# Jurnal 2

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# SUSTAINABLE COMPETITIVE ADVANTAGE OF SME'S THROUGH RESOURCE AND INSTITUTIONAL-BASED MANAGEMENT: AN EMPIRICAL STUDY OF BATIK SME'S IN CENTRAL JAVA, INDONESIA

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## Abstract

**Purpose -** This research aim is to find out and to analyze the capacity for developing Small and Medium-sized Enterprises (SMEs) of batik in Central Java, Indonesia. Batik is a traditional hand-crafted dye-resist textile rich in intangible cultural values, passed down for generations. Batik is a technique of wax-resist dyeing applied to whole cloth, or cloth made using this technique originated from Indonesia.
**Design/Methodology/Approach -** The primary data is collected by interview method with one hundred respondents who are the entrepreneurs of SMEs of batik in Central Java, Indonesia. The data collection is carried out by the method of Focus Group Discussion (FGD). The secondary data is used to enrich the analysis. The quantitative model is examined through an empirical analysis to fulfill the proposed aim of the research.
**Findings and implications -** The result of this research shows that business scale, market access capacity, and financial capacity have influences on the competitiveness level of SMEs of batik. Furthermore, cooperatives can strengthen the influences of market capacity and financial capacity on the competitiveness of SMEs although they are not effective in strengthening the technological and innovative capacities of SMEs. This study shows that SMEs in the form of batik industries can become high liner industries with a high performance if they have the ability to compete.
**Limitations -** This research has its limitations on the scope used only for the approach to the resources from the angle of capacity. The institutional study is only viewed from the angle of cooperatives as one of the forms of non-market management.
**Originality -** The novelty of this research is the discovery of the role of cooperatives to support the competitiveness of SMEs.

**Keywords -** competitive excellence, market capacity, financial capacity, technological and innovative capacities, access to resources, cooperatives

## 1. INTRODUCTION

The development of information technology has become the impetus for the era of creative economy industry (Moore, 2014, p. 739). The United Nations Conference on Trade and Development (UNCTAD, 2008, p. 4) explained that creative economy emerged as a concept that combined creativity, culture, economy, and technology in the contemporary world that was dominated by visuals, sounds, texts, and symbols. Nowadays creative industries are one of the most dynamic sectors of the world economy that provides new opportunities for the economic growth in the developing countries. According to a report of United Nations Educational, Scientific and Cultural Organization / UNESCO (2015), the income from the sector of Cultural and Creative Industries (CCIs) all over the world has exceeded the one from the telecommunication sector (US$1,570 billions globally) and has surpassed the Gross Domestic Product (GDP) of India (US$1,900 billions). The CCI sector has created 29.5 millions of jobs or has employed 1% of the world population.

Indonesia Bank (2017) reported that the creative industries grew at 5.6% and contributed 7.1% to GDP in 2010-2016. Moreover, the creative industries contributed 6.1% towards export value and absorbed 10.7% of the total workforce. The results of the mapping analysis performed by Indonesia Bank in cooperation with World Bank towards five sectors of micro and small-scale creative industries indicated that almost every province in Indonesia had a potential for craft and fashion industries. Both the sectors had a higher competitiveness than the other sectors of the creative industries. According to the statistical data of 2015, the population of Central Java amounts to 39.3 million. About 480,508 people work in 9,342 SMEs (Indonesian Central Bureau of Statistics, 2016b). In Indonesia, SMEs fall into four categories based on their activities, i.e. production (non-agriculture), agriculture, trade, and service. Based on the above-mentioned data of SMEs, they quantitatively have very high potential for developing. However, it turns out that they are facing structural and cultural issues now (Kristiansen, 2002; Kristiansen, 2003b; Kristiansen, Furuholt & Wahid, 2003; Kristiansen & Indarti, 2004). One of which is the lack of competitiveness in the long term (Storey, 1994; Kolvereid, 1996).

A low economic scale of SMEs business imposes limitations on: (1) access to information and markets / limited capital and efficiency for taking part in industrial exhibitions (Mazzarol, Volery, Doss, & Thein, 1999; Gibbons & O'Connor, 2003), (2) access to financial resources (Committee of Donor Agencies for Small Enterprise

Development/CDASED, 1999; McMahon, 2001), (3) access to technology and innovation so that they lack the ability to compete in local, regional and global markets (Gundry, Kickul, Welsch & Posig, 2003; Swierczek & Ha, 2003). The SMEs business also have to gain access to knowledge and innovation for developing dynamic competitive designs, understand quality control and environmental issues such as eco-design and labeling apart from possessing technical and managerial skills like entrepreneurship, management, accountancy, and marketing (Chaston, 1992; Cromie, 2000; Charney & Libecap, 2000; Huggins, 2000; Duh, 2003; Kristiansen, 2003a; Suharno, Susilowati, Anggoro & Gunanto, 2017). The SMEs business has to pay more attention to non-pricing elements of competition, for example, quality of products, uniqueness in design, standardization of motifs, and distributing products on time (Reynolds, Hay, Bygrave, Camp & Autio, 2000; Reynolds, Day & Lancaster, 2001).

The batik industries as part of the craft and fashion industries are one of the leading products of the creative industries based on local uniqueness in Central Java in competing in the free market era. They achieve an average growth of 67 percent per annum, 80 percent for the domestic market whereas 20 percent for the export market. They have the potential for supporting the economic growth and the workforce absorption. According to UNESCO (2015, p. 2), Batik is dyed by proud craftspeople who draw designs on fabric using dots and lines of hot wax, which resists vegetable and other dyes and therefore allows the artisan to colour selectively by soaking the cloth in one colour, removing the wax with boiling water and repeating if multiple colours are desired. The wide diversity of patterns reflects a variety of influences, ranging from Arabic calligraphy, European bouquets and Chinese phoenixes to Japanese cherry blossoms and Indian or Persian peacocks. Often handed down within families for generations, the craft of batik is intertwined with the cultural identity of the Indonesian people and, through the symbolic meanings of its colors and designs, expresses their creativity and spirituality.

Nevertheless, research of Indonesia Bank (2016) reveals that SMEs are still facing several problems, namely the lack of market capacity, financial capacity, and access to technology and innovation in entering a business competition. Businessmen in craft industries face three main obstacles: (1) limited access to information and markets. This happens because the entrepreneurs have not set clear target markets yet, and are only oriented to domestic markets due to limited capacity

for production, (2) limited access to finance due to limited assets for security, limited skill at preparing financial reports and limited training for employees in financial management, 3) the access to technology and innovation is limited because the entrepreneurs have limited skills, knowledge and technology and they have not set up a specific division for the research and development of their products yet. These issues make the entrepreneurs of SMEs unable to optimize their creativity and innovation and make the production process tend to be done traditionally. The entrepreneurs of SMEs of batik face the same problems. Therefore, the SMEs of batik in Central Java, Indonesia have to have a capacity for expanding markets through networks on a global scale, and technological and innovative capacities as industrial environments, consumer tastes, and lifestyle change dynamically with the passing of time.

