Just in time and competitive advantage: understanding their linkages and impact on operational performance

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ABSTRACT
This study aims to analyze the influence of Just in Time on competitive advantage and operational performance. This research was carried out on a manufacturing company in Makassar Industrial Area, a sample of 40 respondents consisting of marketing managers, production managers and financial managers. The results of data analysis using Partial Least Square (PLS) provide evidence that Just in Time has a significant effect on competitive advantage and operational performance

Keywords: Just in time, competitive advantage, operational performance

INTRODUCTION

Makassar Industrial Region (KIMA) is an Industrial Region located north of Makassar City which has a very strategic location because it has very easy access to the Port and to the Airport. Access to Makassar Industrial Region can be via toll roads. Sometime in the future this industrial area will be connected to the trans-Sulawesi railroad roads. Thus, the process of transporting raw materials becomes easier and cheaper. Makassar Industrial Region is also equipped with various supporting facilities, namely water-treatment, third-party services such as electrical energy sources from PT Perusahaan Listrik Negara (PLN) (Persero) and clean water from Regional Water Supply Companies (PDAM) Makassar City and networks telecommunications from PT Telkom Indonesia (Persero). The availability of these supporting facilities is expected to stimulate the interest of entrepreneurs or investors to place their business in the Makassar Industrial Region. In addition, Makassar City is located in the middle of Indonesia, whose territory stretches from Sabang to Merauke, and in the Makassar Strait which is the shipping axis from Australia to the East Asia and Pacific Ocean regions.

The position of Makassar Industrial Region which strategically gives economic value to companies located in Makassar Industrial Region. Transportation facilities and other supporting facilities contribute to the company's business, especially manufacturing companies in the implementation of the Just in Time Production System. On the other hand there has been an awareness of entrepreneurs to adopt the ISO 9001: 2008 Quality Management System and SNI-19-9001: 2008. Through the implementation of a Quality Management System consistently, the quality of output can be improved.

This is a support for companies to have a competitive advantage. In turn, companies can improve their operational performance. Various philosophies and approaches to developing manufacturing and service businesses have been introduced by a number of experts. The Toyota Production System (TPS) in its implementation has several approaches, including Just in Time (JIT) and Total Quality Control (TQC) which is then refined to Total Quality Management (TQM), in addition there are several other approaches, namely Total Preventive Management (TPM), Kaizen and Poka Yoke. All of these approaches in their application in various manufacturing and service companies turned out to yield good results. Empirical evidence shows that just in time (JIT), Supply Chain Management (SCM) and Total Quality

Management (TQM) at the strategic and operational levels contribute positively to the company's performance, commitment to the quality and dynamics of Supply Chain Management is a very factor in improving company performance (Kannan & Tan, 2005).

Application of just in Time and inventory systems provide a strong influence on the efficiency, quality of output and flexibility of small and medium scale manufacturing companies in South Africa (Mazanai, 2012). An interesting result is shown that JIT-purchasing has a direct positive relationship with agile manufacturing. Improved operational performance resulted in an increase in firm performance as a consequence to agile manufacturing is mediated by JIT-purchasing. Agile manufacturing has a direct positive relationship with the company's operational performance and the company's operational performance has a direct positive relationship with the company's marketing performance. In addition, it is also proven that there is a positive relationship between operational performance and the company's financial performance is mediated by marketing performance (Inman et al., 2011). The findings relevant to some of these studies also show similar evidence that compatibility of the JIT, TQM and TPM practices are associated with the implementation of both socially and technically-oriented practices of the three programs (Cua et al., 2001). Some of the findings from previous researchers are the reason for this research, which is whether there is a direct influence of JIT on operational performance and how the role of competitive advantage is as a variable mediated. This is important to do because the intense competition at this time encourages manufacturing companies to be the best so that the company can preserve its existence. Competitive advantage is expected to be obtained through the implementation of JIT. The application of JIT directly or indirectly through competitive advantage is expected to improve the company's operational performance. Operations managers in manufacturing companies are expected to find the right method so that the company has a competitive advantage. This expectation is in line with the views of scholars (Heizer & Render, 2005; Mulia, 2009), that the success of forming a unique and high-superior system compared to competitors can improve the company's capability in operations and marketing so that it can serve all its customers efficiently, consistent and sustainable.

