THE COMPETITIVENESS, SPECIALIZATION, AND EXPORT PERFORMANCE OF INDONESIAN BANANA EXPORTS IN INTERNATIONAL MARKETS

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Abstract. Indonesia is one of the largest banana producers in the world with high export potential, especially to Asian export destinations such as Malaysia, Japan, Singapore, and China. This study aims to analyze the competitiveness, trade specialization, and export performance of Indonesian bananas using the Revealed Comparative Advantage (RCA), Export Product Dynamic (EPD), Export Competitiveness Index (ECI), Trade Specialization Index (TSI), Comparative Export Performance (CEP), and Acceleration Ratio (AR) methods, based on UN Comtrade data for the period 2014-2023 (HS 0803). The results showed that Indonesian banana commodities globally have very weak competitiveness with an average RCA value of 0.09, although in the Malaysian market the value is quite high (3.30). The EPD value of Indonesian bananas in the Malaysian market is in the Rising Star position, Japan and Singapore in the Falling Star, and China in the Lost Opportunity. The ECI value of Indonesian bananas has an average of 1.36, indicating a strong competitive edge. ISP confirms Indonesia as an exporter country. CEP indicates that the performance of Indonesian banana exports is still relatively low, while AR indicates the ability to capture market share. To strengthen banana export competitiveness, it is necessary to improve product quality, logistics and production efficiency, and fulfillment of export standards to expand international market access.

Keywords*: Banana, Indonesia, Competitiveness, Specialization, Export Performance*

1. Introduction

Indonesia has enormous agricultural potential, with the agricultural sector playing an important role in the national economy, both in terms of contribution to state income and employment [1]. Economic growth and international trade play a key role in developing the Indonesian economy in the current era of globalization. Through international trade, the flow of goods and services between countries takes place with the aim of achieving economic benefits [2].

One of the significant agricultural sectors in Indonesia, given its rich natural resources, is horticulture. Horticulture also receives a lot of attention not only in the domestic market but also in the global market, as well as being an important source of foreign exchange for developing countries [3]. Banana, as one of the leading commodities, is a group of agricultural commodities that are available in large quantities. When produced commercially and efficiently, horticultural commodities have high value in the right market [4].

Table 1. Indonesian banana production and export volumes from 2018-2023

Year	Volume (ton)		Growth (%)	
	Production	Export	Production	Export
2018	7.264.383	30.373	1,40	66,9
2019	7.280.658	22.766	0,22	-25,0
2020	8.182.756	12.367	11,02	-45,7
2021	8.741.147	13.656	6,39	10,4
2022	9.245.427	22.112	5,46	61,9
2023	9.335.232	24.827	0,96	12,3

Source: [5]

Table 1. shows the volume of banana production in Indonesia in 2023 reached 9,335,232 tons which increased by 0.96% from the previous year, making the fruit commodity with the largest production in the country. Indonesia's total domestic consumption of bananas was 4,900,981 tons [5]. This indicates that there is a surplus of banana production in Indonesia of 4,434,251 tons. At the same time, Indonesia's banana exports in 2023 only amounted to 24,827 tons despite a 12.3% increase from the previous year.

Table 2. Indonesian banana export value to destination countries in 2023

No	Export Destination Countries	Export Volume (ton)	Trade Value (US$)	Market Share (%)
1	Malaysia	17.709	4.853.758	51
2	Japan	3.020	1.833.242	19
3	Singapore	2.521	1.770.557	19

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No	Export Destination Countries	Export Volume (ton)	Trade Value (US$)	Market Share (%)
4	China	826	499.189	5
5	Others	751	609.955	6
	Total	**24.827**	**9.566.701**	**100**

Source: [6]

Table 2. shows that Malaysia is the main destination country for Indonesian banana exports in 2023, with a volume of 17,709 tons and a trade value of US$4,853,758. In addition to Malaysia, Japan, Singapore and China are also important markets, each registering relatively high export volumes and values. These four countries cumulatively absorbed around 94% of Indonesia's total banana exports. In the same year, Indonesia's total banana export volume reached 24,827 tons with a trade value of US$9,566,701. When compared to the 2023 global banana market value of US$13,241,819,929, Indonesia's banana export contribution is still very small. This shows that there is great potential for Indonesia to increase its global market share through strengthening export strategies and improving the competitiveness of national banana products.

