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# HUMAN CAPITAL AND SURVIVAL OF SMALL SCALE FOOD PROCESSING FIRMS UNDER ECONOMIC CRISIS IN CENTRAL JAVA INDONESIA

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## ABSTRACT

The objective of this study is to investigate the determine factors of the survival of small food processing firms during the economic crisis. As much as 102 small firms with traditional beef processing and preservation which produce Jerked beef and Beef Floss located in Central Java Indonesia were choosen as samples. Primary and secondary data have been collected in 2009 when the global economic crissis hit and analyzed using path analysis. This study concluded that; (a) human capital such as motivation and industrial experience in the same field have positive effect on entrepreprepreneur"s competencies, adaptation strategy and survival of the firms. However, effect from the motivation tend to be larger than industrial experience; (b) Entrepreneur"s competencies have positive effect on the adaptation strategy and survival of the firms. However, the contribution effect of the entrepreneurial competency tend to be larger than the managerial competency; (c) adaptation strategy has positive effect on the survival of the firms; and (d) human capital have effect on the survival of the firms through entreprenerur"s competencies (entrepreprepreneurial and managerial competencies) and adaptation strategy. A better understanding of this finding will benefit the implication of the future research about the survival of small food processing firms under economic resession aspects. Also it will help policymaker in supporting improved competitiveness of the small food processing firms and improving human capital for SMEs entrepreneurs in Indonesian.

**Keyword**. Human capital, entrepreneur, competency, adaptation strategy, survival, small food processing firm

## INTRODUCTION

In Indonesia SMEs, especially small scale firms or enterprises, (including micro enterprises) have historically been the main players in the domestic economic activities. They take a big part as providers of employment opportunities and generators of primary or secondary resources of income for many households. On the other side, as a group, these enterprises have also become an important engine for the development of local economy and communities (Tambunan, 2008). Unfortunately, during the period of enermous economic growth between 1980s and early 1990s that reached 7-8% per year, the small enterprises were not given priority by the government. The discriminatory policy perceived related to the opportunities enjoyed by the larger enterprises (Berry, Rodriguez, and Sandee, 2001).

However, those firms have a certain high level of endurance. This was proven during the economic crisis where most of the small firms for example, small food processing firms with traditional technology did more survive (Hickling, 2009; Widianto and Choesni, 1999, Akatiga dan Asia Foundation, 2000). The small traditional food processing firms were not only had a better chance to survive in economic crisis, but they played an important role to rural development in Indonesia by generating employment opportunities, reducing rural-urban migration and associated social problems, reducing post-harvest food losses and increasing food availability (Tambunan, 2006; Aworh, 2008).

Many studies have explored the causes why the small scale food processing firms in Indonesia were able to survive under economic crisis condition (e.g. Tambunan, 2006, Sato, 2000; Widianto and

Choesni, 1999 Nikitin, 2003). Those studies show how the entrepreneurs used their human capital and competencies in order to survive under this kind of conditions. Empirically, research about human capital of entrepreneurs and survival of the small firm is still scarce (Teixeira, 2012). However, several studies focus on the effect of human capital on survival of the young small firm (start up phase) both in stable externals condition or under external shock conditions, while economic crisis has received limited research attention (Sriyani, 2010). In addition, contribution of human capital on survival of the small food processing firms in Indonesia under economics crisis is still not clear because of their entrepreneurial spirit are generally comes naturally as a talent accompanied by lower level of formal education and obtained lack of formal training.

Furthermore, many researchers argue that entrepreneurs of small firm need to be competent in entrepreneurial and managerial roles and the proper allocation of these two competences is crucial to small firm survival (see, Beaulier, Hall and Mounts, 2008; Wen Wu, 2009; Inyang and Enuoh, 2009). However, the majority of studies about entrepreneurs' competencies have only focused the attention on the contribution of managerial competency (see, Silineviča, 2011; Peljhan, 2012) yet the entrepreneurial competency is neglected (Smith et.al., 2002). Therefore, no one has empirically examined the extent to which both entrepreneurial and managerial competencies used and developed by entrepreneurs related to the firm"s survival in the economic crisis.

