

Comparative Advantages and Export Performance of Indonesian Fiber Industry Product and Some Major Exporter Countries in the World Market, 2008-2012

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Abstract

Increasing competition in the world market requires each country to improve the competitiveness of exported product. Indonesian fiber industry is one industry which is demanded to improve its competitiveness in the world market. The purposes of this study were: (1) analyze the trade map (2) comparative advantages, and (3) analyze the export performance of Indonesian fiber industry product and some major exporter countries in the world market. The analysis method conducted in this study consist of descriptive analysis and comparative advantage (Revealed Comparative Advantage (RCA)). Based on the result, China and South Korea are the major exporters which tend to dominate each of world fiber product. Meanwhile, Indonesia has also important role as a major exporter for world fiber products especially for HS 5509, Indonesia is in the second position. Countries with the highest competitiveness for fiber products consist of HS 5503, HS 5509 and HS 5515 respectively are South Korea, Indonesia, and India. The RCA index progress for each exporter country on the three types of fiber product tends to fluctuate. However, the progress of Indonesian RCA index for the three types of fiber product tends to increase from 2008 to 2012.

Keywords: Fiber, textile, competitiveness, RCA, performance

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1. Introduction

Textile industry provides a great impact on the economy, in terms of contribution to Gross Domestic Product (GDP), foreign exchange earner, as well as in employment (Kouliavtsev, Christoffersendan Russel, 2007; Abraham and Sasikumar, 2011; Gera, 2012). Fiber industry is one industry in the textile industry, beside yarn and fabric industry. The existence and continuity of fiber industry is very important for the next subsectors of the textile and clothing industry, because fiber industry is an upstream industry of textile and clothing industry. So the quantity and quality of fiber produced from fiber industry will determine the sustainability and performance of the further textile and clothing industry.

The increasing of export prospects of textile and clothing industry will require the availability of fiber products in very large quantities. However, the production of Indonesian fiber is still not able to meet the domestic needs, so the shortage will be fulfilled by importing fiber from other countries. In 2010, the import volume of Indonesian fiber products reached more than 800,000 tons (Asmara et al., 2013a). More than 85% of the cotton for Indonesian textile industry is imported from Australia, USA, China, India, Pakistan, Tanzania, and others. This is because the cotton crop can not be cultivated optimally in Indonesia (Hermawan, 2011).

Based on Direktorat Jenderal Perkebunan (2013) data, cotton production in Indonesia in the last six years tend to decrease. The estimation of cotton production in 2013 was 2,558 tons, decreased by 33.7% compared to 2008. Based on the study of Asmara et al. (2013), 65.22% of the textile industry faced problems related to raw material prices, including the price of fiber.

The challenges faced by Indonesian fiber industry is not only to meet domestic demand, but also to maintain market share of fiber export in the world market. Increasing competition in the world market with the changes in trade policies can affect the position of Indonesian fiber products in the world trade map. Competition between Indonesian fiber products with the major producing countries such as China, South Korea, India, and the USA will continue. Indonesia's position in current world fiber trade dynamics is the main question that will be answered in this study. Hartono and Setyowati (2009) revealed that since the abolition of the quota system in 2005, Indonesia's market share of fiber industry was threatened because of unable to compete with other countries, such as China and Viet Nam.

According to background and problems, the purposes of this study are: (1) analyze the trade map of Indonesian fiber industry product and several major exporter countries in the world market, (2) analyze the comparative advantages of Indonesian fiber industry product and some major exporter countries in the world market, and (3) to analyze the export performance of Indonesian fiber industry product and several major exporter countries in the world market.

2. Research Method

The data which is used in this study is annual secondary data from 2008 to 2012 which are obtained from UN Comtrade. The analysis conducted in this study include descriptive analysis, revealed comparative advantage analysis (RCA), and RCA index analysis. Discussion on the trade map and comparative advantage is limited to the three main fiber products which have the largest export value in the world market in 2012, namely *Synthetic Staple Fibres, Not Processed for Spinning* (HS 5503), *Yarn(Not Sewing), Synthetic Staple Fibre, Not Retail* (HS 5509), dan *Woven Fabric of Synthetic Staple Fibres, Nes*(HS 5515).

RCA is used to analyze the comparative advantages of Indonesian fiber products and five major exporter countries in the world market. Formulation of RCA by Balassa that has been modified as follows (Burangedan Chaddha 2008):

$$RCA = \frac{X_{ij}/X_i}{X_{wj}/X_w} \dots\dots\dots (1)$$

where: X_{ij} = export value of country i for fiber product j

X_i = total export value of country i

X_{wj} = world export value for fiber product j

X_w = world total export value

Commodity competitiveness in the RCA has two possibilities, namely:

- 1) $RCA > 1$, shows the fiber product of country i has a comparative advantage (competitiveness) so relatively more specialized in the relevant commodity groups.
- 2) $RCA < 1$, shows the fiber product of country i does not have a comparative advantage (does not have competitiveness) so it does not specialized in the relevant commodity groups.