Previous studies on banana export competitiveness in Indonesia have generally been limited to using the Revealed Comparative Advantage (RCA) and Export Product Dynamics (EPD) methods [7]. Research by [8] added the Export Competitiveness Index (ECI), but the analysis was not comprehensive. Different from these studies, this study uses a more diverse analytical approach, including RCA, ECI, EPD, Trade Specialization Index (TSI), Comparative Export Performance (CEP), and Acceleration Ratio (AR) which were previously more widely used in commodity studies such as coffee [9] and rubber [10]. To date, there is no study on Indonesian banana exports that integrates all of these approaches simultaneously. Therefore, this study is expected to make a new contribution in enriching the understanding of the competitiveness of Indonesian banana exports through a more comprehensive and in-depth analytical perspective. This study aims to analyze the competitiveness of Indonesian bananas in the international market, examine Indonesia's trade specialization position in banana exports, and evaluate the export performance of Indonesian bananas globally.

2. Methods

This research is a descriptive quantitative study that aims to describe and analyze the competitiveness, specialization, and export performance of Indonesian bananas to four main destination countries, namely Malaysia, Japan, Singapore, and China. The type of data used is secondary data obtained from various sources such as scientific literature, previous studies, UN Comtrade, and the Central Statistics Agency (BPS). The data analyzed includes the export and import values of banana commodities (HS 0803) in the period 2014 to 2023.

To analyze competitiveness and export performance, this study uses several analytical techniques, namely Revealed Comparative Advantage (RCA) to measure comparative advantage, Export Product Dynamics (EPD) to see the dynamics of export growth and product position in the international market, Export Competitiveness Index (ECI) to assess changes in competitive competitiveness over time, and Trade Specialization Index (TSI) to determine Indonesia's tendency as an exporter or importer. In addition, Comparative Export Performance (CEP) analysis was used to assess export performance relative to other countries, and Acceleration Ratio (AR) to evaluate the acceleration of export growth compared to imports. All data were processed using Microsoft Excel software.

2.1 Revealed Comparative Advantage (RCA)

According to [11], the purpose of using the Revealed Comparative Advantage (RCA) Index is to assess the comparative competitiveness of a commodity in the international market. This index is used to evaluate how superior a country is in exporting certain commodities compared to other countries, especially the main export destination countries. If a country exports a larger share of a good than the average export of that good worldwide, then the country is considered to have a comparative advantage in exporting that good. In other words, the country is better able to compete in selling the product in the international market. Calculations using the RCA method are carried out using the following formula:

$$RCA = \frac{(X_{ij}/X_j)}{(X_{iw}/X_w)} \quad [1]$$

Description:
i : Banana
j : Indonesia
w : World

X_{ij} : Export value of commodity i from j to the world or to destination countries (Malaysia, Japan, Singapore, and China) in 2014-2023 ($)
X_{j} : Total export value of all commodities from j to these destinations in 2014-2023 ($)
X_{iw} : Export value of commodity i from w to the world or to destination countries (Malaysia, Japan, Singapore, and China) in 2014-2023 ($)
X_{w} : Total export value of all commodities from w to that destination in 2014-2023 ($)
If RCA index value > 1, then competitiveness is strong
If RCA Index value < 1, then competitiveness is weak

2.2 Export Product Dynamic (EPD)

The Export Product Dynamic (EPD) method is an analytical approach to measure the competitiveness and export development of a commodity. This approach evaluates the market position of an export product based on its growth dynamics in the destination country. According to [12], EPD helps identify whether commodity exports are increasing sustainably or stagnating. [11], stated that commodity position is analyzed through two main indicators, namely the share of total exports (X-axis) and the share of exports of certain commodities (Y-axis). Thus, EPD also assesses the direction of its development in the global market. Structurally, the EPD method can be explained as follows:

$$\text{Export market share (X)} = \frac{\sum_{t=1}^{t}\left(\frac{X_{ij}}{W_{ij}}\right)_{t} \times 100\% - \sum_{t=1}^{t}\left(\frac{X_{ij}}{W_{ij}}\right)_{t-1} \times 100\%}{T} \quad [2]$$

$$\text{Product market share (Y)} = \frac{\sum_{t=1}^{t}\left(\frac{X_{t}}{W_{t}}\right)_{t} \times 100\% - \sum_{t=1}^{t}\left(\frac{X_{t}}{W_{t}}\right)_{t-1} \times 100\%}{T} \quad [3]$$