The development of entrepreneurial competencies can be influenced by characteristics of the entrepreneurs themselves such as motivation and intention as well as experience (e.g. work experience outside the firm) (Vesala and Pyysiäinen, 2008; Segal, Borgia, and Schoenfeld,2009). Therefore, the development of these spesific human capital may help entrepreneurs in making strategic choices which can lead to the small firm survival in any of shock environments (Bruderl, Preisendorfer, and Ziegler, 1992; Hitt, et.al., 2001). However, only a few academic studies specifically explore the causes and consequences of strategic adaptation under recession conditions. There is a need to conduct a study about an adaptation to the environmental shocks/ jolts evidence (Kitching, Blackburn, and Smallbone, 2009). Some studies have linked organizational strategies with a new firm survival so that, there is insufficient systematic evidence on the relationship between human capital, entrepreneurial competencies, adaptation strategy and small firm survival under economic crisis condition (Fuller, et al.,1996; Baptista and Karaöz, 2006).

## STUDY OBJECTIVE

The objectives of this study are to examine and analyze: whether the survival level of the small food processing firms under economic crisis is influenced by human capital of entrepreneurs (motivation at starting business and industrial experiences), both directly and indirectly through entrepreneur"s competencies (entrepreneurial and managerial competencies) and adaptation of strategy as a medium. Theoretically, the result of this research is expected to enrich and complete the repertoire knowledge about the survival of the small firms and strategic management field especially in economic crisis condition. So, it can be useful for academics, practitioners and government.

## REVIEW OF LITERATURE

Indonesian experience with two big economic crises in the past 12 years, namely the 1997/98 Asian Financial Crisis and the 2008/09 Global Economic Crisis. Schmitt, Probst and Tushman (2010) based on a review of the literature dealing with the economic crisis, generally defined a crisis as an ambiguous situation that poses a major threat to organizational survival, where causes and effects are unknown, there is a little time to respond and requires decisions or judgments that will result a change for the better or the worse. Kitching, Smallbone and Xheneti (2009) point out that recessions are characterised by falling aggregate business sales and typically by downward pressure on asset prices which is enabling for resource acquisition. Recessions, therefore, providing small businesses with a major dilemma: to cut the cost in order to maintain survival in the short-run at the risk of reducing their capacity to adapt adequately when recovery comes; or, alternatively, to maintain greater capacity, incurring higher costs in the short-run, in order to retain the capability to realize opportunities for long-

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term value creation when the upswing comes. Study by Central Bank of Indonesia in 2008 compared effects between the 1997 Asian Financial Crisis and the Global Financial Crisis on SME performance. In general, it appears that the Global Crisis gave more effect than the 1997 Asian Financial Crisis to the negative SMEs performance at the regional and national levels. For sector, it is known that sector of small-scale industry are relatively more resistant (survive) from the negative impact of the global crisis.

Entrepreneur"s competency is highly a critical factor in achieving excellence in performance to ensure survival of the SME by minimizing the negative effect of the challenging business environments such as economic crisis (Nakhata, 2007; Kochadai, 2011). Chandler and Jansen (1992) point out two important roles needed by entrepeneurs in order to be successful. They are entrepreneurial and managerial competence. The entrepreneurial competence is the ability to observe the environment to select promising opportunities and formulate strategies. On the other side, managerial competence needs conceptual, interpersonal and political skills, and technical competence which demands the founder to be skilled in the use of the tools or procedures required in their specialized field. According to Xiang Li (1975), the entrepreneurial and managerial competencies share roles and tasks in the organizations, particularly in small business or SMEs, where entrepreneurs need entreperenurial competency to identify business opportunities, build relationship with both suppliers and customers. They also need managerial competency to manage various functional areas in a firm in order to keep the firm operate efficiently. Sah and Goldstein (2006) argue that an adequate managerial competence are indispensable for survival of SMEs, but they are still in doubt to ensure it. They must be supported by entrepreneurial competence. Empirical studies show that spesific human capital such motivation of business intentions (see, Arribas and Vila, 2007; Ligthelm, 2010,) and specific industry experience (see, Dahlqvist, Davidsson, and Wiklund, 2000; Baptista and Karaöz, 2006) as factors that can influence the development of entrepreneurial competencies, and determines whether or not a business survive and prosper. Entrepreneurs have different motive to initiate and operate an enterprise, show different attitude and behaviour in order to survive (Majumdar, 2006). According to Davidsson, (1995) and Autio (1997), the prior experience have significant impact on the development of perceptions of the entrepreneurship and motivation in starting a business.