RCA index is the ratio between the value of current RCA with RCA in the previous year. Formula of RCA index is as follows:

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

Where :

RCA t = RCA value of current year (t)
 RCA t-1 = RCA value of previous year (t-1)
 t= year

RCA index range from zero to infinity.

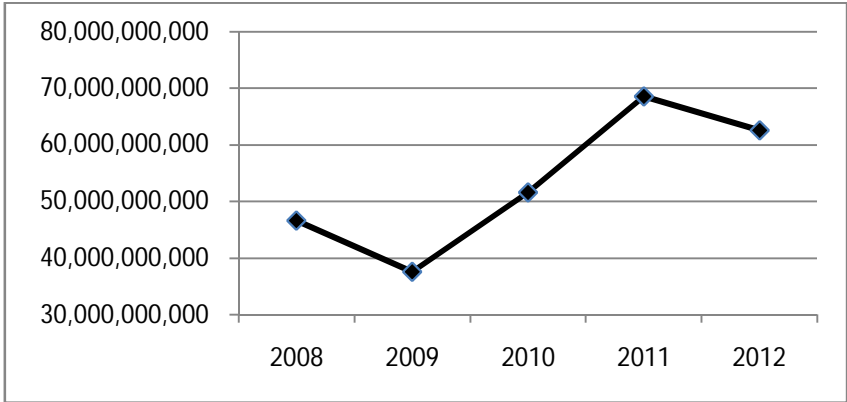
- 1) If the RCA index = 1, then there is not an increase in RCA or current exports performance in the world market is the same as the previous year
- 2) If the RCA index < 1, then there is a decrease in RCA or current exports performance in the world market is lower than the previous year
- 3) If the RCA index > 1, then there is an increase in RCA or current exports performance in the world market is higher than the previous year

3. Result dan Discussion

3.1. Fiber Product Trade Map in the World Market and Indonesia Position and Some Major Exporter Countries

The export value of world fiber products shows fluctuating condition with an increasing tendency during the period of 2008 to 2012 (Figure 1). The highest export value of fiber product was in 2011, reaching US\$ 68,597,608,935. Fluctuation in the world's fiber export value was caused by unstable world's economic condition so there was a fluctuation in the market both raw materials and world's fiber products coupled with raw material price in Asia are volatile and tend to increase (Wirawasta, 2011).

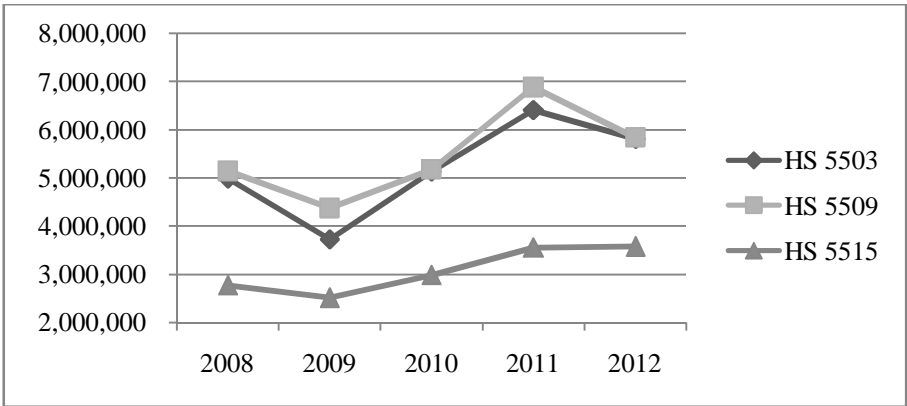
Figure 1: World Fiber Total Export Value, 2008-2012



Source: UN Comtrade, 2013

In the three types of fiber products which are discussed, the progress of the world's total export value of HS 5503, HS 5509 and HS 5515 fiber products also fluctuates and tend to increase in period 2008 to 2012 (Figure 2). China and South Korea are two countries that dominate export of fiber products in the world market and become the world's largest exporter especially for synthetic fiber. This is due to higher production of synthetic fiber in Asia Pacific region which controls 83% of the world market share. Even China controls 72% of world synthetic fiber production and expand the total production capacity which reached 33 million tons per year (Wirawasta, 2011).

Figure 2: Fiber Total Export Value of HS 5503, 5509, and 5515, 2008-2012 (US\$ 000)



Source: UN Comtrade, 2013

Generally, the progress of export value of five major exporter countries for HS 5503 fiber product fluctuate from year to year. South Korea is the largest exporter country for HS 5503 fiber product. South Korea's highest export value occurred in 2011 at US\$ 1,495,910,000 (Table 1).