Most of the batik businesses in Indonesia are still dominated by micro, small and medium-sized enterprises (MSMEs) that have the advantage of an organizational flexibility in response to environmental changes. Nonetheless, the small size of MSMEs of batik causes them to: (1) lack efficiency in the economic scale, pay a relatively high cost for accessing information and expanding markets, (2) have limited access to finance, (3) have no capacity for using technology and innovation. A survey of Indonesia Bank (2016) indicates that SMEs in the sector of creative industries in particular batik industries have a number of obstacles, i.e., having no information on market opportunities, paying high transaction costs emerging in accessing infrastructures, having limitations on achieving quality standards, and lack of skills and knowledge of dealing with customers both in domestic markets and export markets.

Free trade opens up opportunities for competition. Nevertheless, the SMEs of batik have difficulties competing owing to limited economic scale and access to resources (EIM Business & Policy Research; 1999). The theory of new institutional economics (NIE) (Royer, Bijman & Bitzer, 2016) suggests that SMEs can cooperate to do mutual governance in accessing resources (raw materials, information, and markets, finance, technology, innovation, and design), and to increase economic scale to be more competitive in the free trade era. A lot of empirical studies have been conducted (Lieberman & Dhawan, 2005; Mahendra, Zuhdi & Muyanto, 2015; Zhu, Wittmann & Peng, 2012; Singh, 2008; Petrovic & Milos, 2011), but business practices of SMEs particularly in developing countries have not been effective yet.

This research is an empirical study that analyzes the resource-and-institution-based competitive advantage of SMEs of batik by improving market capacity, financial capacity, and technological and innovative capacities of SMEs of batik in Central Java, Indonesia.

The research problem is how to develop the ability-and-institution-based competitive advantage of SMEs of batik in Central Java, Indonesia. The aims of this research are: (1) to analyze the influences of market capacity, financial capacity, technological and innovative capacities on the competitive advantage of SMEs of batik in Central Java, Indonesia, and (2) to analyze the role of cooperatives in strengthening the influence of entrepreneurial skills in market and financial capacities on the competitive advantage of SMEs of batik in Central Java, Indonesia.

This paper is organized into five sections. The next section discusses the literature related to a sustainable competitive advantage of the firm, the capacity of SMEs management, resource and institutional-based management and the hypotheses of the study. Methodology, including the sampling, data collection techniques, and measurement methods, is discussed in section 3. Research findings are then presented in the results section, which is followed by implications, and recommendations.

## 2. LITERATURE REVIEW

### 2.1. Competitive Advantage of the Firm

According to Smith (1776) in The Wealth of Nations, a free market offers an incentive for competition that encourages the allocation of factors of production to the most valuable and efficient use. Competition is the act of competing between sellers who equally endeavor to make a profit, to acquire market share and to increase the number of sales. The theory of classical economics (Smith, 1776) suggests that public policies are shaped by market mechanisms, individualization of welfare, commodification, and minimization of the role of the state. Competition encourages commercial companies to develop products, technology, and services, with the result that they have more options, sell better products, and set lower prices. Based on market mechanisms, market imbalances provide economic opportunities (Kirzner, 2015), but when markets are static, entrepreneurs come up with innovations to create new opportunities and to achieve growth (Schumpeter, 1934) so that free market also offers incentives for innovative activities.

Competitive advantage is the ability that is acquired through the characteristics and resources of a company to deliver a higher performance compared to that of other companies in the same industry or markets (Porter, 2008). Several studies (Lieberman & Dhawan, 2005; Chen, Delmas & Lieberman, 2015) use efficiency as the measurement of competitive advantage that will be achieved if the company can optimize the output or efficiency (differentiation strategy) or minimize the input (cost leading strategy) that is illustrated in the production function as in the following:

$$Q = AK^{\alpha}L^{1-\alpha} \quad (1)$$

Where, Q represents output or production result that becomes the function of technology index (A), capital (K) and workforce (L). The α symbol is called model parameter. For the value of technology, the index is so-called efficiency parameter. Production is defined as value-added (Y) with the function from technology level (A), workforce (L) and capital (K), and it is quoted in the format:

$$Y = F(A, L, K) \quad (2)$$

The challenge of such traditional approach is conceptually the production function to spend expense encountered by an effective company that occupies the best practical method within. Most companies are not fully efficient in capitalizing the resource inputs. Therefore, the related companies posit below the average industries. The advancement of econometric by Aigner, Lovell, and Schmidt (1973); Suharno, Susilowati & Firmansyah (2017) results from the model development of stochastic frontier production capable to identify the production axis and company relative position.

$$Y = F(L, K)\ TE\ (Z) \quad (3)$$

$$TE = \frac{d\pi r}{d\pi k} \quad (4)$$

Where, TE = technical efficiency, the function of efficiency increased (competitive advantage). Z = error variable, dπr = efficiency advantages, dπk = resources spent to improve competitive advantages. The formula (3) can be written in the natural logarithm of the empiric model as in the following.

$$\mathrm{Ln}\,Y_{it} = \beta_0 + \beta_1 \mathrm{Ln}L_{it} + \beta_2 \mathrm{Ln}K_{it} + u - v \quad (5)$$

Where: $Y_{it}$ = value-added firm i time t, $L_{it}$ = workforce firm i time t, $K_{it}$ = capital firm i time t, $u$ is explainable error variable such as entrepreneurs activities, whereas $v$ is unexplainable error variable. The approach of Efficiency Stochastic Frontier above possesses weakness because it has only one dependent variable. The approach of

Data Envelopment Analysis (DEA) (Lieberman & Dhawan, 2005; Chen et al., 2015) which is part of the development of Efficiency Stochastic Frontier is an analysis program that use nonparametric approach. The advantage of DEA is its capability to use more output variables.

In SME's, most of the entrepreneur's constraints and opportunity in managing intangible resources such as market access capacity (MAR), financial access capacity (FIN), also technology and innovation access capacity (INOV) that possibly affect efficiency (*TE*). Furthermore, "it" symbol can be explained firm i time t.

$$TE_{it} = \gamma_0 + \gamma_1 MAR_{it} + \gamma_2 FIN_{it} + \gamma_3 INOV_{it} + v \quad (6)$$

Where: $\gamma_0$ = constant, $\gamma_1$ = coefficient of MAR, $\gamma_2$ = coefficient of FIN, $\gamma_3$ = coefficient of INOV, whereas $v$ is unexplainable error variable.