In radical environmental changes, such as the economic crisis, the concept of dynamic capabilities may be helpful in developing a framework for understanding small firm behaviour, including their strategic adaptation under economic crisis conditions (Tushman and O"Reilly, 1996). Fuller, et.al, (1996) based on the review literature, they argue that there are two mainstream schools of strategy : the „positioning school" and the „resource-based view" (RBV). Recent analysis have extended the RBV using the concept of „dynamic capabilities" to refer to the firm"s ability to develop and extend resources and competences to adapt an environmental change (Eisenhardt and Martin, 2000; Teece, 2007). Several studies (i.e. Venkatraman and Prescott. 1990, Schindehutte and Morris, 2001) suggest that characteristics, competency and knowledge of the entrepreneur are important for the determinants of the adaptation and the strategies for adapting are related to the organizational performance. Dean, Brown and Bamford (1998) argued that SMEs are adept at pursuing strategies built on flexibility, strengths of speed and niche-filling capabilities.

## THE HYPOTHESIZED MODEL

Based on the above literature review, hypothesis model in this study may construct a structure diagram as given in Fig. 1

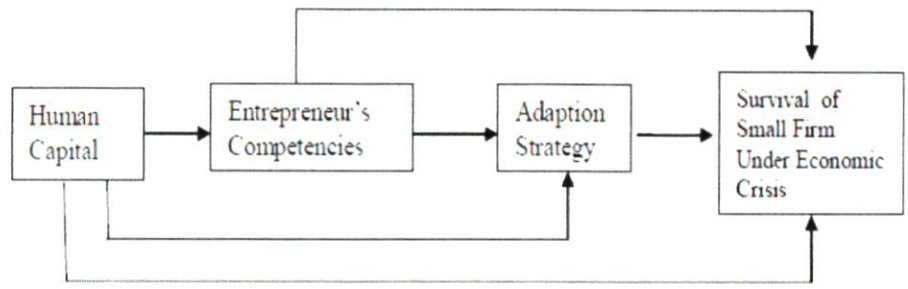


Figure 1: Hypothesized input structure diagram

## RESEARCH HIPHOTESIS

(a) Human Capital has positive effects on the entreprepreneur"s competencies
Hypothesis 1-1 : Industrial experiences in the same field have positive effects on entrepreneur"s motivation in starting business
Hypothesis 1-2 Motivation and industrial experiences have positive effects on entreprepreneurial competency
Hypothesis 1-2: Motivation and industrial experiences have positive effects on managerial competency
(b) Human Capital has positive effects on the adaptation strategy
Hypothesis 2-1: Motivation and industrial experiences have positive effects on adaptation strategy
(c) Human Capital has positive effects on the survival of small food processing firm under economic crisis
Hypothesis 3-1: Motivation and industrial experiences have positive effects on the survival of small food processing firms under economic crisis
(d) Entrepreneur"s Competencies has positive effects on the adaptation strategy
Hypothesis 4-1: Entrepreneurial and managerial competencies have positive effects on adaptation strategy
(e) Entrepreneur"s competencies have positive effects on the survival of small food processing firms under economic crisis
Hypothesis 5-1 : Entrepreneurial and managerial competencies have positive effects on the survival of small food processing firms under economic crisis
(f) Adaptation strategy has positive effects on the survival of small food processing firms under economic crisis
Hypothesis 5-1: Adaptation strategy has positive effects on the survival of small food processing firms under economic crisis
(g) Human capital has positive effects on the survival of small food processing firms under economic crisis through entrepreneur"s competencies (entrepreneurial and managerial competencies) and adaptation strategy.

## METHODOLOGY

This study can be classified as an explanatory research, i.e. research that explains the causal relationship and examine the effect of several variables through the testing of the research hypotheses or explanations (Singarimbun, and Effendi, 1995). Primary data is a direct observation data made by researchers and obtained directly by interviewing the entrepreneurs (owner, manager), respondent samples using questionnaires. Secondary data were obtained from local government, ministry of cooperation and small medium enterprise development, direktorat general of industrial and trade and central biro of statistics. Sources of secondary data are written evidence (documentation), journals, reports from experts or researchers and institutions involved in the research.

