EXPORT PERFORMANCE OF CPO AND RPO:ACOMPARATIVE STUDY BETWEEN INDONESIA AND MALAYSIA

ABSTRACT

This study was conducted with the aim of analysing the comparison of export performance of CPO and RPO commodities between Indonesia and Malaysia as the main exporting countries of CPO and RPO commodities. The assessment of export performance was carried out using 4 measurement indicators, namely Market Concentratin with HHI, export commodity competitiveness with RCA, export commodity position with TSR and export changes using CMS. The research period is time series data 2010-2022. The research findings show 1) Market Concentration for CPO and RPO commodities is still concentrated in 2 main exporting countries, namely Indonesia and Malaysia with a higher concentration level of RPO commodities than CPO; 2) The competitiveness of Indonesian and Malaysian CPO and RPO export commodities is very strong because it has an RCA value far above 1 where for CPO commodities Malaysia's competitiveness performance is better than Indonesia and vice versa for RPO commodities, Indonesia's competitiveness performance is better: 3) The position of CPO and RPO in world trade for both Indonesia and Malaysia is already in the maturation stage where Indonesia's performance for both CPO and RPO is better than Malaysia because it has a greater TSR value; 5) CMS performance for CPO and RPO commodities for both Indonesia and Malaysia is still inconsistent, namely ups and downs as a result of the effects of world growth and the effects of competitiveness which also fl

I. INTRODUCTION

Comment [FM1]: More recent studies could be included to reflect the latest research trends and findings relating to CPO and/or RPO

Palm oil (CPO) is a vegetable oil with many derivative products used for cooking, cosmetics. Food processing industry, oleochemicals, and fuel (Wardhani and Rahadian, 2021). Indonesia and Malaysia are the largest producers of CPO in the world. Based on the United States Department of Agriculture (USDA) report, Indonesia's palm oil production in 2023 amounted to 45.5 million metric tons, followed by Malaysia with a total production of 18.8 million metric tons in second place, followed by Thailand with a total production of 3,260 million metric tons, then Colombia in fourth place with a total production of 1,838 million metric tons, Nigeria in fifth place with a total production of 1,400 million metric tons. For more information, here is a picture showing the 10 largest palm oil producers in the world.

Source : https://www.usda.gov/

Fig 1. World's Largest CPO Producing Countries

As the world's largest CPO producers, Indonesia and Malaysia are also the two countries that dominate world CPO exports where the market share of the both countries more than 50%. Information from the table shows that during the 2018-2022 period, Indonesia and Malaysia dominated world CPO exports where the trend of Malaysia's CPO export market share has increased during the 2018-2022 period and in 2021 its position has replaced the dominance of Indonesia, which was previously the country with the largest CPO market share in the world. Thailand and Papua New Guinea are the only two CPO exporting countries in the world that experienced a significant increase in market share during the 2018-2022 period where in 2022 they already have a market share of 8.3434% for Thailand and 8.055% for Papua New Guinea.

For CPO derivative products, namely Refined Palm Oil (RPO), Indonesia and Malaysia are two countries that dominate world RPO exports where in 2022 the total market share of the two countries is 87.6%. Judging from the development of the RPO commodity market share during the 2018-2022 period, Indonesia experienced an increasing trend in market share while Malaysia experienced fluctuations up and down as can be seen in table 2.

From the explanation above, this study was conducted with the aim of comprehensively analysing the export performance of CPO and RPO commodities between Indonesia and Malaysia in world trade. The approach used is the measurement of export performance using the level of market concentration, competitiveness of export commodities, position or position of export commodities in world trade and analysing changes in exports of a particular commodity as a result of world changes and changes in market share.

Table 1.Market Share of the World's Major CPO Exporting Countries

No.	Country	2018	2019	2020	2021	2022
1	Malaysia	25.0953	25.5363	29.4095	43.2705	33.4772
2	Indonesia	46.2812	49.9343	47.5458	23.9128	25.3759
3	Thailand	1.9797	1.4502	1.1422	5.5285	8.3434
4	Papua New Guinea	0.0000	4.4511	4.1206	6.1936	8.0550
5	Guatemala	5.2288	4.8924	4.1818	5.4540	6.1405
6	Colombia	4.9965	3.7525	3.2999	3.1647	3.9989
7	Honduras	2.6442	1.4142	2.8258	1.5632	3.0388
8	Côte d'Ivoire	0.6152	0.8463	0.1330	1.2354	2.0585
9	Netherlands	1.1943	1.4340	1.5801	2.1527	1.9562
10	Costa Rica	1.4828	1.3084	1.3176	1.6824	1.3957
	Others	**10.4821**	**4.9804**	**4.4438**	**5.8423**	**6.1599**
	World Export (US$ 000)	**7728464**	**7292961**	**9976846**	**11449596**	**13438423**

Sumber: https://www.trademap.orgprocessed

Table2. Market Share of the World's Major RPO Exporting Countries

No.	Country	2018	2019	2020	2021	2022
1	Indonesia	56.9971	53.8445	55.6942	63.1356	57.8874
2	Malaysia	29.6436	31.4569	30.2313	24.3364	29.7272
3	Netherlands	3.8969	3.9968	3.5703	2.5800	2.4099
4	Germany	1.4162	1.2695	1.2268	0.9433	1.2759
5	Estonia	0.3603	0.5110	0.6553	0.5852	0.8155
6	Türkiye	0.0123	0.2512	0.4809	0.4784	0.6903
7	Djibouti	0.0000	0.1093	0.2121	0.4394	0.5688
8	Côte d'Ivoire	0.6217	0.6799	0.8847	0.5574	0.5452
9	Italy	0.6098	0.5833	0.6032	0.4917	0.5174
10	Nepal	0.0727	0.9265	0.2006	0.6778	0.4418
	Others	**Others**	**6.3695**	**6.3712**	**6.2407**	**5.7748**
	World Export (US$ 000)	**World**	**22722231**	**20567733**	**22661688**	**38040656**

