Enviromental Dynamics Analysis and Dynamic Capabilities of Enterprises Competitiveness; Case Study of the Manufacturing Industry in South Sulawesi, Indonesia

Saiful Mangngenre¹, Syamsul Bahri²
¹,²Department of Industrial Engineering, Engineering Faculty Of Hasanuddin University, Makassar, Indonesia
Email: saiful.ti@gmail.com, anchusb@yahoo.com

Abstract: This study aims to examine the influence of environmental dynamics and dynamic capabilities to the competitiveness of enterprises through competitive strategy and operational strategy. The study was conducted in the manufacturing industry in South Sulawesi, the respondent was the director or manager of a company that is believed to understand the company's strategy formulation and implementation.

Samples were taken 151 of 275 manufacturing companies in South Sulawesi, data collected directly from respondents using research instruments. Statistical analysis was used to test the hypothesis is the model equation structural equation model (SEM). The results showed that the dynamics of the environment and the dynamic capabilities contribute to the competitiveness of the company, either directly or through an intervening variable competitive strategy and operational strategy. Environmental dynamics and dynamic capabilities affect competitive strategy. Interesting results of this study is that the dynamics of the environment does not significantly influence the selection of a manufacturing company's operational strategy.

Keywords: dynamic environment, dynamic capabilities, competitiveness.

1. INTRODUCTION

Manufacturing sector as one of the foundation of the development of the national economy is supposed resilient to global market dynamics and shocks. Manufacturing sector has an important role in the formation of gross domestic product (GDP). The magnitude of the percentage contribution of the manufacturing sector compared with other sectors to make this sector as one of hope and support the development of national economy. The data published by the Central Statistics Agency (BPS) in 2012 that in the range of 2006 to 2011 there were 108 companies that went bankrupt (collapse) in South Sulawesi.

Malian (2005) revealed that the inability to compete with similar products in the domestic market and the world is the cause of the company's bankruptcy or multiplying investments in other areas. According to Porter (2009) the company's bankruptcy was caused by external factors and internal factors. The external factors related to the location and support the participation of the cluster where the company is based and also external factors that may resemble the national economy in general that afflict the country, as well as the prolonged economic crisis which would have a direct impact on the industrial sector. Rapid technological developments, changes in consumer tastes, availability of supply is uncertain dynamics of environmental conditions that affect the company's competitiveness.

Internal factors causing congestion liquidation and bankruptcy of companies is the inability to perform adjustment and reconfiguration of firm capabilities (resources) as a whole to respond to the changing business environment is very dynamic (Teece, 2007). Inability to manage resources, inability to optimize the dynamic capabilities, and the inability to implement the right strategy because of the lack of managerial to result in increased operating costs.

The increase in operating expenses resulted in an increase in the cost of production and of course the price of the product. This is the price of an expensive product which can not be absorbed by the market due to low competitiveness. The impact is a crash until there are up to the bankruptcy. This study aims to Test and analyze the effect of environmental dynamics and dynamic capabilities on the competitiveness of the company either directly or through an intervening variable competitive strategy and operational strategy.

2. METHOD

This study used an explanatory pattern of research, namely the attempt to explain the causal relationship between the dynamics of the environment variable, dynamic capabilities on competitiveness, both directly and through the intervening variable of competitive strategy and operational strategy by performing statistical analysis of inference. Statistical analyzes were performed using inference models equation a structural equation model (SEM). Here are the steps SEM testing:
Development of empirical models based on concepts and theories. Constructing a path diagram, convert the path diagram into being a structural equation. Select the input matrix for the data analysis, identify and evaluate the model estimation models, interpretation of the model and the modified model.

Population and sampling techniques: The population in this study were all manufacturing companies in South Sulawesi, both large-scale and medium-scale. The reason for choosing medium and large industries with the consideration that the companies on the medium-sized and large organizations already have a good structure when compared to small scale companies, which is expected to mejab all necessary data in the study. The number of manufacturing companies in South Sulawesi based on BPS 2011 was 275 companies.

