

An Optimal Marketing Strategy For Indonesian Plywood Industry: A Decision-Making With Porter Five Forces Model And AHP

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Abstract: This study developed a set of quantitative indicators by combining Porter's Five Forces model and Analytical Hierarchy Process for determining the best marketing strategy. Michael Porter's industry analysis techniques was employed to identify the existing competitive advantages as well as the key factors of business success and to create the strategy framework for positioning a business in the plywood industry in South Sulawesi, Indonesia. The integration of Analytic Hierarchy Process and Porter's Five Forces model can set up a series of procedure to evaluate the current strategy by prioritizing the important criteria for the company. The major advantage of applying this framework is that the company can systematically select an optimal marketing strategy. Through in-person interviews, a nine point-scale and Likert-type Scale Response Anchors (modified) was used to assign relative score to pair-wise comparison amongst corresponding criteria. The company studied chose the differentiation strategy that aims at creating highly perceived benefits for customers, developing innovative product design, offering pervasive customer services and unique product features, as well as developing and applying distinctive distribution channels and state-of-the art technology.

Keywords: strategic marketing, plywood industry, Porter five forces model, AHP.

1. INTRODUCTION

Strategy is a deliberate search for a plan of action to develop a business's competitive advantage and find a position within industry so that the firm will achieve superior performance (Chyntia *et al.* 1991; Magretta, 2012; Brenes *et al.* 2014). Successful companies tend to develop a strategy for creating predictability and stability of their work based on what they have (Porter, 2001). The success of the strategy depends on how it relates to its environment. Industry structure has a strong influence in defining the rules of competitive game as well as the strategies potentially available to a company (Porter, 1985). Marketing strategy is to develop sustainable competitiveness of a company. Marketing strategy pursued by firms is aimed at obtaining a sustainable competitive advantage (Valdani, 2001). The strategic marketing reflects growing interests in the role of competitive environment on a firm's marketing strategy and performance (Cooper, 2000).

One of the most important strategic management issues is to determine the ultimate source of sustained differences in profitability among competing firms (Rumelt *et al.* 1995). The way to formulate strategies lies in understanding and overcoming the barriers that prevent the company from attaining their goals (Mintzberg *et al.* 2005). Michael Porter's Five Forces Model has been one of the most influential models for identifying barriers and developing business strategies (CITATION) Porter's Five Forces Model (Porter, 1980) provides a framework for industry analysis techniques to identify the existing competitive advantages of businesses as well as the key factors of business success and to create the strategic framework. Analytic Hierarchy Process is AHP is a process of pairwise comparisons subjectively judged by experts according to their own knowledge and experiences (Gholami and Mirmehdi, 2012). It is an effective technique for analysing a complex problem because it facilitates step-by-step cause-effect explanations and systematically accommodates the use of expert judgment (Saaty, 1996a). These benefits make the model applicable method for an analysis for industry competitiveness.

This study developed a set of the quantitative indicators by combining Porter’s Five Forces model and Analytical Hierarchy Process for determining the best marketing strategy for plywood industry in South Sulawesi, Katingan Timber Celebes (KTC) in Indonesia. The five key factors the model uses to identify and evaluate potential opportunities and risks are: threat of new entrants, bargaining power of buyers, bargaining power of suppliers, threat of substitutes, and competitive rivalry. The model helps managers formulate appropriate strategic responses.

Porter’s generic strategy framework (Porter, 1985) also used to create the strategic framework for positioning a company in South Sulawesi within the Indonesian plywood industry. The generic strategies are to overcome the barriers created by five forces and achieve competitive advantage that can help outperform other companies in their industry (Bosch and de Man, 1997). Various strategies can be consolidated into two basic groups of strategies: cost leadership and differentiation, which are actually complementary (Campbell-Hunt, 2000).

This paper represents an analytical approach to specify an optimal choice of strategic marketing for a company in Indonesian plywood industry by operationalizing Porter’s Five Forces model and its generic strategy using the Analytic Hierarchy Process (AHP).