LITERATURE REVIEW
Operational performance
Operational performance as the ability of product makers to find standards of expectations built for customers (Tracey & Vonderembse, 2000). Other scholars say that operational performance is an achievement to measure whether the product produced is in accordance with the product planned (Christiansen et al., 2003). Operational performance refers to measurable aspects of the results of an organization's processes, such as reliability, cycle of production time and inventory turnover. Operational performance in turn affects business performance measures such as market control and customer satisfaction (Voss et al., 1997).

The company's operational performance can be assessed or viewed from two dimensions, namely: dimensions of cost, flexibility and quality of delivery (Brah & Lim, 2006). The cost dimension is measured by five indicators, and the dimensions of flexibility and quality of delivery are measured by three indicators (Carton, 2004; Carton & Hofer, 2006; Venkatraman & Ramanujam, 1986). This operational performance can be measured using measurements such as market share, new product launches, quality, marketing effectiveness, and customer satisfaction. Other scholars identify operational performance from the waste level, productivity, cycle time aspects (Lakhal et al., 2006). Operational performance refers to the measurable aspects of the results of an organization's processes, such as reliability, cycle of

production time and inventory turnover. Operational performance in turn affects business performance measures such as market control and customer satisfaction (Voss et al., 1997).

Competitive advantage

The competitive advantage is an advantage against competitors gained by offering a lower value or to provide a greater benefit because the price is higher (Kotler & Armstrong, 2003). An important factor in creating competitive advantage is an efficiency, innovation, quality, and customer response. Companies that are able to adopt the four basic components of Competitive Advantage will succeed in cost leadership and differentiation, and ultimately gain competitive advantage. These four factors can be explained as: (1) Efficiency, (2) Quality) Innovation, Customer response (Chin & Heng, 2009). There are five dimensions of priority for competitive advantage, namely: (1) Price; (2) Quality; (3) Dependability; (4) Product Flexibility; (5) Volume Flexibility (Hayes & Schmenner, 1978). Competitive advantage of a company can be measured using indicators; price, quality, delivery dependability, product innovation, and time to market (Li et al., 2006).

Just In Time.

Just-in-Time is known as a philosophy for completing products at every instant {Just-in-time) and with a minimum cost that aims to eliminate waste through continuous improvement on all key aspects of the production process including several factors that influence the application of the model and inventory method (Kannan & Tan, 2005). Just-in-time contributes to the company through; (1) reduce the amount of inventory in the process, goods purchased and finished goods; (2) reduce floor area requirements; (3) improve the quality and reduce the wasted goods and which must be reworked, (4) reduce the production time cycle; (5) provide high flexibility to produce various types of goods; (6) smoother production flows, fewer production disruptions caused by quality problems, shorter tide times, jobs with several skills that can help each other and replace other workers when they are unable to attend; (7) increase productivity and use of machinery and equipment; and (8) participation of workers in solving problems (Stevenson, 2002).

Just in Time are defined as a time base marketing pull strategy combined with total process minimization. The purpose of this strategy is the delivery of products and services that are zero defects in the right number at the right time and right as desired by consumers while minimizing the type of waste. Implementation of this strategy reconciles fundamental changes in the way the sales function is implemented, which requires sellers to produce strong alliances with consumers (Germain et al., 1994). The JIT production strategy is applied to all modern industrial systems from engineering (engineering), material ordering from suppliers, material management in industry, manufacturing processes, to distribution of industrial products to customers. "It appears that modern industrial systems are oriented to customer satisfaction by way of integrating the three main components, namely: material supplier (input), manufacturing process (factory process) and customers (customers) as a complete system (Gaspersz, 2005).

The instrument used to measure just-in-time in this study uses: (1) limited number of suppliers, (2) minimum inventory in the factory, (3) factory layout, (4) reduction in set up time, (5) integrated control and (6) flexible labor (Simamora, 2002). JIT-purchasing is understood as a delivery control system and makes quantitative models to compare it with traditional procedures (Chyr et al., 1990; Fazel, 1997; Fazel et al., 1998). Other researchers use broader perspectives and focus on identifying practices that describe JIT-purchasing which aims to transfer the JIT production system into the supply chain (Schonberger & Gilberg 1983; Lee & Ansari, 1985; Fawcett & Birou, 1993; Waters, 1995; Ansari & Modarres, 1988; De Toni &

Nassimbeni, 2000). Therefore, this practice affects not only logistics but also other aspects related to supply relations, such as procedures, selection, design specifications or length of contract (González-Benito & Spring, 2000).

