European Journal of Agriculture and Forestry Research
Vol.6, No.5, pp.34-46, December 2018
Published by European Centre for Research Training and Development UK (www.eajournals.org)

STRATEGIES TO INCREASE THE VALUE ADDED OF WOOD TRADING IN INDONESIA

[1]Kara Gus Lantera, [2]Dodik Ridho Nurrochmat, [3]Toni Bakhtiar

[1]School of Business, Bogor Agricultural University, Indonesia
[2]School of Business, Bogor Agricultural University, Indonesia
[3]Department of Mathematics, Bogor Agricultural University, Indonesia

ABSTRACT: *Background and Objective: This research is conducted in order to see which forest products especially wood products have the best value added in wood trading in Indonesia by using sales margin and profit margin formula. Wood products in this research are log, sawn timber, plywood, particle board and furniture that made from mixed tropical hardwood, meranti and luxury classes of timber. Methodology: Price information, marketing agency and production cost of wood products in international and domestic market collected by interview with wood products companies, APHI and BPS are then the information that can be used as data process using actor identification, sales margin analysis, and profit margin analysis. Results: In the mixed tropical hardwood class to be exported mostly processed into plywood with the profit of Rp1,644,500/ m³ log. Meranti is exported in the form of sawn timber with the profit margin of Rp 2,070,250/ m³ log. Furniture is the best-processed product for luxury classes of timber with the profit margin of Rp 9,129,120/ m³ log in the international market, and it has the highest profit margin / m³ log from all of the products made from tropical hardwood in this research. Conclusion: Based on the research, the most appropriate strategy to improve the added value of wood trading in Indonesia is through selling the mixed forest hardwood class in the form of plywood, meranti wood class, in the form of sawn timber and luxury wood class in the form of furniture because they have the highest sales margin and profit margin. The government should consider giving export permit for meranti wood class processed into sawn timber because after observing the analysis, it has the highest market and profit margin than meranti wood class processed into other products.*

KEYWORDS: value added, wood, sales margin, profit margin, wood trading

INTRODUCTION

Wood trading is the best way to improve forest's potential in the economic field. In 1980, a policy on the log export prohibition was first issued in May through the Joint Ministerial Decree (Minister of Agriculture, Minister of Industry and Trade Minister). The log export prohibition was implemented in stages at first, and then in 1985, it was fully implemented. After the crisis at the urging of the IMF, the prohibition was stopped in 1998 and it was reinstated in 2001 until now. In the beginning, the log export prohibition aimed to improve the export revenue from forestry sector through the improvement of processed wood export, improve the employment absorption, improve the added value of log, and encourage the development of regional economy.

The log export prohibition policy was re-enacted through the Joint Ministerial Decree (SKB) of the Minister of Forestry No. 1132/Kpt-II/2001 and the Minister of Industry and Trade No.

ISSN: 2054-6319 (Print), 2054-6327(online)

192/MPP/Kep/10/2001, dated 8 October 2001. The objectives were mentioned, among others, prevent the exploitation of log export/raw materials of chips policies by the illegal logger and illegal trading that threaten the preservation of forest resources and causing environmental damage.

Wood trading in Indonesia can be maximized its potential through the appropriate selection of log or processed products where those products have high selling price. By selecting the product with high value, it is expected to improve the selling price of wood products sales especially overseas by taking into account certain policies.

LITERATURE REVIEW

There are several studies and literature that support this research. The research focuses on value added of wood products and wood trading using sales margin and profit margin formula.

Value added

Value added is defined as the difference between an input and an output value to estimate the remuneration received by the direct labor force and a business unit (Syafitri, 2002). The added value referred to in this research is the added value obtained from the processing of logs and the remaining pieces of wood that are processed into various wood products such as plywood, particle board, sawn timber and so on.

Sales Margin

The understanding of sales margin analysis and price share is one way to determine the efficiency level of a marketing. Sales margin can be known from the calculation of costs incurred and profit marketing agency that play a role in the marketing process. Sales margin, in other words, can also be interpreted as the price difference received by farmers with intermediary traders (Sutarno, 2014).