Keterangan:
i : Banana
j : Indonesia
W : World
X_{ij} : Export value of commodity i from country j to export destination country ($)
W_{ij} : Export value of commodity i from w to export destination country ($)
X_{t} : Total export value of all commodities from country j to destination country ($)
W_{t} : Total export value of all commodities from w to destination country ($)
T : Number of years analyzed
t : Current year
$t-1$: Previous year
The EPD method consists of a matrix mapped into four categories, as follows:

Table 3. Market position matrix in EPD

Share of Country's Export in World Trade (X)	Share of Product in the World Trade (Y)	
	Rising Star (Dynamic)	Falling Star (Stagnan)
Rising Star (Competitiveness)	Rising Star	Falling Star
Falling Star (Non-Competitiveness)	Lost Opportunity	Retreat

Source: [13]

2.3 Export Competitiveness Index (ECI)

Export Competitiveness Index (ECI) is one of the quantitative analysis methods used to measure the extent of a country's export competitiveness against certain commodities within a certain period of time. This index compares the export share of a country in the current period with the previous period. An ECI value greater than 1 reflects that the country still has a strong competitive advantage in international trade. Conversely, if the ECI

value is less than 1, it indicates weak competitive competitiveness [14]. The ECI calculation formula is as follows:

$$ECI = \frac{(X_{ij}/X_{iw})_t}{(X_{ij}/X_{iw})_{t-1}}$$

[4]

Description:
X_{ij} : Banana export value of Indonesia ($)
X_{iw} : World banana export value ($)
t : Current year
$t-1$: Previous year

2.4 Trade Specialization Index (TSI)

According to [10], the Index of Trade Specialization (ISP) is one of the analytical tools used to assess the competitive advantage of a product in the international market. This index is calculated by comparing the difference between the export and import value of a commodity to its total trade value. Through this approach, ISP can show the tendency of a country in international trade to act more as an exporter or importer of certain commodities, especially in the agricultural sector.

$$TSI = \frac{X_{ij}-M_{ij}}{X_{ij}+M_{ij}}$$

[5]

Description:
X_{ij} : Indonesian banana export value ($)
M_{ij} : Import value of Indonesian bananas ($)
If the TSI is positive, then a country's commodity has a strong competitiveness so that it tends to be an exporter. If the TSI is negative, then the commodity of a country has a weak competitiveness so that it tends to be an importer.

2.5 Comparative Export Performance (CEP)

Comparative Export Performance (CEP) is a data analysis technique used to determine the relative advantage of a country in an export product. CEP is an indicator used to compare a country's export performance to the average global export performance [10]. The formula used in CEP is:

$$CEP = ln\frac{(X_{ij}/X_j)}{(X_{iw}/X_w)}$$

[6]

Description:
i : Banana
j : Indonesia
w : World
X_{ij} : Export value of commodity i from j to the world or to destination countries (Malaysia, Japan, Singapore, and China) in 2014-2023 ($)
X_j : Total export value of all commodities from j to these destinations in 2014-2023 ($)
X_{iw} : Export value of commodity i from w to the world or to destination countries (Malaysia, Japan, Singapore, and China) in 2014-2023 ($)
X_w : Total export value of all commodities from w to these destinations in 2014-2023 ($)
If the CEP value is above 1 (CEP > 1), it reflects that Indonesia has optimal performance in exporting bananas. Conversely, if the CEP value is less than 1 (CEP < 1), then this indicates that Indonesia's performance is low compared to other countries.

