

## **Analysis of the Competitiveness of Indonesian Palm Oil and Cocoa Export Commodities: A Study on Malaysia and Singapore Export Markets**

**Setyo Tri Wahyudi**

*Department of Economics, Faculty of Economics and Business, Brawijaya University,  
Jl. MT. Haryono 165 Malang 65145, Indonesia*

### **ABSTRACT**

This research aimed at analysing competitiveness of Indonesian palm oil and cocoa export commodities to Malaysia and Singapore markets. The two commodities were selected on the basis that they are Indonesian main export commodities, which contribute considerably towards the national income. Despite the significant contributions of the two commodities, the reality proves that Indonesia is still not able to optimise the potency and increase the competitiveness of those export commodities. *Revealed Comparative Advantage (RCA)* was employed as the competitiveness analysis method by using data in the period of 2009-2013. Results of the analysis revealed that Indonesian palm oil commodity has a strong competitiveness in Malaysia and Singapore export markets, as indicated by RCA index, which is greater than one ( $RCA > 1$ ). Similarly, cocoa commodity also demonstrates a strong competitiveness since its RCA index value is greater than 1 ( $RCA > 1$ ) in Malaysia and Singapore export markets. However, the upward trend of the price of palm oil and cocoa commodities in the international market is not accompanied by the rise in the export product value. As a result, Indonesia is still not able to gain benefits from this condition. Moreover, the change in the internal policy of export destination countries continues to restrict the import of palm oil and cocoa commodities and this has become a challenge for Indonesia in order to boost the competitiveness of both commodities in the future.

*Keywords:* Competitiveness, Export, Palm Oil, Cocoa  
*JEL Classifications:* E23, F14, F41

### **ARTICLE INFO**

*Article history:*

Received: 28 December 2015

Accepted: 25 April 2016

*E-mail addresses:*

setyo.tw@ub.ac.id; setyo81@gmail.com (Setyo Tri Wahyudi)

### **INTRODUCTION**

The export commodity of palm oil in the form of crude palm oil (CPO) has become one of the flagship export products

of Indonesia that can compete in the international market. In addition to being the main export commodity, palm oil is one of the fastest growing commodities compared to other plantation crops in terms of the planting areas and the volume of export of the commodity. Based on the data processed by GAPKI (Indonesian Palm Oil

Association), the export volume of CPO and its derivatives in December 2013 reached 2.02 million tons or increased by 0.5% compared with the previous month of 2.01 million tons. Meanwhile, if it is compared to the same period in 2012, it increased by 6.5% or 123.75 thousand tons from 1.89 million tons in December 2013.

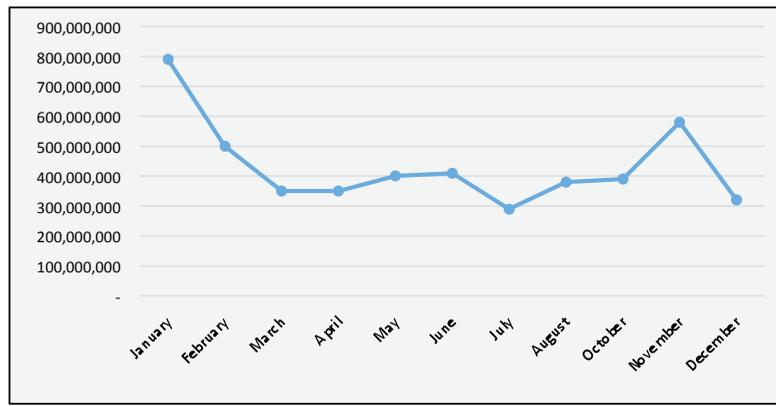


Figure 1. Values of Indonesian CPO Exports to the World, in 2013 (US \$)

Source: comtrade.org, processed, 2014

The most important CPO export destination countries are still occupied by India, the European Union and China. In December 2013, exports to India recorded an increase of 7.3% to 568.31 thousand tons compared with the previous month. A fairly significant increase in the exports was also recorded by the European Union for 14.2% from 349.52 thousand tons to 398.89 thousand tons in December 2013. In contrast, the exports to China fell by 5.9%, i.e. from 306.73 thousand tons to 288.67 thousand tons.