Characteristics of the sample in this study was a medium-sized manufacturing companies and large, because of the element of the population is characterized by heterogeneous and heterogeneity have significance to the achievement of the purposes of research, for example differences in the size and type of the Vendor, then this study using proportional random sampling technique of sampling, amount of sample in the study is determined based on the opinion Slovin (Pono 2009) which obtained 151 samples.

Instruments of data collection and analysis of data: The instrument used for data collection in this study is a questionnaire or a structured questionnaire adopted from previous studies that considered proven, the number of questions asked for answers regarding the circumstances and the external environment changes, the dynamic capabilities, the choice of competitive strategy and operational strategies and the achievement of competitiveness. Respondents in this study were the directors and managers of the company. And using sound recording equipment at the time of the interview with the director or manager of the company or the parties that are considered expert in providing information. Data were collected by questionnaire and interview mengdarkan the respondent company. Results summary questionnaire processed using Amos software using the model of Structural Equation Modeling (SEM). This study was conducted in December 2011 until May 2012.

3. RESULT

The results of testing the full models that explain the causal relationship between the dynamics of the environment, dynamic capabilities, competitive strategy, operational strategy and competitiveness in the manufacturing industry in South Sulawesi, looks like the figure below:

![Path Diagram](image)

Figure 1. Pengukuran Model Hubungan variabel
Information: ED: Enviromental Dynamic  DC: Dynamic Capabilities  CS: Competitiveness Strategy
OS: Operational Strategy  C: Competitiveness

Goodness of Fit Test:
Chi square = 8305.864
Probability = .000
RMSEA = .103
TLI = .924
AGFI = .757
CFI = .930
Based on empirical models were tested using SEM with AMOS program to test the hypothesis proposed by the path coefficients in structural equation models. Testing the hypothesis by looking at the p value, if the p value is less than 0.05 then a significant relationship between the variables. The test results are presented in the following table

<table>
<thead>
<tr>
<th>HIP</th>
<th>Independent Variabel</th>
<th>Dependent Variabel</th>
<th>Direct Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Standardize</td>
</tr>
<tr>
<td>H1</td>
<td>Environmental Dynamic</td>
<td>Competitiveness</td>
<td>0.159</td>
</tr>
<tr>
<td>H2</td>
<td>Environmental Dynamic</td>
<td>Competitive Strategy</td>
<td>0.399</td>
</tr>
<tr>
<td>H3</td>
<td>Environmental Dynamic</td>
<td>Operational Strategy</td>
<td>-0.04</td>
</tr>
<tr>
<td>H4</td>
<td>Dynamic Capabilities</td>
<td>Competitiveness</td>
<td>0.492</td>
</tr>
<tr>
<td>H5</td>
<td>Dynamic Capabilities</td>
<td>Competitive Strategy</td>
<td>0.283</td>
</tr>
<tr>
<td>H6</td>
<td>Dynamic Capabilities</td>
<td>Operational Strategy</td>
<td>0.27</td>
</tr>
</tbody>
</table>

**Interpretation of results**

The interpretation of Table 1 can be explained as follows:

1. Dynamics of the environment has a significant positive effect on the competitiveness of companies with P = 0.000 < 0.05 with a coefficient of 0.159.
2. Dynamics of the environment has a significant positive effect on competitive strategy with P = 0.000 > 0.05 with a coefficient of 0.399.
3. Dynamics of the environment does not have a significant influence on the operational strategy with P = 0.668 > 0.05 with a coefficient of -0.04.
4. The dynamic capability has significantly positive effect on the competitiveness of companies with P = 0.000 > 0.05 with a coefficient value of 0.492.
5. Capability dynamic has significant positive effect on competitive strategy with P = 0.000 > 0.05 with a coefficient value of 0.283.
6. Capability dynamic has significant positive effect on operational strategy with P = 0.000 > 0.05 with a coefficient value of 0.270.