Some other researchers consider .Just In Time Purchases as a result of several cooperative principles and advantages of risk sharing between buyers and suppliers (O'Neal, 1987; Leavy, 1994). JIT total system contains three dimensions, namely Just in Time purchase, Just in Time production and Just in Time sales. As expected it was found that Just in Time the total system was positively related to financial results. Correlation matrix shows the same results when Just In Time sales are considered separately Although they do not provide a specific definition of Just In Time sales, they continue to operate (Claycomb et al., 1999). Other researchers' findings provide evidence that the percentage of open-ended single sales made according to JIT questions. They identify this single measurement as a limitation of study and require future research to produce a valid and feasible measurement scale (Germain et al., 1994).

RESEARCH FRAMEWORK

Conceptually the statement of the relationship between research variables is built based on relevant theories and the results of previous research. Theoretical and empirical findings are used as a basis for describing the conceptual framework of research and are used as a basis for deriving the research hypothesis. Competitive Advantage Theory explains that there are four main attributes that make up the environment in which the company competes in such a way, which encourages the creation of competitive advantage (Michael E. Porter, 1990), these four attributes are: (1) production factor conditions, namely the position of a country in a factor production (e.g. skilled labor, infrastructure, and technology) needed to compete in certain industries, (2) demand conditions, namely the nature of domestic demand for certain industrial products or services, (3) related and supporting industries, namely the presence or absence of industry suppliers and related industries that are internationally competitive in the country, and (4) Strategy, structure and competition of companies, namely domestic conditions that determine how companies are formed, organized and managed and the nature of domestic competition. Other scholars explain competitive advantage as everything that is intended to create competitive advantage.

The company is advised to form a unique system and has distinctive advantages compared to its competitors. This is done by submitting the best according to what is expected by consumers efficiently and continuously (Meylianti & Mulia, 2006; Heizer & Render, 2005). There are five objective bases for operational performance that are considered to be applied to all types of operations. Operational performance indicators that can be implemented include quality, speed of delivery, networking, flexibility and cost. This indicator provides support for competition. The application needs to be supported by operating management tools and techniques, such as Kanban System, Statistical Process Control (SPC) and JIT (Slack et al., 2004). All of this equipment focuses on activities that do things better, faster, more efficiently and cheaper (Staughton & Johnston, 2005).

Just in Time is a philosophical concept to produce products that are needed when the customer needs the appropriate amount of needs, as well as a primary quality level. At every stage of the process in system manufacturing carried out in the most economical and efficient way through elimination of waste and process improvement continuously (Gaspersz, 2008) Empirical evidence shows that so is just-in-time (JIT), that in order to face competition, every company is required to always increase competitive advantage, both in the domestic market and in the global market. To increase competitive advantage, many companies apply various

management models, one of which is just-in-time (Ramarapu et al., 1995). Relevant to these results, the findings of other researchers indicate that there is a positive and statistically significant relationship. Implementing a JIT system, competitive advantage can be achieved for the manufacturing company concerned, namely achieving three dimensions of competitive advantage (low production costs, excellent product quality and financial performance the good (Alshbiel & Al-Awaqleh, 2012).

Wider results show that a structural model combines agile manufacturing as a theoretical construct and will be tested. This model includes the main components of JIT (purchasing and JIT-production) as antecedents and operational performance and company performance as a consequence of agile manufacturing Using data collected from production and operations managers working for producers in the United States The model used follows the structural equation methodology. The results show that JIT-purchasing has a direct positive relationship with agile manufacturing while a positive relationship between agile manufacturing is mediated by JIT-purchasing. The results also show that agile manufacturing has a direct positive relationship with the company's operational performance, that the company's operational performance has a direct positive relationship with the company's marketing performance and that a positive relationship between the company's operational performance and the company's financial performance is mediated by the company's marketing performance (Inman et al., 2011). These facts and statements form the basis for the use of hypotheses in this study, so that they are described as follows:

H_1 : Just in time are more likely to be associated with significant improvements in competitive advantage.

