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Further Investigation of the Competitiveness of Indonesian Forestry Major Products

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Abstract: This study examines competitiveness of Indonesia's forestry major products focuses on plywood, sawn wood, veneer sheet and pulp & paper. Three methods are employed to uncover the value; Market Share (MS) calculation, Revealed Comparative Advantage (RCA), and Revealed Symmetric Comparative Advantage (RSCA) method. Indonesian Forestry Export Products from Indonesian Statistics and world export data from FAOSTAT statistic database from 1993 to 2014 are employed in the research. In order to uncover the level of competitiveness, top-ten exporter countries in forestry products are chosen along with the world data. The result of the study illustrates that Indonesia possesses exceptionally strong competitiveness export of plywood with notes that the trend continues to decline over the years. Veneer can be considered as a potential commodity since it has a sharp increasing trend and strong comparative advantage. Sawn wood, and pulp & paper exhibit a weak comparative advantage comparing to the competitors.

Keywords: Competitiveness, Forest Products, Market Share, RCA, RSCA

I. INTRODUCTION

According to the data from Ministry of Forestry, the forestry sector's contribution to GDP has declined over the last decade from 1.03% in 2001 to 0.63% in 2013. Although the proportion of the national economy is relatively small, the forestry sector plays a major role in Indonesia. The forestry sector is important for the regional forest industry and this scale is relatively large compared to other sectors. In the early 1990s, logging concessions covering at least more than a third of Indonesia's land area (more than 60 million hectares), however, today's the forestry concessions have been reduced to approximately 34.84 million hectares.

Over the last decade, changes in this sector caused great economic turmoil. The forestry industry is being switched from selective logging in natural forests to forest plantations involve land clearing (including for oil palm plantations). This shift was driven by a decrease in timber supply, which can be traced back as a result of the policy priority list to improve the capacity of the industry is not on a sustainable supply of timber from the forest. Promotion for the pulp and paper industry also increases the imbalance between supply and demand that has occurred in the Indonesian forestry sector.

Compared to other countries, Indonesia has the highest increase in forest loss. The loss of forest coverage is contributing to the high carbon emissions; land clearing is often followed by burning. Clearings by the pulp

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and paper industry are one of the main causes of deforestation, which contributes to carbon emissions in the amount outstanding for hanging operations on peatlands. Competing with agricultural sector has also become a factor of forest loss.

Indonesian timber industry needs an estimated 70 million cubic meters per year with an average rise of 14.2%/ year. While round wood production is estimated at 25 million cubic meters per year, or in other words a deficit of 45 million cubic meters. This indicates that the actual carrying capacity of the forest has been unable to meet the needs of timber.

The main product of the forest timber is then used for domestic purposes and also converted into wood products for export. Indonesian forest timber production (logging) tends to increase up to 128% in 2007 compared with 2000, an increase of 44.51% although there was a negative growth of 10.03% in 2006. And the value of this production increasing evident from the increasing growth of the forestry sub- sector in GDP up to the year 2009 amounted to 1.51%. As the production of wood (logging) continues to increase, the production of processed wood such as plywood and sawn timber has tended to decrease. In 2007 when timber production grew 44.51%, production of plywood and sawn timber actually fell 9.38% and 22.68% respectively. The greater the gap between the productions of processed wood (plywood, wood saws, etc.) with the production of input materials i.e. logs (logging) showed poor forest management. As a result, Indonesia forest product exports tend to decrease as the declining trend is happening in the production sector. This downward movement may cause the forest products lost its competitiveness in the global market. In order to comprehend where Indonesian forest products stand in the International market, further research needs to be carried out to address the issue.

This study aims to determine the competitiveness of Indonesia's forestry major products; plywood, sawn wood, veneer and pulp and paper. To understand the level of competitiveness, export data of Indonesian forest products will be compared with the world data from FAO and also top ten most competitive countries will be chosen as a comparison in the period of 1993 to 2014.

II. LITERATURE REVIEW

The Ricardian theory asserts that the root of international trade is caused by the difference in the comparative cost of its product. Heckscher-Ohlin theory clarifies the real cause of the differences by stating that trade results in consequence of the existence of dissimilar relative price of different countries. The disparity in prices is due to divergences in endowment factor in each country. It states the fact that international trade occurs as a consequence of different factor endowments of its country. Endowment factor in forestry industry has a high correlation with the extent use of land and its efficiency in order to obtain the optimal result of a land use. It means a country holding the bigger endowment is equal to having a greater comparative advantage in international trade.