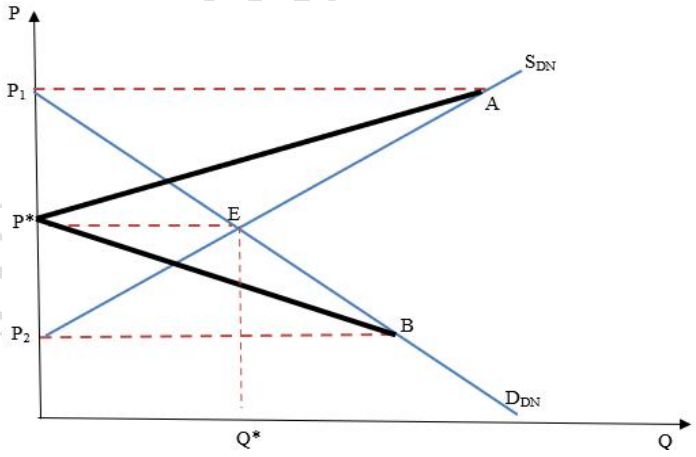
Sumber: https://www.trademap.orgprocessed

2. LITERATURE REVIEW

2.1 Theory of Import Demand and Export Supply

To determine world prices and traded goods, it is helpful to first define the import demand curve and export supply curve derived from the domestic demand curve and supply curve [1]. The export activities of a country so because of the excess supply is the excess production in the country after deducting the needs of domestic consumption so that the excess can be offered abroad in the form of exports of goods so as to cause the occurrence of export offers. Conversely, the import activity of a good occurs because of the excess demand for a good in the country due to the number of goods produced in the country is not able to meet the needs of domestic demand so that the shortage is closed by importing goods from abroad or otherwise the emergence of a country's import demand for certain goods [2].

The derivation of the import demand and export supply curves can be seen in Figure 1. With domestic demand curve DDN and domestic supply curve SDN, the market equilibrium is obtained at point E with market equilibrium price P* and market equilibrium quantity Q*. In this market equilibrium condition, all domestic demand can be met by domestic supply so that no foreign trade occurs. When the price rises above P* there is an excess supply where domestic production is greater than domestic demand so that this excess production can be offered abroad or in other words, it creates an export offer. When prices are at P1 where domestic consumers are not willing to buy goods, all domestic production will be exported. The export supply curve is denoted by P*ASDN. When the price of goods falls below P*, it will cause excess demand where domestic production is unable to fulfil domestic consumption. This excess demand can be overcome by importing. When the price of goods reaches the point P2 where the price of goods is relatively very low, there is no single producer in the country who wants to produce goods so that all domestic demand from point P2 or at prices lower than P2 will be met by importing. The import demand curve itself is expressed by P*BDDN



Source : Salvatore (2013)

Fig 2. Import Demand Curve and Export Supply Curve

2.2. Market Structure

The structure conduct and performance (SCP) theory paradigm defines the performance of an industry based on the structure and behaviour of the players in the market. Market structure is measured by market share, degree of market concentration, barriers to entry, firm size, growth rate, presence of leading firms and other factors [3]. Market structure is the character of a market that affects the competitive strategy and pricing of the market. Market structure can also be understood as a relatively permanent strategic part of the firm's environment that will affect and be affected by the firm's behaviour and performance in a market. So the structure will affect behavioural patterns. There are four market structures, namely perfect competition, monopoly, oligopoly and monopolistic competition [4]. The concept of Structure aims to determine the market structure which is usually defined by the market concentration ratio. The lower the market concentration, the higher the level of competition in the market and vice versa, the higher the market concentration, the lower the level of competition in the market. A number of empirical studies use market concentration measurements using the Hichsman Herfindall Index [5], [6], [7], [8], [9].

Market Concentration is a criterion to determine the degree of stability of export revenue of a commodity and its trend over time [8]. Determination of the level of market concentration of an export commodity is based on the magnitude of the impact caused by disturbances to the stability of export revenue.Herfindahl-Hirschman Index (HHI) is an important indicator used to measure the level of market concentration.HHI is expressed with the formulation:

$$\mathbf{HHI} = \sum_{i=1}^{n} s_i^2$$

The HHI is calculated by summing the squares of the market shares of each firm in the industry. The HHI scale can be used to categorise the level of competition in a market. An HHI value of <1500 indicates an unconcentrated (competitive) market, an HHI value of between 1500 and 2500 indicates a moderately concentrated market, and an HHI value of more than 2500 indicates a highly concentrated market. The market concentration approach is widely used in many studies [17], [18], [19].

2.3. Competitiveness

In an increasingly globalised and competitive world economy, a country's ability to compete in world trade is one of the most important issues in a country's economic development [10]. International competitiveness is defined as the ability of a country to maintain a favourable relative position in international trade [11]. The formulation for RCA is expressed as follows:

$$\mathbf{RCA} = \frac{\mathbf{X_{ij}/X_j}}{\mathbf{X_{iW}/X_W}}$$

Revealed Comparative Advantage (RCA) is a key metric for evaluating a country's competitiveness in global trade. If the RCA value reaches 1 or higher, it signifies that the country has a strong competitive advantage in that commodity in the global market [6]. Heckscher and Ohlin redefined comparative advantage by formulating the theory of factor proportions, which states that countries should focus on the production and export of products that utilise relatively abundant factors. The application of the competitiveness of a commodity is done using the concept of Revealed Comparative Advantage (RCA) which was initiated by Balassa (1965). The competitiveness approach using RCA is widely used in many studies [5], [6], [7], [8], [9].

2.4. Trade Specialisation

Trade Specialisation is an important aspect of international trade, where countries focus on producing specific goods or services in which it has a comparative advantage, allowing it to compete more effectively on the global stage [12]. [13] says that this approach allows countries to benefit from increased efficiency and productivity, leading to economic growth and improved living standards. TSR is expressed with the formulation:

$$\mathbf{TSR} = \frac{\mathbf{X(ij)} - \mathbf{M(ij)}}{\mathbf{X(ij)} + \mathbf{M(ij)}}$$

Trade Specialisation (TSR), calculated as the difference between exports (X(ij)) and imports (M(ij)) of a commodity by a country, ranges from -1 to 1 and indicates the stage of development of that commodity in global trade. A TSR between -1 and -0.5 signifies the introduction stage, -0.5 to 0 indicates import substitution, 0 to 0.8 indicates export expansion, and 0.8 or higher signifies maturity.

Key determinants of specialisation include absolute and comparative advantage, which highlight a country's ability to produce goods at lower marginal and opportunity costs[14]. In addition, elasticity of substitution, which reflects the ease with which one good can substitute for another, and geographical factors, such as natural resources and environmental conditions, significantly influence trade patterns. The competitiveness approach using TSR is widely used in many studies [14], [15], [16].