H_2 : Competitive advantage are more likely to be associated with significant improvements in operational performance

H_3 : Just in time are more likely to be associated with significant improvements in operational performance

H_4 : The positive association between just in time and operational performance is mediated through competitive advantage

METHODS

The research is survey type and data were collected using questionnaire, and 40 people (i.e. marketing managers, production managers and financial managers) were selected as sample using simple random sampling. In order to answer the research hypotheses, confirmatory factor analysis (CFA) and structural equation modeling (SEM) using SmartPLS software were utilized

RESULTS

Outer model (measurement model)

The outer model or measurement model is the assessment of the validity and reliability. There are three criteria for assessing the outer model, namely: convergent validity, convergent validity test is used to test whether the indicators used are able to measure latent constructs accurately (Hair et al., 2014). The latent variable indicator is represented by the dimension score that has previously been tested for its validity and reliability. From testing convergent validity with SmartPLS can be seen the value of loading factor for each indicator. Loading factor values are identical to simple correlations between indicator scores and latent variable scores. The cut-off value required is at least 0.7 or t-statistics > 1.96 (Ghozali, 2011). The result of convergent validity indicators of the study are presented in Table 1.

Table 1. Loading factor and composite reability

Variable	Construct / Items	Loading Factor	t-statistics	Composite Reability
Operational performance (KOP)	KOP_1	0.907	29.969	0.963
	KOP_2	0.904	37.280	
	KOP_3	0.886	21.049	
	KOP_4	0.927	28.599	
	KOP_5	0,959	122.282	
Competitive advantage (OPT)	KPT_1	0.965	69.224	0.941
	KPT_2	0.849	12.639	
	KPT_3	0.956	106.321	
	KPT_4	0.846	12.033	
	KPT_5	0.731	8.972	
Just-in-Time (JIT)	JIT_1	0.772	13.568	0.917
	JIT_2	0.817	14.419	
	JIT_3	0.784	10.883	
	JIT_4	0.764	11.874	
	JIT_5	0.861	33.559	
	JIT_6	0,833	18.861	

The value of Just in Time has a value > 0.70 so that all the indicators that make up the variable in question fulfill convergent validity. For the operational performance variable, the biggest contribution is by Y_{25} (ability of the company to meet customer needs), and the lowest contribution of its formation is Y_{23} (adjustment of products with baking needs), on the variable the Competitive Advantage biggest contribution of its formation is Y_{11} (price advantage) and contribution the lowest formation is given by Y_{15} (Time to Market), and the Just In Time variable has the largest contribution, X_{15} (integrated quality control) and the lowest contribution is the formation of X_{11} (number of suppliers). And it can be seen that the variable t-statistic is just in time, competitive advantage, and operational performance in this study is greater than 2,024. This shows that the indicators are valid.

Discriminant validity
Test Subsequent testing in the partial least square analysis is discriminant validity. An indicator is said to meet discriminant validity if the value of cross loading indicator on the construct is the biggest compared to other constructs. Following are the results of the cross loading output. Discriminant Validity is used to test whether the indicators of a construct are not highly correlated with other construct indicators or at least these indicators are lower correlated with other construct indicators (Hair et al., 2014). Testing discriminant validity by comparing loading with cross-loading

Table 2. Discriminant validity test (cross loadings)

Variable	Indicator	KOP	KPT	JIT
Operational performance (KOP)	KOP_1	**0.907**	0.542	0.506
	KOP_2	**0.904**	0.454	0.439
	KOP_3	**0.886**	0.491	0.409
	KOP_4	**0.927**	0.509	0.493
	KOP_5	**0.959**	0.631	0.625
Competitive advantage (KPT)	KPT_1	0.548	**0.956**	0.706
	KPT_2	0.504	**0.849**	0.643
	KPT_3	0.565	**0.965**	0.739
	KPT_4	0.524	**0.845**	0.656
	KPT_5	0.365	**0.731**	0.519
Just-in-Time (JIT)	JIT_1	0.387	0.617	**0.772**
	JIT_2	0.368	0.530	**0.817**
	JIT_3	0.425	0.600	**0.784**
	JIT_4	0.469	0.522	**0.764**
	JIT_5	0.511	0.687	**0.861**
	JIT_6	0.471	0.658	**0.833**

Table 2. Shows that each indicator has a value which is the biggest factor loading on variables that shape when compared with the value of the other variables. Therefore it can be concluded that all empirical indicators used have met discriminant validity criteria when viewed from the results of cross loading.