Profit Margin

According to Harahap (2009), the profit margin is an excess of income over expenses during one accounting period. While the notion of profit observed by the current accounting structure is the difference in the measurement of income and expenses. According to Warren et.al (2005), profits is: (net income or net profit) an excess of income on the burdens that occur.

Framework for Operational Thinking

Based on the reasons mentioned above, the analysis process of strategy to improve the added value on the wood processed products based on the analysis of sales margin and profit margin of log and processed wood such as sawn timber, plywood, particle board and furniture. Collecting the average data of price in the international market for the wood products that will be analyzed. Then, the raw material in the form of the log is analyzed its creation of added value if it’s processed into sawn timber, plywood, furniture and particle board through approach method of sales and profit margin analysis. After knowing that the creation of its added value from selected wood products, it can be determined which processing option is

ISSN: 2054-6319 (Print), 2054-6327(online)

best in order to create added value and optimal selling price. If it is found that logs have a good selling price in the international market compared to some other processed wood products, it will be associated with SKB Minister of Forestry Number 1132/Kpt-II/2001 and Minister of Industry and Trade Number 192/MPP/Kep/10/2001. After obtaining the added value, the best profit margin and sales margin, then the selection stage of which forest product products are the most potential to be produced taking into account the domestic and foreign demand.

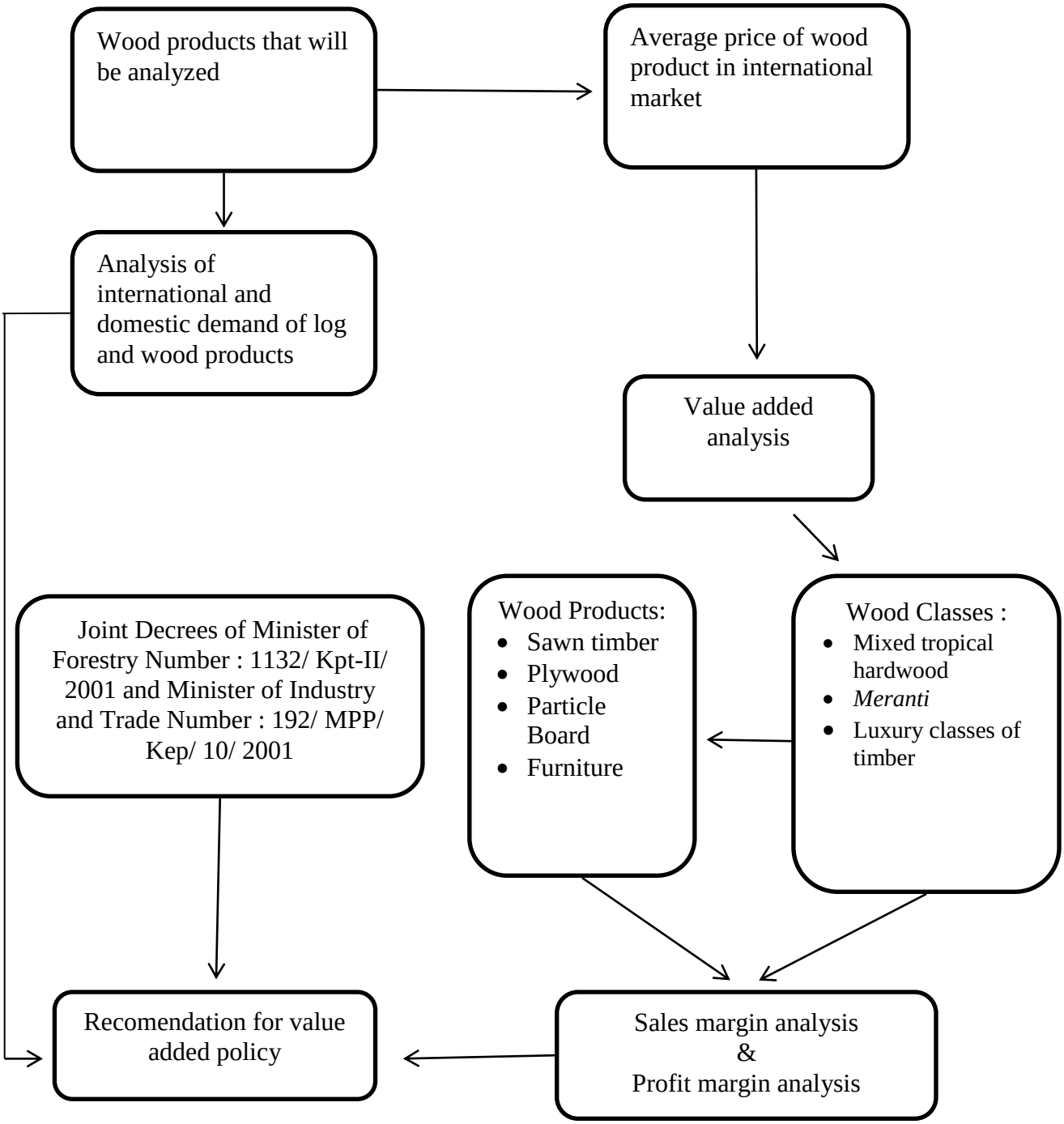

Figure 1 Framework for Operational Thinking

ISSN: 2054-6319 (Print), 2054-6327(online)

MATERIALS AND METHODS

Descriptive Analysis

The design used in this research is descriptive analysis by conducting data collection to answer the problems. Then, analysis with the approach method of sales and profit margin analysis is conducted. This research uses primary and secondary data. Primary data is obtained through a direct interview with the wood companies in Indonesia. Secondary data collected in this research is the data of average export price of Indonesia forestry based on the interested countries ad domestic price, international and domestic demand of Central Bureau of Statistics (BPS), the Ministry of Forestry, the Ministry of Trade and the Ministry of Industry.