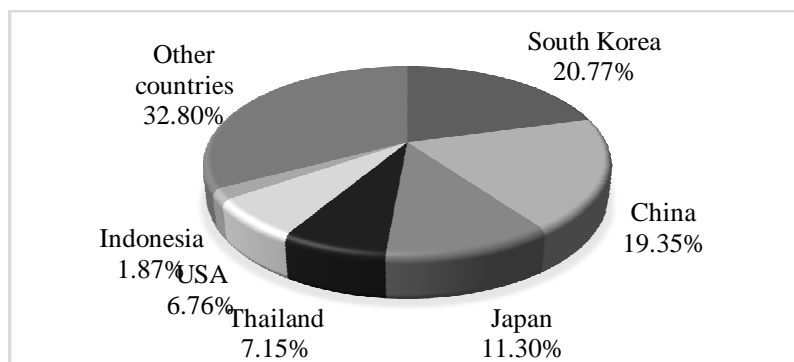
Table 1: Export Value of Five Major Exporter Countries of HS 5503 Fiber Product in World Market, 2008-2012 (US\$ 000)

2008		2009		2010		2011		2012	
Country	Value	Country	Value	Country	Value	Country	Value	Country	Value
South Korea	910,907	South Korea	740,051	South Korea	988,561	South Korea	1,495,910	South Korea	1,207,106
China	746,836	China	516,005	China	854,929	China	1,261,908	China	1,124,628
Japan	525,825	Japan	425,261	Japan	581,332	Japan	711,378	Japan	656,581
USA	361,315	Thailand	316,769	Thailand	425,794	Thailand	525,789	Thailand	415,613
Thailand	284,099	USA	210,634	USA	347,976	USA	453,410	USA	392,925
Other countries	2,157,968	Other countries	1,524,344	Other countries	1,943,853	Other countries	2,370,750	Other countries	2,014,841

Source: UN Comtrade, 2013

The share of South Korea's export value for HS 5503 fiber product in 2012 is the most dominant than the other major exporter countries (Figure 3). South Korea's export share reached 20.77% of total world export.

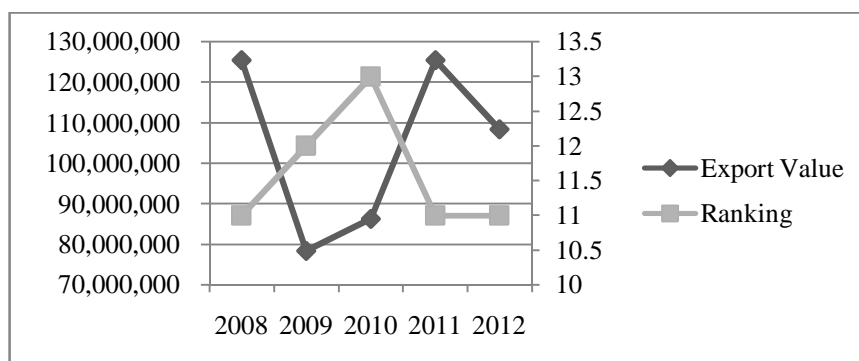
Figure 3: Export Share of Five Major Exporter Countries and Indonesia for Fiber Product HS 5503, 2012



Source: UN Comtrade, 2013

Indonesia's position on HS 5503 fiber product in 2012 is in 11th position from 79 exporter countries (Figure 4). The progress of Indonesia's export value for HS 5503 fiber product tend to fluctuate from 2008 to 2012.

Figure 4: Indonesia's Export Value and Position for Fiber Product HS 5503 in World Market, 2008-2012



Source: UN Comtrade, 2013

For HS 5509 fiber product, China has the highest export value during the period 2008-2012 (Table 2). Meanwhile, Indonesia is the second largest exporter after China with export value in 2012 reached US \$ 894,903,000.

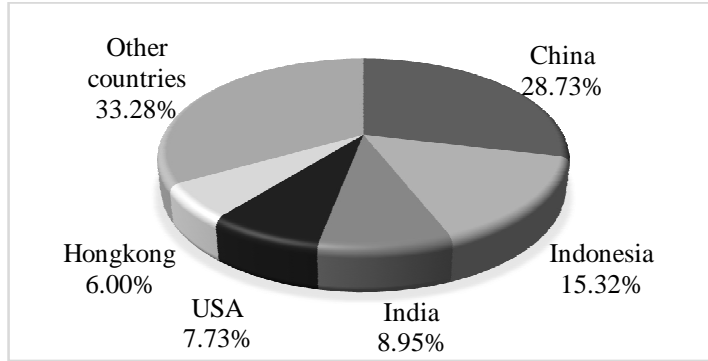
Table 2: Export Value of Five Major Exporter Countries of Fiber Product HS 5509 in World Market, 2008-2012 (US\$ 000)