*In addition*, as the largest exporter of palm oil, Indonesia is also the third largest cocoa producer in the world after Ivory

Coast and Ghana. Data obtained from the United Nations Food and Agriculture Organisation (FAO) stated that Indonesia produced 574 thousand tons of cocoa in 2010. That number was approximately equal to 16 percent of the global cocoa production. However, that number was still lower when compared with the exports of Ivory Coast and Ghana. In 2010, the Ivory Coast produced approximately 1.6 million tons of cocoa. The high production figure of cocoa was by Ivory Coast as the major producer of cocoa in the world, with 44 percent of the global supply coming from this West African country alone.

The Competitiveness of Indonesian Export Commodities

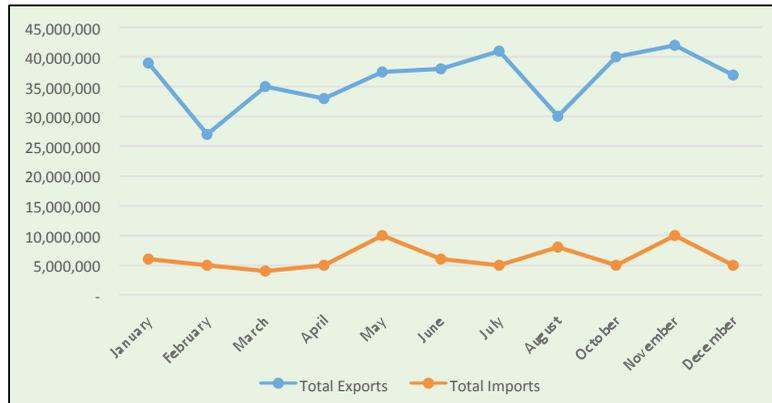


Figure 1. Values of Indonesian Cocoa Trade to the World, in 2013 (US \$)

Source: comtrade.un.org, data processed, 2014

As the main exporter of CPO and cocoa, Indonesia should be able to play an important role in the export activity and gain many advantages when ASEAN free trade area is implemented in 2015. However, Indonesia must face challenges due to the fact that the increasing cocoa processing industry in Indonesia is not accompanied by the balance supply of cocoa bean. The domestic cocoa bean production was expected to continue to decline as a result of the declining productivity of cocoa farmers due to the old age of the plants. Thus, the import of cocoa beans was expected to continue to rise. This fact proves that Indonesia is still not capable to optimise its potential to boost the economy due to its high dependence on abundant resources, natural resources and labour intensive (Tambunan, 2003).

Accordingly, Indonesian international trade for CPO product has experienced declining trend meanwhile, cocoa product is relatively stable, which has made Indonesia target the country near to it

as its potential market. Singapore and Malaysia are the countries located near to Indonesia and need much of CPO and cocoa from Indonesia. It means that the cost of transportation is relatively low. Moreover, it is the important factor in the flow of international trade (Coughlin, 2004). However, it is recognised that the main current problem faced by Indonesia is not only the transportation cost but also the weak competitiveness of Indonesian products in the global competition. This weakness is quite risky since product competitiveness is an important key for Indonesia to be a featured player in the ASEAN market. Further, a core finding shows that internationally active countries tend to be more productive than countries which only produce for the domestic market (Sun & Heshmati, 2010). Thus, improving the Indonesian export performance is a key factor that needs to be considered in making economic decisions in order to improve competitiveness (Athanasoglou,

Backinezos, & Georgiou, 2010). Countries tend to be more productive than others which only produce for the domestic market.

Since the feature of Indonesia in ASEAN is important, on one hand, large potential exports for palm oil and cocoa, on the other hand, the level of Indonesian competitiveness are still low. Therefore, the objective of this study is to analyse the competitiveness of Indonesian palm oil and cocoa export product commodities to Malaysia and Singapore.