Reliability analysis
Reliability reflects the consistency of the results of repeated measurements on the same subject. If the results are consistent, then the measuring instrument is considered reliable or reliable. The reliability test as a set of latent variables consistent with measurement, that the high level of reliability means being able to provide reliable measurement results. The criteria for determining the level of reliability according to the level of reliability of a construct reliability in a Structural Equation Model (SEM) are calculated by looking at the composite reliability value, where if the composite reliability value is greater than 0.7 it can be declared reliable (Ghozali, 2011; Sjahruddin, & Sudiro, 2013; Hair et al., 2014). In summary, the latency composite reliability value can be described as follows: operational performance = 0.963, just in time = 0.917 and competitive advantage = 0.941. This means that the indicators support each other to be used as a measure of latent variables (see in table 1).

Inner model (structural model)
Testing the inner model (original sample estimated) is used to test the hypothesis proposed in this study because the hypothesis formulated is reflected in the paths in the model. The results of testing the inner model can be seen in Figure
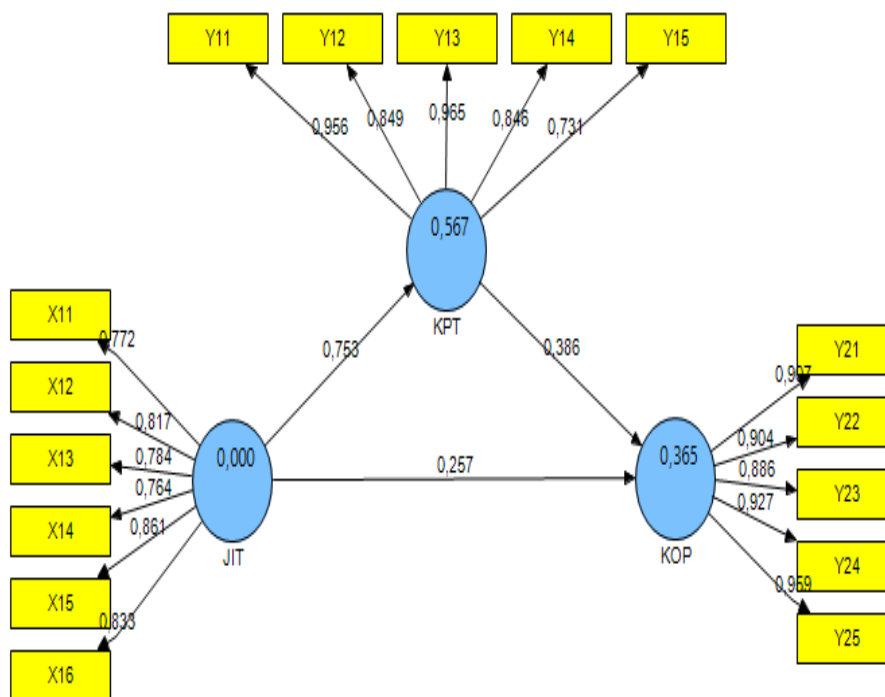
Figure 1. Inner model

Goodness of fit test

This test is intended to determine how much the results of the model are able to explain the variation of the original variable (score) variables. The test was carried out with Stone-Geisser Q Square test. From the inner model it is known that there are two endogenous variables namely Competitive Advantage and Operational Performance so that two determinant coefficients are obtained. The determinant coefficient value for each endogenous variable is as in the following table:

Table 3. R-square

Equations	Exogenous Variable	Endogenous variables	R-square
1.	JIT	KPT	0.566947
		KOP	0.364784

Next based on the coefficient of determination of each dependent variable Q^2 with the formula:

$$Q^2 = 1- (1-R_1^2) (1-R_2^2)$$

Description:
R_1^2 = Coefficient of determination (KPT)
R_2^2 = Coefficient of Determination (KOP)
$Q^2 = [1- (1-0.566947) (1-0.364784)]$
$Q^2 = [0,724484753] = 0.72,45\%$

Based on the coefficient of determination of the two endogenous variables in the model, it can be seen that Stone-Geisser Q Square is 0.72448 or 72.45%. These results indicate that the model has good feasibility because it is able to explain the information contained in the original data of 77.2% while the rest is 27.55%, explained by other variables and error variables. The value of the determination coefficient is high, so the model is worth interpreting.