**2.2. The Capacity of SMEs Management**

Resource Based View (RBV) (Barney, 1991) becomes one of the strategies to achieve sustained competitive advantages that are emphasized on company internal resources. The perspective of Industrial organization (Porter, 2008) assumes that competitive advantages are defined by company external factor i.e. attractive industry. However, resources are not necessarily homogeny. There is possibly heterogeneity of resources in one industry and non-dynamic company resource movement in one industry.

In the creative industry sector, it is necessary for companies to have valuable, unique, original, and sustainable resources. Akio (2005, p. 126) classifies main resources: unique product, expertise, special production methods, connection, location, flexibility. Meanwhile, the critical resources include competencies, capabilities, and knowledge (Nunally, 1978; Ryan, 1970; Sinha, 1996). Nonetheless, SMEs holds many challenges in the areas of market capacity, financial capacity, technical capacity, and innovation to be competitive in a longer term (Verhees & Meulenberg, 2004).

Milen & World Health Organization (2001, p. 354) defines capacity as: "individual capabilities, organization or system to run the intended function efficiently, effectively, and respectively". According to Hilton, Maher, and Selto (2003, p. 217), capacity is a measurement of a process capabilities to transform resources into specific outputs. Capacity does not merely cover technical competency, or available financial resources or sufficient materials. The concept of capacity involves

volume/resource management flow (tangibles/intangibles) such as input that is applied and spent to produce certain output.

In this case, capacity relates to individual capabilities, organization or system to execute functions and to meet the objectives effectively and efficiently. From entrepreneurship perspective, capacity in this research refers to entrepreneurship resource capacity (management) beyond the other resources (tangibles and intangibles asset) to achieve organization vision. In SMEs, the factors of management are performed by managers that are consecutive as business owners (Yuan & Vinig, 2007, p. 32).

According to Storey (1994), there are three main elements to improve the capacity of SMEs: characteristics of the entrepreneurs; characteristics of the SMEs; and type of strategy associated with growth. Likewise, APEC summit in Ottawa on September 1997 (Harvie, 2004, p. 14-17) mentions five main elements to improve the capacity of SMEs including market, financial, technology, human resources, funding, and information. This research works on three main capacities of SMEs namely market, financial, and innovation and technology.

1. Market capacity. SMEs encounter certain issues specifically related to the scope and in the context of rapid trading liberalization. They need to develop their capacity to capitalize opportunities that are as the effect of the open regional trading system.
2. Financial access capacity. The opportunities to access some funding can be an important capital for the small-scale enterprise to gain access to required resources. Many SMEs are not quite concerned with financial resources. The programs from commercial banks, other private sectors, and government funding are difficult to define and articulate the SMEs financial needs. The financial institution must be responsive to their needs and proceed to simplify the trading documentation.
3. Technology and innovation capacity. In the scope of a knowledge-based economy, ICT (information communication technology) application will be the bridge for SMEs. When SMEs have limited access and a little understanding of technology, their prospect will be lower to utilize such potentials. The role of local government is needed (in the focus of infrastructure renovation, funding, and training, also as the source of information on business opportunity).

Based on the previous explanations, it can be derived hypothesis as follow.

H1a. Market capacity positively affects competitive advantages of Batik SMEs.

H1b. Financial capacity positively affects competitive advantages of Batik SMEs.

H1c. Technology and innovation capacity positively affects competitive advantages of Batik SMEs.

**2.3. Institutional-Based Management**

New Institutional Economics (NIE) offers itself as the developer of the theory of non-market institutions on the basis of neoclassical economic theory. Coase (1937) emphasizes the institutional benefits, mainly the efficiency of transaction expenses. Theory of collective action as the branch of NIE (Olson, 1971) highlights the importance of collective action to meet efficiency of resources and economy performance management. According to Williamson (2000), NIE operates on two levels including institutional environment (macro level) and institutional arrangement (micro level). Institutional environment plays roles as a set of regulation structures of politic, social, and legal that organizes production activities, exchange, and distribution (Bandura, 1977; Aldrich & Zimmer, 1986; Kristiansen, 2003; Pajares, 2002). On the other hand, micro-analysis level focuses on the issue of institutions of governance (Steel, 1994; Meier, & Pilgrim, 1994; Mulhern, 1996; Mead, & Liedholm, 1998).

The scale of the economy provides limitation of SMEs in accessing markets (such the lack of capital and efficiency to take part of industry exhibition), limitation in accessing resources of financial, technology, innovation. Thus, they will hinder to compete in local and global markets. On the basis of the theory of New Institutional Economics (NIE) (Coase, 1937; North, 1991; Williamson, 2000), SMEs will work significantly through vertical alliance (in the commodity value cycle) and horizontal (among the similar business groups) to increase their economic scale. In order to access markets or control competition, it is crucial for Batik industry to adopt the global perspective from a strategic partnership in national or international markets. For example, SMEs can develop a strategic alliance with foreign distributors as a strategy to access new markets and simultaneously improve their product quality. SMEs may also have cooperation with a cluster (as a centralized business group in a certain geographic location and focus on a similar sector) to facilitate access of information and markets, capital, knowledge and technology, innovation, training and employee development (ESCAP, 2009, p. 212).

The conjunction between entrepreneurs of SMEs Batik through vertical alliance and a group business on the SMEs Batik cluster can be explained in the concept of cooperation (cooperatives) by optimizing their potentials to save transaction cost and developing 'countervailing power' (Alston & Gillespie,1989; Singh, 2008; Petrovic & Milos, 2011; Huang & Cao, 2015). a) higher selling price. This is presumably the most important benefit from the advent of manufacturer conjunction. b) economy scale. Taking collective action on the same timeline will save certain expenses or improve efficiency from a certain process. c) external economies provide advantages including the improvement of member productivity due to the information distribution. d) non-economic advantages. Cooperative movement gives significant emphasis to non-economic advantages. The condition of perfect competition is the proxy of an equal number of sellers and buyers, and both of them posit as pricing makers.