2.6 Acceleration Ratio (AR)

The AR (Acceleration Ratio) approach is one of the techniques used to evaluate the potential of a country's products to compete in the market. In other words, AR analysis provides an indication of whether a country is

able to take over the market from its competitors or experience a decline in its position in the export and domestic markets [9]. The following formula is used:

$$AR = \frac{(Trend\ X_{ij}+100)}{(Trend\ M_{ij}+100)}$$

[7]

Description:
$Trend\ X_{ij}$: Indonesian banana export value ($)
$Trend\ M_{ij}$: Indonesian banana import value ($)
If the AR value is greater than 1 (AR > 1), indicating that Indonesian banana exports are accelerating and Indonesia is able to capture the market
If the AR is less than 1 (AR < 1) or close to zero, then Indonesian banana exports are slowing down and its position in the global market tends to weaken.
If the AR value is negative (AR < 0) or close to -1, indicating that Indonesia has not been able to capture the market, and the market share has been controlled by other countries.

3. Results and discussion

3.1 Competitiveness of Indonesian Banana Exports in the International Market

3.1.1 Revealed Comparative Advantage (RCA)

Based on the results of the RCA calculation, the RCA value of Indonesian banana exports during the period 2014-2023 is in the range of 0.04 to 0.16 with an average of 0.09. All RCA values <1 indicate that Indonesia has a very weak comparative advantage in banana exports globally, as shown in Figure 1.

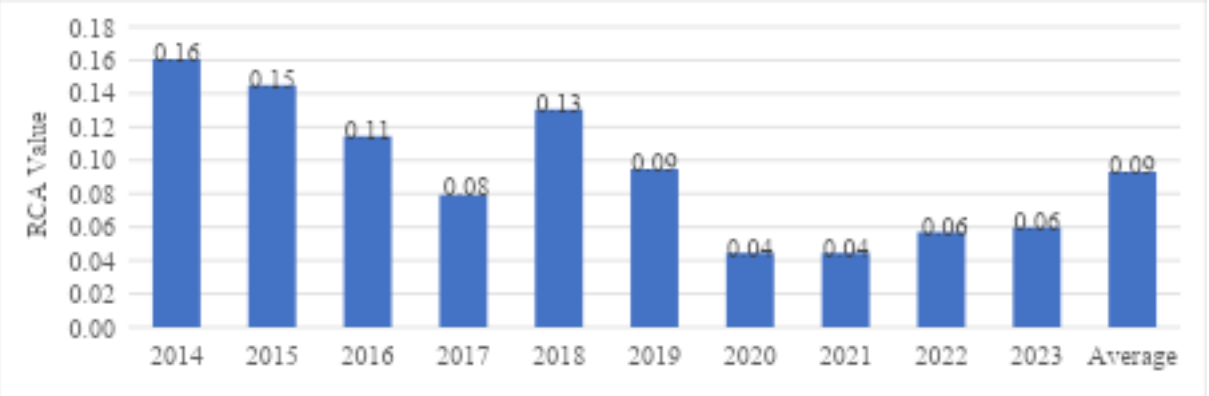

Figure 1. Indonesia banana RCA value diagram 2014-2023
Source: [6] (data processed)

Based on Figure 1., the RCA value of Indonesian banana exports shows a fluctuating trend with a downward trend from 2014 to 2023. At the beginning of the period (2014-2015), the RCA value was still quite high compared to the following years, which amounted to 0.16 and 0.15. However, after 2015, the RCA value continued to decline and reached its lowest point in 2020 and 2021 with a value of 0.04. Although there was a slight increase in 2022 and 2023 (0.06 each), the value was still far from the threshold of comparative advantage (RCA>1). This indicates that in general the competitiveness of Indonesian banana exports in the global market is still weak, in line with the findings of [15] which also indicated the weak comparative position of Indonesian bananas in the ASEAN market.