Hypothesis testing

Research proposes 4 (four) hypotheses, testing hypotheses in the SmartPLS analysis, basically testing the significance of the path coefficients in the model, to conclude whether the research pathway or hypothesis is proven, if the path coefficient value is ≥ 2.024.

Table 4. Hypothesis Testing of Direct and Indirect

EXV	MV	ENV	DE	IE	TE	P-value >2.024
JIT	→	KPT	0.753	-	0.753	18,148
JIT	→	KPT	0.257	-	0.257	2,055
KPT	→	KOP	0.386	-	0.386	4,139
JIT	→ KPT →	KOP	0.753	0,153	0,906	4,090

Notes:

EXV	:	Exogenous variable	DE	:	Direct effect
MV	:	Mediating variable	IE	:	Indirect effect
ENV	:	Endogenous variable	TE	:	Total effect

Just in time to be associated in competitive advantage

In face of competition globally, every company is required to always increase competitive advantage, both in the domestic market and in the global market. To increase competitive advantage, many companies apply various management models (i.e. Just in Time) (Ramarapu et al., 1995). The results of the descriptive analysis of the variable value (mean) the average score in just in time variables was obtained through an integrated quality control indicator which has the highest value of 4.26, among the five other indicators of just in time variables while the lowest is the level indicator minimal. Based on empirical facts, integrated quality control indicators are shown by not receiving defective components or raw materials from suppliers, suppliers are responsible for components and raw materials before the production process is carried out, and production part employees are responsible for supervision of the products already good if used as a measurement or an indicator of just in time variables so it must be maintained. Just in time, is competitive in competitive advantage. Based on the results of the analysis, the t-statistic value is 18,148. Then for the t-table at the 0.05% error level is = 2.024. Based on these results it can be stated that the value of t-statistics> t-table or 18.148> 2.024.

This means applying Just in Time positive and significant influence on competitive advantage. Coefficient value with a positive sign explains that if JIT application is improved, the competitive advantage of manufacturing companies will also increase, so the first hypothesis proposed in this study is proven to be accepted or supported by empirical facts. Results Outer Loadings show the same fact that important or dominant factors reflecting just in time variables are statistical control indicators of 0.892 or 89.2% of their roles in reflecting just in time. The results of this study confirm that good in-time is reflected through a variable indicator of statistical quality control. Whereas variable indicators have the smallest contribution in reflecting just in time latent variables, which are minimal inventory levels, it needs serious attention from the management of manufacturing companies in Makassar Industrial Area. The just in time effect on competitive advantage can be proven by the path coefficients value of 0.265 with a positive direction. The positive influence coefficient means that good just in time tends to increase the company's competitive advantage. Besides that, it can also be proved by the value of T Statistics (| O / STER) = 2.708956> 1.96 (t-critical).

The test results prove that just in time has a positive and significant effect on the competitive

advantage of manufacturing companies in Makassar Industrial Area. Based on these conditions it can be concluded that just in time changes are positive and real towards increasing the company's competitive advantage so that it can be supported by empirical facts. The indicator that contributes the most to the formation of Just in time variables is an indicator of integrated quality control and skilled labor. This reveals that to increase the support capacity of just in time to competitive advantage and operational performance, companies must produce quality products, through the most efficient and economical way, and on time, that is when the product is needed by consumers. Quality control involves developing a system to ensure that the product is designed and manufactured to meet the requirements of the customers and producers themselves. The results of this study support conceptual stating that Just in time is a comprehensive production system (all parts) and inventory management system where materials and spare parts are purchased and produced as much as needed and at the right time at each stage of production. This is inseparable from the skilled workforce that the company has expertise in operating all production equipment or machines contained in the work line, and equipped with skills, maintenance of production equipment used to be able to carry out maintenance and repair it if it experiences interference (Chen et al., 2006).

The results of this study are in line with statements from several experts that the successful implementation of JIT in a company can improve the quality of products and services produced, reduce operational costs, and increase customer satisfaction (Sakakibara et al., 1997; Golhar & Stamm, 1991). The results of this study are in line with the findings of previous researchers that the application of just in time has a significant effect on competitive advantage (Alshbiel, & Al-Awaqleh, 2012). Just-in-time implementation can provide great benefits to companies in the form of reducing inventory costs, increasing productivity, and better product quality, thus ultimately increasing the company's competitive advantage (Golhar & Stamm, 1991).