Time and Place

This research was conducted in March to August 2017 at wood products company in Indonesia that can represent international and domestic data. Especially log, sawn timber, plywood, particle board and furniture companies and also APHI as the wood trading association.

Actor Identification

The actor identification of the sale of processed wood products should be done in order to know the creation of added value, tracing and backward linkage from exporter, domestic producer up to raw material sources.

Sales Margin Analysis

In this research, sales margin analysis approaches though sales agency channel. Where each of five types of processed wood products is analyzed based on each agency to know the sales and profit margin in each level of the agency. Sales agency of processed wood products consists of a farmer, collector, and exporter. The formula used in sales margin analysis is presented as follows.

$$M_i = P_i - B_i$$

$$\pi_i = M_i - C_i$$

$$TM = \sum_{i=1}^{n} M_i$$

Description,

i	=	Marketing agency *($i \in \{1,2,3...,n\}$)*
P_i	=	Selling price by marketing agency-*i*
B_i	=	Buying price by marketing agency-*i*
C_i	=	Cost incurred by marketing agency-*i*
π_i	=	Profit gained by marketing agency-*i*
M_i	=	Sales margin gained by marketing agency-*i*
Tm	=	Total sales margin

ISSN: 2054-6319 (Print), 2054-6327(online)

Profit Margin Analysis

Profit margin analysis by collecting the data of average selling price in the international and domestic market as well as average production cost from several related companies

$$\pi = TR - TC$$

Description,

π = Profit or margin

TR = Total revenue

TC = Total cost

Profit Margin Analysis / m^3

This yield is useful to know how effective and efficient the processing of wood products with raw material in the form of the log. The higher the yield, the more effective the raw material because of less waste. In this analysis, it requires the yield to know 1 m³ log can be processed into how many m³ from each processed wood product. This is done in order to get the real profit margin as in the field.

The following formula is obtained to calculate the profit margin analysis /m³ log.