Table 4. RCA value of Indonesian bananas in four destination countries in 2014-2023

Year	RCA Value of Indonesian Bananas in Four Destination Countries			
	Malaysia	Japan	Singapore	China
2014	0,59	0,00	0,05	1,51
2015	2,14	0,07	0,01	0,70
2016	3,82	0,16	0,05	0,27
2017	3,85	0,06	0,33	0,34
2018	2,85	0,06	0,56	0,76
2019	2,98	0,08	0,27	0,37
2020	2,18	0,06	0,30	0,04

2021	3,94	0,05	0,74	0,02
2022	5,19	0,05	1,99	0,05
2023	5,46	0,07	1,88	0,02
Average	**3,30**	**0,07**	**0,62**	**0,41**

Source: [6] (data processed)

Based on Table 4.1, Indonesian banana exports show varying competitiveness in the four main destination countries. Malaysia is the destination country for Indonesian banana exports with the highest RCA value during the period 2014-2023. The average RCA value reached 3.30, which means that Indonesia has a very strong comparative advantage in the Malaysian market. Indonesia's RCA value to Malaysia has increased significantly from 0.59 in 2014 to 5.46 in 2023. According to [7], Indonesian bananas have stronger competitiveness in the Malaysian market. This is due to the high demand from Malaysia.

Japan is a market that shows a very weak RCA value for Indonesian banana exports, with an average of only 0.07 over the past decade. The highest RCA value was recorded at 0.16 in 2016, after which it declined to 0.05-0.08 in the following years. According to [16], the weak competitiveness of Indonesian banana exports to Japan is due to high quality standards, Japanese consumer preferences, and the strong dominance of other exporting countries such as the Philippines. This data indicates that Indonesia has not been able to compete effectively in the Japanese market.

Indonesian banana exports to Singapore have shown an increasing trend in competitiveness in recent years. The average RCA value to Singapore during the 2014-2023 period was 0.62, with significant spikes occurring in 2022 and 2023, at 1.99 and 1.88 respectively. Previously, Indonesia's RCA value to Singapore was weak, ranging from 0.01 to 0.74 in the 2014-2021 period. The increase in the RCA value in the last two years indicates that Indonesia began to gain a comparative advantage in banana exports to Singapore. According to [17], there is an increase in demand or improvement in the supply and quality of Indonesian products to this market.

The Indonesian banana export market to China shows a downward trend in competitiveness, with a high RCA value in 2014 (1.51) but decreasing to 0.02 by 2023. The average RCA of 0.41 reflects the lack of comparative advantage. According to [18], this decline is due to increased competition, trade barriers, and logistical constraints, so Indonesia needs a special strategy to compete again in the potential Chinese market.

Indonesia's banana export competitiveness as measured by RCA is highly influenced by fluctuating export values and various economic factors. According to [12], some of the main factors affecting Indonesian fruit exports in general include economic distance, real GDP of Indonesia and destination countries, GDP per capita, consumer price index, exchange rate of the rupiah against the US dollar, export prices, and population of destination countries. These factors affect the demand, price, and competitiveness of products in the global market. Therefore, improving the competitiveness of Indonesian bananas requires strengthening product quality, logistical efficiency, and trade strategies that are responsive to international market dynamics.

In general, Indonesia has a weak comparative advantage globally in banana exports, as reflected by an RCA value below one. However, at the level of specific destination countries, Indonesia has a strong comparative advantage, particularly in the Malaysian market and increasingly in Singapore. This suggests that Indonesia has the potential to continue to grow banana exports to these countries as well as expand competitiveness to other international markets through improved product quality, logistical efficiency, and appropriate trade strategies.

3.1.2 Export Product Dynamic (EPD)

The EPD matrix is used to evaluate the position of an export product in the international market. EPD analyzes two main indicators, namely the growth of Indonesia's export market share in a country (X) and the growth of Indonesia's export product market share in the destination country (Y). Table 5. shows the combination of these two indicators, the position of a product is grouped into four categories: Rising Star, Falling Star, Lost Opportunity, and Retreat.

Table 5. EPD Value of Indonesian Bananas 2014-2023

Country	Export Market Share Growth (X) (%)	Product Market Share Growth (Y) (%)	EPD Position
Malaysia	0,002543	0,000034	Rising Star
Japan	0,000021	-0,000092	Falling Star
Singapore	0,000595	-0,001609	Falling Star
China	-0,000146	0,001823	Lost Opportunity

Source: [6] (data processed)

Based on Table 5., Indonesia's banana exports to Malaysia occupy the Rising Star position, which is a strategic category that reflects ideal conditions in international trade. According to [19], this position is characterized by positive growth on both the X and Y axes, which means that Indonesia has not only succeeded in increasing its market share of banana exports to Malaysia along with the development of the market as a whole. The Rising Star position reflects the competitive nature of exports in a dynamic market.

