INDONESIAN NORTH BOLAANG MONGONDOW'S FURNITURE INDUSTRY - QSPM AND TOPSIS MODEL

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ABSTRACT

Almost all regions in Indonesia are experiencing rapid growth in the development. Day by day the construction is growing rapidly, not an exception for North Bolaang Mongondow. Since inaugurated as a regional autonomy on 2 January 2007, the development of this area is developed rapidly. For example the opening of some land to be constructed of housing and offices and this tendency of development will be on and on along with the opening of new land in this area. By the increasing of public demand for furniture products then it will automatically increasing the number of companies engaged in this same field of industry. This research has the purpose to concerning MSMEs as the object of the research where furniture industry is chosen as the main object of it by considering its existence and prospect to grow ahead with the opportunity of both national and international issues such as the Asean Economic Community AEC) and any other global issues which these condition indirectly pushes the competitiveness among MSMEs become more tight and it is inevitably to be avoid. By doing strategic management process which is strategy formulation, then this could help the business that engaged in furniture industry to improving the performance so that they can survive and remain consistent to its goal in running the business. The research method used is the combination of descriptive qualitative and quantitative method where quantitative is used to facilitate the qualitative by using some of the analytical tools such as IE, SWOT,QSPM and TOPSIS .The result on QSPM and Fuzzy TOPSIS show that market development becomes the top preferred priority among other alternative strategies with the amount of weight is 3.697 in QSPM and 0.72124 in Fuzzy TOPSIS.

Keywords: IE Matrix, QSPM, Strategy Formulation, Strategic Management, SWOT, TOPSIS Model

INTRODUCTION

In Indonesia, Micro, Small and Medium Enterprises often abbreviated (MSMEs) is currently regarded as an effective ways to reducing poverty. From the statistics, MSMEs represent the largest number of business groups, where the number of MSMEs registered in 2013 was 57.89 million units, or approximately 97.9% of total business units and the number continues to grow each year.

SMEs are the largest group of economic actors in the Indonesian economy and proved to be a safety valve in the national economy during the crisis, as well as a dynamic factor of economic growth after the economic crisis. In addition, to being the greatest business sector contribution to national development, SMEs also create employment opportunities for a large enough domestic labor, thus greatly helping to reduce unemployment. The development trend shows that SMEs have a huge potential for non-oil exports. Based on BPS data in 2013, there were about 182,112.7 trillion in non-oil exports. The contribution of SMEs to GDP is very

significant where the contribution of small, and medium to gross domestic product increased from 57.84% to 60.34% of the total GDP in the last five years. In terms of investments existence of SMEs is quite dominant with achieving 341,341.6 trillion or about 56.15% (Central Bureau of Statistics, 2013).

Most of the population is poorly educated and live in small business activity in both traditional and modern sectors. However, the development effort that has been carried out is still not satisfactory result, because in reality the progress of SMEs is very small compared to the progress made by the great labor. This condition in tandem directly to what micro, small and medium enterprises has faced in the developing country include lack of access to finance and market, the low ability to acquire necessary technical and managerial skills, as well as access to technology (Stevenson & St-Onge, 2006 cited by Ogot, 2012).These obstacles are in tandem directly to the low of educational level, low-skilled work base, and also the regulatory constrain facing by the perpetrators of MSMEs.
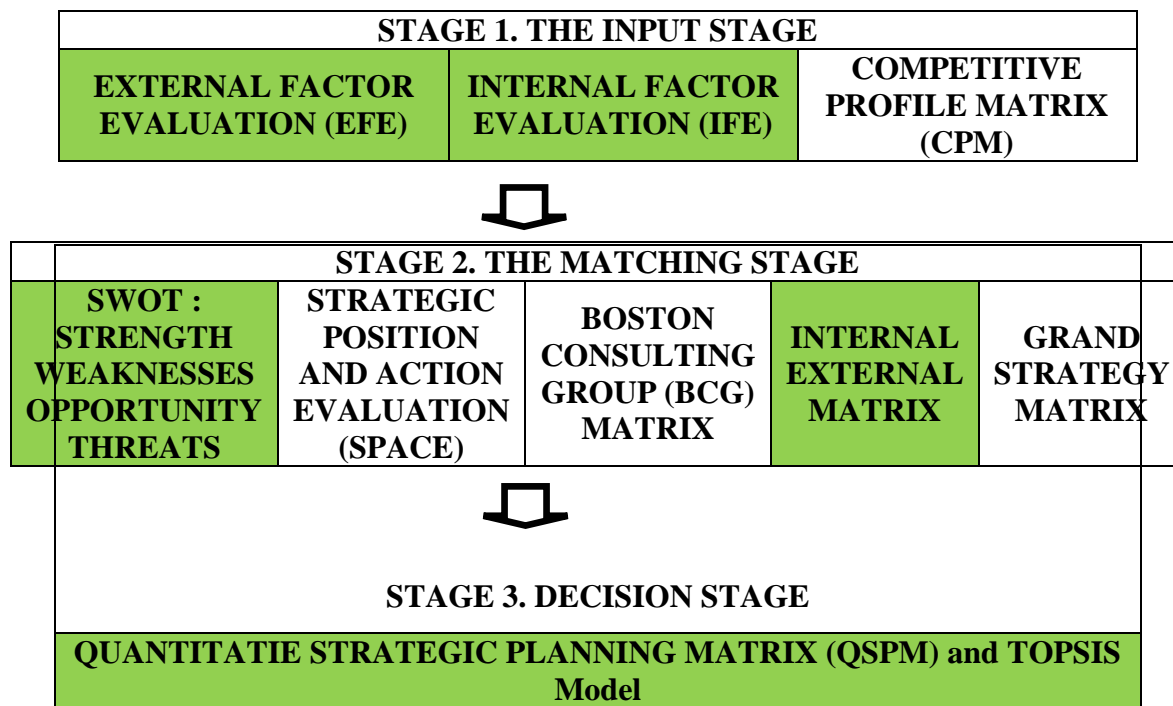
By conducting the strategic management which is the strategy formulation then this MSMEs can be focused analyzed with a deep observation in it, in order to find the root of problem that hinder the businesses within the furniture industry to be develop because in conducting the business they are experiencing problems regarding to the management of its business the performance generated by the company is still less than what is expected because there are still certain people who run in double jobs, making it less focus on work and not the maximum workable results. That is why this kind of condition needs to upgrade which is regenerate the management system in order to overhaul and reformulate the strategy so the MSMEs can be able to survive and even gain more revenue from it, because if this business is not perceptive to recognize the condition that rapidly change, then it is difficult for the business engaged in furniture industry in this case, to produce products which complied with consumer tastes or demand of the market.