Table 1 Yield of wood products

Products	Yield (%)
Sawn timber	65
Plywood	55
Fibre board	50
Furniture	80

$$\Pi = \pi_i \times R_i$$

Description,

Π = Profit margin / m³ *log* (Rp/ m³ log)

π_i = Profit margin depend on profit margin analysis (Rp)

R_i = Yield of wood products (%)

ISSN: 2054-6319 (Print), 2054-6327(online)

RESULT AND DISCUSSION

Wood Products

Wood products are the result of adding value from raw material in the form of log to be processed products. The size used in this research for log of mixed tropical hardwood class is diameter of 20 cm s/d 29 cm, log of meranti wood class with the diameter of 30 cm s/d 39 cm, log class of luxury wood with the diameter of 40 cm s/d 49 cm, sawn timber with dimension of 1 mx 0.08 mx 0.03 m (SNI 01-5008.1-1999), plywood and particle board with dimension of 1.22 mx 2.44 mx 0.018 m, and the type of indoor furniture.

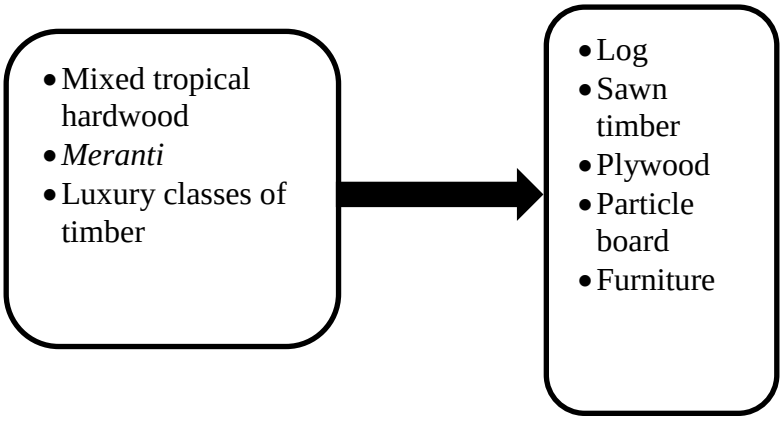

Figure 2 Wood products

International and Domestic Demand of Wood Products

Based on the data from BPS of 2011 – 2015, it was recorded that the average international demand from five largest importing countries amounted to 1,629,653 m^3. In the domestic market, based on the data from Ministry of Forestry in 2011 – 2015, it was recorded that the average demand for wood products in Indonesia amounted to 49,092,971 m^3. Although the demand in the international market keeps increasing from year to year but based on the average international and domestic demand, the domestic demand is larger than the international demand.

ISSN: 2054-6319 (Print), 2054-6327(online)