Based on Table 1 it can be seen there is a significant and influential pathway had no effect, so the hypothesis:

- H1 = The dynamics of the environment has an influence on the competitiveness of the company.
- H2 = The dynamics of the environment has an influence on the competitive strategy.
- H3 = Dynamic environment has no effect on the operational strategy.
- H4 = Dynamic Capabilities have an influence on the competitiveness of the company.
- H5 = Dynamic capability has an influence on the competitive strategy of the company.
- H6 = Dynamic Capabilities have an influence on the operational strategies.

The results of the analysis of hypothesis testing is described as follows:

**3.1 Effect of the Environment Dynamics of Enterprises Competitiveness.**

The results show that the dynamics of the environment positive and significant impact on the competitiveness of companies in the manufacturing industry in South Sulawesi. This result is evidenced by the critical ratio (CR) in a regression or t is greater than t table and probability value or p-value less than 0.05. This study also showed a positive relationship between environmental dynamism and competitiveness of enterprises is characterized by a positive path coefficients. The positive values can be seen from the regression estimate of 0.168 and a standardized regression weight value of 0.159 (Table 1). It is thus clear that the dynamics of the environment can give a direct role in the ability to compete (competitive) companies.

Changes in the business environment through changes in consumer tastes, demands that every company should be able to respond to and translate consumer tastes, the company's inability to meet consumer desires, the company will be left by consumers so that market share will decrease, sales volume will be reduced, the level of profitability will be reduced, thus environmental dynamics are formed on the indicator changes in consumer tastes and a significant positive effect on the competitiveness of the company.

Changes in the business environment through technological changes have an impact on the activity of making products more efficient operation, the use of
man power on the wane, the higher the efficiency of raw materials, the efficiency of the means of production thus the higher production costs per unit will be lower and so the selling price more compete with the products of competing companies. Thus the dynamics of the environment that formed on the indicator changes in technology product manufacturing positive and significant impact on the competitiveness of the company.

Changes in the business environment through macroeconomic changes identified through price increases (inflation) impact on raw material price increases, increases in operating costs and tuntuntan employees due to rising prices rise cycle. Accumulated increase in some components of the cost of production will lead to increasingly low value profit margins and lower sales volumes due to the purchasing power of consumers are getting lower as rising prices. These conditions require the company to remain able to provide quality products at competitive prices and to maintain the company's market position or let competitors take market potential. Thus the dynamics of the environment that formed on the indicator rising prices (inflation) and a significant positive effect on the competitiveness of the company.

Changes in the business environment with respect to the conditions of transport suppliers like smoothness, and speed of delivery ketepapatan kontuinitas impact on production, operating costs and the level of product availability. A high level of availability of products to build consumer confidence in the reliability and quality of company management through branding. And confidence in the branding can increase customer loyalty so that the position of the market is getting stronger. Thus the dynamics of the environment that formed on the indicator changes state suppliers positive and significant impact on the competitiveness of the company. This finding is in line with what is proposed by Porter (1993) that the four determinants of competitiveness, two of which are related to the dynamics of the environment such as demand conditions and conditions related industries.

3.2 Effect of the environment dynamics of competitive strategy

Based on Porter's generic strategies, (2003) that there are three competing strategies, namely low cost strategy, differentiation, and focus. Low cost strategy is a series of integrative measures designed to produce or deliver goods or services at the lowest cost. Differentiation strategy is to design products that are offered to create something new and overall perceived by customers as something unique. And the focus of the strategy is a strategy that specialize in specific market segments to serve the narrow strategic targets effectively and efficiently than competitor.

The results show that the dynamics of the environment positive and significant impact on competitive strategy (low cost) companies in the manufacturing industry in South Sulawesi. This result is evidenced by the critical ratio (CR) in a regression or t is greater than t table and probability value or p-value less than 0.05. This study also showed a positive relationship between the dynamics of the environment and the company's competitive strategy is characterized by a positive path coefficients. The positive values can be seen from the regression estimate of 0.533 and a standardized regression weight value of 0.399 (Table 1). It is thus clear that the dynamics of the environment can give a direct role on the company's preferred strategy of low cost.