THEORETICAL REVIEW

In the process of conducting the research, strategic management subject was proposed in this study, the formulation strategies that has been conducted is including developing the vision and mission, identifying opportunities and external threats of the organization, determining the internal strengths and weaknesses to the organization, set the long-term goals, made a number of alternative strategies, and choose a strategy that will be implemented. Decisions are binding the organization in order to formulating strategy towards products, market, resources and technology for a long period of time (David, 2006).

Strategy formulation techniques were integrated into three stages of the decision-making framework. The tools presented in this framework were apply to all sizes and types of organizations and can help in identifying, evaluating and choosing the strategy (David, 2011).

STAGE 1. THE INPUT STAGE		
EXTERNAL FACTOR EVALUATION (EFE)	INTERNAL FACTOR EVALUATION (IFE)	COMPETITIVE PROFILE MATRIX (CPM)

STAGE 2. THE MATCHING STAGE				
SWOT : STRENGTH WEAKNESSES OPPORTUNITY THREATS	STRATEGIC POSITION AND ACTION EVALUATION (SPACE)	BOSTON CONSULTING GROUP (BCG) MATRIX	INTERNAL EXTERNAL MATRIX	GRAND STRATEGY MATRIX

STAGE 3. DECISION STAGE
QUANTITATIE STRATEGIC PLANNING MATRIX (QSPM) and TOPSIS Model

Figure 1. The third stage of the decision-making framework.

METHODOLOGY

The type of research in this study is the combination of descriptive qualitative and quantitative analysis method where according to Brymman cited by Sarwono (2011) the additional of quantitative method in this study has the purpose to assist the analyzing process, where the role of quantitative research is used to facilitate qualitative research.

The qualitative descriptive is used to knowing the internal factors (strengths and weaknesses) and external factors (opportunities and threats) of North Bolaang Mongondow's Furniture Industry, meanwhile the quantitative analysis is used to calculate some of the matrices as the analytical tools in strategy formulation for North Bolaang Mongondow's Furniture Industry such as IFE, EFE, IE, SWOT, QSPM and Fuzzy TOPSIS.

The research procedure in this study begins with the learning of some matrix that will be used in the research process i.e IFE, EFE, IE, SWOT, QSPM extended by Fuzzy TOPSIS Model as the decision support system. After that, the researcher will considering which Micro, Small Medium Enterprises (SMEs) is going to be analyze in terms of the suitability

and appropriateness of the business by the consideration of how long the business started, the number of workers employed, the organization structured, the amount of initial capital and many other factors.

After chosen the MSMEs that is going to analyze then the next step is setting up interviews with business owner, employees, stakeholders and continued with the distribution of questionnaires to determine the weight and rating of the IFE and EFE which previously evaluated from the internal and external environment. When the weighted score has been obtained from IFE and EFE, then the next step is determining the Internal-External by using the weighted score from IFE and EFE. Beside the weighted score, each external factor and internal factor evaluation of IFE and EFE can be used as well to formulating the strategy of SWOT.

Eventually, when all the strategy has already been analyzed and determined then the last step is formulating the best strategy of North Bolaang Mongondow's Furniture Industry by using QSPM and TOPSIS model as the decision support system model. The result of both QSPM and TOPSIS will be the best strategy that will be implemented by the MSMEs involved.