Indonesia has 10% of total tropical forest in the world, more specifically, possessing 120.98 million hectares of total terrestrial forest area with 65.1 million intended for forest production (Ministry of Environment and Forestry, 2015). This circumstance does not make Indonesia a leading country in forest products export in the global market. According to the FAO data, Indonesia only settled in 9th place after western developed countries i.e. Canada, US, Germany, Sweden, Finland, France China, and

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Brazil. During the period 1993-2004, the export of Indonesian forest products industry decreased by 547.9 million dollars. Approximately 95% of this decline occurred after the economic crisis in 1998. The declining trend of Indonesia's export growth was caused by the lower competitiveness and poor composition of Indonesia's export products. Is it true that Indonesia forest export products are weak comparing to competitors?

Several studies related to the competitiveness of forest products in the international market have been carried out. However, most of the studies focused on one or main forest product only, except study undergone by Santosa in 2013. His study states that plywood is the only product that has an extremely strong comparative advantage in the world market, while, the other products specifically sawn wood, veneer, and pulp & paper are weak comparing to the competitors. However the study its limitation regarding the duration; it ends at 2010.

A study conducted by Barusman in 2013 declared that endowment factor is not the only factor causing Indonesia plywood loss its competitiveness in the world market. However, it does not state clearly the level of competitiveness comparing to the competitors. According to Safitri (2014) Indonesia pulp and paper have a comparative advantage in the destination countries, however, it is not all of them shows increasing movement during the years 2000 to 2012. Studies focus on Indonesia sawn wood and Pulp & paper along with its competitiveness in the world market has not been carried out yet.

III. MATERIAL AND METHOD

A. Materials

The investigation focuses on plywood, sawn wood, veneer sheet and pulp & paper, by employing Indonesian Forestry Export Products from Indonesian Statistics Bureau and world export data from FAO statistic database from 1993 to 2014. In order to know the level of competitiveness, top 10 exporter countries in forestry products are chosen as well as the world data. The selected countries are Brazil, Canada, China, Finland, France, Germany, Malaysia, Russia Federation, Sweden, and the United States.

B. Methods

Three methods are employed to uncover the value; Market Share (MS) calculation, Revealed Comparative Advantage (RCA) method, and Revealed Symmetric Comparative Advantage (RSCA) index.

1. Market Share (MS)

Market share is a method that aims to justify the reason for a country's comparative export performance. The method requires a standard used as a baseline or a comparison to executing the calculation. In this research, we will utilize the world and top ten forest product exporting countries as a comparison (Esfahani and Anderson, 2006).

Market share most commonly describes the indication of changing trend of a country's export performance related to the global trends. A signal whether a country's export have already inline with the competitors or the global trend can be observed by utilizing the method.

Market share involves the amount of a particular product in a certain country comparing to the same product

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in the world market. Export value of product *i* from a country *j* with total world export of product *i.* This value can be observed by generating formula as follows:

$$MS_{ij} = \frac{X_{ij}}{X_{iw}}$$

MS_{ij} = Market share of products *I* from country *j*
x_{ij} = export value of forestry product *I* by the country *j*
x_{iw} = world export value of product *i*

2. Revealed Comparative Advantage (RCA)

Revealed Comparative Advantage (RCA) method is an instrument intended for explaining a sum amount of a particular product that a country should produce (or export) relatively comparing to the world. It can approximate the a country's segmented specialization (Leromaine and Orefice , 2013).

According to Sanidas and Shin (2009), comparative advantage value explains the pattern of international trade. One of many theories regarding comparative advantage theory is the Balassa Index (Balassa, 1965). It is most commonly used index in an analysis of comparative advantage research. In spite of several drawbacks, this index is still powerful when it comes to simple research in which not involving many sectors (inter-sectorial research).

This research utilizes revealed comparative advantage index to measure the value of comparative advantage based on the export performance of product *i* in country *j* compared with the total contribution of export commodity *i* of the world.

$$RCA_{ij} = \frac{X_{ij} / X_{tj}}{X_{iw} / X_{tw}}$$

X_{ij} = export value of product *I* by the country *j*
X_{tj} = total export value forestry products of country *j*
X_{iw} = world export value of product *i*
X_{tw} = world total export value forestry products

Principally, revealed comparative advantage formula consists of two parts; numerator and denominator. In each part, we will define the share of export value of a particular product comparing to the total product within a country. In the dominator part, the same procedure is also implemented on the global scale (world export).
The value of RCA index can be varied from zero to infinity (Santoso and Kotani, 2013). A value that is above one has an interpretation that the country has a revealed comparative advantage in the world trade in a certain product. However, a country can be considered has a revealed comparative disadvantage in world trade if its value is below one.

