009-2018 and *cross-section* data consisting of four main export destination countries of processed cocoa commodities and the world's largest cocoa exporting countries. The main export destination countries for processed cocoa are (1) cocoa shells, namely Malaysia, Germany, South Korea, and the Philippines, (2) cocoa pastes, namely Malaysia, China, the United States, and Brazil, (3) cocoa fats, namely the United States, the Netherlands, Germany, and Australia, and (4) cocoa powders, namely India, Malaysia, the Philippines, and China, and (5) chocolate, namely Malaysia, the Philippines, Thailand, and Saudi Arabia.

Data Analysis
Trading Specialization Index (ISP)

In general, ISPs can be formulated as follows (Hasibuan *et al*., 2012):

$$ISP = \frac{X_{ia} - M_{ia}}{X_{ia} + M_{ia}} \quad \text{....... (1)}$$

Information:

X_{ia} = Export value of Processed cocoa commodities (skins, pastes, fats, cocoa powder, and chocolate) of Indonesia to each of the main destination countries (US$).

M_{ia} = Import value of Processed cocoa commodities (skins, pastes, fats, cocoa powder, and chocolate) of Indonesia from each of the main destination countries (US$).

Herfindahl Index (HI)

The calculation of such market share is carried out using the following formula (Hasibuan, 1993):

$$S_{ij} = \frac{X_{ij}}{TX_j} \quad \text{.......... .... (2)}$$

Information:

S_{ij} = Indonesia's state market share in the trade of processed cocoa commodities ß (leather, paste, fat, cocoa powder, and chocolate) in the market of the main destination country

X_{ij} = Export value of Processed cocoa commodities (skins, pasta, fats, cocoa powder, and chocolate) of Indonesia to each market of the main destination country (US$)

TX_j = Total export value of processed cocoa commodities (skins, pasta, fats, cocoa powder, and chocolate) of all countries to each market of the main destination country (US$)

The index is the result of a sum of the squares of each country's market share in the international market. The HI formula is as follows (Hasibuan, 1993):

$$HI = S_{ij1}^2 + S_{ij2}^2 + S_{ij3}^2 + .. + S_{ijn} .. \text{(3)}$$

Information:

S_{ij} = Market share of processed cocoa commodities (skins, pastes, fats, cocoa powder, and chocolate) country j in the main destination countries

i = Cocoa commodities

jn = N-th cocoa exporter country

Revealed Comparative Advantage (RCA)

The formulation of the RCA can be seen as follows:

$$RCA = \frac{Xij/Xj}{Wij/Wj} \quad \cdots\cdots\cdots (4)$$

Information:

RCA = The level of competitiveness of processed cocoa commodities (skin, paste, fat, cocoa powder, and chocolate) from Indonesia

Xij = Export value of processed cocoa commodities from Indonesia to each importer of processed cocoa (skin, paste, fat, cocoa powder, and chocolate) Indonesia (US$)

Xj = Total export value of all Indonesian commodities to each importer of processed cocoa (skin, paste, fat, cocoa powder, and chocolate) Indonesia (US$)

Wij = Export value of world processed cocoa commodities to each importer of processed cocoa (skin, paste, fat, cocoa powder, and chocolate) Indonesia (US$)

Wj = Total export value of all world commodities to each importer of processed cocoa (skin, paste, fat, cocoa powder, and chocolate) Indonesia (US$)

Export Product Dynamic (EPD)

Mathematically, the business strength/market share (X axis) of a product is formulated as follows (Hasibuan *et al.*, 2012):

$$\sum_{t-1}^{t} (\frac{Xij}{Wij)}) t \, X \, 100\% - \sum_{t-1}^{t} \left(\frac{Xij}{Wij}\right) t - 1 \, X \, 100\%$$

Growth of market attractiveness or so-called product market share (Y axis):

$$\sum_{t-1}^{t} (\frac{Xij}{Wj)}) t \, X \, 100\% - \sum_{t-1}^{t} \left(\frac{Xj}{Wj}\right) t - 1 \, X \, 100\%$$

Information =

X_{ij} = Export value of processed cocoa commodities (skin, paste, fat, cocoa powder, and chocolate) Indonesia to each indonesian cocoa importer (US$).

W_{ij} = Export value of processed cocoa commodities (skins, pastes, fats, cocoa powder, and chocolate) The world to each country – each importer of Indonesian cocoa (US$).