Just in time to be associated in operational performance
Just-in-time is the manager's response to the inventory and production control system that is carried out continuously to suppress corporate waste. The results of the descriptive analysis show the empirical condition that the application of the six indicator variables Just-in time, namely the limited number of suppliers, inventory level of control, appropriate delivery of orders, statistical quality control, and employee flexibility are seen as important in explaining just in time variables. Variable indicators that have the highest average (mean) score indicated by the indicator of the number of suppliers with an average score (mean) of 4.30, this condition can be explained that the supplier is responsible for supplying raw materials that are not defective and part employee's production responsibility for production. Just in time are more likely to be associated with significant improvements in operational performance.

Hypothesis testing provides evidence that the value of t-statistic is = 3,853. Then for the t-table value at the 0.05% error level is = 2.024. Thus the value of t-statistics> t-table, or 3,853> 2,024 is obtained. This means that the application of competitive advantage has a positive and significant effect on operational performance. A positive path coefficient value explains that if the company's competitive advantage is increased, the increase will have an impact on improving the operational performance of the manufacturing company. So that the third hypothesis proposed in this study is proven to be accepted or supported by empirical facts. Outer Loadings results indicate that important or dominant factors reflecting just in time variables are the same indicators as the results of descriptive statistics, namely on the quality control variable indicator with the Outer Loadings value of 0.899, meaning that to produce a quality product with the use of a raw material inventory control system function to minimize

the occurrence of waste can be achieved by increasing the responsibility of suppliers to the supply of raw materials and employee responsibility for the creation of quality products that have a contribution or role of 89.90% in reflecting the just in time variable, but it can also be explained that the lowest contribution is based on factor analysis confirmatory is shown through minimal inventory levels.

Based on the indicators of the indicator managers who need to get serious attention in the management of just in time is a good indicator that is the minimum inventory level so it is very important to be improved. The results of testing the effect of just in time on operational performance can be proven by the Path Coefficients of 0.241 with a positive direction. The positive influence coefficient means that good just in time tends to improve operational performance. Then it can be proved T Statistics (| O / STERR 1.003955 (t-critical)> 0.196. The findings of this study prove that just in time has a positive and significant effect on improving operational performance. The results of testing just in time effect on operational performance based on the value of the Path Coefficients amounting to 0.241 with a positive direction, this is because managers generally agree that there are even some managers who strongly agree if the company purchases parts and raw materials only when the product is ordered and the amount of raw material to be produced is in accordance with the number of orders and the company does not store spare goods in the warehouse as a reflection of the indicator of the minimum inventory level variable. That condition can be concluded that the inventory and production control system carried out continuously has been carried out properly so that the company does not incur unnecessary costs yes (there is no waste of costs).

The poorly resulting consequences of a implemented inventory and production control system and the occurrence of cost waste, have an impact on the company's low ability to reduce production costs (indicators of financial performance variables) and the inability of companies to meet customer / market needs (indicator of operational performance variables). In general, it can be stated that just in time has not been implemented properly, which has an impact on the occurrence of a decrease in the performance of manufacturing companies in the Makassar Industrial Area. This research is in line with the findings of previous researchers that the application of JIT in a company can improve the quality of products and services produced, reduce operational costs, and increase customer satisfaction that affect the company's financial performance (Flynn et al., 1995). This study is relevant to findings that provide evidence that JIT production positively influences efficiency and delivery (Danese et al., 2012).

Competitive advantage to be associated in operational performance.
The creation of a high competitive advantage can be done by creating a special competitive advantage so that companies have a strong bargaining position (bargaining power) in business competition (Porter, 1990). Competitive advantage is more likely to be associated with significant improvements in operational performance. Based on the results of the analysis, the value of t-statistic was 2.055. Then for the t-table value at the 0.05% error level is = 2.024. Thus the value of t-statistics is obtained> t-table or 2.055> 2.024. This means applying Just in Time positive and significant effect on operational performance. Path coefficient value positive sign explains that when applying Just in Time improved, the increase in operational performance will also increase, so that the second hypothesis proposed in this study is proven to be accepted or supported by empirical facts.