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3. Revealed Symmetric Comparative Advantage (RSCA)

This research uses Revealed Symmetric Comparative Advantage (RSCA) index as robustness test. Essentially, RSCA index is the same as RCA index except that possesses symmetric property. The formula RSCA is as follow:

$$RSCA = \frac{(RSCA - 1)}{(RSCA - 1)}$$

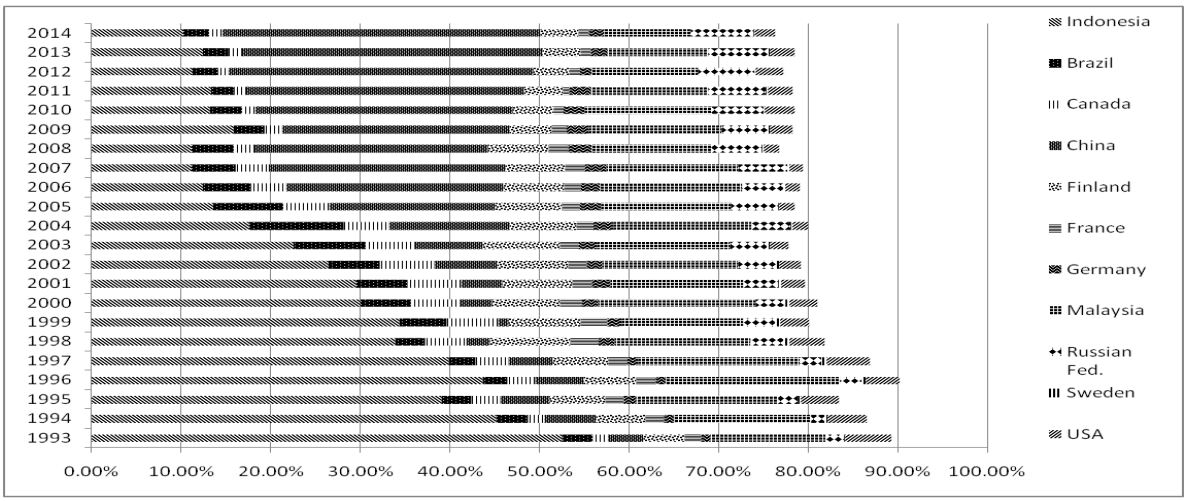
The value of RSCA is ranging from -1 to 1. The interpretation is almost as the same as RCA in which a product has comparative advantages if the value is above zero. On the other hand, the product can be categorized as less competitive if it has a value less than zero.

IV.RESULT AND DISCUSSION

A. Plywood Competitiveness

1. Market Share Analysis

The market share analysis can be carried out based on the calculation result of plywood product, as shown on the figure below.



Source: FAOSTAT

Figure 1. Plywood Market Share of Indonesia and 10 Selected Countries 1993-2014

The multi-bar chart illustrates the market share analysis in plywood industry generated from Indonesia, and other ten exporter countries from 1993 to 2014. It is measured in percentages. Overall, it can be seen that there is a slight decrease in export value of this commodity. However, those countries contributed around three-quarters of total commodities of the world market.

Indonesia dominated the plywood export market since 1993 by possessing 52.59% of total world share market (during the research period). And it commenced declining afterward. China, on the other hand, took over as the top exporter country in 2005 by overcoming 18.51% of the world market share. In the same year, Malaysia has managed to shadow China by obtaining 14.56% of the share. Brazil and Russian Federation were following behind with 4.62% and 4.38% in average market share respectively.

Even though Indonesia still dominates the plywood export, the declining trend is alarming. Basically, the

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raw material for plywood industry derives from timber in which originated from a forest. In Indonesia, there are two sources where a timber can be originated from; logging concession or planted forest. According to the Ministry of Forestry press release, the number of production permit in logging concession decreased from 27 million meters cubic to 23.8 million meter cubic during the 1990s to 2002. Furthermore, the decreasing trend continued and reached only 5.8 million meter cubic in 2004. This situation resulted in a condition in which a deficiency of raw material, that affected the existence of plywood industry directly. Therefore, many plywood exporters can not maintain their existence in this business.

There was a dramatic increase in export value in China during the periods, especially in 2005. In the same year, the government of China introduced a policy called managed floating exchange rate system, with respect to a basket of currencies (Kun et al, 2007). Combining with the low production cost, beneficial exchange rate and high quality of the product, this commodity has become more competitive in the world market.

2. Revealed Comparative Advantage (RCA) Methods

Table 5 compares the eleven countries in terms of the competitiveness of plywood commodity comparing to the world total export based on RCA method during 1993 – 2014. This method is purposely to obtain the ratio between the product share in the export market of plywood and its global market share.

The table indicates that Indonesia lead the plywood export during the period. Even though the country has a declining trend of RCA value which started from 13.55 in 1993 and reached 7.82 in 2014, Indonesia's plywood is still dominating the market among those years with the mean value 14.68. Malaysia on the other hand, experiences the opposite movement, gaining RCA value at 4.72 and peaked at 10.33 in 2014, with overall mean value 11.77. China, Russian Federation, and Brazil followed with 3.92, 1.94 and 1.59 respectively. RCA value above 1 explains the commodity exhibiting a strong comparative advantage.