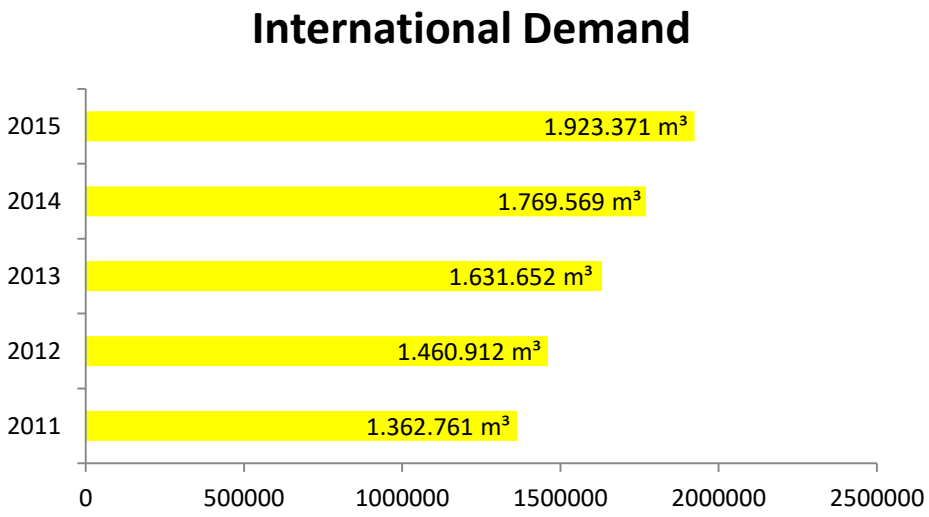

Figure 3 International demand

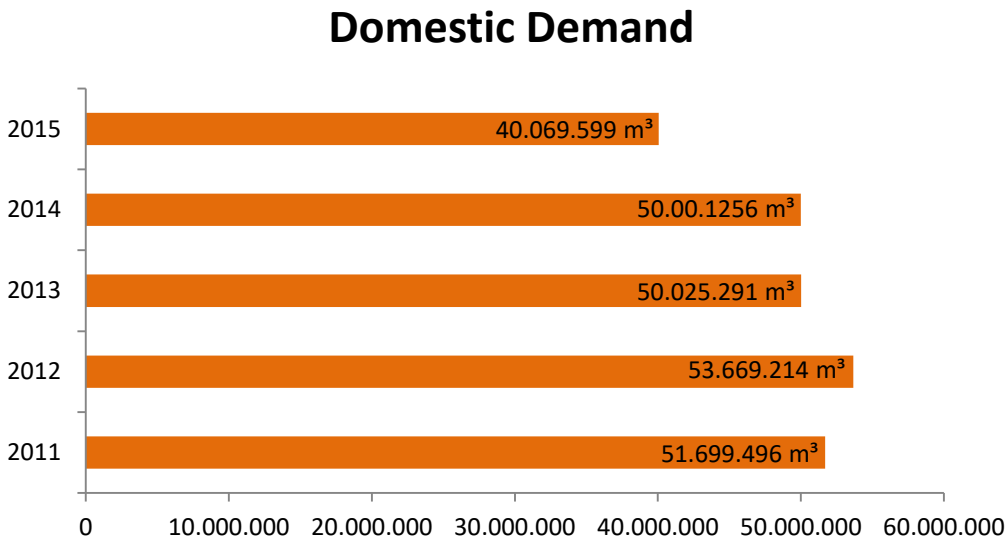

Figure 4 Domestic demand

Sales Margin Analysis

Based on the table, it can be seen that the difference between sales margin and marketing margin of all processed wood products from mixed tropical hardwood class tend to be lower compared to other wood classes. For example, in the plywood product, although there has been an increase in added value in the form of log processing into plywood but mixed tropical hardwood class, it still has the lowest marketing margin. Plywood of mixed tropical

ISSN: 2054-6319 (Print), 2054-6327(online)

hardwood class is only Rp 1,100,000/m³, while plywood of meranti wood class and luxury wood class are respectively Rp 1,300,000/m³ and Rp 2,000,000/m³. This suggests that the wood class used as the raw material can determine the high level of marketing margin of a product. The comparison of marketing margins from the five timber forest products shows that furniture product is the highest with the raw material of wood class (hardwood tree) of Rp 33,000,000/m³ and the lowest is the log of mixed tropical hardwood class of Rp 200,000/m³.

Table 2 Sales margin analysis

Products	Wood Classes	Total Sales Margin (Rp/m³)
Log	Mixed Tropical Hardwood	200,000
	Meranti	500,000
	Luxury Classes of Timber	2,000,000
Sawn Timber	Mixed Tropical Hardwood	900,000
	Meranti	**1,400,000**
	Luxury Classes of Timber	4,000,000
Plywood	Mixed Tropical Hardwood	**1,100,000**
	Meranti	1,300,000
	Luxury Classes of Timber	2,000,000
Particle Board	Mixed Tropical Hardwood	359,000
Furniture	Luxury Classes of Timber	**33,000,000**

Profit margin analysis

Based on the results of the research and the presentation of two tables, it can be seen that the profit margin of processed wood products tends to be higher in the international market. However, it has to be observed from the number of domestic and international demand. The profit margin analysis in Table 3 shows that furniture products made from luxurious wood class have the highest profit margin of Rp 11,411,400/m³ and the lowest is logs of mixed tropical hardwood of Rp 468.000/m³ in the international market. Luxury wood class furniture is in great demand in the international market because it has good strength, durability, and high aesthetic value. It also happens in the domestic market where luxurious wood class furniture has the highest profit margin of Rp 7,500,000/m³. Processed wood products with the lowest profit are particle board from mixed tropical hardwood amounted to Rp 109,000/m³, this is because the particle board is one of the alternatives of waste utilization from logs, sawn timber, plywood, and furniture for zero waste.