2. METHOD

2.1 Structuring a hierarchy model for Porter’s Five Forces model:

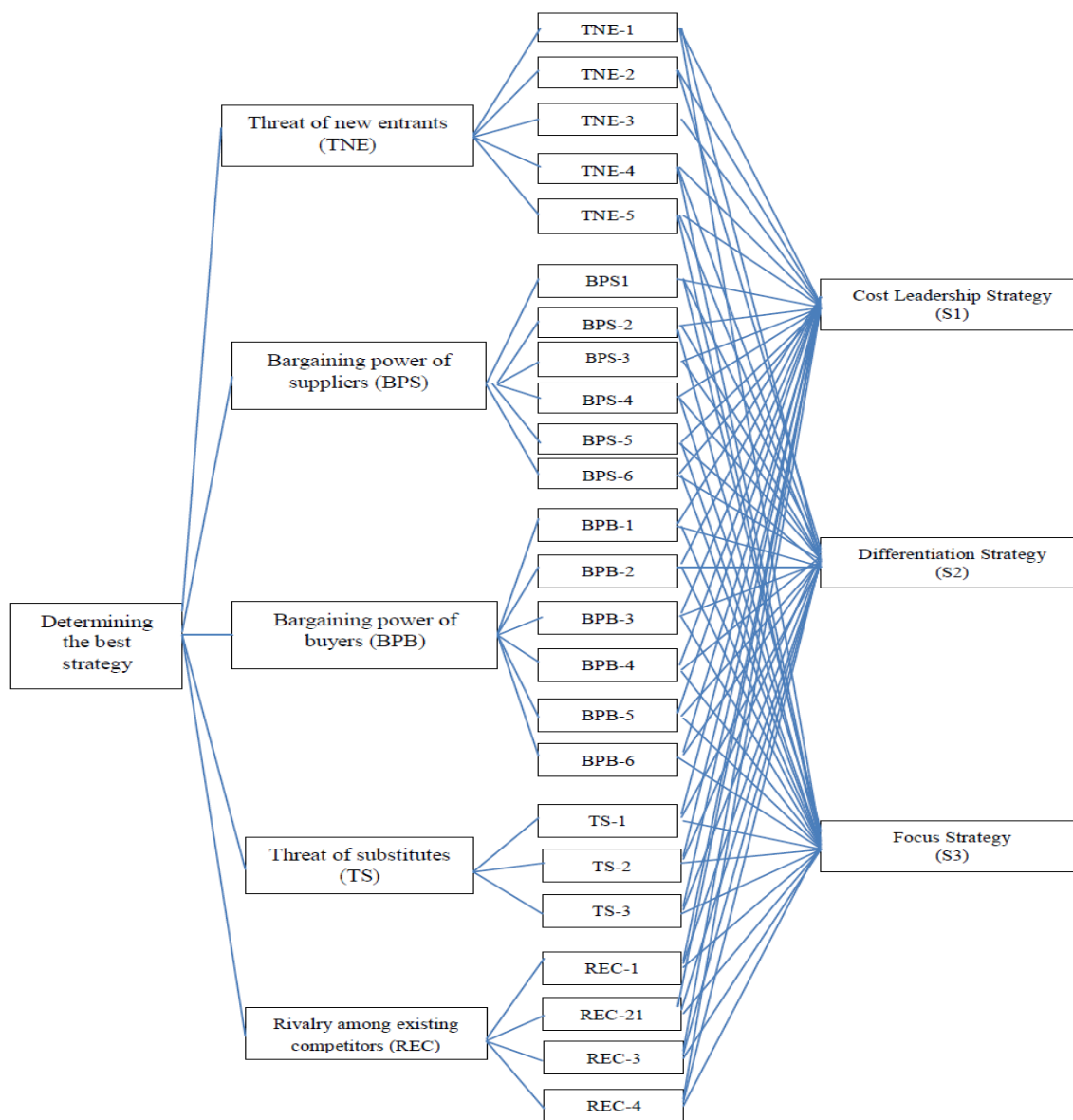


Figure.1: Strategic hierarchical structures

AHP is a multiple criteria decision-making tool that has been used in almost all applications related with decision-making (Vaidya and Sushil, 2006). The final outcome of the AHP is an optimum choice among decision alternatives (Saaty, 1994; Saaty, 1996a; Sirikai and Jhon, 2006). AHP decomposes a decision making problem into a hierarchy with several levels including the goal, criteria, sub criteria that contribute to the goal, which allow possible alternatives to be evaluated according to the criteria (Saaty, 1980).

AHP can facilitate such an analysis by showing how different factors are related to each other by organizing them into a meaningful hierarchical model (Sirikai and Jhon, 2006). Furthermore, the models provides a decision making framework using a unidirectional hierarchical relationship among decision levels, which requires independence among the criteria (Tseng, *at al.* 2009), AHP has been widely applied in multi-criteria decision making and has become a popular performance evaluation tool (Wu, *et al.* 2011). In order to construct the structure of the decision-making problem, all levels and elements in each level must be clearly defined.

Figure 1 presents the conceptual diagram combining Porter’s Five Force model with AHP.