3. Revealed Symmetric Comparative Advantage (RSCA) Methods

The table (table 9) shows changes in RSCA value among Indonesia and other top ten exporter countries during the period. In general, Indonesia and Malaysia have the same pattern in which relatively consistent during the years, with average on 0.863 and 0.833 respectively. China, Russia, and Brazil, on the other hand, exhibited a fluctuating trend. The RSCA value of China fluctuated in the beginning of the period and then started to be constant in 2004 with overall value 0.465. The same trend experienced by Russian Federation, in which having the turning point in the year of 2000 with 0.299 in average. On the other hand, Brazil suffered fluctuates in the initiation and the started to drop in 2009 by having a negative value of RSCA (-0.191).

The overall value of RSCA among countries mentioned above is positive (more than zero), with the exception of trend experienced by Brazil at the end of the period. Thus, plywood produced by these countries is quite competitive, especially products originated from Indonesia and Malaysia.

B. Sawn Wood Competitiveness

1. Market Share Analysis

The bar graph on Figure 2 below provides information about the market share of Indonesia, comparing to the other top ten competitors in sawn wood exporting countries around the world and also comparing to the

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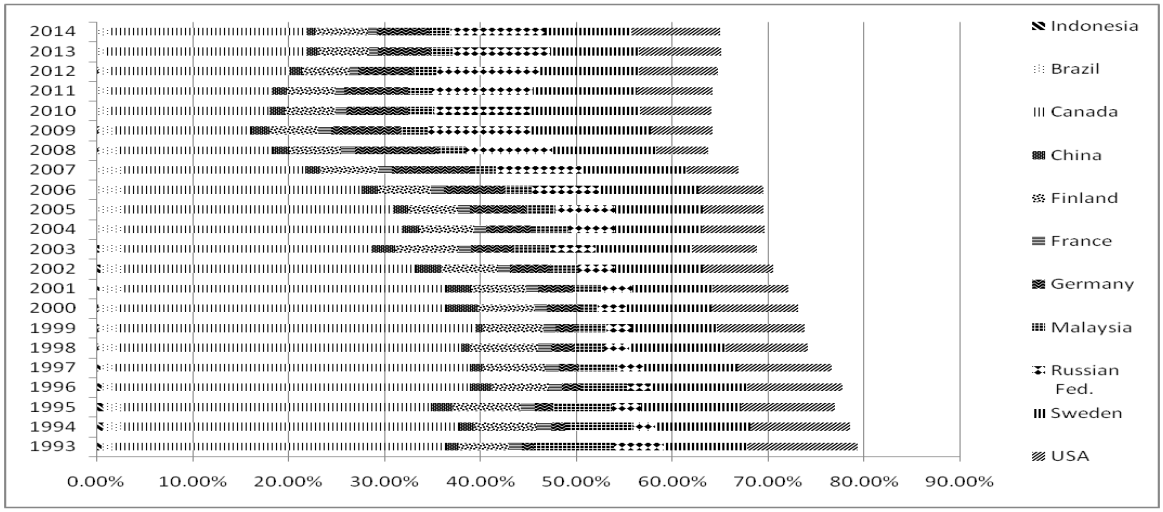
global market. In general, Indonesia and those other countries dominate around two-third of the global market (70.46%). The figures can be shown as follows.



Source: FAOSTAT

Figure 2. Sawnwood Market Share of Indonesia and 10 Selected Countries 1993-2014.

According to the graph, Indonesia has the lowest market share in the global market comparing to other competitors by only possessing 0.27% in average during the period. On the contrary, over the last two decades Canada dominate the market by obtaining 27.22% of the global market share. However, the trend tends to decline over the years. Sweden and the US achieved the second and third biggest market share during the period (9.91% and 8.13%).

2. Revealed Comparative Advantage (RCA) Methods

Table 6 reports summarize the calculations on the competitiveness of sawn wood product among Indonesia and other ten competitor countries during 1993 to 2014 based on RCA indicator.

According to Balassa (1989), revealed comparative advantage measure is the most reasonable tool in calculating and determining comparative advantages such as patterns of trade specialization, trade patterns, and international trade advantage. Related to the idea, this research finds that Malaysia, Russia Federation, Canada and Sweden are the only countries obtaining RCA value more than 1 and also dominating the sawn wood export at the same time. Malaysia (2.59) and Russia Federation (2.53) are the most competitive countries in term of sawn wood export production. The trends experienced by all eleven countries in this research, most surprisingly relative in a constant state. It means that the competition is fairly stable.