The Falling Star position is found in Indonesian banana exports to Japan and Singapore. This condition shows that although there is growth in Indonesia's export market share (positive X value), it is not followed by growth in the overall product market share (negative Y value) [20]. This is in line with the findings of Aurelia et al. (2022), which also identified the Falling Star position for both countries in different periods. This position indicates that Indonesia's export growth is not strong enough to compete with other countries in these markets.

Indonesian banana exports to China are in the Lost Opportunity position, which is indicated by negative X and positive Y values. This means that while the banana market in China is growing, Indonesia's market share is declining. This indicates a lost opportunity for Indonesia to expand exports in a potential market. Previously, according to [4], China is categorized as a Rising Star, which means that Indonesia once had strong competitiveness but has declined in recent years. This decline is due to increased competition from countries such as the Philippines, which have superior export capacity and logistics efficiency and therefore have more competitive prices [18].

3.1.3 Export Competitiveness Index (ECI)

Based on Figure 2., the Export Competitiveness Index (ECI) value of Indonesian bananas experienced significant fluctuations throughout 2014-2023. The highest ECI value was recorded in 2014 at 4.74, indicating that Indonesia's banana export competitiveness was very strong at the beginning of the period. However, after that there was a sharp decline until it reached its lowest point in 2020 with a value of 0.49. The average ECI value during this period was 1.36, which indicates that Indonesian banana exports have strong competitiveness.

Figure 2. Graph of ECI value of Indonesian bananas 2014-2023
Source: [6] (data processed)

From Figure 2., ECI values above 1 are seen in 2014, 2018, 2021, 2022, and 2023. This indicates that in these years, Indonesia's banana exports have a relatively stronger competitive advantage over other countries. Meanwhile, in years such as 2015, 2016, 2017, 2019, and 2020, the ECI was below 1, reflecting Indonesia's weak export competitiveness in banana commodities. These fluctuations indicate that Indonesia's export competitiveness has not been fully stabilized and still faces challenges that need to be overcome on an ongoing basis. This result is consistent with the findings of [8], which showed that the average ECI of Indonesian banana exports during 2019-2023 was 0.95, reflecting challenges in maintaining competitive competitiveness. However, the sharp increase in 2021 and 2022 indicates great potential that can be maximized with the right strategy.

According to [21], a high average ECI value reflects a country's great potential to expand its export market share through improved product quality and logistical efficiency. However, without comprehensive improvements, this potential is difficult to realize optimally. Strategies to improve Indonesia's export competitiveness should include improving product quality, logistical efficiency, market diversification, and strengthening trade cooperation with partner countries. In addition, infrastructure development, adoption of more advanced agricultural technology, and human resource development are important elements to create sustainable competitiveness [4].

3.2 Trade Specialization Position of Indonesian Banana Exports in the International Market

The results of the Trade Specialization Index (TSI) analysis of Indonesian banana exports in the international market are shown in Figure 3. The TSI value can reflect Indonesia's position as an exporter or importer in global trade.

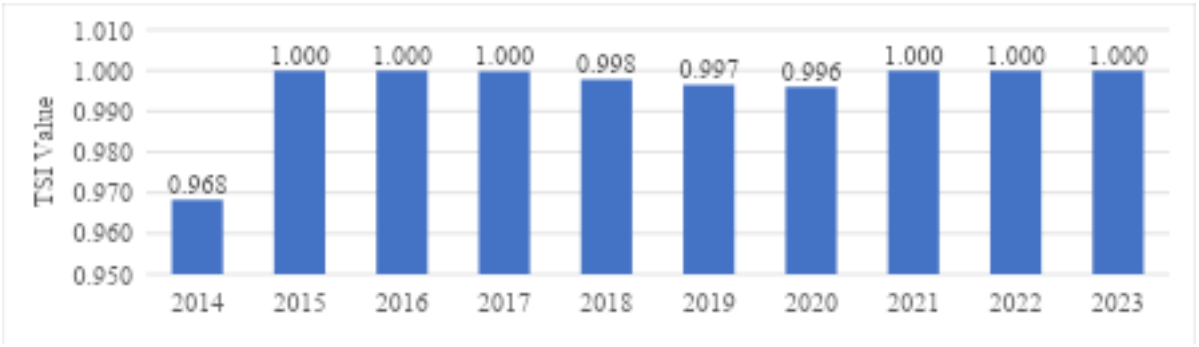

Figure 3. Diagram of Indonesian banana ISP value 2014-2023
Source: [6] (data processed)