2.2 Measuring and collecting data:

To apply this model, all the elements of competitive forces need to be configured for a specific industry. In-depth interviews method was select to assign a score to each comparison using the scale. The respondents were chosen based on the fact that they represent various activities on the firm. Director of operational and director of marketing were select in KTC to assign a score to each competitive force from Porter’s (threat of new entrants, bargaining power of suppliers, bargaining power of buyers, threat of substitutes and rivalry among existing competitors) using the nine-point scale. A nine-point scale (Saaty, 1996b) was employed to assign relative score to pair-wise comparison amongst the factor and sub factor (see Table 1). Other relevant information was collected from secondary data of the plywood industry to evaluate the aspect and criteria.

Table.1: Saaty’s 1-9 scale for AHP preference

Rate of Importance	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favour one over another
5	Strong importance	Experience and judgment strongly favour one over another
7	Very strong importance	Activity is strongly favoured and its dominance is demonstrated in practice
9	Absolute importance	Importance of one over another affirmed on the highest possible order
2,4,6,8	Intermediate values	Used to represent compromise between the priorities listed above
Reciprocal of above non-zero numbers	If activities <i>i</i> has one of the above non-zero numbers assigned to it when compared with activity <i>j</i> , then <i>j</i> has the reciprocal value when compared with <i>i</i>	

Table 2 lists the five forces proposed by Porter and the criteria corresponding each, all labelled with roman letters used to represent each in next section.

Table.2: Porter’s Five Forces Model and Corresponding Criteria

Forces	KTC	Description
Threat of new entrants (TNE)		
Economic of scale (TNE-1)	1.5	- The degree of relative cost advantages of established companies associated with large volumes of scale economies
Government regulation (TNE-2)	1	- The degree which government prohibits new entrants from entering the market
Brand loyalty (TNE-3)	2	- The degree to which customer have preference to plywood of any established company
Cost advantages (TNE-4)	1	- The degree of absolute cost advantage coming from the learning and experience curves
Initial capital requirement (TNE-5)	1	- The amount of capital investment in fixed facilities, inventories, and absorbing start-up losses
Customer switching costs (TNE-6)	1	

	3	- The amount of time, energy, and money for customers to switch from plywood product offered by one established company in an industry to those offered by a new entrant
Bargaining power of suppliers (BPS)		
Supplier portfolio (BPS-1)	2.8	- The degree to which suppliers are concentrated or theirs are large
Dependence on suppliers industry (BPS-2)	3	- The degree to which an industry depends on suppliers for a large percentage of its total purchases
Suppliers switching costs (BPS-3)	3	- The among of time, energy, and money for companies in the industry to switch from plywood offered by a suppliers to those offered by another suppliers
Suppliers uniqueness (BPS-4)	3	- The degree to which plywood product offered by suppliers are differentiated so that companies in an industry cannot find alternative suppliers
Importance of suppliers (BPS-5)	5	- The degree to which plywood offered by suppliers are important to the quality of industry's product/service
Forward integration (BPS-6)	1	- The degree of threat that suppliers integrate forward to make plywood industry
Bargaining power of buyers (BPB)		
Buyer portfolio (BPB-1)	3.3	- The degree to which buyers are concentrated or their purchases are large
Dependence on buyer industry (BPB-2)	3	- The degree to which an industry depends on the buyers for a large percentage of its total sales
Buyer switching costs (BPB-3)	5	- The amount of time, energy, and money for buyers to switch from plywood product offered by a company in an industry to product offered by another company
Product uniqueness (BPB-4)	2	- The degree to which plywood of an industry are differentiated so that buyers cannot find alternative suppliers
Importance to buyers (BPB-5)	4	- The degree to which plywood of an industry are important to the quality of the buyer's
Backward information (BPB-6)	5	- The degree of a threat that buyers integrate backward to make plywood industry
Threat of substitutes (TS)		
Number of substitutes (TS-1)	2	- The number of existing substitutes of plywood
Closeness of substitutes (TS-2)	2	- The degree to which existing substitutes of plywood
Other technology (TS-3)	2	- The existence of other ways to provide the same value
	2	-
Rivalry among existing competitors (REC)		
Industry structure (REC-1)	3.25	- The number of companies in an industry
Industry demand and capacity (REC-2)	3	- The difference between capacity and demand
Differentiation among companies (REC-3)	4	- The degree of differentiation in plywood product offered by companies in an industry
Exit barriers (REC-4)	1	- The degree of economic, strategic, and emotional factors preventing companies from leaving an industry
	5	

3. RESULTS

Selecting a marketing strategy requires assessment of as many factors as possible including internal and external factors that impact on the firm's performance (Gholami and Mirmehdi, 2012). Strategy of the firm's is about matching the resources and capabilities of the company to the opportunities that exist in the external environment (Ngo and O'Cass,

2009). Porter's generic strategies have been a prominent model in strategic management in modern management and most managerial texts (Citation here). Generic strategies can empower the company to challenge with Porter's Five Forces and prepares for upcoming situation to surpass other competitors (Manteghi and Abazar, 2011).