ANALYSIS & DISCUSSION

Input Stage

Table 1. IFE Matrix

External Factor	Weight	Rating	Weighted Score
Strengths			
1. Good quality of product	0.091	4	0.36
2. Owner's persevering & responsibility in a detailed production of supervision process	0.088	4	0.35
3. The ability to give the information to consumers sincerely	0.075	3.75	0.28
4. Have a strong brand image	0.073	3.75	0.27
5. The strategic business location	0.067	3.25	0.22
6. Employees perceives as family	0.041	3	0.12
Total Score of Strengths			**1.61**
Weaknesses			
7. Limited human resources	0.072	2	0.14
8. Low in the market research & development	0.066	1	0.07
9. Limited access to capital /market financing	0.083	3	0.25
10. Production technology and supporting business tools that need to be improved/renewed	0.075	2.5	0.19
11. Marketing inequality which is only focused in	0.077	3	0.23

some areas/ lack of marketing area			
12. Legality of raw material	0.064	1	0.06
13. Limited promotional media	0.073	2.5	0.18
14. Unorganized of business accounting (Cash In-Out)	0.055	1	0.06
Total Score of Weaknesses			**1.18**
Total Weight			**2.79**

Source: Data Processed 2017

The IFE matrix strategy is an internal environmental analysis formulation. This matrix provides a summary and evaluation of the key strengths in the various functional midwives in a business unit. The IFE matrix also provides a basis for recognition and evaluation of relationships between these functional areas.

Based on the IFE table, it can be observed that the key strength sequences from the most influential to the least influential are as follows: (1) Good quality of product with a weight score of 0.091, (2) Owner's persevering & responsibility in a detailed production of supervision process by the difference of 0.003 or 0.088, (3) The ability to give the information to consumers sincerely 0.075, (4) Have a good strong brand image, 0.073, (5) The Strategic business location 0.067 and (6) Employees perceives as family 0.041. Meanwhile, for evaluation of weaknesses are (1) Limited access to capital / market Financing) 0.083, (2) Marketing inequality which is only focused in some areas/ lack of marketing area followed by 0.077, (3) Production technology and supporting business tools that are still need to be improved/renewed 0.075 are the most dominant point of the evaluation of the weaknesses, while other weaknesses are (4) limited human resources, (5) low in the market research & development, (6) Limited promotional media, (7) Legality of raw material and (8) Unorganized of business accounting (Cash In-Out).

Table 2. EFE Matrix

External Factors	Weight	Rating	Weighted Score
Opportunities			
1. Large domestic markets.	0.088	3	0.26
2. Rapid development of North Bolaang Mongondow	0.093	3.75	0.35
3. Structural change : The friction of economic sector from traditional economy to modern economy (Agriculture - Manufacture industry)	0.082	3.25	0.27
4. National government support through cross linked strategy (Upstream-Downstream Strategy)	0.061	3	0.18
5. Depletion of oil : government support on non oil and natural gas	0.056	2.75	0.16
6. The Increasing of middle class consumers	0.086	3.5	0.30

7. The enhancement of society's awareness towards information technology such as social media	0.062	3	0.19
8. Good relationship and high credibility with the supplier.	0.062	3.5	0.22
Total Score of Opportunities			**1.93**
Threats			
9. Inadequate of infrastructure in North Bolaang Mongondow	0.073	3.5	0.26
10. The emergence of more innovative common business, supported by renewal technology & extensive business capital.	0.080	3	0.24
11. The Increasing of substitute product	0.087	3.75	0.33
12. The Development of global business in the era of free trade	0.041	1.25	0.05
13. Customer are more demanding	0.067	3.5	0.23
14. Unavailability of supporting business in North Bolaang Mongondow	0.060	3.25	0.19
Total Score of Threats			**1.30**
Total Weight			**3.23**

Source: Data Processed 2017

Based on the results of the analysis of the relative weight for each external factors assessed from the most influential to less influential are as follows. Opportunities: (1) Rapid development of North Bolaang Mongondow 0.093, (2) Large domestic markets 0.088, (3) The Increasing of middle class consumers 0.086, (4) Structural Change : The friction of economic sector from traditional economy to modern economy (Agriculture - Manufactur industry) 0.082, (5) Good relationship and high credibility with the supplier. 0.062, (6) the enhancement of society's awareness towards information technology such as social media 0.062, (7) National government support through cross-linked strategy (Upstream-Downstream Strategy) 0.061, (8) Depletion of oil: government support on non oil and natural gas 0.056.