X_j = The total value of Indonesia's exports to each country negra importer of Processed Cocoa Indonesia (US$)

Wj= The total value of world exports to each country importing processed cocoa Indonesia (US$)

T = Number of years of analysis

T = T-th year

RESULTS AND DISCUSSION

Indonesian cocoa shell ISP in the highest main destination countries is in the German market at 1.00 and the lowest average ISP value in the South Korean market is 0.60. The highest ISP of Indonesian cocoa paste in the main destination countries is in the United States and Brazil markets at 1.00 and the lowest average ISP value in the Malaysian market is 0.37. Indonesian cocoa fat ISPs in the main destination countries

where the average ISP to the four destination countries such as the United States, the Netherlands, Germany, and Australia reaches 1.00. Indonesian Cocoa powder ISP has the highest value, namely in the Philippine and Indian markets of 1.00, and the lowest value in the Malaysian market of -0.38. Indonesian chocolate ISP has the highest value in Saudi Arabia at 1.00 and the lowest value in the Malaysian market at -0.44. The trading position of Indonesian cocoa shells in the German market is also at maturity. This shows that Indonesia has entered the stage of standardizing the technology used and has strong competitiveness. Indonesia itself is the fourth largest exporter to Germany in 2019.

The structure of the Processed Cocoa Market in Malaysia has an HI value of 4092.48 which indicates that the market structure is an oligopoly. The average HI value in South Korea is 3278.32 which belongs to the oligopoly market structure. In the oligopoly market, one exporter and the other will be interdependent since each exporter can change the market price so that it will affect the other exporter. The HI value in the Philippines is the largest compared to the other three destination countries. The average HI value of cocoa shells in the Philippines is 6772.77 which indicates that the market structure is an oligopoly market. The structure of the cocoa paste market in Malaysia includes the oligopoly market because the HI value is more than 2,500, with an average of 6184.49. The average HI value for America is 2534.14 where the HI value fluctuates and tends to increase. The structure of the cocoa paste market in America includes an oligopoly market. For the Brazilian market, the value of HI fluctuates and tends to increase. HI values range from 2235.78-6779.81 with an average of 3299.71 and belong to the oligopoly market. In China, the market structure according to the HI value includes the monopolistic market, where the average HI value is 2340.85. The monopolistic market structure shows that in the Chinese market there is a differentiation of cocoa paste products, where there are differences in the quality of cocoa paste types, and differences in service, and packaging. The structure of the cocoa fat market in the United States and the Netherlands belongs to the monopolistic market, with an average HI value of 2293.46. There is a differentiation of cocoa fat products in the monopolistic market structure, where there are different types, services, and packaging for each exporter. The average HI value in the Netherlands is 1893.5 which includes a monopolistic market structure The average HI value for Germany is 4493.68. This shows that the structure of the cocoa fat market in both countries is the oligopoly market. The structure of the cocoa fat market in Australia belongs to an oligopoly market with an average HI value of 3176.37. Analysis The market structure of Cocoa powder in India with HI value fluctuates tends to increase with the average value of HI for ten years of 2747.01 which includes the oligopoly market structure. The HI value of cocoa powder in Malaysia ranges from 1880-6214 with an average of 3628.89 which includes the oligopoly market structure. The market structure of cocoa powder in the Philippines is included in the oligopoly market which is 2843.31. Just like the other three destination countries, the cocoa powder market structure in China belongs to the oligopoly market. This can be seen from the HI value of cocoa powder in China with an average of 2578.40. The structure of the chocolate market in Malaysia has a HI value of 818.42 which includes a monopolistic market. The average value of HI in the Philippines is 1348.97, which indicates that the structure of the chocolate market in the Philippines is monopolistic. In Thailand, the average HI value is 908.10, which indicates belonging to the

monopolistic market structure. For the Saudi Arabian market, the average value of HI of 1616.54 belongs to the monopolistic market structure.

The highest average RCA value of Indonesian cocoa shells was in Germany at 89.16 and the lowest was in the Philippines at 6.89. The highest average RCA of Indonesian cocoa paste was in Brazil at 47.43 and the lowest was in Malaysia at 12.72. Of the five processed cocoa commodities, cocoa fat is a cocoa processed commodity with the highest export value. Cocoa fat is the only commodity whose export value fluctuates and tends to increase after the implementation of the Exit Duty policy. The average RCA value reached 113.76, which indicates that the competitiveness of Indonesian cocoa fat in the Americas is higher than in the other three destination countries. Overall, chocolate exports in the four destination countries do not have a good chance of improving the quality and quantity of exports in the three destination countries due to the negative trend in RCA values.