2.5. Constant Market Share (CMS)

Constant Market Share (CMS) menyatakan bahwa pangsa pasar ekspor suatu negara adalah hasil dari daya saing relatifnya dalam pasar internasional [20]. Model CMS mengemukakan bahwa pertumbuhan ekspor suatu negara tergantung pada faktor-faktor seperti efisiensi produksi, keunggulan komparatif, dan peningkatan akses pasar. Model CMS dinyatakan sebagai berikut :

$$s = \frac{q}{Q} = f\left[\frac{c}{C}\right], f = \frac{df}{dt} > 0$$

Changes in market share will lead to changes in competitiveness. The change occurs when equation 1) is derived over time and is expressed as follows:

$$\frac{dq}{dt} = s\frac{dQ}{dt} + Q\frac{ds}{dt}$$

$$\acute{q} = s\acute{Q} + Q\acute{s}$$

From the equation, it can be explained that changes in a country's commodity exports consist of two effects, namely the world growth effect (sQ) which shows that a country's export growth responds to an increase in global export growth, while the competitiveness effect shows that changes in a country's exports occur due to changes in its market share in the world market [21]. Constant Market Share approach is widely used in many studies [22], [23].

3. METHOD

The research design used is quantitative research using various formulations to measure the

Comment [FM2]: 1.The methodology may explain potential limitations or biases in the data collection and analysis process 2.There is less mention of how the data were processed or the specific statistical techniques used in this paper

export performance of Indonesian and Malaysian CPO and RPO commodities in world trade. Measurement of export performance is seen from the aspects of market concentration, competitiveness, commodity export position and constant market share analysis.

The variables used for external performance were carried out to measure the export performance of CPO and RPO commodities consisting of measurements of Revealed Market Concentration (MC), Comparative Advantage (RCA), Trade Specialisation Ratio (TSR), and Constant Market Share (CMS). The variables used consist of

1. Indonesian and Malaysian CPO and RPO exports to the world market expressed in US dollars.
2. Total Exports of Indonesia and Malaysia to world markets expressed in US dollars
3. Total world exports of CPO and RPO expressed in US dollar terms
4. Total world exports expressed in US dollar terms
5. Total CPO and RPO Imports of Indonesia and Malaysia expressed in US dollars
6. World exports of CPO and RPO by exporting country expressed in US dollar terms

All of the above data is secondary data obtained from trademap.org. for the period 2010-2022, the commodities used consist of 2 groups based on the HS 6 ditig grouping, namely

1. HS 151110: Crude Palm Oil (CPO)
2. HS 151119: Refined Palm Oil (RPO)

4. RESULT AND DISCUSSION

4.1. Descriptive Statistics

Descriptive statistics for the trade balance of CPO commodities of Indonesia and Malaysia during the period 2010-2022 can be seen in Table 3. Indonesia's CPO export trade balance in 2010-2022 shows a condition that is always in surplus, which is almost equal to the amount of CPO exports. When viewed from the development of Indonesia's CO commodity trade balance, it shows a downward trend as a result of the value of CPO exports which has decreased during the 2010-2022 period. This condition is caused by the value of Indonesia's CPO imports during the 2010-2022 period is very small, even in some years the import value is 0. The trade balance for Malaysian CPO commodities also shows a surplus condition during the 2010-2022 period with the number of imports which has a downward trend so that Malaysia's trade balance surplus for CPO commodities has increased from year to year.

A comparison of trade balance conditions for CPO commodities between Indonesia and Malaysia can be seen in Figure 3. Indonesia's trade balance conditions for CPO commodities experienced a decrease in the trade balance surplus during the 2010-2022 period. On the other hand, the condition of Malaysia's CPO commodity trade balance during the 2010-2019 period experienced fluctuations up and down, but starting in 2019 experienced a significant increase in the trade balance surplus. Starting in 2021, the size of the trade balance surplus for Malaysian CPO commodities has been greater than the trade balance surplus for Indonesian CPO commodities. The factor causing the increase in the trade balance surplus of Malaysian CPO commodities starting in 2019 is the increase in exports of Malaysian CPO commodities while the value of imports has decreased.

Table 3 Indonesia and Malaysia CPO Commodity Trade Balance 2010-2022 (Thousand Dollars)

Tahun	Indonesia			Malaysia		
	Export	Import	Trade	Export	Import	Trade
2010	7,649,966	3,361	7,646,605	2,312,972	1,005,899	1,307,073
2011	8,777,016	24,506	8,752,510	3,796,528	1,630,867	2,165,661
2012	6,676,504	0	6,676,504	4,468,119	791,965	3,676,154
2013	4,978,533	0	4,978,533	2,986,345	260,724	2,725,621
2014	4,206,741	0	4,206,741	3,428,710	225,867	3,202,843
2015	4,388,094	0	4,388,094	3,087,025	433,795	2,653,230
2016	3,305,575	3,875	3,301,700	2,341,212	129,149	2,212,063
2017	4,698,225	0	4,698,225	1,879,989	210,180	1,669,809
2018	3,576,825	3	3,576,822	1,939,482	278,517	1,660,965
2019	3,641,687	2,326	3,639,361	1,862,350	456,362	1,405,988
2020	4,743,567	198	4,743,369	2,934,139	342,369	2,591,770
2021	2,737,923	1	2,737,922	4,954,295	145,512	4,808,783
2022	3,410,127	0	3,410,127	4,498,802	191,711	4,307,091

Sumber: https://www.trademap.org processed

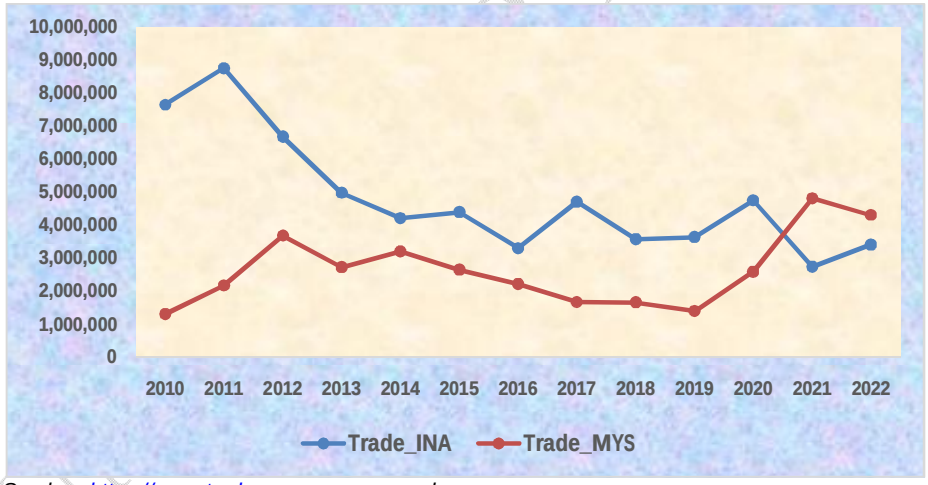


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Fig 3 Indonesia and Malaysia CPO Commodity Trade Balance 2010-2022