In order to specify the relative important of forces and sub forces, those judgment matrices were translated into the largest eigenvalue problems, and then computed the normalized and priority vector of weight. The resulting priority weight determined the relative importance of pairwise comparison matrix for threat of new entrants, bargaining power of suppliers, bargaining power of buyers, threat of substitutes, and rivalry among existing competitor for plywood industry (KTC) is shown in Tables 3 – 7.

Table.3: Pairwise Comparison Matrix for Threat of New Entrants

Threat of new entrants (TNE)	TNE1-1	TNE-2	TNE-3	TNE-4	TNE-5	TNE-6	Priority vector
TNE-1	0.421	0.398	0.323	0.326	0.516	0.278	0.377
TNE-2	0.140	0.133	0.323	0.326	0.086	0.278	0.214
TNE-3	0.084	0.027	0.065	0.130	0.052	0.008	0.061
TNE-4	0.084	0.027	0.032	0.065	0.052	0.119	0.063
TNE-5	0.210	0.398	0.129	0.130	0.258	0.278	0.234
TNE-6	0.060	0.019	0.129	0.022	0.037	0.040	0.051
$\lambda_{max} = 6.616$	CI = 0.123	CR = 0.10					

Table.4: Pairwise Comparison Matrix for Bargaining Power of Suppliers (BPS)

Bargaining Power of suppliers(BPS)	BPS-1	BPS-2	BPS-3	BPS-4	BPS-5	BPS-6	Priority vector
BPS-1	0.128	0.067	0.174	0.347	0.142	0.167	0.171
BPS-2	0.385	0.200	0.291	0.260	0.142	0.233	0.252
BPS-3	0.043	0.040	0.058	0.029	0.085	0.167	0.070
BPS-4	0.032	0.067	0.174	0.087	0.142	0.167	0.111
BPS-5	0.385	0.599	0.291	0.260	0.427	0.233	0.366
BPS-6	0.026	0.029	0.012	0.017	0.061	0.033	0.030
$\lambda_{max} = 6.616$	CI = 0.123	CR = 0.10					

Table.5: Pairwise Comparison Matrix for Bargaining Power of Buyers (BPB)

Bargaining Power of buyers(BPB)	BPB-1	BPB-2	BPB-3	BPB-4	BPB-5	BPB-6	Priority vector
BPB-1	0.103	0.702	0.156	0.043	0.052	0.206	0.210
BPB-2	0.021	0.140	0.365	0.384	0.516	0.206	0.272
BPB-3	0.034	0.020	0.052	0.043	0.052	0.147	0.058
BPB-4	0.310	0.047	0.156	0.128	0.086	0.206	0.156
BPB-5	0.517	0.070	0.260	0.384	0.258	0.206	0.283
BPB-6	0.015	0.020	0.010	0.018	0.037	0.029	0.022
$\lambda_{max} = 6.616$	CI = 0.123	CR = 0.10					

Table.6: Pairwise Comparison Matrix for Threat of Substitutes (TS)

Threat of Substitutes (TS)	TS-1	TS-2	TS-3	Priority vector
TS-1	0.500	0.571	0.400	0.490
TS-2	0.250	0.286	0.400	0.312
TS-3	0.250	0.143	0.200	0.198
$\lambda_{max} = 3.061$	CI = 0.030	CR = 0.052		

Table.7: Pairwise Comparison Matrix for Rivalry among existing competitors (REC)

Rivalry among existing competitors (REC)	REC-1	REC-2	REC-3	REC-4	Priority vector
REC-1	0.200	0.323	0.182	0.167	0.218
REC-2	0.100	0.161	0.455	0.167	0.221
REC-3	0.100	0.032	0.091	0.167	0.097
REC-4	0.600	0.484	0.273	0.500	0.464
$\lambda_{max} = 4.457$	CI=0.152	CR =0.17			

The priority among the competitive forces and sub-factors for KTC is shown in Table 8. Regarding hierarchical structure of factors and sub-factors of Porter Five Forces in KTC, the number of substitutes (TS-1) was the most important sub-factor with a local weight of 0.490 in the threat of substitutes.