Seeing the number of demand in the figure 3 and 4, although the profit margin in the international market is higher but the number of domestic demand is still higher in which the demand is equally applicable to all wood products based on data from BPS that the average demand for the last 5 years of 2011 up to 2015 reached 49,092,971 m³. While on the international market the average demand for the last 5 years of 2011 to 2015 was only 1,629,653 m³ based on the 5 largest importing countries.

ISSN: 2054-6319 (Print), 2054-6327(online)

Table 3 Profit margin analysis in international market

Products	Wood Classes	*TC* (US$/m³)	*TR* (US$/m³)	π (US$/m³)	π (Rp /m³)
Log	Mixed Tropical Hardwood	54	90	36	468,000
	Meranti	90	150	60	780,000
	Luxury Classes of Timber	540	900	360	4,680,000
Sawn Timber	Mixed Tropical Hardwood	325	500	175	2,275,000
	Meranti	455	700	245	3,185,000
	Luxury Classes of Timber	1040	1600	560	7,280,000
Plywood	Mixed Tropical Hardwood	345	575	230	2,990,000
	Meranti	405	675	270	3,510,000
	Luxury Classes of Timber	600	1000	400	5,200,000
Particle Board	Mixed Tropical Hardwood	172,5	230	57,5	747,500
Furniture	Luxury Classes of Timber	2048,2	2926	877,8	11,411,400

Table 4 Profit margin analysis in domestic market

Products	Kelas Kayu	π (Rp/m³)
Log	Mixed Tropical Hardwood	150,000
	Meranti	400,000
	Luxury Classes of Timber	1,500,000
Sawn Timber	Mixed Tropical Hardwood	650,000
	Meranti	1,000,000
	Luxury Classes of Timber	2,900,000
Plywood	Mixed Tropical Hardwood	850,000
	Meranti	1,100,000
	Luxury Classes of Timber	1,500,000
Particle Board	Mixed Tropical Hardwood	109,000
Furniture	Luxury Classes of Timber	7,500,000

ISSN: 2054-6319 (Print), 2054-6327(online)

Profit margin analysis /m³ log

In the mixed tropical hardwood class for export is best processed into plywood with a profit of Rp1,644,500/m³ log than exported in the form of a log, sawn timber and particle board. Meranti wood class is exported in sawn timber because it has a profit margin of Rp2,070,250/m³ log compared to processed into other wood products. SKB Regulation of the Minister of Forestry Number 1132/Kpt-II/2001 and the Minister of Industry and Trade No. 192/MPP/Kep/10/2001 prohibiting the export of logs and sawn timber, based on this research it should be granted an exception to the sawn timber of meranti class. Furniture is the best-processed product for luxury wood class with a profit margin of Rp9,129,120/m³ log in the international market, and it has the highest profit margin/m³ log of all processed wood products in this research.

In the domestic market the profit margin/m³ log is the same as in the international market, mixed tropical hardwood class is best processed into plywood with a profit margin of Rp 467,500/m³ log. The reality in the field, based on the results of an interview with plywood companies it is found that most of the production is plywood with raw materials of mixed tropical hardwood such as sengon and jabon. The reason is that Indonesia has lots of raw material and it also has the value of > 50% yield and the demand is quite high in the international and domestic market. Based on the data from BPS, in the international market with the total of 20 plywood importing countries, it was recorded that in 2011-2015 had the average number of 2,254,569.24 m³ and in the domestic market of 3,439,084 m³. Sawn timber of meranti wood class has the highest profit margin of Rp 650,000/m³ log, and from the luxurious class, the highest profit margin is owned by furniture of Rp 6,000,000/m³ log.