3. Revealed Symmetric Comparative Advantage (RSCA)Methods

The revealed symmetric comparative advantage calculations as shown in Table 10, shows the competition pattern of sawn wood product in the world market. The table illustrates the pattern of RSCA value of the countries involved in the research during the period.

Malaysia, Russia Federation, Canada, and Sweden were the only five countries achieved RSCA value more than zero (positive), by 0.44, 0.40,

0.32 and 0. 07 in average, respectively. It can be determined that based on this indicator, the competition

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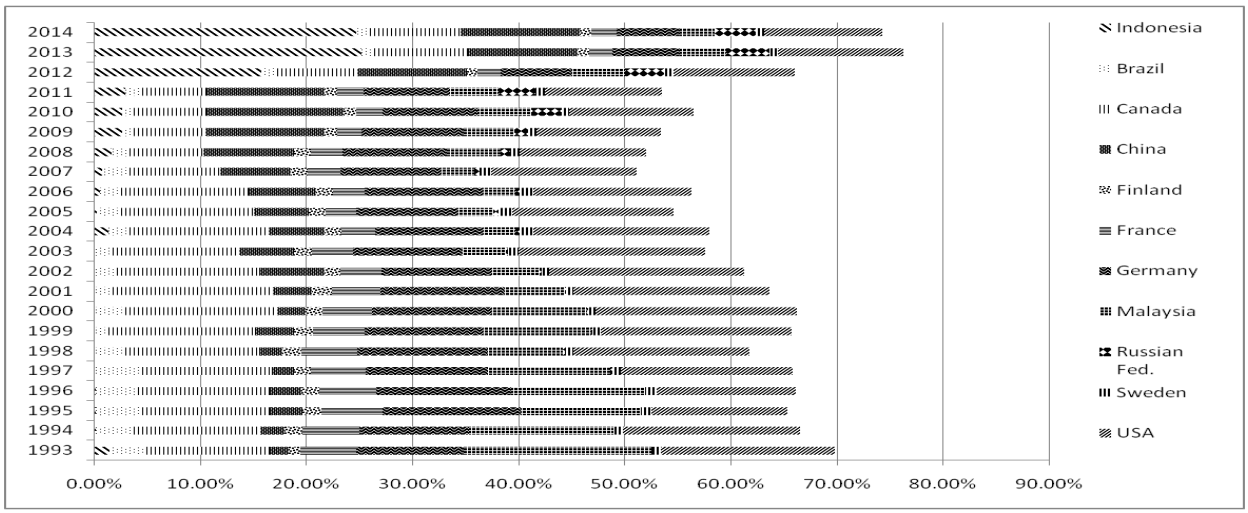
between the countries is very tight (with the exception of Sweden).

Indonesia, on the other hand, was the lowest in the average of RSCA value comparing to other ten countries, by gaining only negative 0.74. It means that sawn wood product originated from Indonesia has disadvantage comparing to other countries. During these periods, the competitiveness of Indonesian sawn wood product based on RSCA value was relatively stable from – 0.74 to - 0.81 at the end of the period.

C. Veneer Sheet Competitiveness

1. Market Share Analysis

The following bar chart illustrates veneer market share of Indonesia and 10 selected countries during 1993 to 2014. According to the chart, we can discover the market share among the countries and also the trend during the period.



Source: FAOSTAT

Figure 3. Veneer Market Share of Indonesia and 10 Selected Countries 1993-2014

The market share of veneer in the world market is dominated by the United States with obtaining the average of 14.74% of the world total market and having a growing trend. The second and third place are Canada with 11% and Germany by achieving 10.02% in average but they have declining movement through the period and only achieved 8.68% and 6.00% respectively. Malaysia is following behind with 6.9% and China positioned in the fifth place in this market (by 6.13%).

Although veneer world market is dominated by developed countries, the movement during the period states the otherwise. United States, Canada, and Germany suffer the declining trend, while China and Indonesia experienced inclining movement. China only obtains 6.13% in average, however, they tend to always rise from 1.76% and reached 11.74% at the end of the period. Indonesia also experiences the same movement, by obtaining 1.48% of the market share and then peaked 24.71% at the end. These two increasing trend can be considered as a potential competitiveness in the incoming world market.

2. Revealed Comparative Advantage (RCA)Methods

The veneer revealed comparative advantage calculation result as seen in Table 7 illustrates the competitiveness of this commodity comparing to the world total export based on during 1993 to 2014.

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Overall, it can be seen that only three countries managed to obtain RCA value above 1, namely Malaysia, Indonesia and China.