Many developing countries are indicated by weak governance environment, limited information availability, a high cost of coordination, and high risk (Dorward, Poole, Morrison, Kydd & Urey, 2003). The lack of physical infrastructure significantly increase transaction cost and becomes the challenges of production and marketing options (Barrett, 2008). Besides the weak institution environment, SMEs faces challenges related to access to input and output markets, access to information and credit facilities, and assistance of technical innovation. Those accesses are very limited such as the improper function of markets, and a little market information. The term of 'institutional challenges' emphasizes that the solution for batik entrepreneurs' challenges cannot be resolved by an individual, but requires several collective actions (Royer et al., 2016). From input point of view, such challenges relate to the lack of resource access, financial aid, and technology access. From the output perspective, the lack of market information, quality and inspection control, connection to output market become the main institution challenges. The lack of horizontal organization (between producers) relates to both input and output aspects of markets.

Royer et al. (2016) explain several institutional strategies to reinforce the value cycle namely contract system, partnership, and producer organization. Such contract system, partnership, and producer organization have been practiced in reinforcing the institution of SMEs. Each setting has mitigated institution challenges by creating the market network (such as connecting buyers and manufacturers, helping

negotiation, giving information on quality requirements), preparing training and technical assistance, supporting institution development, and certification.

Based on the above description, the hypothesis can be formulated as in the following.

H2a. Cooperatives positively affect the competitive advantages of Batik SMEs.

H2b. Cooperatives that moderate the effects of entrepreneurs' capabilities of Batik SMEs to access markets positively affect the competitive advantages.

H2c. Cooperatives that moderate the effects of entrepreneurs' capabilities of SMEs Batik to access financial positively affect the competitive advantages of Batik SMEs.

H2d. The Cooperation that moderate the effects of entrepreneurs' capabilities of Batik SMEs to access technology and innovation positively affect the competitive advantages of Batik SMEs.

## 3. RESEARCH METHODOLOGY

The population is Batik SMEs in Central Java, and the sampling strategy applies two stages (multistage sampling). The first stage is conducted by taking a local sample in three districts of Batik SMEs central in Central Java Indonesia; Surakarta, Pekalongan, and Rembang. Batik SMEs in Surakarta district is central of Kraton (palace) batik in Central Java. Meanwhile, Batik SMEs in Pekalongan district and Lasemown coastal batik that grows and collaborate with the culture of Islam and China. The second stage sampling of SMEs uses simple random sampling because the population tends to be homogeny. The survey covers 100 Batik SMEs in the batik central of Batik SMEs Surakarta, Pekalongan, and Rembang. Based on the number of employees, an industry can be divided into four categories (Indonesian Central Bureau of Statistics, 2016a; 2016b):

a. Home industry, an industry with 1-4 employees
b. Small industry, an industry with 5-19 employees
c. Medium industry, an industry with 20-99 employees
d. Large industry, an industry with 100 or more employees.

Competitive advantages are measured from the comparison of company efficiency with an industrial average that comes from DEA efficiency (Lieberman & Dhawan, 2005; Shi, Takala, Muhos, Poikkimaki & Chen, 2007;

Chen et al., 2015). A company will have higher competitive advantages compared to competitor average if the company possesses output comparison with input in the production and income function that is more efficient (higher) than the competitor. Input variable in this research includes labor cost, material, and fixed cost. Output variable in this research is measured by batik production and sales.

It aims to understand the level of SMEs efficiency that can be defined as a ratio between total weighted output with total weighted input. The efficiency value is the input toward output ratio, and they are varied between 0-1 (0%-100%). The stages of measurement of efficiency value using DEA method areas in the following.

1. Determining DMU (Decision Making Unit)
2. Determining input and output variables.
3. Doing the analysis to get relative efficiency value using the approach of Constant Return to Scale (CRS). DEA of CRS model is an efficiency measurement for each DMU a maximum ratio between worth output and input. Each worth value that is used in the ratio is determined by a limitation that the same ratio for each DMU must have a value less than or equal to one.

The mathematic formula for DEA of CRS model can be defined as follow.

To maximize $K_{th}$ DMU:

$$E_k = \sum_{r=1}^{s} U_{rk} * Y_{rk} \qquad (7)$$

With limitation or challenges:

$$\left(\sum_{r=1}^{s} U_{rk} * Y_{rj}\right) - \left(\sum_{i=1}^{m} V_{ik} * X_{ij}\right) \leq 0 \; ; j = 1,2,\dots,n$$

$$\sum_{i=1}^{m} V_{ik} * X_{ik} = 1$$

$U_{rk} \geq 0 \; ; r = 1,2,\dots,s$

$V_{ik} \geq 0 \; ; i = 1,2,\dots,m$

The first inequality indicates that the efficiency ratio for the other decision making unit (DMU) is no more than 1, while the second equation is positively weighted.

Where:

$Y_{rj}$ = the amount of output $r$ produced by *jth* Batik SME

$X_{ij}$ = the amount of input $i$ required by *jth* Batik SME

$s$ = the number of outputs generated by Batik SMEs

$m$ = the number of inputs used by Batik SMEs

$U_{rk}$ = weighted worth of output $r$ produced by *kth* Batik SMEs

$V_{ik}$ = weighted worth from input $i$ required by *kth* Batik SMEs

Batik SMEs $E_k$ = the value used as an indicator of relative efficiency by *kth* batik SME

$k$ = Batik SMEs index: in our research $k$ = 1,2,…,100

The above mathematical formula is analyzed by using software of *DEAP Version 2.1*. The produced value of relative efficiency from DEA of CRS model is approximately between 0% to 100%. Batik SMEs is technically perceived having more efficient performance if it is close to 1(100%). It will be more inefficient if it is shifting to 0 (0%).