Table 5 Profit margin analysis / m³ log in international market

Produk	Kelas Kayu	π (Rp/ m³)	Rendemen (%)	*Π* (Rp)
Log	Mixed Tropical Hardwood	468.000	-	468,000
	Meranti	780.000	-	780,000
	Luxury Classes of Timber	4.680.000	-	4,680,000
Sawn Timber	Mixed Tropical Hardwood	2.275.000	65	1,478,750
	Meranti	3.185.000	65	**2,070,250**
	Luxury Classes of Timber	7.280.000	65	4,732,000
Plywood	Mixed Tropical Hardwood	2.990.000	55	**1,644,500**
	Meranti	3.510.000	55	1,930,500
	Luxury Classes of Timber	5.200.000	55	2,860,000
Particle Board	Mixed Tropical Hardwood	747.500	50	373,750
Furniture	Luxury Classes of Timber	11.411.400	80	**9,129,120**

ISSN: 2054-6319 (Print), 2054-6327(online)

Table 6 Profit margin analysis / m³ log in domestic market

Produk	Kelas Kayu	π (Rp/m³)	Rendemen (%)	*Π* (Rp)
Log	Mixed Tropical Hardwood	150.000	-	150,000
	Meranti	400.000	-	400,000
	Luxury Classes of Timber	1.500.000	-	1,500,000
Sawn Timber	Mixed Tropical Hardwood	650.000	65	422,500
	Meranti	1.000.000	65	**650,000**
	Luxury Classes of Timber	2.900.000	65	1,885,000
Plywood	Mixed Tropical Hardwood	850.000	55	**467,500**
	Meranti	1.100.000	55	605,000
	Luxury Classes of Timber	1.500.000	55	825,000
Particle Board	Mixed Tropical Hardwood	109.000	50	54,500
Furniture	Luxury Classes of Timber	7.500.000	80	**6,000,000**

Policy Implementation

Based on the SKB Regulation of the Minister of Forestry Number 1132/Kpt-II/2001 and the Minister of Industry and Trade No. 192/MPP/Kep/10/2001 which prohibit the export of log and sawn timber, the purpose of this research is to know whether there are wood products and sawn timber which should be given consideration of the permit to be exported from the marketing margin value and its profit on the three wood classes in this study. It found that sawn timber from log material of meranti class should be given the consideration regarding the export permit because it has the highest sales margin comparing to other wood processed or meranti class amounted to 1,400,000/m³ and the profit margin of 2,070,250/m³ log in the international market. Meanwhile, based on the data of average production of sawn timber in 2011-2015 in BPS amounted to 1,256,797 m³ and based on data from the Forestry Production Statistics 2011-2015 published by the Ministry of Forestry it was recorded that the average production of meranti log which can be utilized amounted to 5,155 .850,60 m³.

With an abundant number of raw materials, most of them are processed into sawn timber in the importing sector of meranti class and the production of sawn timber should be improved and the exported in order to increase PDB and measuring the number of demand of sawn timber class from Indonesia meranti class in international market can be done. Therefore, it is

ISSN: 2054-6319 (Print), 2054-6327(online)

advisable for the production sector of wood products and the economy of Indonesia. There should be thorough analysis in the future regarding this issue.

CONCLUSION

The mixed tropical hardwood in the domestic market in the form of plywood has the highest marketing margin of Rp 1,100,000/m³, the highest profit margin of Rp 467,500/m³ log on the domestic market and in the international market of Rp 1,644,500/m³. Sawn timber of meranti class should be given consideration of export permit by the government which has issued SKB Minister of Forestry Number 1132/Kpt-II/2001 and Minister of Industry and Trade Number 192/MPP/Kep/10/2001 which prohibit the export of log and sawn timber because it has the highest sales margin when sold in the form of sawn timber amounted to 1,400,000/m³ profit margin of Rp 650,000/m³ log on domestic market and Rp 2,070,250/m³ in international market. The highest sales and profit margin are obtained from luxury classes of timber products in the form of furniture with the sales margin of Rp 33,000,000/m³ and profit margin in the international market amounted to Rp 9,129,120/m³ and Rp 6,000,000/m³ in the domestic market. The applicable strategy to increase the added value of wood trading in Indonesia is by selling the wood class in the form of products with the highest value of sales and profit margin such as mixed tropical hardwood in the form of plywood, meranti class of timber in the form of sawn timber and luxury classes of timber in the form of furniture.

Significance Statements

Wood products in a certain class of timber are sold in the form of processed wood with high added value. The government should consider the issuance of the export permit to the certain class of timber in the form of the log or sawn timber which have higher sales and profit margin compared to processed wood. This research can be developed by other researchers in learning the added value to the types of wood products. Thus, they can use another approach to know the optimum potential of wood products in Indonesia.