In order to determine the competitiveness among those three countries, the tendency of movement becomes an important factor along with the average value gained by each country. It can also be employed to uncover the present situation and predict the movement in the upcoming event. Each country has its own trend due to the periods. In average, Malaysia possessed 5.02 and made them the most dominant among other countries. However, the trend is declining from gaining 6.5 at the beginning of the period and then descending to 3.52. Indonesia, on the other hand, managed to obtain
2.79 in the average level but it acquired only 0.38 and started rocketing reached 18.92 at the end of the period. The next country with the RCA level above 1 is China, by securing 1.62 in average.

3. Revealed Symmetric Comparative Advantage (RSCA)Methods

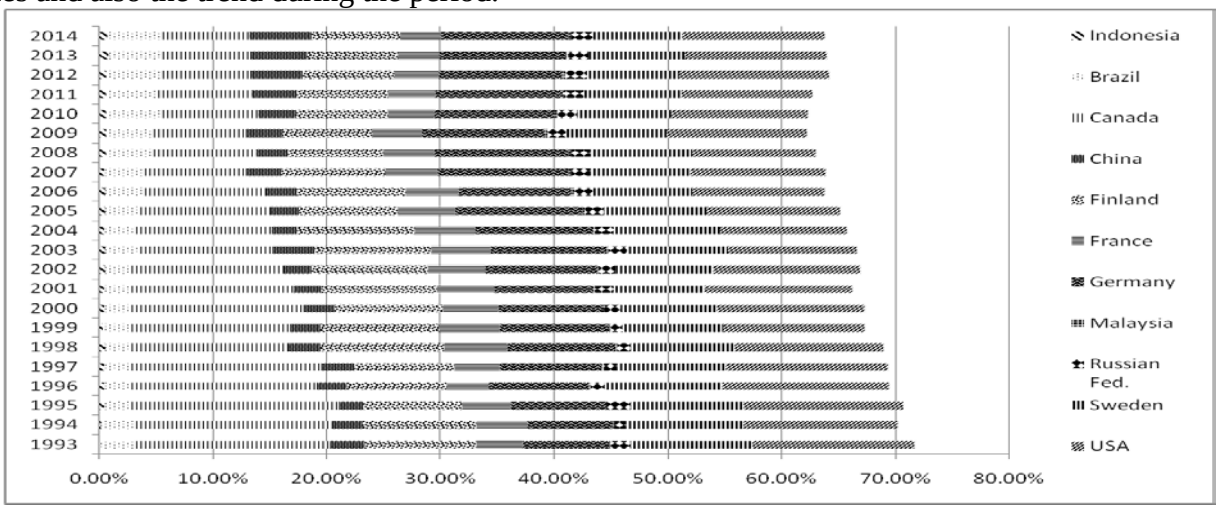
According to the Table 11, only Malaysia and China show the revealed symmetric comparative advantage value above zero (positive). Malaysia with 0.63 and China by possessing 0.19 lead the competition in the veneer global market. In average, the United States and Germany also obtain a positive value, but the trends are fluctuating and suffered negatives for the last several years during the period.

The level of competitiveness for Indonesia product has not shown great result during the period. In 1993 veneer products from Indonesia compete with the same product from competitor countries, shown by only achieving – 0.44. In the meantime, Malaysia managed to reach 0.733. However, slowly the movement started to ascend reached 0.90 in the completing period (Malaysia stays on 0.55). On this basis, we can state that the competitiveness of Indonesia product is promising.

D. Pulp & Paper Competitiveness

1. Market Share Analysis

The following bar chart demonstrates market share of Indonesia pulp & paper comparing to ten selected countries during 1993 to 2014. According to the chart, we can discover the market share among the countries and also the trend during the period.



Source: FAOSTAT

Figure 4. Pulp & Paper Market Share of Indonesia and 10 Selected Countries 1993-2014

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Overall, most of the countries involving in the research suffered from a declining trend of the pulp & paper market share in the world market. The United States, Canada, Germany, Finland and Sweden are the top 5 dominant countries that have the biggest market share in the global market. In 1993, 14.21% of the global ruled by the US and then started to decline slowly reached 12.47% in 2014. Canada in the second place, experienced worse than the US by obtaining 17.41% in 1993 and dropped steeply to 7.74% at the end of the period.

Indonesia product competitiveness has not been become a factor taken into account in the global market. It is shown by only contributing 0.05% in 1993 and reached 0.64% in 2014, by average 0.45% in the world market. On the other hand, the growth of the pulp & paper industry has developed rapidly since 1995 and replaces the wood panel industry's role in achieving the biggest foreign export income. Forestry sector's contribution to gross domestic product ranges from 1.7% to 3.1% during the period 1993-2005. This figure is larger than the Asian average, 1.1% (FAO, 2005).