**METHOD OF ANALYSIS**

This research employed descriptive quantitative approach. Commodities as the samples in this study comprised of palm oil (code HS 151110) and cocoa (code HS 180100). Data and information concerning export and import were collected from United Nation’s Commodity Trade Statistics (UN-COMTRADE) database for the period of 2009-2013. In addition, to analyse the competitiveness of the two commodities, Revealed Comparative Advantage (RCA) method was used. According to Tambunan (2004), the RCA calculation method is as follows:

$$RCA = \frac{x_{ij}/x_{it}}{w_j/w_i} \dots\dots\dots(1)$$

Where,

Xij = exports of Indonesian palm oil/ cocoa to ASEAN

Xit = total of Indonesian exports to ASEAN

Wj = world exports of palm oil/ cocoa to ASEAN

Wt = total of world exports to ASEAN

Meanwhile, RCA index is the comparison between the current RCA value and the RCA value of last year. RCA index formula is:

$$\text{Index of RCA} = \frac{RCA_t}{RCA_{t-1}} \dots\dots\dots(2)$$

RCA<sub>t</sub> = RCA value year (t)

RCA<sub>t-1</sub> = RCA value year (t-1)

RCA index ranges from zero to infinity. RCA index value which equals to one means that there is no increase in RCA or export performance of Indonesia in ASEAN.

**RESULTS OF COMPETITIVENESS ANALYSIS**

Competitiveness is the ability of companies, industries, regions, countries, or among regions to generate relatively high and sustainable income factor and employment in facing international competition (source: OECD). According to Porter (1990), competitiveness is identical with productivity where the level of output produced is for each input used. Two indicators that are commonly used to measure commodity competitiveness are comparative advantage and competitive advantage. The comparative advantage factor can be considered as a natural factor whereas competitive advantage factor is a factor that can be acquired or developed/created (Tambunan, 2003).

RCA is defined as the comparison ratio between the total export of a commodity in a country over the world export value of that commodity. Therefore, RCA is able to demonstrate the performance of the export

of a commodity. RCA value which is greater than one indicates good export performance, so it is suggested that the commodity is continuing to be developed by specialising the commodity.

**Competitiveness of Indonesian Palm Oil in Malaysia**

Based on the results of RCA estimation, the comparative advantage of Indonesian CPO in Malaysian market is pretty good, as

indicated by RCA greater than one during the period of 2010-2011 ranging from 1.14 up to 3.76. However, in the period of 2012-2013, the RCA index value indicated a low value,  $RCA < 1$ . The low value is due to the decrease in the value of Indonesian CPO exports. The decreasing value of Indonesian CPO exports in 2012-2013 was not only due to the declining production of Indonesian CPO but also Malaysia’s domestic policy concerning CPO imports.

Table 1  
*Comparative Advantage of Indonesian CPO in Malaysian Market*

Year	Indonesian Exports to Malaysia (million US\$)		World Exports to Malaysia (million US\$)		RCA	RCA Index
	Indonesian CPO (Xij)	Total (Xit)	World CPO (Wj)	Total (Wt)		
2009	635	27,247	645	268,370	9.70	-
2010	1,059	9,362	1,087	350,746	36.51	3.76
2011	1,314	10,995	1,455	509,640	41.87	1.14
2012	535	45,121	638	510,455	9.48	0.22
2013	126	39,232	176	163,402	2.97	0.31

Source: comtrade.un.org, data processed, 2014

Although the RCA index value of Indonesian palm oil declined throughout the period of 2010-2013, in total, the value of Indonesian exports of all commodities in Malaysian market indicated an upward trend. Even the contribution of all Indonesian export commodities reached approximately 10% of the world’s total export commodities to Malaysia. Besides Indonesia, palm oil exporting countries to Malaysia include Cambodia, Canada, Fiji, Thailand, and the Philippines. In 2013, the share of Indonesian CPO exports reached 68.5% compared to

other exporting countries such as Cambodia (5.4%), Canada (of 0.02%), Fiji (0.24%), Thailand (22.9%), and the Philippines (2.91%). Thus, it can be concluded that the contribution of Indonesian CPO in the Malaysian market is still far greater than the supply of world CPO in the Malaysian market. It demonstrates that Indonesia has an important role as the largest palm oil supplier country in the Malaysian market. The geographical position of Indonesia is an important factor for Malaysia to make Indonesia as the CPO supplier.

### Competitiveness of Indonesian Palm Oil to Singapore

The RCA index of Indonesian CPO to Singapore market over the period 2009-2013 indicated an upward trend. In the period of 2010-2011, the RCA index was less than one, while in 2012-2013 period the index was greater than one. It revealed the Indonesian CPO competitiveness in

Singapore market. Data showed that over the period 2009-2011, the Indonesian CPO exports increased significantly, while in the 2012-2013 period, the total palm oil exports decreased. Despite the decline in exports in 2012-2013, the trend of RCA index tended to increase. It occurred because the CPO export trend of various countries in the world that entered Singapore also showed a downward condition.