As for the threats, (1) The Increasing of substitute product becomes the highest threat factor for North Bolaang Mongondow's Furniture Industry with the weighted result of 0.087 further with the difference that is not too far, ie (2) The emergence of more innovative common business, supported by renewal technology & extensive business capital 0.080, (3) inadequate infrastructure of North Bolaang Mongondow 0.073, (4) Customer are more demanding 0.067, and (6) unavailability of supporting business in North Bolaang Mongondow 0.060, the reason for the intense competition of similar business enterprises is caused by the use of tools and production processes that are can be defeated by the common business that has a renewed technology of production but this is not so influential for seizing
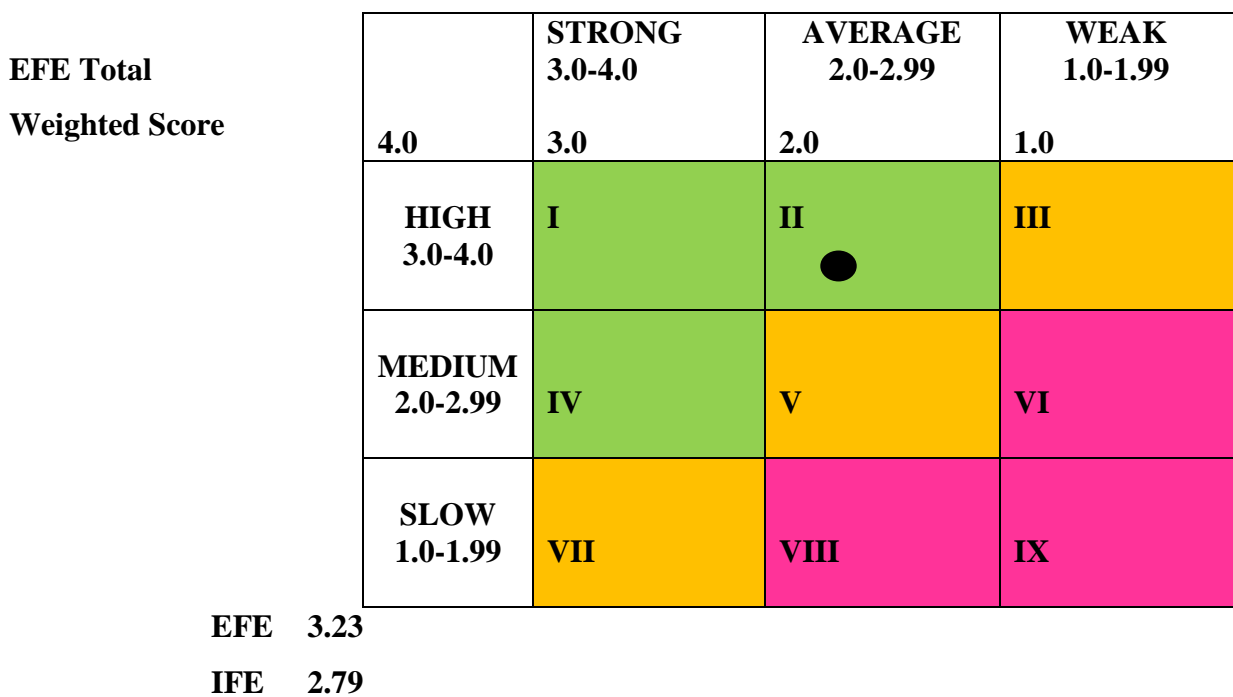
the market due to the consumer loyalty which is high against the product quality and owner's capability in informing every production process that sincere and consistent that makes the business has a very strong brand image among the society so that the competition effort among the common business can be minimized. Furthermore, (7) the development of global business in the era of free trade became the last threat with the lowest weight of 0.041 due to competition that has not been so influential on the business development.

Matching Stage

Internal-External Matrix Analysis

IE matrix is based on two key dimensions ie total IFE values weighted on the X axis and total IFE values weighted on Y axis. Based on IFE matrix analysis results obtained a score of 2.67 and EFE analysis obtained score of 3.23. The combined value puts the company in the first awareness of the strategy of growing and developing, so the appropriate strategy to do is **backward, forward and horizontal integration, market penetration, market development, & product development.**

EFE Total Weighted Score		STRONG 3.0-4.0	AVERAGE 2.0-2.99	WEAK 1.0-1.99
4.0		3.0	2.0	1.0
	HIGH 3.0-4.0	I	II ●	III
	MEDIUM 2.0-2.99	IV	V	VI
	SLOW 1.0-1.99	VII	VIII	IX

EFE 3.23

IFE 2.79

Figure 2. Internal-External Matrix

SWOT analysis

SWOT matrix is the concrete steps that should be done by North Bolaang Mongondow's Furniture Business based on the development of IE matrix. Various alternative strategies can be formulated based on the SWOT matrix analysis model. The main strategies that can be suggested there are four kinds, namely: SO strategy, ST, WO, and WT. This analysis uses the data obtained from the above EFE and IFE matrixes. The results of the analysis can be seen in table 4.6 SWOT analysis. The advantage of using this model is that it is easy to formulate a strategy based on a combination of external and internal factors.