The processing results for the trade balance of Indonesian RPO commodities can be seen in Table 4. The trade balance for Indonesian RPO commodities was in surplus during the period 2010-2022. The value of imports is very small compared to the value of Indonesian RPO exports causing the surplus of the Indonesian RPO commodity trade balance to experience almost as much as the value of its exports. Malaysia's RPO commodity trade balance was in surplus during the 2010-2022 period.

When compared to the condition of the RPO commodity trade balance between Indonesia and Malaysia, Indonesia experienced an increasing trend in the RPO commodity trade balance surplus during the 2010-2022 period and a significant increase occurred in the 2020-2022 period. In contrast, Malaysia's RPO commodity trade balance experienced a downward trend during the 2010-2022 period. Malaysia's RPO commodity trade balance surplus in 2010-2011 was greater than Indonesia's RPO commodity trade surplus, starting in 2012 the condition was the opposite where Indonesia's RPO commodity trade balance surplus was actually greater. More details can be seen in Figure 4

Table 4 Indonesia and Malaysia RPO Commodity Trade Balance 2010-2022 (Thousand Dollars)

Tahun	Indonesia			Malaysia		
	Export	Import	Trade	Export	Import	Trade
2010	5,819,000	34,440	5,784,560	10,092,430	78,548	10,013,882
2011	8,484,232	487	8,483,745	13,650,380	306,682	13,343,698
2012	10,925,664	831	10,924,833	10,942,820	908,446	10,034,374
2013	10,860,317	46,979	10,813,338	9,302,601	293,063	9,009,538
2014	13,258,163	393	13,257,770	8,566,102	155,723	8,410,379
2015	10,997,181	4,623	10,992,558	6,446,378	262,432	6,183,946
2016	11,059,847	241	11,059,606	6,744,561	198,468	6,546,093
2017	13,814,896	1,812	13,813,084	7,837,018	193,175	7,643,843
2018	12,951,023	911	12,950,112	6,735,688	178,607	6,557,081
2019	11,074,588	43,204	11,031,384	6,469,974	92,950	6,377,024
2020	12,621,245	741	12,620,504	6,850,934	314,755	6,536,179
2021	24,017,213	693	24,016,520	9,257,741	1,003,413	8,254,328
2022	24,355,703	1,401	24,354,302	12,507,484	1,265,687	11,241,797

Sumber: https://www.trademap.org processed

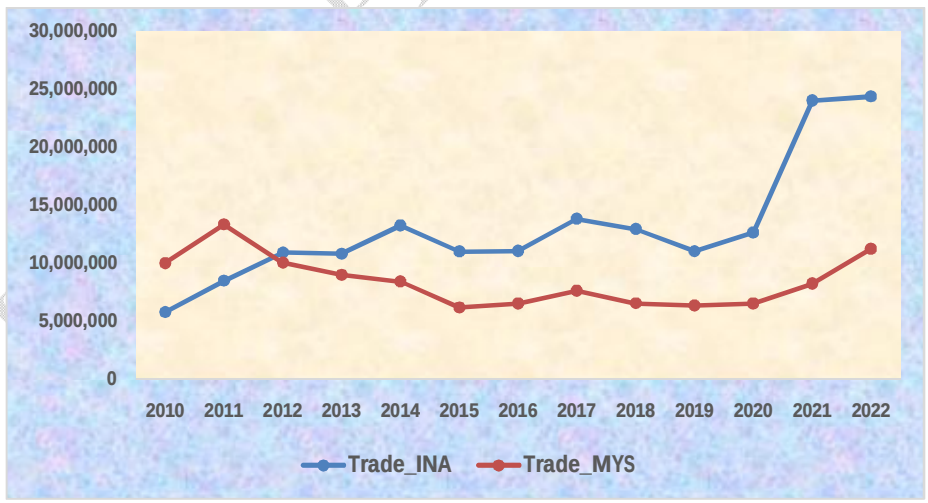

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Fig 4 Indonesia and Malaysia RPO Commodity Trade Balance 2010-2022

Export Performance of CPO and RPO of Indonesia and Malaysia

The processing results for the performance of CPO and RPO export commodities of Indonesia and Malaysia can be seen in Table 5 and Table 6.

4.2. Market Concentration Findings

The results of market concentration processing for CPO commodities are indicated by an HHI value of more than 2500 during the 2010-2021 period. This condition shows that exporting countries for CPO commodities are concentrated in several countries where Indonesia and Malaysia are exporting countries that dominate the share of CPO commodity exports. The HHI value decreased in 2022 to 1975.12, indicating a decrease in the intensity of the main CPO exporting countries with increasing market power from other CPO exporting countries, namely Papua New Guinea, Thailand, Guatemala, Colombia and Honduras

The results of Market Concentration processing for RPO export commodities during the period 2010-2022 are at a low level of competition or concentrated to certain exporting countries, namely Indonesia and Malaysia as can be seen from the HHI value which is between above 2500. When viewed from the development of the HHI value for RPO commodities, there has been an increase during the period 2010-2022 which indicates that exports for RPO commodities are increasingly controlled by certain exporting countries. The main exporters of RPO commodities in the world are Indonesia and Malaysia where the two countries control more than 80% of the RPO commodity market share.