Analysis of outer loadings show that important or dominant factors that reflect competitive advantage variables are indicators of price excellence in reflecting competitive advantage. The results of this study confirm that a high competitive advantage is reflected through variable indicators of price excellence. While variable indicators that have the smallest role or

contribution in reflecting the latent variable of competitive advantage is the time to market variable indicator, so it needs serious attention from the management of manufacturing companies in Makassar Industrial Area.

The effect of competitive advantage on operational performance can be proved by the path coefficients value with a positive direction. Positive influence coefficient means that high competitive advantage tends to improve operational performance. Besides that, it can also be proven that the T Statistics value is greater than the critical value. The test results prove that competitive advantage has a positive and significant effect on the performance of manufacturing operations in the Makassar Industrial Area. Based on these conditions it can be concluded that changes in competitive advantage are positive and real towards improving operational performance so that they can be supported by empirical facts.   This finding is relevant to the findings of previous scholars that there is a significant relationship between competitive advantage against supply chain performance only accepted at high operational performance but rejected at low operational performance (Chi et al., 2009). In contrast to the results of other studies that competitive advantage does not have a significant effect on the operational performance of small companies, but on large scale companies have a significant effect (Wook, 2006).

Just in time and operational performance is mediated through competitive advantage.
Based on The Sobel's test is to determine the indirect coefficient of influence shown in Table 3. That just in time indirectly has a significant effect on improving operational performance, as well as competitive advantage on operational performance. So it can be concluded that good just in time and high competitive advantage indirectly have a significant effect on increasing operational performance in a high direction. The positive association between just in time and operational performance is mediated through competitive advantage. The test results using Sobel test prove that the value of t-statistics> t-table or 3.820> 2.024. These results explain that the application of just in time (JIT) has a positive and significant impact on operational performance through competitive advantage. The positive-marked path coefficient explains that competitive advantage is able to act as a mediator variable in analyzing the influence of just in time on the operational performance of manufacturing companies. So that the fourth hypothesis proposed in this study is proven to be accepted or supported by empirical facts.

This statement can be proven through the Sobel test's results of testing the indirect effect of just in time variables on operational performance through mediation of competitive advantage obtained by the path coefficient value of 0.153. That just this time path coefficient value to competitive advantage is 0.753, and the T Statistics (| O / STERR |) value is 4.090, 2.024 greater so that it can be said to be significant. So it can be concluded that just in time which is getting better indirectly has a significant effect on operational performance. This means that just this time indirectly influences the operational performance after being mediated by competitive advantage; the supply chain management has a positive and significant influence on the operational performance of the manufacturing companies in Makassar Industrial Estate. This study supports the findings of previous scholars that JIT practices significantly improve operational performance and further competitive advantage can significantly improve operational performance, so it can be concluded that companies that have high performance will be able to achieve competitive advantage (Hadioetomo, 2009).

The results of this study refute the findings of previous researchers that most SMEs in the manufacturing sector do not apply JIT inventory management principles. This further revealed that there were challenges that hampered the application of the JIT principle in the

manufacturing sector SMEs. These challenges include the lack of a trusted supplier network, lack of capital and lack of knowledge about direct financial benefits from the implementation of JIT (Mazanai, 2012; Moori et al., 2013).

CONCLUSIONS

Just-in-time consisting of Number of suppliers, Minimum inventory level, Improvement of factory layout, Reduction of setup time, Integrated quality control, Employee flexibility and significant positive effect on competitive advantage and operational performance in Manufacturing Companies in Industrial Estates Makassar. Competitive Advantage consisting of price determination, product quality, consistency of delivery, product innovation has a positive and significant influence on the operational performance of manufacturing companies in Makassar Industrial Estate. The hypothesis testing shows that there is a positive relationship between just in time and operational performance through competitive advantage. Competitive advantage can mediate positively and significantly on the influence of JIT on operational performance. But if just in time is directly related to operational performance, the results will still have a significant effect as mentioned in the fourth hypothesis. This means that JIT which is better and indirectly can improve operational performance through competitive advantage.

This study provides recommendations to the management of manufacturing companies should improve the customer relationship and share information so that operational performance can be increased in a high direction, but this is inseparable from good just in time management and also cannot be separated from the competitiveness of the company. Finally, for advanced researchers it is expected to develop the results of this study by adding several constructs (variables) or objects of research that have differences in the characteristics of the company. Conduct additional data collection techniques such as interviews with companies with the aim of increasing the number of respondents.

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