	Strengths : 1. Good quality of product 2. Owner's persevering & responsibility in a detailed production of supervision process 3. The ability to give the information to consumers sincerely 4. Have a strong brand image 5. The strategic business location 6. Employees perceives as family	Weaknesses : 1. Limited human resources 2. Low in market research & development 3. Limited access to capital / market financing 4. Production technology and supporting business tools that are still need to be improved/renewed 5. Marketing inequality which is only focused in some areas/ lack of marketing area 6. Legality of raw material 7. Limited promotional media 8. Unorganized of business accounting (Cash In-Out).
Opportunities : 1. Large domestic markets 2. Rapid development of North Bolaang Mongondow 3. Structural Change : The friction of economic sector from traditional economy to modern economy (Agriculture - Manufacture industry)	1. Maintain & increase the quality of product as well as the service to the customer.(S1,S2,S3,O1,O2, O8) 2. Strengthening relationships with the stakeholders (S3, S4, O3,O4,O6,O8)	1. Increasing Human Resources through training conducted by the local government. (W1,W2,O1,O2) 2. Strengthening capital through cooperation with local government. (W2,W3,O1,O4,O5) 3. Market Development (O1,O2,O6, W5) 4. Improvement and renewal of production

4. National government support through cross linked strategy (Upstream-Downstream Strategy) 5. Depletion of oil : government support on non oil and natural gas 6. The Increasing of middle class consumers 7. The enhancement of society's awareness towards information technology such as social media 8. Good relationship and high credibility with the supplier.		technology. (W2,W4,S1-S4) 5. Utilization of social media as a promotion tool to reach a wider market.(W7,O6,O7)
Threats: 1. Inadequate of infrastructure in North Bolaang Mongondow 2. The emergence of more innovative common business, supported by renewal technology & exitensive business capital 3. The Increasing of subtitute product 4. The Development of global business in the era of free trade 5. Customers are more demanding 6. Unavailability of supporting business in North Bolaang Mongondow	Diversify products with more diverse designs and motifs. (S1,S2,S3,T2T3,T4,T5,)	1. Establish a market pricing strategy to deal with competition. (T2,T3,T5,W4,W5) 2. Improve payment and bookkeeping system.(W8,T2,T5,)

Source: Data Processed 2017

SWOT Diagram Analysis

Total weighted score of strengths   = 1.61

Total weighted score of weaknesses   = 1.18

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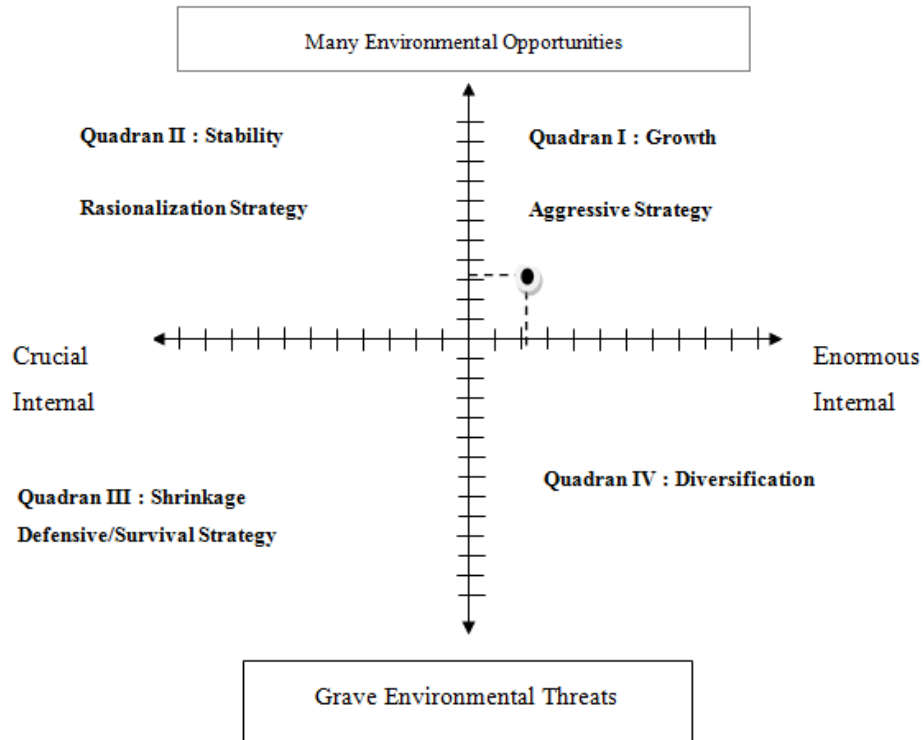
Total weighted score of opportunities   = 1.93

Total weighted score of threat   = 1.30

Coordinate of internal analysis

(1.61 – 1.18) : 2 = 0.22

Coordinate of external analysis

(1.93 –1.30) : 2 = 0.32

Figure 3. SWOT Diagram

Source: Data Processed 2017

Similar to the IE matrix, the SWOT matrix is based on two key dimensions: the total value of internal analysis weighted on the X-axis and the total IFE value weighted on the Y axis. Based on the internal analysis results from SWOT diagram was obtained a score of 0.22 while for the external analysis obtained a score of 0.32. The combined value puts the company in the first awareness of the strategy of growing and developing, so the appropriate strategy to do is "Backward, Forward and Horizontal Integration, Market Penetration, Market Development, & Product Development and Concentrated Diversification."