The study focused on small scale food processing firms in traditional of beef processing and preservation i.e. Jerked beef and Beef Floss located in Semarang district, Salatiga city, Boyolali

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district, Surakarta city, Magelang district, Wonosobo district, and Purbalingga district of the Central Java of Indonesia. The jerked beef and beef floss which are produced by many small firms in Central Java are most popular and have been well known for a long time (Suryani et al, 2007). The population of small food processing firm which are producing Jerked beef and Beef Floss products are obtained from the Department of Industry and Trade of the Central Java Province (2008). The sample of the population was 102 firms with the number of 5-20 workers and has succesfully survived in the two big economic crises in Indonesia, namely the 1997/98 Asian financial Crisis and the 2008/09 Global Economic Crisis. Both Likert scale questions and dichotomous questions were used to elicit responses from the respondents. Human capital is individual specific and measured in starting business motivation (i.e, economic and non-economic reasons starting business), and industry experiences was the main field of previous work experience in the small food processing firms (i.e. production, sales, and administratif fields).

Entrepreneurial competency is an entrepreneurial action which applied in the business operations under economic crisis which measured in personality traits: willingness to take calculated risks, locus of control, creativity, innovation, and opportunity recognition (measured ona 5-point Likert type scale with the anchors 1 = „not agree" and 5 = „highly agree"). Managerial competency is the four management functional areas namely planning, organizing, motivating and evaluation practices which applied in their business operation under economic crisis (measured on a 5-point Likert type scale with the anchors 1 = „not used at all" and 5 = „highly used"). Adaptation strategy is a specific way in which the firm makes adjustments as it seeks to survive and capitalize on economic crisis situations (Schindehutte and Morris, 2001). Adaptation strategy in this research was a response of small firms samples toward crisis that identified by Central Bank of Indonesia (2008), two categories of strategic action of small firms reacted to the recession: controlling costs/ efficiency strategy and creating new market strategy and measured the strategy to survive under economic crisis on a 5-point Likert type scale with the anchors 1 = „not adopted at all" and 5 = „highly adopted". Firm"s survival was the ability of the small firm to stay in a business over a long period of time, which measured in the perceptions of entrepreneurs about the probability of their firm in achieving a long term survival under global economic crisis (measured on a 5-point Likert type scale with the anchors 1 = „pessimistic" and 5 = „highly optimistic"). Data analysis was analyzed using a Statistical Analysis Software. Statistical analysis includes descriptive statistics and path analysis.

## RESULT AND DISCUSSION

The test results a reliability of the variables that make up human capital (8 items), entrepreneur"s competencies (9 items), adaptation strategy (5 items), and survival of small scale food processing firms under economic crisis (3 items). Cronbach value of the entire items have minimum value 0,86 and maksimun value 0,94. Hence, the entire tests performed of the items are considered valid.
Descriptive statistics of the entrepreneurs characteristic showed that a majority of the entrepreneurs in our sample were aged between 39 to 50 years old (56.96%), male (88.61%), having primary and secondary education background (62.28%), reason starting business to increase income (50.63%), having previous work experience on small scale food processing firms (92.40%). Related to the firm characteristics that has been operating for over 21 years (51.90%), making the upper and middle classes as a target market, (70.62%) using its own capital to finance the operations of the firm, (85.82%), using patterns of production depends on the order, (77.26%), using manual production techniques (86,.30 %).

## GOODNESS OF THE FIT MODEL

The coefficient of determination of the model is 67.15 (Table 1) which means that the model's ability to explain variation in the variable survival of the small sclae food processing firms amounted to 67.15%, while the remaining 32.85% is explained by other variables which are not included in the model. Furthermore, the results of the F test is 28.91 < 5% (Table 1), which means that the model is feasible and can be used for further analysis. The causal model in its testable form presented in Figure 2.