*Table 1: Variable and Operational Definition*

| Variable | Variable Operational Definition | Reference |
|---|---|---|
| Competitive advantage (CA) | The firm efficiency comparison with average industries calculated by DEA efficiency | Lieberman & Dhawan, 2005; Shi et al., 2007; Chen et al., 2015 |
| | **Output** | |
| | Production Volume= Average production number per year (unit) | |
| | Income = Average number of selling volume per year (Rp) | |
| | **Input** | |
| | Labor cost = Average amount of labor cost per year (Rp) as the multiplication between wages and the number of workforces | |
| | The cost of raw materials = Average amount of raw material cost per year (Rp) as the multiplication between the cost of raw materials and the number of raw materials. | |
| | Fixed cost = the cost for fixed expenses of the firm disregarding the number of production | |
| **Resource-based Approach** | | |
| Dummy of market access capacity (DMAR) | Total of availability of information and market access: a) direct market access (excluding middlemen), b) possessing pricing negotiation skills to buyers, c) possessing pricing negotiation skills to suppliers. (0= there are three challenges, 1=there are two of three challenges, 2=there is one of three challenges, 3=easy/no market challenges) | Munir, Lim & Knight (2014); Mahendra et al. (2015); Zhu et al. (2012) |
| Dummy of financial access capacity (DFIN) | Total of availability in accessing financial resources: a) no challenges related to capital, b) no collaterals, c) the proper financial reports. (0= there are three financial challenges: 1= there are two of three financial challenges 2= there is one of three financial challenges, 3= easy/no financial challenges) | |
| Dummy of technological and innovative *) capacity (DINOV) | Total access of technology, product and process innovation (0=no access of technology, process, and product innovation, 1= there is one of three access, 2= two of three access, 3= three access). | |
| **Institutional-based Approach** | | |
| Dummy of co-operative (DGROUP) | Total co-operative type held: the involvement of cooperatives or business groups (No=0,Yes=1), private/state partnership, buyer agreement contract, supplier agreement contract | Raposo, Ferreira & Fernandes (2014) |
| **Control Variable** | | |
| Dummy of size (DSIZE) | Business scale (0=Micro business, Less than 10 employees, 1= Small business, Between 10 and 49 employees, 2= middle business, Between 50 and 100 employees ) | Marsden, 1992; Singh & Krishna, 1994; Smallbone, Leig & North, 1995; Mazzarol & Choo, 2003 |
| Dummy of type (DTYPE) | Technology adoption (0= printing batik, 1= handmade) | |
| Dummy of export (DEXP) | Export market access (0= local only, 1= the export markets) | |
| Dummy of region (DREGION) | District are (0= Pekalongan, 1= Rembang, 2= Surakarta) | |

Note: *) Technology is the collection of techniques, skills, methods, and processes used in the production of goods or services. Innovation can be defined simply as a "new idea, device or method" on process and product.

**3.1.** Regression model measurement

The factors of intangible assets that affect competitive advantages of Batik SMEs (CA) are overviewed from dummy of market capacity (DMAR), dummy of financial capacity (DFIN), and dummy of technological and Innovative capacity (DINOV). The factors that affect competitive advantages of Batik SMEs are analyzed by using the technique of regression analysis with dummy variables (Galperin, 1985) as in the following formula:

$$CA = \beta_0 + \beta_1 DMAR1 + \beta_2 DMAR2 + \beta_3 DMAR3 + \beta_4 DFIN1 + \beta_5 DFIN2 + \beta_6 DFIN3 + \beta_7 DINOV1 + \beta_8 DINOV2 + \beta_9 DINOV3 + \beta_{10} DGROUP + \beta_{11} DSIZE1 + \beta_{12} DSIZE2 + \beta_{13} DTYPE + \beta_{14} DEXP + \beta_{15} DREGION1 + \beta_{16} DREGION2 + \varepsilon \quad (8),$$

Where: $\beta_0$ = intercept, $\beta i,i$ =1,2,...,16 = slope, $\varepsilon$ = Error. In addition to testing the direct impact of business groups on competitive advantage, the research model also compares the role of business groups as dummy variables by strengthening the influence of market access variables, access to financial and access to innovation and technology to the competitive advantage of SMEs Batik.

To evaluate the accuracy of regression function toward observation value can be seen from the value of *best fit*. The statistic of the *goodness of fit* is measured from F statistic value and determination coefficient. The determination coefficient ($R^2$) is used to decide percentage deviation of the dependent variable that is caused by the independent variable. The test of F is the formula significance test that is used to determine how independent variable affects the dependent variable (Y). *P-value* is the probability to refute zero hypothesis if the test is presumably correct. The significant level is 1% (very significant). If the p-value is less than significant level, the researcher will conclude that the observed influence depicts the population characteristic not only the error sampling.

## 4. RESULTS AND DISCUSSION

**4.1.** DEA Analysis

In terms of inputs (Table 2), the highest average cost for batik production is labor costs (Rp 20.81 million per month), followed by material costs (Rp 12.10 million and overhead costs (Rp 3.87 million per month). Batik industry is generally an art and craft (handmade) industry that absorbs a lot of labor. The material cost consists of raw material and auxiliary cost. Overhead costs for batik SMEs consist of electricity

costs, municipal waterworks, telephone and administrative salaries. The average production of batik cloth at SMEs batik is 10 units of batik or 10 pieces/month (2 meters/piece). Average income from monthly sales is Rp. 41.27 million.

*Table 2. Input Variable and DEA Output*

| Parameter | INPUT | | | OUTPUT | |
|---|---|---|---|---|---|
| | Labour | Material | Overhead | Quantity | Sales |
| Average | 20.81 | 12.10 | 3.87 | 0.04 | 41.27 |
| Standard Deviation | 5.32 | 3.47 | 1.28 | 0.01 | 9.59 |
| Minimum | 7.20 | 2.16 | 0.40 | 0.01 | 10.98 |
| Maximum | 33.60 | 15.50 | 6.66 | 0.06 | 61.00 |

*Source: Analysed from the questionnaire with batik business owner (2016)*

From the results of the analysis with Data Envelopment Analysis (DEA) in table 3, it can be seen that the efficiency level of batik SMEs between 81.20% to 100% (benchmark). The majority of SMEs of batik (65%) have the efficiency level between 81.00% to 90.00%. The differentiation of efficiency can be caused by the resources access and the ability to produce the production output and sales (consisting of components of sales volume and price/product value).

*Table 3. Summary of Analysis Results DEA Level Efficiency SMEs of Batik in Central Java, Indonesia*

| Parameter | Value (%) |
|---|---|
| **Efficiency** | |
| Average Efficiency | 89.41% |
| Standard Deviation Efficiency | 5.75% |
| Minimum Efficiency | 81.20% |
| Maximum Efficiency | 100.00% |
| **Frequency** | Percent (%) |
| Efficiency 91% -`100% | 35.00% |
| Efficiency 81% -`90% | 65.00% |
| Efficiency < 80% | 0.00% |
| Total | 100.00% |

*Source: Analysed from the questionnaire with batik business owner (2016)*

From Table 3, it can be seen that the performance of SMEs of batik has an average efficiency rate of 89.41% or in the category of efficient because an efficiency rate ranges between 80% and 100%. This illustrates that the average of SMEs of batik has efficient performance.