Ministry of Industry of Indonesia in the press release declared that the pulp & paper industry can grow optimally if the government put more effort in encouraging exports and support domestic industries. Therefore, these industry is considered less efficient because at this present day they use raw materials imported pulp and waste paper with Timber Legality Verification System certified (SVLK in Bahasa Indonesia term), resulting in high production costs. Once the issue has been resolved, the level of competitiveness of this product in the world market will be strengthened.

2. Revealed Comparative Advantage (RCA) Methods

The pulp and paper revealed comparative advantage calculation result shown in Table 8 demonstrates the competitiveness of the commodity comparing to the world total export on during 1993 to 2014.
As determined by the Table 8, four developed countries dominated the pulp and paper global market, shown by all of those four countries governs above 1 in the RCA calculation result. The most dominant exporter country based on this indicator is France by conceding 1.14, followed by Germany in second place with 1.13, US (1.08) and finally Finland by yielding 1.07. Indonesia on the contrary, posts the lowest among top ten exporter countries by obtaining only 0.34.

3. Revealed Symmetric Comparative Advantage (RSCA) Methods

Table 12 summarizes the revealed symmetric comparative advantage of pulp and paper product of Indonesia and ten other selected countries during 1993 to 2014.

The table shows the export performances of France's pulp and paper display the first place, by yielding 0.06 (positive). Although the value is relatively small (near zero), the movement happened along the years is considerably constant. Almost the same condition experienced by Germany, as following behind by conceding 0.05 in average. Meanwhile, the result for US and Finland are roughly comparable by obtaining 0.40 and 0.37 respectively. Overall, the developed countries of Europe and America region dominated the competitiveness of pulp and paper export of the world market during the period.

Based on the Indonesia export quantity, the trend for those four primary forestry product are different, as shown on the graph as follow.

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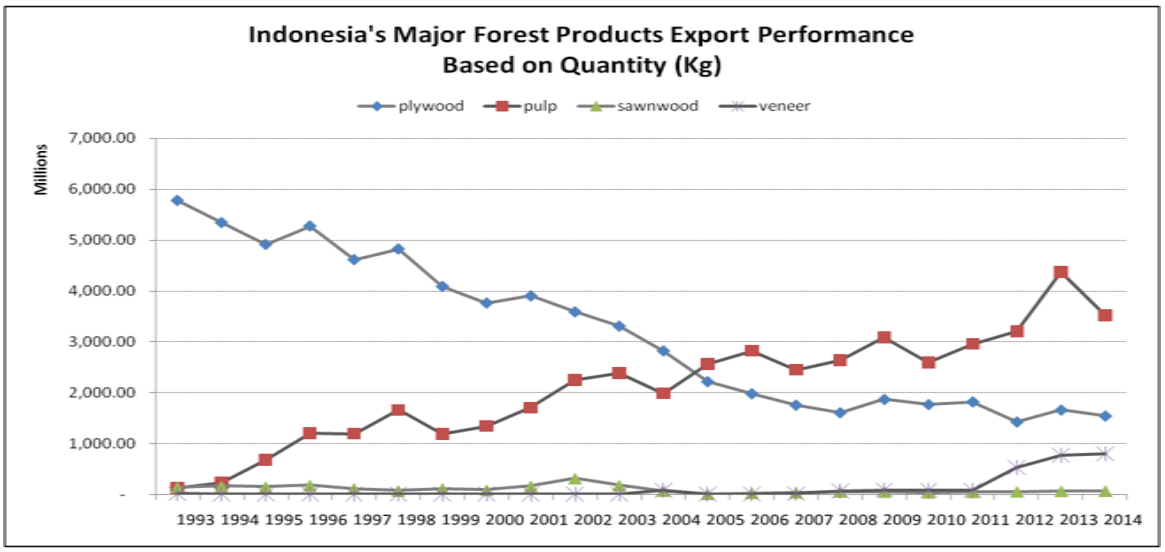

Figure 5. Indonesia major forestry product export performance based on quantity during 1993-2014.

According to the graph, the export performance on Indonesia's plywood was the only product in which declining. The export quantity trend for veneer and pulp & paper were growing, whilst it was relatively constant for the sawnwood. Without considering the competitor of other exporter countries, the upward trend of Indonesia pulp & paper export performance gives the impression that it was very convincing. Nevertheless, comparing to top ten exporter countries in the global market, Indonesia pulp & paper has not yet having a strong competitiveness level. The three methods employed in this study corroborating the statement to the above.

V. CONCLUSION

This research examines further investigation regarding the competitiveness of Indonesia's forestry major products that has been conducted in the previous study by Santoso (2013). Three different methods are applied in this research in order to understand the level of competitiveness of the four major forest products, namely plywood, sawn wood, veneer and pulp & paper. The research focuses on Indonesia as a pivotal point and then comparing it with top ten exporter countries in the world market by utilizing FAOSTAT data from 1993 to 2014.