Table 2  
*Comparative Advantage of Indonesian CPO in Singapore Market*

Year	Indonesian Exports to Malaysia (million US\$)		World Exports to Malaysia (million US\$)		RCA	RCA Index
	Indonesian CPO (Xij)	Total (Xit)	World CPO (Wj)	Total (Wt)		
2009	357	10,262	363	201,006	19.26	-
2010	460	13,723	562	248,444	14.81	0.76
2011	669	18,443	882	293,638	12.08	0.81
2012	601	17,135	840	297,740	12.43	1.02
2013	417	16,686	540	278,210	12.89	1.03

*Note.* Source from <http://comtrade.un.org>, data processed, 2014

Countries such as Fiji, Finland, Malaysia and the Philippines are also the exporters of CPO to Singapore. However, the data in 2013 showed that the contribution of Indonesian CPO exports was 77.33%, which was very high compared with the four other exporting countries – 0.04% (Fiji), 0.000001% (Finland), 22.25% (Malaysia) and 0.37% (Philippines). Malaysia is still the main competitor for the Indonesian CPO exports to Singapore market. Geographical factors proximity as well as Indonesian abundant CPO production make Singapore market dependent on the CPO supply from Indonesia.

### COMPETITIVENESS OF INDONESIAN COCOA

Cocoa is one of the leading plantation commodities which holds an important role in the Indonesian economy. The development of Indonesian cocoa export is still dominated by the exports of primary products in the form of cocoa beans so that the potential development of products for export is still widely opened since Indonesia is also the third largest cocoa producer in the world, after Ivory Coast and Ghana. The world cocoa need is heavily dependent on the cocoa production of Indonesia, not only for the ASEAN countries, but also for

America, Brazil, and Europe markets, which depend on the Indonesian cocoa supply. The largest export destination countries for cocoa and cocoa products in the European Union are Germany, France, Belgium, Italy, Austria and Spain.

Data showed that the production volume of the Indonesian cocoa exports to various export destinations increased significantly. The value of Indonesian cocoa exports in 2010 was US\$ 1.6 billion. In January to July 2012, the Ministry of Commerce released processed data of cocoa export volume which reached 121,000 tons, an increase to 37.5% compared to the same period in 2011 of merely 88,000 tons. The increasing production of cocoa for export indicates that Indonesia plays an important role as a supplier of world cocoa. The upward trend of monthly price of world cocoa has a positive effect on the climate of Indonesian cocoa production.

**Competitiveness of Indonesian Cocoa to Malaysia**

In ASEAN, the main destination countries of Indonesian cocoa export commodities are Malaysia, Singapore and Thailand. Malaysia is the largest consumer of Indonesian cocoa exports, followed by Singapore and Thailand. Nonetheless, the data revealed that the value of Indonesian cocoa exports in the period 2009-2013 period showed a downward fluctuation trend. The decline was due to the disrupted economic condition of Indonesian cocoa consuming countries. Although the trend of cocoa exports tended to decline, the total exports of all products from Indonesia to Malaysia had an upward trend. At least about 10 percent of the total of export commodities of all over the world is supplied by Indonesia.

Due to the declining value of the Indonesian cocoa exports, the results of RCA index calculation also showed a downward trend. However, the competitiveness

Table 3  
*Comparative Advantage of Indonesian CPO in Singapore Market*

Year	Indonesian Exports to Malaysia (million US\$)		World Exports to Malaysia (million US\$)		RCA	RCA Index
	Indonesian CPO (Xij)	Total (Xit)	World Cocoa (Wj)	Total (Wt)		
2009	451	27,247	606	268,370	7.32	-
2010	550	9,362	719	350,746	28.67	3.91
2011	411	10,995	883	509,640	21.56	0.75
2012	225	45,121	742	510,455	3.44	0.15
2013	302	39,232	462	163,402	2.72	0.79

Source. <http://comtrade.un.org>, data processed, 2014

of Indonesian cocoa exports still has a comparative advantage because Indonesia is the largest cocoa supplier in Malaysian market. It can be seen from the value of Indonesian cocoa export supply which is almost equal with the total of the world supply of cocoa exports.