2008		2009		2010		2011		2012	
Country	Value	Country	Value	Country	Value	Country	Value	Country	Value
China	852,121	China	740,982	China	1,035,330	China	1,683,160	China	1,678,311
Indonesia	590,980	Indonesia	578,700	Indonesia	772,961	Indonesia	949,124	Indonesia	894,903
Italy	449,960	India	308,048	India	447,163	India	695,830	India	522,606
India	383,794	Italy	307,113	Italy	365,704	USA	496,752	USA	451,392
USA	295,328	Hongkong	252,597	USA	356,794	Viet Nam	432,470	Hongkong	350,307
Other countries	2,572,184	Other countries	2,187,442	Other countries	2,197,188	Other countries	2,626,507	Other countries	1,943,671

Source: UN Comtrade, 2013

China's export share is the largest compared to other exporter countries. China's export share reached 28.73% of the total world exports (Figure 5). Indonesia is the second largest exporter after China with an export share of 15.32%.

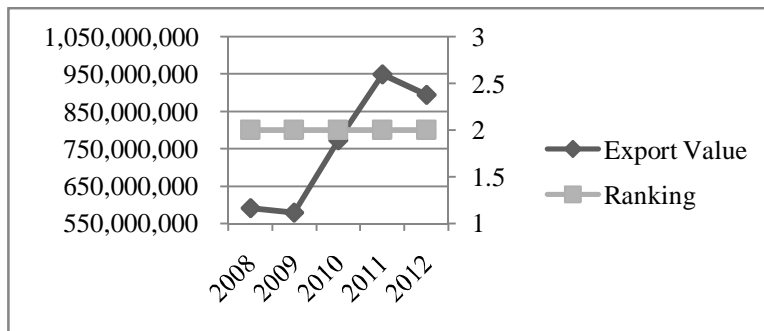
Figure 5: Export Share of Five Major Exporter Countries for Fiber Product HS 5509, 2012



Source: UN Comtrade, 2013

The progress of Indonesia's export value for HS 5509 fiber product tend to increase from 2008 to 2011 and decrease in 2012 (Figure 6). In 2012, the position of Indonesian fiber product is in 2nd position of 88 exporter countries.

Figure 6: Indonesia's Export Value and Position for Fiber Product HS 5509 in World Market, 2008-2012



Source: UN Comtrade, 2013

Generally, the export value progress of five major exporter countries for HS 5515 fiber product fluctuate from year to year. China is the largest exporter country for HS 5515 fiber product (Table 3).

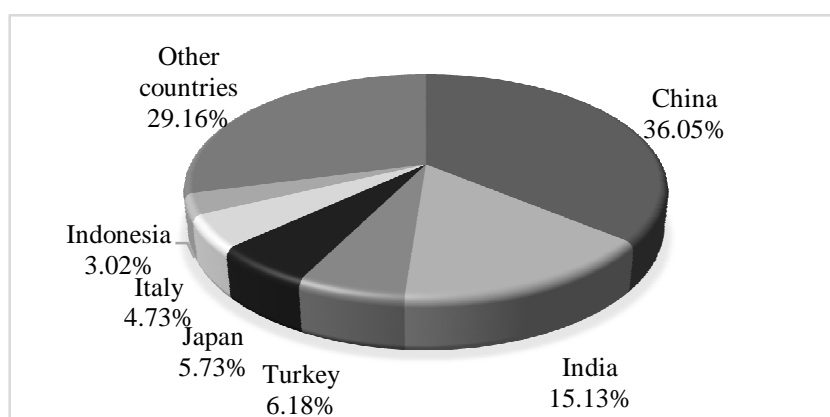
Table 3: Export Value of Five Major Exporter Countries of Fiber Product HS 5515 in World Market, 2008-2012 (US\$ 000)

2008		2009		2010		2011		2012	
Country	Value	Country	Value	Country	Value	Country	Value	Country	Value
China	552,498	China	748,375	China	1,021,671	China	1,287,840	China	1,289,878
India	262,778	India	229,030	India	381,953	India	549,992	India	541,343
France	226,244	Turkey	182,486	Turkey	185,780	Turkey	210,676	Turkey	220,936
Italy	215,553	Japan	152,816	Japan	147,314	Japan	171,728	Japan	205,168
Turkey	204,248	Italy	151,612	Jerman	143,415	Italy	156,959	Italy	169,297
Other countries	1,316,582	Other countries	1,051,717	Other countries	1,104,525	Other countries	1,183,570	Other countries	1,151,265

Source: UN Comtrade, 2013

China is the largest exporter country for HS 5515 fiber product during the last five years (2008-2012). The highest export value of China's HS 5515 fiber product occurred in 2012 at US\$ 1,289,878 (Figure 7).