Indonesia dominated the plywood export market since 1993 by achieving 52.59% of total world market share. It means that Indonesia plywood is very competitive in gaining the market in the global market. Revealed comparative advantages (RCA) and revealed symmetric comparative advantages (RSCA) confirmed the notion. During the research period, the RCA value ranged between 13.55 to 7.82 at the end of period and 14.88 in average. In the meantime, the RSCA value above zero (0.86) indicates that this product has a strong competitiveness among competitors. However, the declining movement is worth to be considered as an alarm. Furthermore, China with an upward trend in gaining market share (15.54%) and Malaysia with solid evidence of the high value of RCA and RSCA.

The level of competitiveness of Indonesia's sawn wood is contradictory to that plywood. Indonesia only contributed 0.27% of the total world market, with the declining movement from 0.57% (in 1993) to 0.14%

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in 2014. Canada and Sweden dominating the world export by gaining 27.22% and 9.91% respectively. According to the RCA and RSCA value, this commodity has a very weak comparative advantage comparing to the competitor. In 1993, Indonesia's veneer export product had an exceedingly low level of competitiveness in the world market. It is illustrated by only possessing 1.48% in the market share, 0.38 in RCA value and -0.44 in RSCA indicator. In 2014, however, the comparative advantage has become rocketing peaked 18.93 with RSCA value 0.9. It can be asserted that this commodity has a bright future in term of the competitiveness in the global market.

Indonesia's pulp & paper product does not have a strong competitiveness in the world market. It can be shown by acquiring 0.45% in market share, 0.34 in comparative advantage but a negative result on RSCA (-0.51). Even though there is an upward trend, the increasing amount is moderately small. Germany, on the other hand has extremely strong comparative advantages by securing 1.12, gaining 0.06 in RSCA value and 9.96% of the total world market share with an upward movement.

In general, the less competitiveness of Indonesia's forestry product does not only depend on the internal or technical factor. According to the World Bank's research in 2004, many problems surfaced in relatively the same time. Those are as follows.

1. The lack of competitiveness in terms of production costs, mainly due to the high inflation rate and the declining of the currency. The high-cost transaction was also to be one of the weaknesses in this structure.
2. The decreasing value of investment in the country. Bad investment atmosphere affected investor especially foreign investors.
3. Increasing international competition after the global crisis.
4. Lack of raw material and its sustainability.

Recommendations

The finding of this study reveals that plywood has strong competitiveness export with the notes that the trend continues to decline over the years. Despite the fact that veneer product still contributes a very small amount of comparing to the total forest export product, this commodity can be considered as a promising product since the export movement shows growing trends. Sawn wood and pulp & paper on the other hand, exhibit a week comparative advantage comparing to the competitors. Therefore, government should concern more to plywood and veneer products, by issuing policies in which stand in the favor of the forestry companies. Export structure should also be reformed in order in order to shorten the bureaucracy and reduced the cost.

REFERENCES

1. Balassa, Bella and Marcu Noland, (1989), Revealed Comparative Advantage in Japan and The United States, Journal of Internatioal Economic Integration 4(2), Autumn 8-22
2. Barusman, M. Yusuf (2013), Daya Saing dan Kebijakan Ekonomi Internasional Kayu Lapis Indonesia, Vol 3, No 2, Jurnal Manajemen dan Bisnis, Universitas Bandar Lampung, Indonesia
3. Blundell, R., Griffith, R., & Van Reenen, J. (1999). Market share, market value and innovation in a panel of British manufacturing firms. The Review of Economic Studies, 66(3), 529-554.

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4. Burange, L.G. and Sheetal J Chaddha, (2008), India's Revealed Comparative Advantage In Merchandise Trade, Department of Economics, University of Mumbay
5. Esfahani, F.A. and Glen Michael Anderson, (2006), Constant Market Share Analysis, Department of Agricultural Economics, University of Sydney, Australia
6. FAO. (2016). FAOSTAT Data Base Home Page (http://faostat3.fao.org/home/E).
7. Leromain, Elsa and Gianluca Orefice, (2013), New Revealed Comparative Advantage Index: Dataset and Emoirical Distribution, Centre D'etudes Prospectives et D'informations Internationales, No. 2013-20
8. Safitri, Dian, (2014), Analisis Daya Saing Komoditas Pulp dan Kertas Indonesia di Negara Importir Utama, Bogor Agricultural University, Indonesia
9. Sanidas, Elias and Yousun Shin, (2009), Comparison of revealed Comparative Advantage Indices with Application to Trade tendencies of East Asian Countries, Department of Economics, Seoul National University
10. Santoso, K.B., and Koji Kotani (2013), The Competitiveness of Indonesian Forestry Primary Products, International University of Japan