Figure 3. shows that the TSI value of Indonesian bananas during the period 2014-2023 is consistently in a very high and positive range, with an average of 0.996. This indicates that Indonesia has a very strong position as a banana exporter and is not overly dependent on imports of the product. An ISP value of 1 means that Indonesia did not import any bananas during the period. Although generally high, the TSI value experienced slight fluctuations, such as in 2014 (0.968) and the 2018-2020 period which ranged from 0.996-0.998, indicating that there was little import activity related to government policy, specifically the Regulation of the Minister of Finance of the Republic of Indonesia Number 175 of 2011 regarding the imposition of Anti Dumping Import Duty on Cavendish banana imports from the Philippines of 35%.

This result is significantly different from the previous period (1994-2013) studied by [22], where the TSI value tends to fluctuate and is often negative, such as in 1994 (-0.709) and 2003 (-0.981). Indonesia's average TSI in that period was only 0.029, reflecting unstable trade conditions and import dominance. This comparison confirms that Indonesia has experienced significant improvements in the performance and specialization of banana trade in the international market.

3.3 Indonesia's Banana Export Performance in the International Market

3.3.1 Comparative Export Performance (CEP)

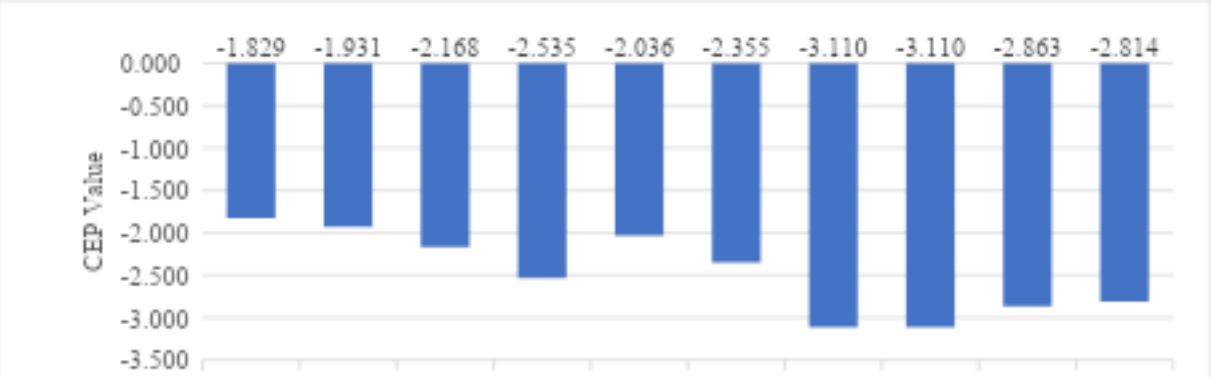

Figure 4. Diagram of CEP value of Indonesian bananas 2014-2023
Source: [6] (data processed)

Based on Figure 4., it can be seen that the CEP value of Indonesian bananas during the period 2014-2023 is always in the negative value, with an average of -2.46. This reflects that overall, Indonesian banana exports have not been able to compete optimally in the international market. The sharpest decline occurred in 2020 and 2021 with CEP values reaching -3.11, indicating very low export performance compared to competitor countries. This condition shows that Indonesia's banana export performance is getting weaker in the long run and has not experienced significant improvement until 2023. This is due to the low contribution of Indonesian banana exports in the international market.