4.3. Revealed Comparative Advantage (RCA) Findings

The processing results for the export competitiveness of Indonesian and Malaysian CPO commodities in the world market show that both Indonesia and Malaysia have strong competitiveness as indicated by RCA values far greater than 1 during the period 2010-2022. The development of Indonesia's CPO competitiveness during the period 2010-2022 showed a declining trend. In 2010 the RCA value of Indonesian CPO was 66.258 and decreased in 2022 to 21.390, while the development of my competitiveness of Malaysian CPO during the period 2010-2022 fluctuated and was relatively stable where in 2010 the RCA value of Malaysian CPO was 15.900 and in 2022 it reached an RCA value of 23.330.

Competitiveness for RPO commodities of Indonesia and Malaysia produces RCA values far above 1, which means that Indonesia and Malaysia have high competitiveness in the world market. Judging from the development of RCA for Indonesian RPO commodities during the period 2010-2022 shows an increasing trend which means that Indonesia's competitiveness for RPO commodities in the world market has increased during the period 2010-2022. While the development of Malaysian RPO exports during the period 2010-2022 experienced a relatively downward trend where if in 2010 the RCA value of Malaysian RPO commodities was 40.672 and in 2022 it decreased to 20.717.

4.4. Trade Specialization Ratio (TSR) Findings

TSR value for Indonesia's CPO commodity during the 2010-2022 period was 1 overall, which means that Indonesia's position in world trade for CPO commodities is in the maturation stage, which has a TSR value> 0.8. This condition shows that Indonesia's CPO export trade transactions almost entirely carry out export activities while its import transactions are overall

zero except for a few years with very small import values. The position of Malaysia's CPO commodity exports in

Table 5
CPO Export Performance (HS 151110) Indonesia and Malaysia

Tahun	MC	RCA		TSR		Constant Market Share (CMS)					
						sQ	sQ	q	sQ	sQ	q
	Dunia	Indonesia	Malaysia	Indonesia	Malaysia	Indonesia			Malaysia		
2010	5601,82	66.258	15.900	0.999	0.394						
2011	4240,60	53.036	20.566	0.994	0.399	2384114.0	-1257064.0	1127050.0	864299.25	619256.75	1483556.0
2012	3753,15	49.103	27.455	1.000	0.699	-873790.6	-1226721.4	-2100512.0	-473118.70	1144709.70	671591.0
2013	3687,35	51.095	24.506	1.000	0.839	-1552374.3	-145596.7	-1697971.0	-985713.37	-496060.63	-1481774.0
2014	3514,28	46.702	28.619	1.000	0.876	-192589.8	-579202.2	-771792.0	-134938.73	577303.73	442365.0
2015	3823,80	52.758	27.765	1.000	0.754	-259920.2	441273.2	181353.0	-196607.97	-145077.03	-341685.0
2016	3360,03	49.167	26.502	0.998	0.895	-779121.5	-303397.5	-1082519.0	-549893.58	-195919.42	-745813.0
2017	3677,87	55.047	17.079	1.000	0.799	717083.0	675567.0	1392650.0	388015.12	-849238.12	-461223.0
2018	3150,49	49.637	19.599	1.000	0.749	-570837.0	-550563.0	-1121400.0	-266263.28	325756.28	59493.0
2019	3214,33	55.859	20.113	0.999	0.606	-209510.6	274372.6	64862.0	-110251.02	33119.02	-77132.0
2020	3186,35	50.974	22.047	1.000	0.791	1308125.9	-206245.9	1101880.0	737340.40	334448.60	1071789.0
2021	2566,91	22.863	32.013	1.000	0.943	526203.2	-2531847.2	-2005644.0	535197.08	1484958.92	2020156.0
2022	1975,12	21.390	23.330	1.000	0.918	490134.3	182069.7	672204.0	763188.85	-1218681.85	-455493.0

Sumber: https://www.trademap.org processed

Tabel 6
RPO Export Performance (HS 151190) Indonesia and Malaysia

Tahun	MC	RCA		TSR		Constant Market Share (CMS)					
						sQ	$\dot{s}Q$	$\dot{q}$	sQ	$\dot{s}Q$	$\dot{q}$
	Dunia	Indonesia	Malaysia	Indonesia	Malaysia	Indonesia			Malaysia		
2010	3999,45	3999,45	40.672	0.988	0.985						
2011	3950,83	3950,83	41.789	1.000	0.956	2299753.19	365478.81	2665232	3840685.10	-282735.10	3557950
2012	3765,71	3765,71	34.958	1.000	0.847	-294450.39	2735882.39	2441432	-371752.10	-2335807.90	-2707560
2013	3762,61	3762,61	32.701	0.991	0.939	-815801.85	750454.85	-65347	-755901.56	-884317.44	-1640219
2014	4016,00	4016,00	27.543	1.000	0.964	772683.66	1625162.34	2397846	575052.71	-1311551.71	-736499
2015	4006,79	4006,79	26.001	0.999	0.922	-2570245.54	309263.54	-2260982	-1582656.82	-537067.18	-2119724
2016	4009,78	4009,78	27.519	1.000	0.943	158754.10	-96088.10	62666	94927.46	203255.54	298183
2017	4161,40	4161,40	25.551	1.000	0.952	2296052.26	458996.74	2755049	1350452.24	-257995.24	1092457
2018	4182,65	4182,65	23.151	1.000	0.948	-1139775.40	275902.40	-863873	-619405.51	-481924.49	-1101330
2019	3910,01	3910,01	24.776	0.992	0.972	-1194040.25	-682394.75	-1876435	-658204.71	392490.71	-265714
2020	4033,54	4033,54	22.663	1.000	0.912	1146845.25	399811.75	1546657	645862.23	-264902.23	380960
2021	4588,98	4588,98	18.005	1.000	0.804	9137401.53	2258566.47	11395968	4195981.32	-1789174.32	2406807
2022	4245,58	4245,58	20.717	1.000	0.816	2440792.07	-2102302.07	338490	1090354.27	2159388.73	3249743

Sumber: https://www.trademap.org processe

world trade during the period 2010-2022 has an increasing trend where in 2010 Malaysia's TSR value for CPO commodities was 0.394 (export expansion stage) and increased from year to year so that in 2022 it reached a TSR value of 0.918, which is in the maturation stage where the export value is much greater than the export value

TSR value for Indonesian RPO products during the 2010-2022 period is constant, reaching an average value of 1, which means that the position of Indonesian RPO exports in world trade is already in the maturation stage because it has a TSR value> 0.8. Under these conditions, Indonesia's foreign trade transactions for RPO commodities during the 2010-2022 period only occurred for its export transactions while for Indonesia's import transactions did not exist or the value was zero. The TSR value for Malaysian RPO export commodities during the 2010-2022 period is greater than 0.8 which indicates that Malaysian RPO export commodities in world trade are at the maturation stage, namely the value of export transactions is much greater than the value of import transactions which is relatively very small.