REFERENCES

[1] Anatan L, Ellitian L. 2008. Supply Chain Management Teori dan Aplikasi. Bandung : CV. Alfabeta.
[2] Susetyo AB, Syamsul H. 2012. Analisis margin pemasaran cabe merah di Kabupaten Jember. Fakultas Pertanian Universitas Muhammadiyah Jember : Jember.
[3] [BPS] Badan Pusat Statistik. 2014. Statistik Produksi Kehutanan 2014. Jakarta : BPS.
[4] Gumbira-Sa'id HE. 2001. Penerapan Manajemen Teknologi Dalam Meningkatkan Daya Saing Global Produk Agribisnis Berorientasi Produksi Berkelanjutan. Institut Pertanian Bogor : Bogor.
[5] Harahap SS. 2009. "Analisis Kritis Atas Laporan Keuangan", Jakarta: Raja Grafindo Persada.
[6] Haygreen JG, Bowyer JL. 1996. Hasil Hutan dan Ilmu Kayu : Suatu Pengantar[Cetakan Ketiga]. Sutjipto A. Hadikusumo, penerjemah. Yogyakarta: UGM Press.
[7] Henderson JE. 2017. A regional assessment of wood resource sustainability and potential economic impact of the wood pellet market in the U.S. South, 105 (1) : 421-427.

ISSN: 2054-6319 (Print), 2054-6327(online)

[8] Istiyanti E. 2010. Efisiensi pemasaran cabai merah keriting di Kecamatan Ngemplak Kabupaten Sleman. Mapeta, 12(2): 116-124.
[9] Janissen B. 2017. Chemical composition and value-adding applications of coffee industry byproducts: A review, 128 (1) : 110-117.
[10] Jumiati E. 2013. Analisis saluran pemasaran dan marjin pemasaran kelapa di daerah perbatasan Kalimantan Timur. Universitas Gadjah Mada : Yogyakarta.
[11] Jumiati E. Analisis saluran pemasaran dan marjin pemasaran kelapa di perbatasan Kalimantan Timur, 12 (1): 1-10.
[12] Li L. 2007. Supply Cahin Management : Concept, Techniques And Practices. Enchancing Value Through Collaboration. Singapore (SIN) : World Scientific Publishing Co. Pte. Ltd.
[13] Prahasto H, Nurfatriani F. 2001. Analisis kebijakan penyediaan kayu dalam negeri. Jurnal Sosial Ekonomi 2 (1): 111-138.
[14] Parlinah N. 2015. Distribusi nilai tambah dalam rantai nilai kayu sengon dari Kabupaten Pati Jawa Tengah Indonesia, 12 (2) : 77-87.
[15] Porter ME. 1985. Competitive Advantage: Creating and Sustaining Superior Performance. New York: The Free Press.
[16] Rachman NM. 2015. Biaya transaksi dan nilai tambah pada rantai pasok daging sapi di kota Bogor, 14 (1) : 1-8. available from : http://journal.ipb.ac.id/index.php/jmagr
[17] Rosenkranz L. 2015. Decomposition analysis of changes in value added. A case study of the sawmilling andwood processing industry in Germany, 54 (1) : 36-50 available from : http://www.sciencedirect.com
[18] Suryandari EY. 2008. Log demand analysis on forest product industry, 5 (1) : 15-26 Available from http://ejournal.forda-mof.org/ejournal-litbang
[19] Sutarno. 2014. Analisis Efisiensi Pemasaran Kedelai di Kabupaten Wonogiri. e-Journal Agrineca. 14 (1): 1-10.
[20] Wang L. 2016. Value-added recycling of construction waste wood into noise and thermal insulating cement-bonded particleboards, 125 (1) : 316-325.
[21] Warren et al. 2005.Teori Akuntansi Laporan Keuangan. Jakarta: Bumi Aksara.
[22] Valadkhani A. 2014. Modelling how much extra motorists pay on the road? A cross-sectional study of profit margins of unleaded petrol in Australia, 69 (1) : 179-188.

ISSN: 2054-6319 (Print), 2054-6327(online)