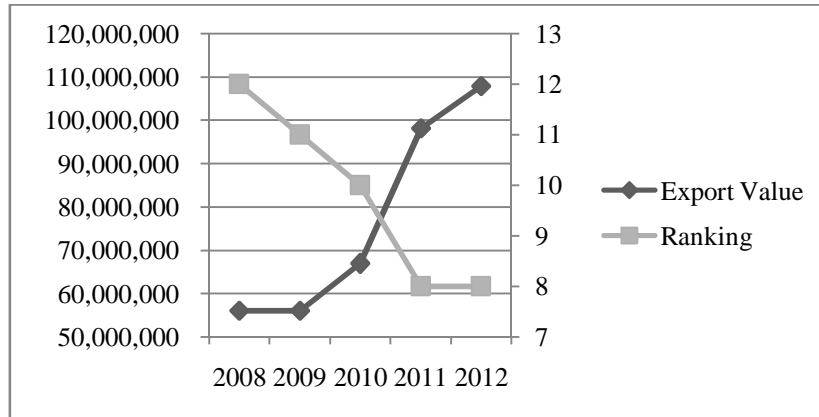
Figure 7. Export Share of Five Major Exporter Countries and Indonesia for Fiber Product HS 5515, 2012



Source: UN Comtrade, 2013

Indonesia's position on HS 5515 fiber product in 2012 is in 8th position of 97 exporter countries. The export value progress and Indonesia position for HS 5515 fiber product in the world market tends to increase and be better during the period 2008-2012 (Figure 8).

Figure 8: Indonesia's Export Value and Position for Fiber Product HS 5515 in World Market, 2008-2012



Source: UN Comtrade, 2013

3.2. Analysis of Indonesian Fiber Comparative Advantage and Major Exporter Countries in the World Market

The competitiveness progress of Indonesian fiber product and five major exporter countries for HS 5503, HS 5509, and HS 5515 in the world market is presented in Figure 9. According to Asmara Et Al. (2014), Comparative Advantage of a Product Produced by a Country Reflects the Advantage (Competitiveness) of Such Product Compared to Similar Products from Other Countries

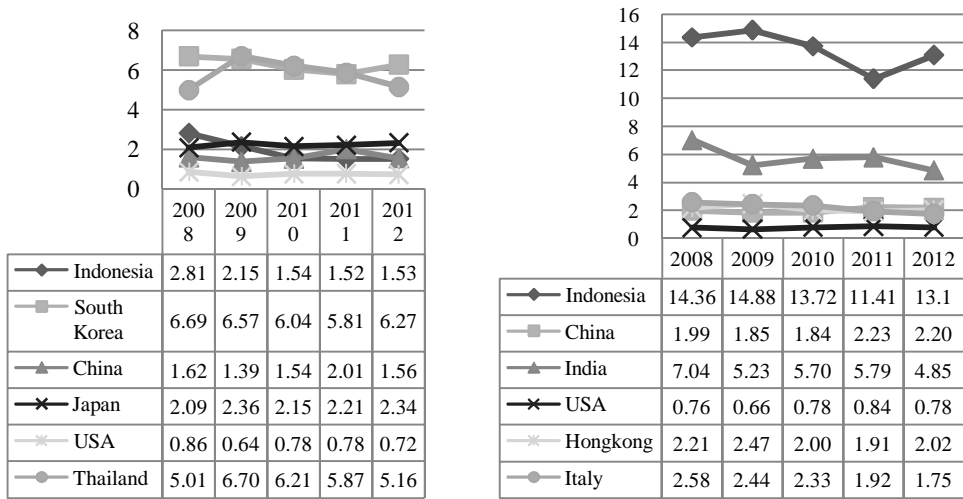
Almost all of the exporter countries have a comparative advantage for the three types of fiber products in the world market, as shown by RCA value which is greater than one. However, USA does not have a comparative advantage on HS 5503 and HS 5509 as well as Japan on HS 5515 fiber product. Beside these two countries, Italy has the competitiveness on HS 5515 only in 2008 and 2009. This showed that HS 5503 and HS 5509 fiber product (for USA) and HS 5515 (for Japan and Italy) is not one of the main export commodities in these three countries.

The progress of comparative advantage which is obtained by each exporter country for the three types of fiber products tend to fluctuate from year to year. This indicates the high level of competition among exporter countries to grab world fiber market share.