4.5. Constant Market Share (CMS) Findings

The results of the CMS calculation for the Indonesian CPO commodity show that changes in exports of the Indonesian CPO commodity fluctuated up and down where during the 2010-2022, there were 6 times an increase in exports CPO, namely in 2011, 2015, 2017, 2019, 2020 and 2022 while the other 6 periods decreased. When viewed from the source of the cause of changes in Indonesia's CPO exports:

1. Seen from the effect of world growth for CPO export commodities, out of 5 periods of increase in world CPO demand growth, 4 periods (2011, 2017, 2020, 2022) had an impact on the increase in Indonesian CPO exports while 1 period (2021) had an impact on the decline in Indonesian CPO exports. On the other hand, out of 7 periods of decline in world CPO demand growth, 5 periods (2012, 2013, 2014, 2016, 2018) resulted in a decrease in Indonesia's CPO exports and 2 other periods (2015, 2019) resulted in an increase in Indonesia's CPO exports.
2. For the competitiveness effect caused by changes in the market share of Indonesian CPO commodities, of the 4 periods where there was an increase in the market share of Indonesian CPO commodities, 4 periods (2015, 2017, 2019, 2022) had an impact on the increase in exports of Indonesian CPO commodities. On the other hand, of the 8 periods of decline in the market share of Indonesian CPO export commodities, 6 periods (2012, 2013, 2014, 2016, 2018, 2021) had an impact on reducing exports of Indonesian CPO commodities and 2 other periods (2011, 2021) had an impact on reducing exports of Indonesian CPO commodities to the world market.

The results of the CMS calculation for Indonesian CPO commodities show that the effect of competitiveness, namely the increase in the market share of Indonesian CPO commodities in the world market, has a stronger influence than the effect of world growth effect.

The results of the CMS calculation for Malaysian CPO commodities show that during 2011-2022, there were 6 times an increase in exports of Malaysian CPO, namely in 2011, 2012, 2014, 2018, 2020 and 2021 while 6 other periods experienced a decline, namely in the periods 2013, 2015, 2016, 2017, 2019 and 2022. When viewed from the source of the cause of changes in Malaysian CPO exports:

1. Seen from the world growth effect for CPO export commodities, out of 5 periods of increase in world CPO demand growth, 3 periods (2011, 2020, 2021) had an impact on the increase in

Malaysian CPO exports while the other 2 periods (2017, 2022) had an impact on the decline in Malaysian CPO exports. On the other hand, out of 7 periods of decline in world CPO demand growth, 4 periods (2013, 2015, 2016, 2019) had an impact on the decline in Malaysian CPO exports and 3 other periods (2012, 2014, 2018) had an impact on the increase in Mala CPO exports.

2. For the effect of competitiveness caused by changes in the market share of Malaysian CPO commodities, from 7 periods where there was an increase in the market share of Malaysian CPO commodities, 6 periods (2011, 2012, 2014, 2018, 2020, 2021) had an impact on the increase in exports of Malaysian CPO commodities and one other period (2019) had an impact on the decline in exports of Malaysian CPO commodities. On the other hand, of the 5 periods of decline in the market share of Malaysian CPO export commodities, 5 periods (2013, 2015, 2016, 2017, 2022) had an impact on the decline in Malaysian CPO commodity exports.

The results of the CMS calculation for Malaysian CPO commodities show that the competitiveness effect, namely changes in the market share of Malaysian CPO commodities in the world market, has a stronger influence than the world growth effect for CPO export commodities.

The processing results for the calculation of CMS for Indonesian RPO commodities show that during the period 2011-2022, changes in Indonesian RPO commodity exports experienced an increase in RPO exports in 9 periods, namely 2011, 2012, 2013, 2014, 2015, 2017, 2020, 2021, 2022 while 3 other periods, namely 2015, 2018 and 2019 experienced a decrease in RPO commodity exports.

1. Based on the world growth effect for RPO export commodities, out of 7 periods of increase in world RPO demand growth, 7 periods (2011, 2014, 2016, 2017, 2020, 2021, 2022) resulted in an increase in Indonesia's RPO exports. On the other hand, of the 5 periods of decline in world RPO demand growth, 4 periods (2013, 2015, 2018, 2019) had an impact on the decline in Indonesia's RPO exports and 1 other period (2012) had an impact on the increase in Indonesia's RPO exports
2. For the competitiveness effect caused by changes in the market share of Indonesian RPO commodities, from 9 periods where there was an increase in the market share of Indonesian RPO commodities, 7 periods (2011, 2012, 2013, 2014, 2017, 2020, 2021) had an impact on the increase in exports of Indonesian RPO commodities while the other 2 periods (2013, 2015) had an impact on the decline in exports of Indonesian RPO commodities. On the other hand, of the 3 periods of decline in the market share of Indonesia's RPO export commodities, 2 periods (2019, 2022) had an impact on reducing Indonesia's RPO commodity exports and 1 other period (2016) had an impact on increasing Indonesia's RPO commodity exports to the world market.

The results of the CMS calculation for Indonesian RPO commodities show that the competitiveness effect and world growth effect relatively mutually reinforcing changes in Indonesian RPO exports to the world market.

The processing results for the calculation of CMS for Malaysian RPO commodities show that during the period 2011-2022, changes in Malaysian RPO commodity exports experienced an increase in RPO exports for 6 periods, namely 2011, 2016, 2017, 2020, 2021, 2022 while 6 other periods, namely 2012, 2013, 2014, 2915, 2018 and 2019 experienced a decrease in RPO commodity exports

1. Based on the world growth effect for RPO export commodities, out of 7 periods of increase in world RPO demand growth, 6 periods (2011, 2016, 2017, 2020. 2021, 2022) had an impact on the increase in Malaysian RPO exports while 1 other period namely 2014 had an impact on the decline in Malaysian RPO commodity exports. On the other hand, from 5 periods of

decline in world RPO demand growth, all periods (2012, 2013, 2015, 2018, 2019) had an impact on the decline in Malaysian RPO exports.