Changes in the business environment through changes in consumer demands every company should be able to respond to and translate consumer tastes, the company's inability to meet consumer desires, the company will be left by customers thus reduced market share, sales volume will be reduced, and so the level of profitability of the company will be reduced. It is supposed to be captured and become a reference in formulating a strategy for implementing the competitive strategy. Thus the dynamics of the environment that formed on the indicator changes in consumer tastes and a significant positive effect on the company's low cost option strategy.

Changes in the business environment through technological changes have an impact on the activity of making products more efficient operation, the use of man power on the wane, the higher the efficiency of raw materials, the efficiency of the means of production thus the higher production costs per unit will be lower and so the selling price more compete with the products of competing companies. Thus the dynamics of the environment that formed on the indicator changes state suppliers positive and significant impact on the competitiveness of the company. This finding is in line with what is proposed by Porter (1993) that the four determinants of competitiveness, two of which are related to the dynamics of the environment such as demand conditions and conditions related industries.
indicator rising prices (inflation) and a significant positive effect on the company's low cost option strategy.

Changes in the business environment with respect to the conditions of transport suppliers like smoothness, and speed of delivery ketepapatan kontinuitas impact on production, operating costs and the level of product availability. A high level of availability of products to build consumer confidence in the reliability and quality of company management through branding. And confidence in the branding can increase customer loyalty so that the position of the market is getting stronger. Thus the dynamics of the environment that formed on the indicator changes state suppliers positive and significant impact on the choice of low cost strategy company.

These findings support the results of research and Durray Ward (2000) which suggests that the dynamics of the environment positive and significant impact on competitive strategy. Furthermore Pono (2009) also suggests that there is influence between the dynamics of the environment with a selection of the company's competitive strategy.

3.3 Effect of the Dynamics Environment of Operational Strategy

The results show that the dynamics of the environment does not have a significant effect on the company's operational strategy in the manufacturing industry in South Sulawesi. This result is evidenced by the critical ratio (CR) in a regression or t smaller than t table and probability value or p-value greater than 0.05. The positive values can be seen from the regression estimate of -0.091 and the value of a standardized regression weight of -0.04 (Table 1). It can be concluded that the dynamics of the environment does not contribute directly to operational strategy, meaning that despite the changes in consumer tastes, technological changes in the manufacture of products, macro-economic changes but does not affect the company's operations strategy choices.

These findings indicate that the company's manufacturing industry in South Sulawesi in implementing its operating strategy choice, not so responsive to the dynamics of the environment occurs, the technological changes that lead to product manufacturing costs per unit of production will be lower, the production lead time becomes shorter, the operational costs of production become cheaper. The manufacturing industry in South Sulawesi it does not respond to changes to up-date production technology used.

This is the general answer that: 1) the occurrence of stagnation and even decline in the number of manufacturing companies in South Sulawesi, 2) some companies ceased operations, 3) the entry of imported goods in large quantities to South Sulawesi due to the inability of the manufacturing industry in South Sulawesi to respond to the dynamic business environment dynamics.

Changes in the business environment through changes in consumer tastes, which is presented many consumer product options that enable the company will be left by potential consumers and captured by a rival company. Changes in the business environment through changes in production technology becomes cheaper, faster and better quality so the price of the product can be marketed at a price cheaper than competitor products. Things like this should have been addressed by a manufacturing company in South Sulawesi through policy implementation of operational strategies, the competitive pricing strategy or the strategy of quality and delivery.

The findings of this study do not support what is proposed by Ward et al (1995) in a dynamic environment that the company put more emphasis on the delivery of operational strategy, flexibility and quality.