**4.2.** Resource Access Capacities, *Co-operative Type,* and Competitive Advantage

The research found that generally SMEs with market, financial, technology and innovation capacity hold higher cost efficiency (Table 4). The access to technology and innovation can be perceived from patented products, process quality innovation in production (ISO) and environment management certification. Table 4 Illustrates that SMEs with the access to product and process innovation generally have a higher efficiency than those without product and process innovation. Most Batik SMEs (71%) do not put more effort in product design innovation. Most production plans are created based on the proposal from distributors (agents and retailers), or middle-men for export orientation. Batik SMEs remain focusing on production and production process strategies. The marketing system is typically similar to the former business holders such as parents. Batik centers have not concerned with aspects that succeed the sales such as packing, distribution, and service. The marketing is executed with simple strategies such as selling batik to markets, stores or promotion systems of mouth-to-mouth (personal selling). The targeted markets are traditional market segments (local). Batik centers in Central Java, Indonesia have not mostly capitalized the capacity of innovation and technology in either creating or adopting batik design innovation for production and marketing. The business competition of batik industry is still in the circle of pricing competition instead of product quality.

The market capacity can be perceived from direct market access without the presence of middlemen, the capabilities to negotiate with suppliers and the arrangement of selling price and the ease of promotion. Table 4 illustrates that Batik SMEs with direct market access possess higher cost efficiency compared to Batik SMEs with the presence of middlemen. Batik SMEs with pricing maker capabilities own higher cost efficiency compared to the ones with pricing taker. Batik SMEs with bigger market capacity (domestic or global scale) involving the access to take part in exhibition, information technology access hold higher efficiency compared to Batik SMEs without the access of promotion exhibition and selling their products to middlemen merchants.

*Table 4: Descriptive statistics of Resource Access Capacities and Competitive Advantage*

| | Competitive Advantage | |
|---|---|---|
| | N | Percent (%) |
| **Dummy of market access capacity (DMAR)** | | |
| Total Market Challenges | | |
| 0= there are three challenges (benchmark) | 20 | 20.00 |
| 1=there are two of three challenges (DMAR1) | 33 | 33.00 |
| 2=there is one of three challenges (DMAR2) | 18 | 18.00 |
| 3=easy/no market challenges (DMAR3) | 29 | 29.00 |
| **Dummy of financial access capacity (DFIN)** | | |
| Total Financial Challenges | | |
| 0= there are three financial challenges (benchmark) | 18 | 18.00 |
| 1= there are two of three financial challenges (DFIN1) | 32 | 32.00 |
| 2= there is one of three financial challenges (DFIN2) | 14 | 14.00 |
| 3= easy/no financial challenges (DFIN3) | 36 | 36.00 |
| **Dummy of technological and innovative access capacity (DINOV)** | | |
| Total Technological and Innovative Challenges | | |
| 0=no access to technology, process, & product innovation (benchmark) | 16 | 16.00 |
| 1= there is one of three access (DINOV1) | 26 | 26.00 |
| 2= there are two of three access (DINOV2) | 24 | 24.00 |
| 3= there are three access (DINOV3) | 34 | 34.00 |
| **Control variables** | | |
| Dummy of size variable (DSIZE) | | |
| 0=Micro Business / Less than 10 employees (benchmark) | 50 | 50.00 |
| 1=Small Business / Between 10 and 49 employees (DSIZE1) | 38 | 38.00 |
| 2=Middle Business / Between 50 and 100 employees (DSIZE2) | 12 | 12.00 |
| Dummy of technology adoption (DTYPE) | | |
| 0=Printing Batik | 13 | 13.00 |
| 1=Handmade | 87 | 87.00 |
| Dummy of export market access (DEXP) | | |
| 0=The local market only | 71 | 71.00 |
| 1=The access to the export market | 29 | 29.00 |
| Dummy of region (DREGION) | | |
| 0=Pekalongan (benchmark) | 10 | 10.00 |
| 1=Rembang (DREGION1) | 22 | 22.00 |
| 2=Surakarta DREGION2) | 68 | 68.00 |

*Source: Analysed from the questionnaire with batik business owner (2016)*

Financial capacity can be perceived from the internal capital adequacy of the capabilities to access external capitals to meet the production needs and business operational, the availability of sufficient collaterals and the availability of the financial report. Table 4 illustrates that Batik SMEs with adequate capital to compensate internal production process and capabilities to access external capital to fulfill the needs of production and business operation, the availability of sufficient collaterals and the availability of financial report commonly have higher efficiency.

From the perspective of market capacity, the product distribution of Batik SMEs in Central Java surpasses not only local markets and domestic (71%) but also international markets (29%) (Table 4).The international distribution areas include Malaysia, Singapore, Thailand, India, Italy, French, and The Middle East. Most of Batik SMEs are micro business (50%), small business (38%) and only 12% is middle enterprises. Most of them have established the business more than 10 years ago. Thus, they actually have gained many experiences (Table 1). The product types in markets are not only one type of items, but there are many Batik launched such as

stamping batik, printing batik, handmade batik, and combination batik (stamping and handmade). Table 1 describes the product types that are mostly produced by batik entrepreneurs; printing batik (13%). However, the product type of combination batik (stamping and handmade) represents 87 business unit (Table 4).

*Tabel 5: Descriptive statistics of Co-operative Type and Competitive Advantage*

| | Competitive Advantage | |
|---|---|---|
| | N | Percent (%) |
| Group (DGROUP) | | |
| The agreement contracts with suppliers | | |
| Available | 0 | 0.00 |
| No Available | 100 | 100.00 |
| The agreement contracts with buyers | | |
| Available | 4 | 4.00 |
| No Available | 96 | 96.00 |
| Manufacturer Organization/Cluster | | |
| Available | 54 | 54.00 |
| No Available | 46 | 46.00 |
| Private/State Partnership | | |
| Available | 53 | 53.00 |
| No Available | 47 | 47.00 |

*Source: Analysed from the questionnaire with batik business owners (2016)*

Most of Batik SMEs have participated in cooperatives (53%) (Table 5). Batik SMEs that have once had conjunction with distributors, buyers, joint venture in manufacturer cooperatives or received a grant of financial aid from the government or private agents normally owns higher efficiency compared to other SMEs entrepreneurs that have few group activities. The conjunctions in manufacturer cooperatives and partnership with government and private agents are the most schemes undertook by SMEs. In this research, the conjunctions of Batik SMEs entrepreneurs as the members of manufacturer cooperatives give many benefits to support the business such as determining batik-selling price in order to be more competitive in markets and avoid the lower pricing competition. The conjunction of manufacturer cooperatives also provides other advantages such as cheaper cost in purchasing raw and basic materials due to a large number of group orders from the member of cooperatives.The conjunction of manufacturer cooperatives also supports in marketing coordination such as clusters and aids from government and private holders. Business contracts with suppliers are beneficial in assuring the supply chain of resources (input) such as fabrics and other basic materials. Meanwhile, the business contracts with buyers maintain the cycle of demands and production continuity based on pricing agreement in a long term. However, only few business

holders have performed the improvement of efficiency, business contracts with suppliers and buyers.