2. For the competitiveness effect caused by changes in the market share of Malayian RPO commodities, from 3 periods where there was an increase in the market share of Malaysian RPO commodities, 2 periods (2016, 2022) had an impact on the increase in exports of Malaysian RPO commodities while 1 other period (2019) had an impact on the decline in exports of Malaysian RPO commodities. On the other hand, of the 9 periods of decline in the market share of Malaysian RPO export commodities, 6 periods (2012. 2013, 2014, 2015, 2018, 2021) had an impact on the decline in Malaysian RPO commodity exports and 3 other periods (2011, 2017, 2020) had an impact on the increase in Malaysian RPO commodity exports to the world market.

The results of the CMS calculation for Malaysian RPO commodities show that thecompetitiveness effect and the world growth effect relatively mutually reinforcing changes in Malaysian RPO exports to the world market.

5. DISSUSSION

Comment [FM3]: The discussion could benefit from a more critical analysis of the results, including possible reasons for the observed trends and their implications for future policy

The research findings show that the export performance of Indonesian and Malaysian CPO commodities in world trade is in very good condition. This can be seen from the performance of the RCA of the two countries whose value is far above 1 and the position of CPO export commodities for Indonesia and Malaysia is already in the maturation stage because the resulting TSR value is> 0.8. Market concentration needs special attention because even though Indonesia and Malaysia still dominate, the percentage has begun to decline. On the other hand, other CPO exporting countries (Papua New Guinea, Thailand, Colombia, Guatemala and Honduras) experienced significant market share gains during the 2010-2022 period.The results of the CMS calculation show that the world growth effect and the competitiveness effect fluctuate up and down, resulting in changes in CPO exports for both Indonesia and Malaysia experiencing changes up and down during the 2011-2022 period.

When comparing the overall CPO export performance between Indonesia and Malaysia, Malaysia has a better CPO export performance compared to Indonesia. This can be proven by the fact that Malaysia's market share has increased while Indonesia's market share has decreased. Starting in 2021, Malaysia's CPO commodity market share has surpassed Indonesia.The performance of CPO commodity competitiveness using RCA shows that even though during the period 2010-2022 both Indonesia and Malaysia have RCA values far above 1, the development of RCA values for Indonesian CPO commodities has decreased significantly. On the other hand, although the RCA value for Malaysian CPO commodities fluctuated up and down but the changes were relatively not too significant.

The research findings show that market concentration for world RPO commodities is concentrated in Indonesia and Malaysia with HHI values consistently above 2500 during the period 2010-2022. This shows that Indonesia and Malaysia are consistently able to maintain and maintain market share for RPO commodities. The competitiveness performance for RPO commodities for both Indonesia and Malaysia resulted in RCA values well above 1 which indicates that both countries have strong competitiveness for RPO commodities. The position of RPO in world trade for Indonesia and Malaysia is in the maturation stage as can be seen from the TSR value greater than 0.8. The calculation of CMS performance shows that for both Indonesia and Malaysia, the world growth effect and the competitiveness effect respectively have not provided consistent performance as indicated by their values changing positively and negatively over the period 2011-2022.

When compared to the RPO performance between Indonesia and Malaysia based on the assessment of RPO commodity export performance, Indonesia has a better performance than Malaysia.This can be seen from the surplus of Indonesia's RPO commodity trade balance has an increasing trend while Malaysia has decreased. Performance of Indonesia's RCA competitiveness has an increasing trend while Malaysia has a decreasing trend. In peridoe 2010-2011, Malaysia's competitiveness performance is higher than Indonesia as but starting from 2012-2022, Indonesia has a higher competitiveness than Malaysia as shown by the RCA value of Indonesian RPO commodities which is higher than Malaysia starting from 2012. The position of Indonesia's RPO export commodities is also better than Malaysia's even though both countries are already in a state of maturation. This can be seen from TSR Indonesia's consistent with the value of the majority of 1 and some close to 1 while Malaysia's TSR value is 0.804 to 0.985 during the period 2010-2022 with fluctuations up and down. CMS performance is still a constraining factor in increasing RPO commodity exports for both Indonesia and Malaysia. This is because the world growth effect and the competitiveness effect have inconsistent values, which are positive and negative, resulting in changes in Indonesia and Malaysia's RPO exports that fluctuate.

6. CONCLUSION

Some conclusions that can be drawn from the results of this study are: 1) Indonesia and Malaysia are the main exporting countries of CPO and RPO commodities in world trade with the trend of Indonesia's CPO commodity market share has decreased while Indonesia's RPO commodity market share has an increasing trend while Malaysia is the opposite, namely the market share for CPO commodities has an increasing trend while for RPO commodities has a decreasing trend: 1) Market Concentration for CPO commodities is still concentrated to Indonesia and Malaysia although it has a declining trend due to the increasing market share of other exporting countries such as Papun New Guinea, Thailand, Guatemala, Colombia and Honduras, while for RPO commodities has a consistent market concentration that is concentrated in Indonesia and Malaysia; 3) The competitiveness of Indonesian and Malaysian CPO commodities in world trade is very strong as indicated by the value of RCA far above 1 during the period 2010-2022 with the trend of RCA decreasing for Indonesia and increasing for Malaysia, while for RPO commodities both Indonesia and Malaysia have strong competitiveness with the trend of Indonesia's RCA increasing while Malaysia is decreasing; 4) The position of Indonesian and Malaysian CPO commodities in world trade is already in the maturation stage, namely with a TSR value of more than 0.8 during the period 2010-2022, as well as for Indonesian and Malaysian RPO commodities whose position is already in the maturation stage. Indonesia has a better TSR performance than Malaysia for both CPO and RPO because the TSR value of Indonesian CPO and RPO is greater than Malaysia; 5) CMS performance for CPO and RPO commodities of Indonesia and Malaysia is still inconsistent as a result of world growth effects and competitiveness effects whose values fluctuate (positive and negative) so that changes in CPO and RPO exports of Indonesia and Malaysia during the period 2010-2022 also fluctuate.

One of the factors that has become an constraint to maintaining the export performance of CPO and RPO for both Indonesia and Malaysia is the performance of CMS which produces inconsistent world growth effects and lunch power effects for both countries. This can occur due to exogenous factors that influence changes in CPO and RPO exports. The exogenous factors in question are macro fundamental variables such as global economic conditions including the level of economic activity of both exporting and importing countries of CPO and RPO, exchange rates, inflation, interest rates. For this reason, future research is needed by analysing exogenous variables in evaluating the export performance of CPO and RPO commodities. .