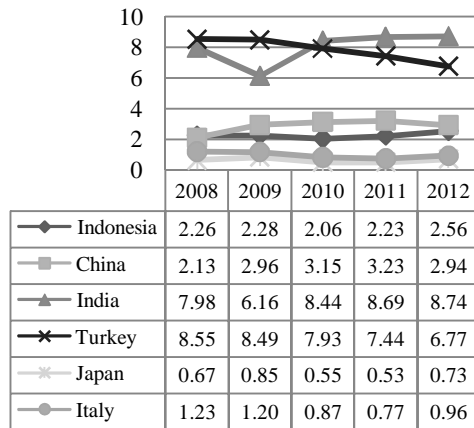
For HS 5503 fiber product in 2012, South Korea has the highest comparative advantage, with RCA value at 6.27. The highest comparative advantage which is reached by South Korea is 6.69 in 2008. For HS 5515 fiber product, India has the highest comparative advantage, with RCA value at 8.74 in 2012. This is because, India is the world's third-largest producer of cotton and second-largest producer of cotton yarns and textiles (Desrani, 2013).

Meanwhile, Indonesia has the highest comparative advantage for HS 5509 fiber product. The highest Indonesia's RCA value was reached in 2009 at 14.88. The high of Indonesia's competitiveness because of Indonesia is the world's second largest exporter for HS 5509. Moreover, in 2009 the export value of Indonesian HS 5509 to the world was US\$ 578.7 million.

Figure 9: Comparing of Indonesia's RCA Value and Major Exporter Countries for Fiber Products HS 5503, HS 5509, and HS 5515 in The World Market, 2008-2012



(a) HS 5503 (b) HS 5509



(c) HS 5515

Source: UN Comtrade, 2013

Based on Figure 9, Indonesia has a comparative advantage for those three main fiber products. However, the progress of Indonesia's comparative advantage for HS 5503 and HS 5509 fiber products tended to decrease.

Decreasing Indonesia's competitiveness is thought because of Indonesian fiber industry is difficult to grow. One reason is the problem related to the limited supply of raw materials, especially cotton fiber (Aulia, 2008; Hermawan and Adam, 2010; Widodo and Ferdiansyah, 2010).

The decrease of some Indonesian fiber product competitiveness is supported by the result study of Asmara et al. (2013b) who stated that the stability of fiber quality which is produced by Indonesian fiber industry is poor. Thus, the yarn industry in Indonesia rely on the use of imported fiber more than 50% (Hermawan, 2011). In addition, that competitiveness is also influenced by the increase of production costs due to the elimination of cotton fibers export subsidy policy from 2006 and the restriction on export quota by producer countries (Hermawan and Adam, 2010).

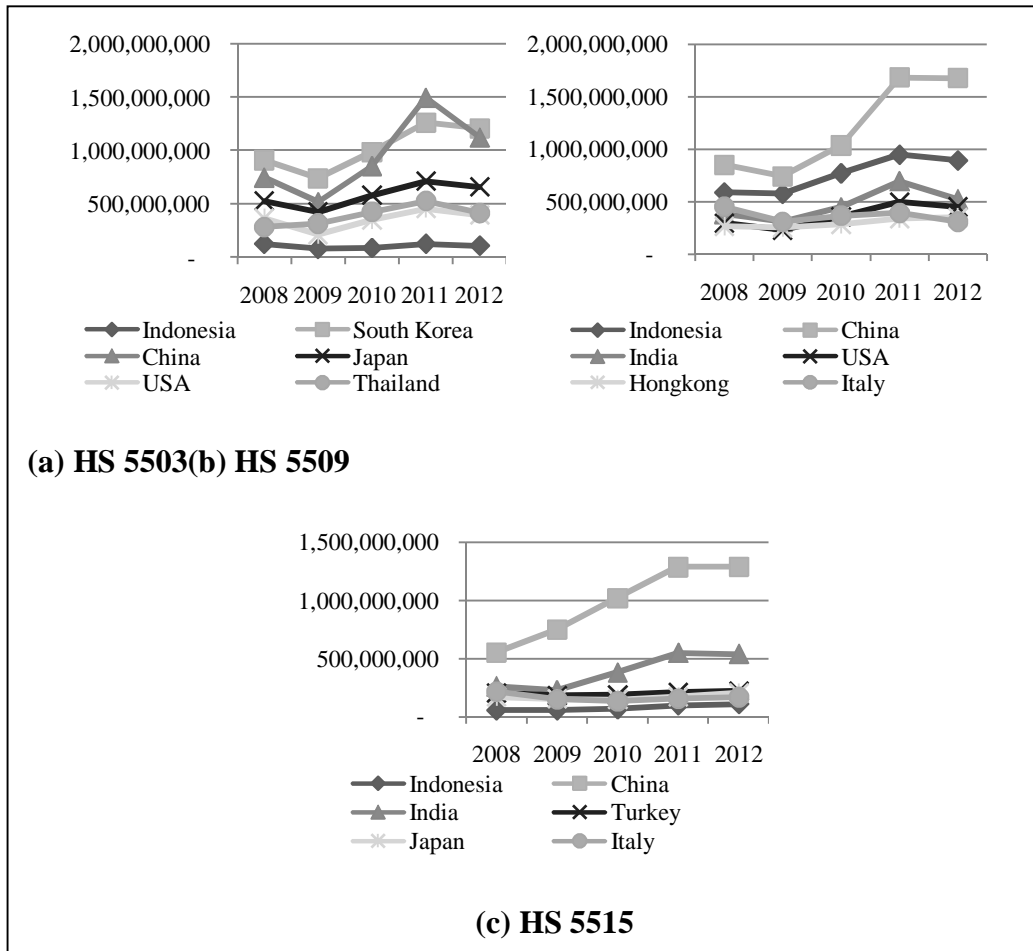
3.3. Analysis of Indonesian Fiber Export Performance and Major Exporter Countries in the World Market