3.4 Effect of The Dynamic Capabilities of Enterprises Competitiveness

The results show that the dynamic capability and a significant positive effect on the competitiveness of companies in the manufacturing industry in South Sulawesi. This result is evidenced by the critical ratio (CR) in a regression or t is greater than t table and probability value or p-value less than 0.05. This study also showed a positive relationship between dynamic capabilities and competitiveness of enterprises is characterized by a positive path coefficients. The positive values can be seen from the regression estimate of 0.301 and a standardized regression weight value of 0.492 (Table 1). So can thus be explained that the dynamic capabilities provide a direct role on the outcomes competitiveness of enterprises.

This is in line with that proposed by Ferdinand (2003), that is essentially the most important is to generate a combination of competitiveness and kapabalitas unique resource that is bound in an organization. Further explaining resource is an asset that is owned and controlled by the organization which can produce the product, which consists of know-how, technology assets, financial assets, physical assets, human capital, assets and market positions of dynamic capability is the ability of the company for the assets owned and controlled by organizations that can produce
products that consist of technology assets, assets reputation, financial and market position.

However, not all successful companies with ownership of the asset and resource capabilities. This condition is associated with sensing capabilities possessed. Traffic sensing capabilities are companies sensing or reading opportunities through analytical system (Teece, 2007). Traffic is formed on the processes related to research and development in connection with the development of production technology, the ability to set up the processes to obtain information supply, the price of lower material supply, continuity of supply certainty, accessibility and smooth transport.

Sensing capabilities are also formed on the processes relating to the identification of targets and certain market segments, customer needs are changing-changing, selera changing customer and product innovation. This is in line with that proposed by Teece (2007) that in order to build and maintain sustainable competitiveness of enterprises require sensing capabilities, seizing capabilities and transforming capabilities are developed simultaneously.

Not all successful companies with ownership of the assets and capabilities of resources. This condition relates to the seizing capabilities that I owned. Seizing capabilities is the company's ability to read, capture and seize opportunities in a structured and planned, with permission from the capabilities formed over the company's ability to provide solutions and meet customer desires, the ability of the company's corporate to governance in decision making.

These findings support the research Pamulu (2010) that there is a dynamic capability to influence the competitiveness of enterprises.

3.5 Effect of Dynamic Capabilities of competitive strategy

Based on Porter's generic strategies, (2003) that there are three competing strategies, namely low cost strategy, differentiation, and focus. Low cost strategy is a series of integrative measures designed to produce or deliver goods or services at a price / lowest cost. Differentiation strategy is to design products that are offered to create something new and overall perceived by customers as something unique. And the focus of the strategy is a strategy that specialize in specific market segments to serve the narrow strategic targets effectively and efficiently than competitor.

The results show that the dynamic capability and a significant positive effect on the company's competitive strategy in the manufacturing industry in South Sulawesi. This result is evidenced by the critical ratio (CR) in a regression or t is greater than t table and probability value or p-value less than 0.05. This study also showed a positive relationship between dynamic capability and firm competitive strategy is characterized by a positive path coefficients. The positive values can be seen from the regression estimate of 0.312 and a standardized regression weight value of 0.283 (Table 1). It is thus clear that the dynamics of the environment can give a direct role on the company's preferred strategy of low cost.

Planning strategy describes a dynamic process in which the company identify opportunities and then unify future expectations, this process is associated with sensing capabilities, seizing capabilities and transforming capabilities in dynamic capabilities.

These findings support the research Newbert (2008) that management strategies play a role in mediating the dynamic capabilities of the company's competitiveness. The company's ability to read, capture and seize opportunities in relation to the changing tastes and segmentation konsummen, in connection with the company's ability to conduct research and development related to the use of production technology (sensing capabilities). Ability / capability to be a part of this plan in the formulation and implementation of competitive strategy. The choice of competitive pricing strategy, differentiation strategy and focus strategy is strongly influenced by the sensing capabilities.

The choice of competitive pricing strategy would be based on the sensing or reading opportunities through analytical system (sensing capabilities) that maps the chances of success of the implementation of the strategy to be chosen. The choice of a differentiation strategy would be based also on the sensing or reading opportunities through analytical system (sensing capabilities) that maps the chances of success of the implementation of differentiation strategy will be chosen demeikian also the focus strategy.