Comment [FM4]: 1.Put forward the practical implications of this research for policy makers and industry stakeholders 2.Potential limitations?

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REFERENCES

[1] P. R. Krugman, M. Obstfeld, and M. J. Melitz, *International Trade: Theory and Policy*. in Always learning. Pearson, 2018. [Online]. Available: https://books.google.co.id/books?id=HiLwswEACAAJ

[2] N. G. Mankiw, *Principles of Microeconomics*. in MindTap Course List Series. Cengage Learning, 2018. [Online]. Available: https://books.google.co.id/books?id=XxO7DQAAQBAJ

[3] S. Y. Park, S. H. Woo, and P. L. Lai, "Market structure of short sea shipping in northeast Asia," *Marit. Bus. Rev.*, vol. 6, no. 4, pp. 414–429, 2021, doi: 10.1108/MABR-08-2020-0050.

[4] R. Pindyck and D. Rubinfeld, *Microeconomics*. Pearson Education, 2017. [Online]. Available: https://books.google.co.id/books?id=xugsDgAAQBAJ

[5] M. R. Hasan, I. S. Swazan, and D. Das, "Beyond the seams: evaluating competitiveness and comparative advantage in Vietnam's apparel industry," *J. Chinese Econ. Foreign Trade Stud.*, 2024, doi: 10.1108/JCEFTS-10-2023-0050.

[6] A. Sharma, L. M. Kathuria, and T. Kaur, "Analyzing relative export competitiveness of Indian agricultural food products: a study of fresh and processed fruits and vegetables," *Compet. Rev.*, vol. 33, no. 6, pp. 1090–1117, 2023, doi: 10.1108/CR-03-2022-0039.

[7] Y. E. Topcu, "The comparative advantages in the wooden furniture industry: does the export price matter?," *Compet. Rev.*, vol. 33, no. 6, pp. 1145–1160, 2023, doi: 10.1108/CR-03-2022-0045.

[8] K. M. Thomé, V. A. L. Paiva, and T. C. de Gois, "Wine international market structure and competitiveness," *Int. J. Wine Bus. Res.*, vol. 35, no. 4, pp. 561–579, 2023, doi: 10.1108/IJWBR-06-2022-0019.

[9] T. Mizik and J. M. Balogh, "The development of the Chinese wine industry and trade," *Int. J. Wine Bus. Res.*, vol. 34, no. 4, pp. 643–660, 2022, doi: 10.1108/IJWBR-09-2021-0045.

[10] S. Abbas and A. Waheed, "Trade Competitiveness of Pakistan: Evidence from the Revealed Comparative Advantage Approach," *Compet. Rev.*, vol. 27, pp. 462–475, Oct. 2017, doi: 10.1108/CR-12-2015-0092.

[11] B. Huo, X. Zhao, and H. Zhou, "The effects of competitive environment on supply chain information sharing and performance: An empirical study in China," *Prod. Oper. Manag.*, vol. 23, no. 4, pp. 552–569, 2014, doi: 10.1111/poms.12044.

[12] M. M. H. Sikdar, "An Analysis of Trade Specialization in Bangladesh, 1996-2011,"

Am. J. Trade Policy, vol. 6, no. 2, pp. 79–88, 2019, doi: 10.18034/ajtp.v6i2.351.

[13] O. Shubravska, "Specialization Of The Agri-Food Export Of Ukraine: Trends, Drivers, Prospects," *Econ. Ukr.*, vol. 2021, pp. 51–67, Apr. 2021, doi: 10.15407/economyukr.2021.04.051.

[14] B. Algieri, A. Aquino, and M. Succurro, "Trade Specialisation and Changing Patterns of Comparative Advantages in Manufactured Goods," *Ital. Econ. J.*, vol. 8, no. 3, pp. 607–667, 2022, doi: 10.1007/s40797-022-00185-4.

[15] A. Pushkarev, N. Davidson, O. Mariev, and N. Luft, "Specialization of Russia in International Trade: Development in the Changing International Environment," no. September, pp. 126–133, 2020, doi: 10.20472/efc.2020.014.012.

[16] S. Saleh and U. Gadjah Mada, "Trade Specialization Indices: Two Competing Models," *J. Indones. Econ. Bus.*, vol. 25, no. 2, pp. 129–142, 2010.

[17] S. Herwald, S. Voigt, and A. Uhde, "The impact of market concentration and market power on banking stability – evidence from Europe," *J. Risk Financ.*, vol. 25, no. 3, pp. 510–536, 2024, doi: 10.1108/JRF-03-2023-0075.

[18] H. S. Tran, T. D. Nguyen, and T. L. Nguyen, "Market structure, institutional quality and bank stability: evidence from emerging and developing countries," *Compet. Rev.*, vol. 33, no. 6, pp. 1046–1068, 2023, doi: 10.1108/CR-02-2022-0016.

[19] M. R. Mia, "Market competition, capital regulation and cost of financial intermediation: an empirical study on the banking sector of Bangladesh," *Asian J. Econ. Bank.*, vol. 7, no. 2, pp. 251–276, 2023, doi: 10.1108/ajeb-03-2022-0028.

[20] J. D. Richardson, "Constant-market-shares analysis of export growth," *J. Int. Econ.*, vol. 1, no. 2, pp. 227–239, 1971, doi: 10.1016/0022-1996(71)90058-4.

[21] J. Fagerberg and G. Sollie, "The Method of Constant Market Share Analysis Reconsidered," *Appl. Econ.*, vol. 19, pp. 1571–1583, Feb. 1987, doi: 10.1080/00036848700000084.

[22] B. H. Soh, G. T. Lim, and S. Y. Chua, "Competitiveness of Malaysian Fisheries Exports: A Constant Market Share Analysis," *Malaysian J. Econ. Stud.*, vol. 58, no. 2, pp. 175–198, 2021, doi: 10.22452/MJES.vol58no2.1.

[23] I. Zdráhal, F. S. Lategan, and M. van der Merwe, "A constant market share analysis of the competitiveness of the Czech Republic's agrifood exports (2002–2020) to the European Union," *Agric. Econ. (Czech Republic)*, vol. 69, no. 12, pp. 498–509, 2023, doi: 10.17221/248/2023-AGRICECON.