The export value progress of each exporter country for the three types of fiber product tends to fluctuate during 2008-2012. Of the three panels in Figure 10, it can be seen that China dominated as the main exporter, especially for HS 5509 and HS 5515, while on HS 5503, South Korea more dominated except in 2011 where China was superior. This is because, China's Textile industry produces the largest scale textiles of the world (Yang, He, and Zhang, 2010) and world's leading textile and clothing Exporter (Karaalp and Yilmaz, 2013).

On HS 5503, South Korea and China are the most dominating country, but the highest export value made by China in 2011 at US\$ 1,495,910,863. As well as the progress of other countries export value, the progress of Indonesia's export value also fluctuates from year to year. On HS 5503 and HS 5515, Indonesia's export value is not so great. Meanwhile, on HS 5509 Indonesia became the second largest exporter in the world after

China from 2008 to 2012. The highest export value which was reached by Indonesia at US\$ 949,124,562 in 2011.

Figure 10: Comparison of Indonesia's Export Value and Major Exporter Countries for HS5503, HS 5509, and HS 5515 Fiber Products in the World Market, 2008-2012



Source: UN Comtrade, 2013

3.4. Indonesian Fiber RCA Index and Major Exporter Countries in the World Market

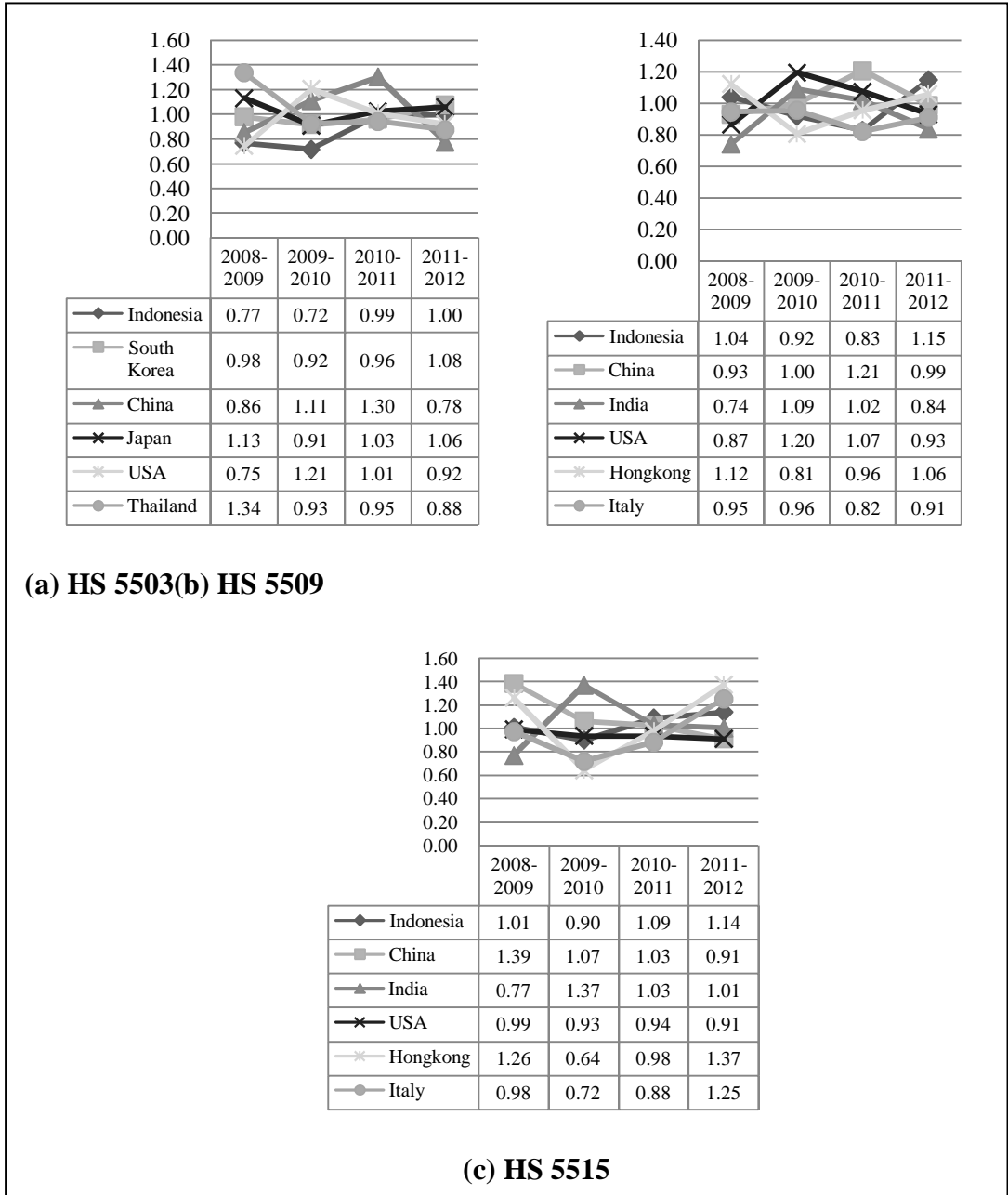
RCA index or the competitiveness performance of each exporter country for HS 5503, HS 5509 and HS 5515 fiber products tend to fluctuate from year to year as shown in Figure 11. Although South Korea and China have the highest export value on HS 5503, but the competitiveness performance of these countries are not so good which was indicated by the decrease of competitiveness in South Korea in 2008-2009, 2009-2010, and 2010-2011 and China in 2008-2009 and 2011-2012.