### 4.3. The factors for Competitive Advantages

In the era of free trade such as ASEAN Economic Society 2015, any products from foreign countries can be a threat to local markets. The business competition in globalization era is confronted by many enterprises in many sectors including batik manufacturers. By establishing MEA in 2015, Batik SMEs should run competitively with cheaper imported batik in local markets. Besides the challenge of product quality to compete in export markets, batik enterprises also receive the threat in local markets due to imported products. The summary of result test analysis of regression factors for competitive advantages of Batik SMEs is illustrated in Table 6.

*Table 6: The Regression Result*

| | | Competitive Advantage (CA) | |
|---|---|---|---|
| | | *B* | *ρ* |
| (Constant) | $\beta_0$ | 83.048 | ***) 0.000 |
| **Independent Variable** | | | |
| DMAR1 | $\beta_1$ | 0.848 | 0.277 |
| DMAR2 | $\beta_2$ | 2.390 | ***) 0.007 |
| DMAR3 | $\beta_3$ | 2.434 | ***) 0.004 |
| DFIN1 | $\beta_4$ | 1.494 | 0.117 |
| DFIN2 | $\beta_5$ | 1.080 | 0.241 |
| DFIN3 | $\beta_6$ | 2.868 | ***) 0.002 |
| DINOV1 | $\beta_7$ | 0.880 | 0.263 |
| DINOV2 | $\beta_8$ | 0.655 | 0.390 |
| DINOV3 | $\beta_9$ | 1.352 | 0.111 |
| DGROUP | $\beta_{10}$ | 0.826 | 0.200 |
| **Control Variable** | | | |
| DSIZE1 | $\beta_{11}$ | 4.698 | ***) 0.000 |
| DSIZE2 | $\beta_{12}$ | 9.879 | ***) 0.000 |
| DTYPE | $\beta_{13}$ | -0.486 | 0.488 |
| DEXP | $\beta_{14}$ | 0.443 | 0.431 |
| DREGION1 | $\beta_{15}$ | -0.532 | 0.494 |
| DREGION2 | $\beta_{16}$ | -0.742 | 0.374 |
| R-squared | | 0.930 | |
| F-statistic | | 69.311 | |
| Prob(F-statistic) | | 0.000 | |

Description: ***) significantly impactful with error tolerance of 1%.
Source: Analysed from the questionnaire with batik business owners (2016)

The result from the formulation of regression factors for competitive advantages of Batik SMEs as illustrated in Table 6 shows that the value of $R^2$ is 0.930 or 93.0%. It means that all independent variables in this research are capable

to explain the change variation; the increase or the decrease of the dependent variable (competitive advantages) of 93.0%. Whereas, the other portion of 7.0% is affected by the other variables that are not mentioned in this research model. The result of data analysis in Table 6 finds out 5 (five) factors that significantly affect the competitive advantages of Batik SMEs in Central Java, Indonesia. They are namely business scale (DSIZE1 and DSIZE2), market access capacity (DMAR2 and DMAR3), and financial access (DFIN3). The constant's value is 83.048 that without independent variable, the average value of competitive advantages of Batik SMEs in Central Java is 0.83 %. The scale of business affects the competitive advantages of Batik SMEs in Central Java, Indonesia.

The business scale (DSIZE1 and DSIZE2) positively affects the competitive advantages of Batik SMEs in Central Java, Indonesia. The value of regression coefficient ($\beta$) are 4.698 and 9.879 ($\rho < .01$). It means that micro business's scale differs from small business (DSIZE1) and middle business (DSIZE2). The competitive advantage of SMEs middle-scale Batik business (DSIZE2) differs significantly higher by 9.879 from micro business. The competitive advantage of SMEs Batik small business (DSIZE1) differed significantly by 4.698 from micro business in Central Java. The bigger scale of business will provide efficiency to the economy scale, so it will improve the cost efficiency for competitive advantages of Batik SMEs in Central Java, Indonesia. On the contrary, the smaller scale of business will challenge the efficiency of economy scale during production activities, operational and marketing, so it will reduce the cost efficiency to compete in local, domestic, or global markets. The economy scale gives a contribution to SMEs in accessing markets (due to the lack of capital and efficiency to take part in industry exhibition), the challenge in accessing the financial resources, so it will foster to compete in local and global markets. Based on the theory of New Institutional Economics (NIE) (Coase, 1937), SMEs can have an agreement through vertical alliance (in the commodity value cycle) and horizontal (among the similar business units) to develop the economic scale. To access markets and control competition, it is important for batik industry to adopt global perspective through a strategic partnership, either domestic or foreign market (Akhtar, 1997). Batik SMEs can create a strategic alliance with foreign distributors as the method to access new markets, and they can consecutively improve the product quality. They can have cooperation in the cluster (a centralized business group in certain geographic location and typically focus on the similar fields)

to facilitate access information and markets, capital, technology and knowledge, innovation, training and employee development (ESCAP, 2009).

The market capacity (DMAR2 and DMAR3) positively affects the competitive advantages of Batik SMEs in Central Java, Indonesia. The value of regression coefficient ($\beta$) are 2.390 and 2.434 ($\rho < .01$). It means that three challenges differs from one of three challenges (DMAR2) and easy market challenges (DMAR3). The competitive advantage of SMEs Batik with easy market challenges of business (DMAR3) differs significantly higher by 2.434 from three challenges. The competitive advantage of SMEs Batik one of three challenges (DMAR2) differed significantly by 2.390 from three challenges in Central Java. Many Batik SMEs orient to production instead of direct market access. This issue mostly causes the lower bargaining business position to middlemen, stores, buyers, and other distributor channels or other agents with direct access to markets. As result, the business owners solely become the production process with little production and efficiency. Finally, their competitive advantages are low. The lower efficiency describes that the return of the business is not equal to production business cost. The return is only to cover the production cost. Harvie (2004) explains that the challenge of SMEs relates to the high cost of access and use of information technology. The activity of manager-owner in accessing information and market through promotion activities improving cost (input), but it potentially increases the selling (output). As micro and small enterprises, Batik SMEs in Central Java, Indonesia generally do not have a specific division that works on market research to observe and analyze the factors that affect consumer need and preferences. Most Batik SMEs in Central Java, Indonesia are familiar with their customers in the longer period. The needs of customers are observed and evaluated through product development and consistent services.The capabilities of manager-owner of Batik SMEs in determining pricing to create valuable products for customers will define the better selling price and improve efficiency. That case will be potential in developing the competitive advantages of SMEs to compete in markets.