Decision Stage

QSPM

Table 4. QSPM

		STRATEGIC ALTERNATIVES					
		Market Development		Market penetration		Product Development	
Key Factors	**Weight**	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**
Strengths							
1. Good quality of product	0.091	4	0.364	2	0.182	3	0.273
2. Owner's persevering & responsibility in a detailed production of supervision process	0.088	3	0.264	1	0.088	2	0.176
3. The ability to give the information to consumers sincerely	0.075	4	0.3	2	0.15	3	0.225
4. Have a strong brand image	0.073	4	0.292	3	0.219	2	0.146
5. The strategic business location	0.067	3	0.201	4	0.268	2	0.134
6. Employees perceives as family	0.041	-		-		-	
Weaknesses							
7. Limited human resources	0.072	2	0.144	3	0.216	1	0.072
8. Low in the market research & development	0.066	2	0.132	1	0.066	3	0.198
9. Limited access to capital /market financing	0.083	2	0.166	3	0.249	1	0.083
10. Production technology and supporting business tools that need to be improved/renewed	0.075	-		-		-	
11. Marketing inequality which is only focused in some areas/ lack of marketing area	0.077	4	0.308	2	0.154	3	0.231
12. Legality of raw material	0.064	-		-		-	
13. Limited promotional media	0.073	-		-		-	
14. Unorganized of business accounting (Cash In-Out)	0.055	-		-		-	
	1						
Opportunities							
1. Large domestic markets.	0.088	3	0.264	1	0.088	2	0.176
2. Rapid development of North Bolaang Mongondow	0.093	4	0.374	2	0.187	3	0.280
3. Structural change : The friction of economic sector from traditional economy to modern economy (Agriculture - Manufacture industry)	0.082	-		-		-	

|							
4. National government support through cross linked strategy (Upstream-Downstream Strategy)	0.061	-		-		-	
5. Depletion of oil : government support on non oil and natural gas	0.056	-		-		-	
6. The Increasing of middle class consumers	0.086	3	0.258	2	0.172	4	0.344
7. The enhancement of society's awareness towards information technology such as social media	0.062	4	0.249	3	0.187	1	0.062
8. Good relationship and high credibility with the supplier.	0.062	-		-		-	
Thretas							
9. Inadequate of infrastructure in North Bolaang Mongondow	0.073	-		-		-	
10. The emergence of more innovative common business, supported by renewal technology & extensive business capital.	0.080	2	0.160	3	0.240	4	0.320
11. The Increasing of substitute product	0.087	1	0.087	3	0.262	4	0.349
12. The Development of global business in the era of free trade	0.041	-		-		-	
13. Customer are more demanding	0.067	2	0.134	3	0.201	4	0.268
14. Unavailability of supporting business in North Bolaang Mongondow	0.060	-		-		-	
Total	**1**		**3.697**		**2.929**		**3.338**

Source : Data Processed 2017

Based on the QSPM matrix above, by the amount of total score is 3.697 market development is the best alternatives strategy,that need to be adopted by North Bolaang Mongondow's Furniture Industry. This strategy would be suggested for introducing the present products into new geographic areas. This alternatives strategy are followed by the condition of unsaturated market which is North Bolaang Mongondow's Furniture Industry is consistent in the product quality by the strong brand image that has been preserved by North Bolaang Mongondow's Furniture Industry for its sustainability of business. The second position of alternatives strategy is product development by the total score of 3.338 , where in adopting this business North Bolaang Mongondow's Furniture Industry should enhance the sales of furniture product by improving or modifying present products so customer can easily attracted by the new design, color, or any enhancement in product attribute with innovation for the furniture that different from the usual product. The last alternatives strategy is market penetration with the total score of 2.929 this strategy has the lowest score among others

because North Bolaang Mongondow's Furniture Industry already have strong brand image in its local area of marketing which indirectly states that it is not hard for the business involved in pursuing customer awareness and loyalty in its area of marketing (Boroko, Bolangitang, Iyok,Tuntung and Ollot).