While Japan is the best competitiveness performance on HS 5503. Meanwhile on HS 5509, Italy has the lowest competitiveness performance. On HS 5515, Indonesia, China, and India are the three countries with the best competitiveness performance. Increase in efficiency is very important to have greater international competitiveness and overcome the emerging challenges from global competition (Bhandari and Maiti, 2007; Abraham and Sasikumar, 2011).

The progress of Indonesia's RCA index for the three types of fiber products also fluctuate and tend to increase from 2008 to 2012. The highest RCA index for HS 5503 was in 2011-2012 at 1.00. While the highest RCA index for HS 5509 and HS 5515 were in 2011-2012 at 1.15 and 1.14, which means the competitiveness performance of Indonesian fiber product increased from 2011 to 2012 in the world market. Based on study of Asmara et al. (2013), performance of Indonesian fiber product is also affected by turnover, output, and profit of fiber industry.

A decrease in Indonesian fiber product competitiveness in certain years is caused the lack of resources and performance of Indonesian cotton farmers. In addition, the machine condition of artificial fiber industry (rayon and polyester) is relatively old (Widodo and Ferdiansyah, 2010). Based on the study result of Asmara, Purnamadewi, and Meiri (2013), between the progress of the five sub-sectors of textile and clothing industry, the growth of fiber industry number is the lowest which caused the low offiber export but the highest volume of import.

Figure 11: Comparison of Indonesia's RCA Index and Major Exporter Countries for HS 5503, HS 5509, and HS 5515 Fiber Products in the World Market, 2008-2012



Source: UN Comtrade, 2013

4. Conclusions and Recommendations

4.1. Conclusions

The world fiber export value shows a fluctuation condition and tends to increase in 2008 to 2012. China and South Korea dominate the world fiber export especially for synthetic fiber. Indonesia also plays an important role as a major exporter for the world fiber product, especially for HS 5509, Indonesia become the second largest exporter in the world. The competitiveness progress of Indonesian fiber product and five major exporter countries for HS 5503, HS 5509 and HS 5515 in the world market tend to fluctuate which indicate the high level of competition among exporter countries. Most of these countries have competitiveness in the world market. Country with the highest competitiveness for HS 5503, HS 5509 and HS 5515 fiber products respectively are South Korea at 6.69 in 2008, Indonesia at 14.88 in 2009, and India at to 8.74 in 2012.

Meanwhile, the progress of export value of each exporter country for the three types of fiber products fluctuate from 2008 to 2012. RCA index of each exporter country for the three types of fiber products also tend to fluctuate. Japan has the best competitiveness performance for HS 5503 as well as Indonesia, China, and India for HS 5515. The progress of Indonesia's RCA index for the three types of fiber products tend to increase from 2008 to 2012.

4.2. Recommendations

Improving the competitiveness of fiber product need to be done so that Indonesian fiber can compete with fiber product from other exporter countries in the world market and will increase the market share of Indonesian textile product. Facing the high level of competition, fiber industry must reach economies of scale and production efficiency so the use of resources can be efficient in order to save expenses and finally fiber product can be more competitive. Need the support and attention from the government to assist the progress of fiber industry in order to reach economies of scale, improve the business scale, machine revitalization, and technology adoption. Further research related to the analysis of factors affecting the competitiveness of Indonesian fiber industry needs to be done to obtain further information in order to increase the competitiveness of Indonesian fiber industry.

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