### Competitiveness of Indonesian Cocoa to Singapore

Impairment condition of Indonesian cocoa exports not only occurred in Malaysian market but also in Singapore market. As the country of the second largest export destination for Indonesian cocoa export commodities, over the period of 2009-2013, the data value of Indonesian cocoa exports to Singapore showed a downward trend. The similar condition was also indicated by the value of world cocoa exports. The condition resulted in the index of RCA calculation

of Indonesian cocoa in Singapore market to show an upward trend, which indicates that Indonesian cocoa has a fairly strong competitiveness in Singapore market.

A different situation was shown by the trend of the total Indonesian commodities exported to Singapore. Data showed that there was an increase in exports of a wide range of Indonesian export commodities during the period of 2009-2013. Although the contribution of Indonesian exports is still below ten percent, the geographic proximity and strengthening cooperation relations between Indonesia and Singapore gave a positive signal for improving economic cooperation between the two countries. There are still many opportunities and potential that can be developed for Singapore market. The stable Singapore economy which is recognised as the best in ASEAN region has become an attraction for the export of Indonesian various products.

Table 4  
*Comparative Advantage of Indonesian Cocoa in Singapore Market*

Year	Indonesian Exports to Singapore (million US\$)		World Exports to Singapore (million US\$)		RCA	RCA Index
	Indonesian Cocoa (X <sub>ij</sub> )	Total (X <sub>it</sub> )	World Cocoa (W <sub>j</sub> )	Total (W <sub>t</sub> )		
2009	139	10,262	177	201,006	15.32	-
2010	151	13,723	332	248,444	8.25	0.53
2011	98	18,443	228	293,638	6.84	0.82
2012	92	17,135	229	297,740	7.02	1.02
2013	72	16,686	178	278,210	6.77	0.96

*Note.* Source from <http://comtrade.un.org>, data processed, 2014

### CONCLUSION

In this research, both qualitative and quantitative approaches were applied to analyse the competitiveness of Indonesian

palm oil and cocoa export product commodities to Malaysia and Singapore markets. In general, the export commodities of oil palm and cocoa from Indonesia to

Malaysia and Singapore during 2009-2013 showed fluctuating trends which tended to decline. Fluctuations in the Indonesian export data were not only caused by such internal factors as the declining supply of production inputs, but also due to the policy of the partner countries which reduced the consumption of imports as the impacts of the soaring prices of both commodities in the international market.

The calculation results of competitiveness index using RCA for both commodities revealed that during 2009 and 2013, the competitiveness index values of both commodities to Malaysia and Singapore markets were still quite good, as indicated by the value of RCA index which is greater than one. This indicates the rise in net export volume and improvement in the trade structure of Indonesian palm oil and cocoa export product commodities. Further, Indonesian palm oil and cocoa have a fairly strong competitiveness in Malaysia and Singapore markets.

## REFERENCES

- Athanasoglou, P. P., Backinezos, C., & Georgiou, E. A. (2010). *Export performance, competitiveness and commodity composition* (No. 114). Athens: Bank of Greece.
- Coughlin, C. C. (2004). The increasing importance of proximity for exports from US states. *Federal Reserve Bank of St. Louis Review*, 86(6), 1-18.
- Porter, M. E. (1990). *The Competitive Advantage of Nations*. Harvard Business Review.
- Sulistiyanto, A. I., & Akyuwen, R. (2011). *Factors affecting the performance of Indonesia's crude palm oil export*. Paper presented at the 2011 International Conference on Economics and Finance Research, Singapore.
- Sun, P., & Heshmati, A. (2010). *International trade and its effects on economic growth in China*. IZA Discussion Paper No. 5151.
- Talib, B. A., & Darawi, Z. (2002). An economic analysis of the Malaysian palm oil market. *Oil Palm Industry Economic Journal*, 2(1), 19-27.
- Tambunan, T. T. H. (2003). *Perekonomian Indonesia: Teori dan Temuan Empiris*. Jakarta: PT Ghalia Indonesia.
- Tambunan, T. T. H. (2004). *Globalisasi dan Perdagangan Internasional*. Bogor; Ghalia Indonesia.