3.6 Effect of Dynamic Capabilities of Operational Strategy

The results show that the dynamic capability and a significant positive effect on the company's operational strategy in the manufacturing industry in South Sulawesi. This result is evidenced by the critical ratio (CR) in a regression or t is greater than t table and probability value or p-value less than 0.05. This study also showed a positive relationship between dynamic capabilities and operational strategy of the company is characterized by a positive path coefficients. The positive values can be seen from the regression estimate of 0.327 and a standardized regression weight value of 0.27 (Table 1). So can thus be explained that the dynamic capabilities provide a direct role to the company's operational strategy choice.

These findings support the results of several previous studies (Pisano, 1994; Grant, 1996; Teece,
1997; Benedict, 2008) which integrates basic resources (resource-based theory of the firm) and basic knowledge (knowledge-based theory of the firm) in form of dynamic capabilities as a new concept that provides an explanation of how business organizations can survive and thrive in a dynamic market conditions through the implementation of operations strategies corresponding to the dynamic capability of being owned.

The concept of dynamic capabilities proposed by Teece (2007) that the dynamic capability is built on sensing capabilities, seizing capabilities, transforming capabilities which means that dynamic capabilities are built on the ability to read or respond to opportunities, the ability to capture and manage opportunities, and the ability to transform to what has been response has been captured and maintained in a form of operational strategy. Thus dynamic capabilities affect the company's operations strategy choices.

4. CONCLUSION

Based on the previously stated research objectives and hypothesis testing results of the discussion and gave birth to the following conclusions:

1) Dynamics of the external environment of business that occurs in a manufacturing company in South Sulawesi show a positive effect on the competitiveness of enterprises performance. These results provide empirical evidence that environmental dynamics including changes in consumer tastes, macroeconomic changes, changes in technology and the supplier can deliver the conditions of manufacturing companies in the highly competitive position or vice versa, so the company is required to respond to both the environment dynamics.

2) Dynamics of the external environment of business that occurs positive and significant impact on the company's choice of competitive strategy. This implies that the trend information on the choice of a particular strategy is based on the dynamics of environmental conditions. Macroeconomic conditions, consumer tastes change, technology changes and conditions of the supplier as an indicator of the dynamics of the environment becomes an important part that must be considered in determining the choice of competitive strategy within the company.

3) Third hypothesis examined the relationship dynamics of the environment on the operational strategies. The empirical evidence suggests that there is no significant influence of the dynamics of the environment on the company's operational strategy. These findings imply that the choice of the information managers of manufacturing companies in South Sulawesi to select and implement specific operational strategies that include an emphasis on the aspect of cost, quality, flexibility and delivery was not significantly affected by the condition of the environment dynamics.

4) The fourth hypothesis examined the relationship dynamic capabilities of the company's competitiveness. Empirical evidence suggests that there is a dynamic capability to influence the competitiveness of enterprises. This information implies that the ability of manufacturing companies in South Sulawesi in integrating, building and reengineer internal competency to cope with the changing external environment contribute to the achievement of its competitiveness position.

5) Fifth hypothesis examined the relationship dynamic capabilities to the choice of competitive strategy. Empirical evidence suggests that there is influence between the dynamic capabilities of the choice of competitive strategy. This implies that the choice of manufacturing companies in South Sulawesi to implement a competitive pricing strategy, or a strategy or a differentiation focus strategy, grounded by information relating to the dynamic capabilities possessed, the ability to respond to change and then integrate, build and re-engineer the company's internal and external competence.

6) Sixth hypothesis examined the relationship dynamic capabilities of the preferred operational strategy. Empirical evidence suggests that there is a dynamic effect on the choice between the capabilities of the company's operational strategy. This implies that the choice of manufacturing companies in South Sulawesi to implement cost savings strategies, or quality strategy, or a strategy of flexibility or grounded by the information delivery strategy with respect to the dynamic capability of being owned, namely the ability to respond to change and then integrate, build competence and re-engineer internal and external.
REFERENCES