The financial access capacity (DFIN3) positively affect the competitive advantages of Batik SMEs in Central Java. The value of regression coefficient ($\beta$) is 2.868 ($\rho < .01$). It means that three financial challenges differs from easy financial challenges (DFIN3). The competitive advantage of SMEs Batik with easy financial challenges of business (DFIN3) differs significantly higher by 2.868 from three

challenges in Central Java. This issue relates to the government policy in providing access to bank loan such as SMEs credits with low interest and simple procedure. The financial access provides availability in financial aspects for batik production for Batik SMEs (Table 5) because at this moment there are many loan facilities from the government or low-interest loan from banking partnership scheme or large companies. The capital issue, collateral, the abstain of proper financial reports are still confronting the most business owners.

The capacity of technology and innovation (DINOV) did not significantly affects the competitive advantages of Batik SMEs in Central Java, Indonesia. It means that, one of three access (DINOV1), two of three access (DINOV2), and three access (DINOV3) same with no access to technology in the competitive advantages of Batik. The technology access and product innovation improve the cost such as the expense for innovation, the process of a patent, and certification. Nonetheless, the technology access and product innovation also potentially improves the sales and price through the improvement of quality. Thus, it will escalate the competitive advantages of Batik SMEs to compete in markets. SMEs entrepreneurs conduct the production process traditionally, and the business is inherited. The concern to use technology and do innovation in Batik SMEs is low because the aspects of technology and innovation are expensive and inefficient. It will be easier to produce replications. The employees of Batik SMEs frankly have sufficient competencies, but they merely master the common products that they write on a daily basis. Harvie (2004) explains that the issues of SME include the lack of capabilities related to the use of technology, processing high cost for a transaction to access infrastructure, and the difficulty in achieving quality standards.

In developing countries, the performance of Batik SMEs still confronts many challenges due to a weak internal environment, the lack of information, high risk and coordination costs. Besides the weak internal environment, the SMEs also face the challenges related to access to input and output markets, access to information and loan facilities, and technical innovation assistance. Those accesses are a little such as the improper function of markets, and market information. The term of 'institutional challenge' emphasizes that the solutions for challenges of batik entrepreneurs cannot be solely expected from them, but it requires a communal effort in the form of cooperation (Royer et al., 2016). In the aspect of input, the challenges relate to the lack of resource, financial, and technology accesses. Meanwhile, in the aspect of

output, the lack of market information, inspection and quality controls, and the connection to output markets are the main internal challenges. The lack of horizontal organization (between manufacturers) correlates to both aspects of input and output.

Royer et al. (2016) explain that several institutional strategies in reinforcing the value chain come from contracts of manufacturers and partner organizations that have been occupied in the practice of strengthening SMEs institutions. Each arrangement will cut the institutional challenges by creating market connections (connecting buyers and manufacturers, assisting in negotiation, providing information on quality standards), preparing training and technical assistance, supporting institutional development, and certifications.

The business groups/cooperatives (DGROUP) did not significantly affect the competitive advantages of Batik SMEs in Central Java, Indonesia. This result shows that the competitive challenges can be achieved by individual or group enterprises. If transaction cost is high, the collective effort in a business group will be more effective. If the expense in collective effort is high, the effort will be less preferable. A batik industry in a large scale and export-oriented is common as an individual business.

The connection of Batik SMEs entrepreneurs in the form of partnership (Akhtar, 1997) through vertical alliance and business group in Batik SMEs clusters can be explained in the agreement concept (cooperatives) through their ability to save transaction cost and to develop 'countervailing power' as in the following: 1) higher selling price. This is presumably the most important benefit from the advent of manufacturer conjunction. 2) economy scale. Taking action on the same timeline will save certain expenses or improve efficiency from a certain process. 2) external economics provide advantages including the improvement of member productivity due to the information distribution. 4) non-economic advantages. Cooperative movement gives significant emphasis to non-economic advantages. The condition of perfect competition is the proxy of an equal number between sellers and buyers, and both of them posit as pricing-makers (Singh, 2008; Petrovic & Milos, 2011; Huang & Cao, 2015).

The technology adoption (DTYPE) did not significantly affect the competitive advantages of Batik SMEs in Central Java, Indonesia. It means that competitive advantages Batik SMEs in Central Java that using the variation of the stamp, write,

and combination types normally same if compared to Batik SMEs that using handmade.

The export market access (DEXP) did not significantly affect the competitive advantages of Batik SMEs in Central Java, Indonesia. It means that competitive advantages Batik SMEs in Central Java that orient to export markets normally same if compared to Batik SMEs that focus on domestic and local markets.

The region (DREGION) did not significantly affect the competitive advantages of Batik SMEs in Central Java, Indonesia. It means that competitive advantages Batik SMEs in Central Java from Rembang and Surakarta normally same if compared to Batik SMEs from Pekalongan.

## 5. CONCLUSION

This research finds out that business scale, market access capacity, and financial access have positive impacts to the competitive advantages of Batik SMEs in Central Java, Indonesia. Meanwhile, the capacity of technology and innovation, business groups/cooperatives, technology adoption, export market access and region did not significantly affect the competitive advantages of SMEs.

The finding of this research gives implications that the capacity of markets and financial acces drive the competitive advantages of Batik SMEs in free trade markets. The smaller scale of business creates lower efficiency of economy scale to join the competition. Therefore, collective efforts through cooperatives can be occupied by Batik SMEs to improve economy scale in accessing information and markets, financial and innovation access. On the other hand, the role of cooperatives has not been effective. The cooperative role is at least effective in reinforcing the influence of entrepreneur capacities to access information, markets and financial. To date, the cooperatives of Batik SMEs are mostly utilized to access financial aid, industry exhibition information facilitated by government and foundation, but they have not been used to develop the capacities of business technology and innovation. Those two capacities will be more effective as the source of competitive advantages for individual SMEs rather than collective ones. The result of this research recommends that cooperatives are required to be applied not only to access financial aids, industry exhibition information facilitated by government or foundation. The SMEs cooperative should develop to improve the efficiency of economy scale and the access to

information, innovation, and design in order to improve competitive advantages in technology era and information globalization.

This research also has some limitation namely: 1) the research is conducted in a developing country Indonesia. So that, it needs to apply in other countries with the different economic background, social, culture and regulation; 2) from the internal perspective, it only reviews the aspect of cooperatives as a form of institutional management non-market. The further research can input the instrument aspect of macro institutions in the system of institutional management such as government policy.

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