Competitiveness Analysis of EPD (Competitive Advantage) of Indonesian Processed Cocoa in the Main Destination Country. The results of the calculation of the EPD of Indonesian cocoa shells in the four main destination countries have different market positions. For Malaysia and Germany, Indonesian cocoa shells are in the falling *star* position. This position shows that the market share of Indonesian cocoa shells in Malaysia and Germany has experienced negative or decreased growth while the export market share has increased. The position of Indonesian cocoa shells in South Korea is *Retreat*. This indicates that Indonesian cocoa shells do not have a competitive advantage in South Korea. Meanwhile, in the Philippine market, the position of Indonesian cocoa shells is in the *Rising Star* position. The results of the EPD calculation of Indonesian cocoa paste with the main destination countries are Malaysia, China, the United States, and Brazil. The market position of Indonesian cocoa paste in Malaysia, the United States, and Brazil is included in the Falling Star position. This happened because Indonesia's export market share increased while Indonesia's cocoa paste market share decreased or experienced negative growth. Falling Star's position *indicates* that cocoa paste commodities in Malaysia, America, and Brazil still have a competitive advantage but are weakly competitive. Meanwhile, for the Chinese market, Indonesian cocoa paste is in the *Rising Star* position with an X-axis point of 105.9229 and a Y-axis of 2.0391. This position is the most ideal position with the condition that Indonesia obtains dynamic cocoa skin export trade performance, where Indonesian cocoa paste experiences an export growth rate in line with an increase in market share (*fast-growing products*). The export of Indonesian cocoa fat market to the main destination country is entirely in the falling *star* position. This position is an unfavorable position for Indonesia, where Indonesia is still less competitive with other exporting countries. Indonesian cocoa powder is in the falling *star* position in the Malaysian market. This position shows that the share of cocoa powder exports to Malaysia has experienced negative or decreased growth while its export market share has increased. Falling Star's position *indicates* that cocoa powder commodities in Malaysia still have a competitive advantage but are weakly competitive. In the Indian and Philippine markets, the position of Indonesian cocoa powder is in the rising *star* position. This indicates that Indonesia has a competitive advantage in the export of cocoa powder from both countries. Indonesia's chocolate position in Malaysia is in the *Falling Star* position. This position shows that Indonesia's chocolate market share is declining while the export market share in Malaysia is increasing. Meanwhile, the position of the Indonesian chocolate market in Thailand is in a lost *opportunity*

position. This position requires Indonesia to expand its export market share because this position means that the export market share in Thailand is declining while Indonesia's chocolate market share is still competitive or has a competitive advantage. In the Philippines, Indonesian chocolate is in the *Rising Star* position with an X-axis position of 17.1038 and a Y-axis of 1.5914.

CONCLUSIONS AND SUGGESTIONS

Based on the results of data processing and discussion in this study regarding the market structure and comparative and competitiveness of Indonesian processed cocoa in the main destination countries during the period 2009-2018, it can be concluded several things (1) The position of Indonesian cocoa processed trade is at the maturity stage in Malaysia and Germany (cocoa shells), America and Brazil (cocoa paste), all cocoa fat destination countries, India, the Philippines, and China (cocoa powder), as well as the Philippines, Thailand, and Arabia (chocolate). At the growth stage in South Korea and the Philippines (cocoa shells), as well as Malaysia and China (cocoa paste). Then it is in the stage of import substitution in Malaysia (cocoa powder and chocolate). (2) The structure of the processed cocoa market in the destination country includes the oligopoly market in all destination countries of cocoa shells, cocoa paste (except China), and cocoa powder. The structure of the cocoa fat market in Germany and Australia also includes oligopoly. Monopolistic markets are in China (cocoa paste), America, and the Netherlands (cocoa fat), as well as the entire destination country of chocolate products. (3) For the comparative advantages of Indonesian cocoa processing in the main destination country are cocoa shells, cocoa paste, cocoa fat, and Cocoa powder Indonesia in the main destination country has comparative competitiveness with an overall RCA value of more than one. Meanwhile, for Indonesian chocolate, the RCA value exceeds one in the Philippines and Thailand with an average RCA value.

The advice that can be given from this study is (1) Indonesia is one of the cocoas exporting countries and its processed products can become the largest country of cocoa exporters in the world by increasing its market share. This can be done by increasing the number of cocoa exports accompanied by good cocoa quality, so that exports can sustainable manner, especially in export destination countries that are potential markets for Indonesian cocoa. (2) Indonesia is expected to continue its exit duty policy for cocoa bean exports. The funds from this exit duty can be used to support.

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