Fuzzy TOPSIS Model

Application of a fuzzy multi-criteria decision making method is proposed in this research with the goal of improving the output of conventional QSPM by allowing the experts to employ linguistic terms (qualitative data) in its judgments. Namely, a multi-criteria decision making index via the technique for Order Preference by Similarity to Ideal Solution (TOPSIS) is finding the sum total attractive scores of strategies. As a case study, the proposed method has been applied for strategy prioritization in North Bolaang Mongondow's Furniture Industry. The results have been verified with expert knowledge and showed an improvement compared to the non-fuzzy QSPM (conventional QSPM).
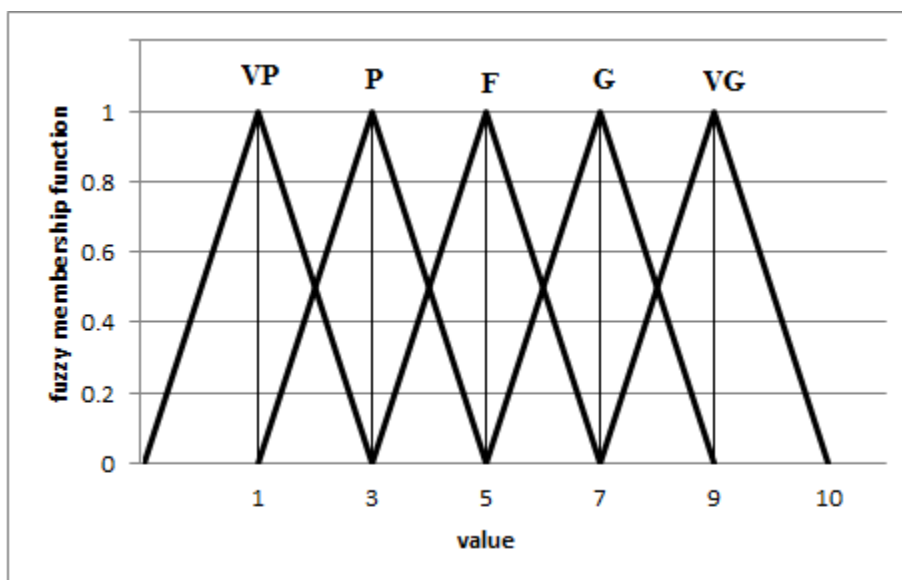
Figure 0 Linguistic variables of fuzzy TOPSIS

According to the linguistic fuzzy above then the membership function for each variable is as follows:

$$\mu_{VP}=\begin{cases} 0; & x \le 0 \ or \ x \ge 3 \\ \frac{x-0}{1-0} & 0 \le x \le 1 \\ \frac{1-x}{3-1} & 1 \le x \le 3 \end{cases} \quad \text{............................. (1)}$$

$$\mu_{P}=\begin{cases} 0; & x \le 1 \ or \ x \ge 5 \\ \frac{x-1}{3-1} & 1 \le x \le 3 \\ \frac{3-x}{5-3} & 3 \le x \le 5 \end{cases} \quad \text{........................ (2)}$$

$$\mu_F = \begin{cases} 0; & x \leq 3 \text{ or } x \geq 7 \\ \frac{x-3}{5-3} & 3 \leq x \leq 5 \\ \frac{5-x}{7-5} & 5 \leq x \leq 7 \end{cases} \quad \dots\dots\dots\dots\dots\dots\dots \text{ (3)}$$

$$\mu_G = \begin{cases} 0; & x \leq 5 \text{ or } x \geq 9 \\ \frac{x-5}{7-5} & 5 \leq x \leq 7 \\ \frac{7-x}{9-7} & 7 \leq x \leq 9 \end{cases} \quad \dots\dots\dots\dots\dots\dots \text{(4)}$$

$$\mu_{VG} = \begin{cases} 0; & x \leq 7 \text{ or } x \geq 10 \\ \frac{x-7}{9-7} & 7 \leq x \leq 9 \\ \frac{9-x}{10-9} & 9 \leq x \leq 10 \end{cases} \quad \dots\dots\dots\dots\dots\dots\text{..(5)}$$

Table 5. Fuzzy Linguistic Variable

Categories		Fuzzy
Very Poor	VP	0,1,3
Poor	P	1,3,5
Fair	F	3,5,7
Good	G	5,7,9
Very Good	VG	7,9,10

Source : Data Processed 2017

In the Fuzzy TOPSIS procedure, a decision matrix of characteristic values given by the previous equation is subsequently matched to be converted to fuzzy numbers. The comparison matrix was obtained from the dissemination of the TOPSIS judgment questionnaire that has been spread to 4 samples consist of the internal parties who knows exactly the condition within the company in this research.
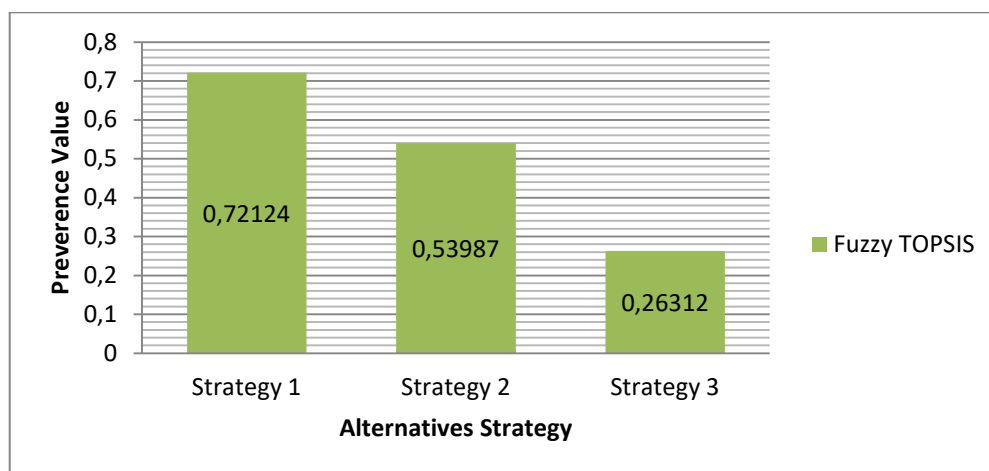
Based on the calculation by using Fuzzy TOPSIS analytical tool, the preference value as the final result is as follow:

Table 6. Fuzzy TOPSIS Preference Value

|	D+	D-	PV	Rank
Strategy 1	0.00187	0.00483	0.72124	1
Strategy 2	0.00330	0.00388	0.53987	2
Strategy 3	0.00461	0.00165	0.26312	3

Source : Data Processed 2017

Figure 5. Rank of Alternative Strategy

According to the result of fuzzy TOPSIS, strategy 1 which is the market development is still dominated among other alternatives just like the result of QSPM, the changes has been occurred to another alternatives strategies especially strategy 3 (Product development) and strategy 2 (Market Penetration). In fuzzy TOPSIS market penetration is on the second preferred alternative for the sustainability of North Bolaang Mongondow's Furniture Industry, while product development is on the last preferred alternative strategy that need to be executed by North Bolaang Mongondow's Furniture Industry.
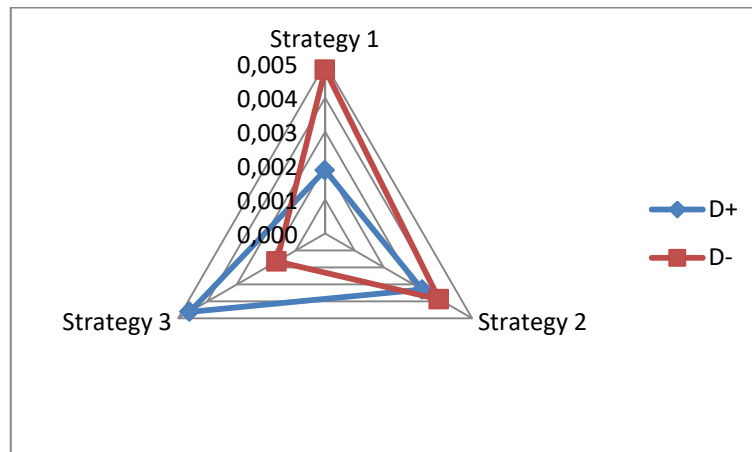
Figure 6. Positive and negative ideal solution

This result is slightly different compared to the result of conventional QSPM, because in Fuzzy TOPSIS the final result is calculated based on the positive and negative solution distance as the dissemination of numeric fuzzy. By this quantitative analytical tool, then the preference value has been calculated through every formula in every steps of the TOPSIS method. According to figure 4.6, strategy 1 (market development) is the ideal solution for North Bolaang Mongondow's Furniture Industry with preference value between D+ and D- is 0.72124 where D+ has 0.00187 of positive ideal solution and D- has 0.00483 of the negative

ideal solution which is automatically stated based on those calculation that strategy 1 (market development) has the relative closeness of a particular alternative to the ideal solution or in the other hand has the shortest distance among the other strategies.

CONCLUSION

Referring to the discussion on the previous section of this research, there are several points that can be drawn as a conclusion:

a. The result of alternatives strategy as it was extracted from the internal and external factors using SWOT and IE show that North Bolaang Mongondow's Furniture Industry is in *aggressive position* that automatically requires it to conduct *the intensive strategies* which are *market development, market penetration and product development.*

b. The alternatives strategy that has been confirmed in analytical tools (SWOT and Internal-External) later been calculated in QSPM, the result shows that *market development* become the top preferred priority among 2 other strategies with the amount of weight is 3.697, followed by *product development* (3,338) and *market penetration* as the last preferred strategy (2.929).

c. Furthermore, considering the limitation of QSPM that it can only be as good as the provided information and the analysis method up on which the strategy rankings are based, then the additional of Fuzzy TOPSIS is proposed to assist the conventional QSPM. In Fuzzy TOPSIS, the result is slightly different compared to the result of conventional QSPM, because in Fuzzy TOPSIS the final result is calculated based on the positive and negative solution distance as the dissemination of numeric fuzzy. By this mathematical analytical tool, then the preference value has been calculated through every formula in every step of the TOPSIS method. Strategy 1 (market development) still dominated as the top preferred alternative strategy as the ideal solution for North Bolaang Mongondow's Furniture Industry as it was obtained from QSPM, with its preference value between D+ and D- is 0.72124 where D+ has 0.00187 of positive ideal solution and D- has 0.00483 of the negative ideal solution or has the most relative closeness of a particular alternative to the ideal solution among the other strategies. What makes it different is the result of strategy 2 (Market Penetration) and 3 (Product Development) has been changed compared to QSPM. In Fuzzy TOPSIS Market penetration has the second highest preference value of 0.53987 after market development by the amount of D+ is 0.003303 and D- is 0.0038754 or has the relative closeness to the ideal solution rather than product development that only has 0.26312 preference value to the ideal solution with the amount of D+ is 0.004607 and D- is 0.001645.

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