Table 6. CEP value of Indonesian bananas in destination countries 2014-2023

Year	Indonesian CEP Value in Four Destination Countries			
	Malaysia	Japan	Singapore	China
2014	-0,53	-11,91	-2,90	0,41
2015	0,76	-2,62	-4,73	-0,35
2016	1,34	-1,83	-3,03	-1,32

Year	Indonesian CEP Value in Four Destination Countries			
	Malaysia	Japan	Singapore	China
2017	1,35	-2,89	-1,10	-1,07
2018	1,05	-2,83	-0,59	-0,28
2019	1,09	-2,58	-1,31	-1,01
2020	0,78	-2,76	-1,21	-3,25
2021	1,37	-2,98	-0,30	-4,14
2022	1,65	-3,04	0,69	-2,91
2023	1,70	-2,67	0,63	-4,01
Average	**1,06**	**-3,61**	**-1,39**	**-1,79**

Source: [6] (data processed)

Based on Table 6, Malaysia is the only destination country that consistently shows a positive CEP value after 2014 in Indonesian banana exports, with an average of 1.06. This indicates that Indonesian banana exports to Malaysia have optimal performance compared to other countries.

Indonesian banana exports to Japan and China show low performance, with average CEP values of -3.61 and -1.79, respectively. These low values reflect that Indonesian banana exports to these two countries face major challenges, both in terms of product quality, strict regulations, and competition with major exporting countries such as the Philippines [18]. Meanwhile, Singapore shows interesting fluctuations in performance. Although the CEP value was below zero in most years, since 2022 it has recorded an improvement until it reached a positive value of 0.63 in 2023. This could be an early indication that Indonesia's position in the Singapore market is starting to improve, due to improvements in product quality, supply chain efficiency, and promotional strategies that are more adaptive to the needs of the Singapore market [17].

3.3.2 Acceleration Ratio (AR)

Table 7. shows the fluctuation of Acceleration Ratio (AR) of Indonesian banana exports during 2014-2023.

Table 7. AR value of Indonesian bananas 2014-2023

Year	AR Value of Indonesian Bananas
2014	62
2015	130.065
2016	108.065
2017	6.822
2018	927
2019	573
2020	498
2021	46.489
2022	86.972
2023	95.668
Average	**47.614**

Source: [6] (data processed)

Based on Table 7, the AR value of Indonesian bananas during the period 2014-2023 shows an average of 47.614, which reflects extreme export growth. The cause of the very high AR value of bananas is the lack of banana import activity into the country. One of the reasons for the low volume of imports is the implementation of protective trade policies by the Indonesian government. Through Minister of Finance Regulation No. 175/2011, the government imposed an Anti Dumping Import Duty on imports of Cavendish bananas from the Philippines of 35%. With the imposition of the Anti Dumping Import Duty, the volume of imports of Cavendish bananas from the Philippines decreased significantly until in 2014 Indonesia no longer imported bananas from the Philippines. As a result, the value of Indonesia's exports became relatively larger than its imports, which statistically resulted in a very high AR value, indicating Indonesia's ability to capture the banana market.

This finding is also in line with the results of research by [22], which showed that during the 2003-2013 period, the value of Indonesia's banana exports was actually smaller than the value of its imports, indicating a dependence on imported bananas before the Anti Dumping Import Duty policy was implemented. Therefore, the sharp decline in imports after 2013 played a major role in drastically increasing Indonesia's export acceleration ratio in this analysis period.

4. Conclusion and recommendation

The results showed that Indonesia's banana export competitiveness globally is still weak, however, Indonesia has a comparative advantage in the Malaysian market, as well as a Rising Star position based on EPD analysis. In other countries such as Japan, Singapore, and China, the export position is in the Falling Star and Lost Opportunity categories. The ECI value indicates that Indonesia's banana export competitiveness is strong. In terms of specialization, the TSI value close to 1 indicates that Indonesia has consistently positioned itself as a major exporter of bananas without import dependency. Export performance based on CEP is still below the global average in three of the four main destination countries, except Malaysia. However, the very high AR value indicates Indonesia's ability to capture export market share.

This research can be used to design strategies to improve banana competitiveness through production efficiency and market understanding. The government needs to encourage quality improvement, logistics, and compliance with export standards. Collaboration between farmers and exporters and product promotion are also important to strengthen the position of Indonesian bananas in the global market.

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