Table.8: Priority of the competitive forces and sub-factors

Competitive Forces	Priority of sub-factors
Threat of new entrants (TNE)	
Economic of scale (TNE-1)	0.377
Initial capital requirement (TNE-5)	0.234
Government regulation (TNE-2)	0.214
Cost advantages (TNE-4)	0.063
Brand loyalty (TNE-3)	0.061
Customer switching costs (TNE-6)	0.051
Bargaining power of suppliers (BPS)	
Importance of suppliers (BPS-5)	0.366
Dependence on suppliers industry (BPS-2)	0.252
Supplier portfolio (BPS-1)	0.171
Suppliers uniqueness (BPS-4)	0.111
Suppliers switching costs (BPS-3)	0.070
Customer switching costs (BPS-6)	0.030
Bargaining power of buyers (BPB)	
Dependence on buyer industry (BPB-2)	0.285
Importance to buyers (BPB-5)	0.224
Buyer portfolio (BPB-1)	0.223
Product uniqueness (BPB-4)	0.184
Buyer switching costs (BPB-3)	0.062
Backward information (BPB-6)	0.023
Threat of substitutes (TS)	
Number of substitutes (TS-1)	0.490
Closeness of substitutes (TS-2)	0.312
Other technology (TS-3)	0.198
Rivalry among existing competitors (REC)	
Exit barriers (REC-4)	0.464
Industry demand and capacity (REC-2)	0.221
Industry structure (REC-1)	0.218
Differentiation among companies (REC-3)	0.097

The priorities of competitive market strategy alternatives resulting from AHP analyses are provided in Table 9 for KTC. According to the results of the operationalization of Porter's Five Force model by using AHP, differentiation strategy is the best competitive market strategy for KTC with a score of 2.490 followed by cost leadership strategy with a score of 1.243 and focus strategy with a score of 1.216. The strategic focus on ways in which the corporation can differentiate itself effectively from its competitors, capitalizing on its distinctive strengths to deliver better value to its customers (Jain, 1999; McDonald, 1996)

Table.9: The strategies alternative of the competitive forces

Competitive Forces	Weight	Cost Leadership Strategy	Differentiation	
			Strategy	Focus Strategy
TNE-1	0.377	0.621	0.120	0.258
TNE-2	0.214	0.607	0.303	0.090
TNE-3	0.061	0.061	0.723	0.216
TNE-4	0.063	0.731	0.158	0.111
TNE-5	0.234	0.070	0.528	0.402
TNE-6	0.051	0.102	0.686	0.211
BPS-1	0.171	0.525	0.142	0.334
BPS-2	0.252	0.154	0.640	0.206
BPS-3	0.070	0.070	0.580	0.350
BPS-4	0.111	0.089	0.658	0.253
BPS-5	0.366	0.100	0.713	0.187
BPS-6	0.030	0.159	0.589	0.252
BPB-1	0.223	0.066	0.311	0.623
BPB-2	0.285	0.071	0.723	0.206
BPB-3	0.062	0.102	0.686	0.211
BPB-4	0.184	0.065	0.675	0.259
BPB-5	0.224	0.054	0.693	0.253
BPB-6	0.023	0.066	0.311	0.623
TS-1	0.490	0.490	0.312	0.198
TS-2	0.312	0.490	0.312	0.198
TS-3	0.198	0.128	0.560	0.312
REC-1	0.218	0.102	0.686	0.211
REC-2	0.221	0.159	0.589	0.252
REC-3	0.097	0.055	0.729	0.216
REC-4	0.464	0.159	0.589	0.252
Composite weight		1.243	2.490	1.216

Differentiation strategy is an optimum choice of the strategic marketing that conforms to marketing resources and consequently can be properly executed regarding marketing resources and value-adding activities of the KTC. Differentiation involves making the plywood product different from and more attractive than the competitors. The differentiation strategy requires organizational strength in marketing, research and development, and creativity. The success of this strategy is dependent upon the consumers' continuing perceptions of quality and uniqueness. This strategy creates higher entry barriers due to customer loyalty, provides higher margins that enable the company (KTC) to deal with supplier power. The best business strategy should be able to guide the company into a direction in which the expected internal pressure due to business continuity meets the high demand of the fast changing world for the revolutionary business plan (ICAI, 2013).

4. CONCLUSIONS

Selection or evaluation of various strategies is very important for plywood company for increasing their competitive advantages. This paper represents an analytical approach to specify an optimum choice of strategic marketing for plywood industry.

The differentiation strategy (KTC) is achieved through creating high-perceived benefits for customers and may be in innovative product design, pervasive customer services, unique product features, distinctive distribution channels, and state-of-the art technology

Although this research has presented aforementioned contributor, it has own limitation. This study assumes that criteria in the company-level analysis is independent, while there are interactions and interdependencies and feedbacks can be considered in the process of evaluation by using analytic network process (ANP)

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