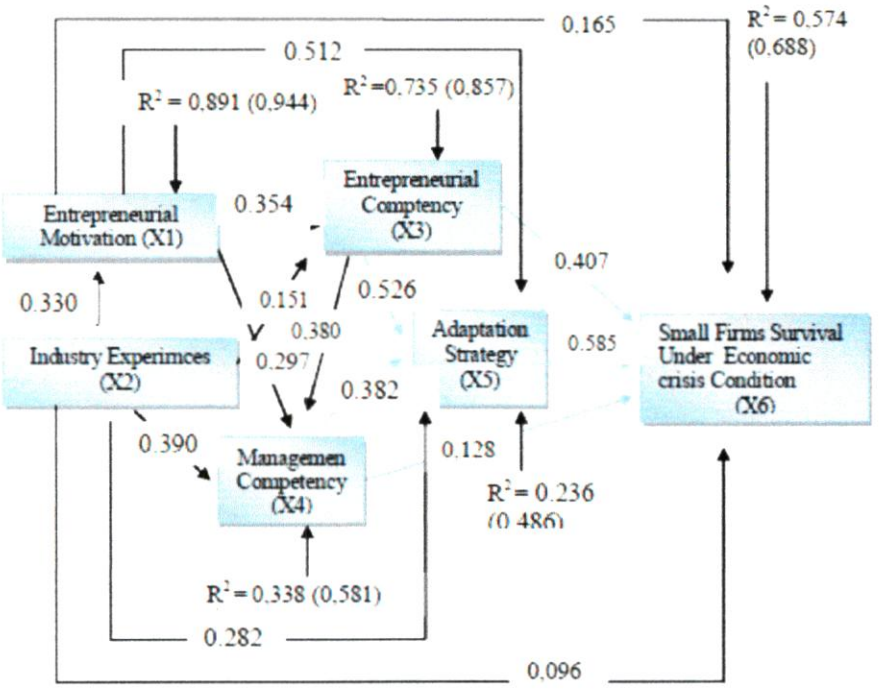


Figure 2. The Causal Model in its Testable Form

The path analysis model above, which describes the relationship between dependent variable and independent variables, are hypothesized. A standardized structural equation can be expressed as follows:

a. Structural equation for the first hypothesis : X1 = 0,330 X2 + 0,944 Є1. X1 = dependent variables of motivation, X2 = dependent variable of industrial experience; 0,330 X2 = path koeficient X2 to X1; 0,944 Є1 = path coeficient of *error variable* 1
b. Structural equation for the second hypothesis : X3 = 0,354 X1 + 0,151 X2 + 0,857 Є3; X3 = dependent variable of entrepeneurial competency, X1 = independent variable of motivation, X2 = independent variable of industry experience; 0,354 = path coeficient X1 to X3, 0,151 = path coeficient X2 to X3; 0,857 Є2 = path coeficient of error variable *3*
c. Structural equation for the third hypothesis : X4 = 0,297 X1 + 0,390 X2 + 0,380 X3+ 0,581 Є3. X4 = dependent variable of managerial competency, X1 = independent variable of motivation, X2 = independent variable of industry experience, 0,297 = path coeficient X1 to X4; 0,581 Є3 = path coeficient of error variable 4.
d. Structural equation for the fourth hypothesis : X5 = 0,512 X1 + 0,282 X2 + 0,526 X3 + 0,382 X4 +0,486 Є5. X5 = dependent variable of adaptation strategy, X4 = independent variable of managerial competency, X3 = independent variable of entrepreneurial competency, X2 = independent variable of industry experience, X1 = independent variable of motivation, 0,512 X1 = path coeficient X1 to X5; 0,282 X2 = path coeficient X2 to X5; 0,526 X3 = path coeficient X3 to X5; 0,382 X4= path coeficient X4 to X5; 0,486 Є4 = path coeficient of error variable 5.
e. Structural equation for the fifth, sixth, seventh, and eighth hypothesis : X6 = 0,165X1 + 0,096 X2 + 0,407 X3 + 0,128 X4 + 0,585 X5 + 0,688 Є6. X6 = exogenous variable of survival firms under economic crisis, X5 = dependent variable of adaptation strategy, X4 = independent variable of managerial competency, X3 = independent variable of entrepreneurial competency, X2 = independent variable of industry experience, X1 = independent variable of 12

motivation, 0,165X1= path coeficient X1 to X6, 0,096 X2 = path coeficient X2 to X6; 0,407 X3= path coeficient X3 to X6; ,128 X4 = path coeficient X4 to X6; 0,585 X5 = path coeficient X5 to X6; 0,688 Є4 = path coeficient of error variable 6.

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## EFFECTS OF HUMAN CAPITAL ON ENTREPRENEURS COMPETENCIES

Table 1 presents the result of path analysis of the industry experience effect in the same field on the start ups business motivation (Hypotheses 1.1). The result indicates that there is a positive significant effect of the industry experience in the same field (X2) on the entrepreneur.s motivation in starting business (X) ($p = 2,437 < 0.05$). This result describes that the work experiences of the entrepreneur in the small sclae food processing firm have motivated them for setting up a business in the same field. This finding supported by Huber (1991) and Wagner (2004) who state that individuals who have worked in small firms and in the same industry are more likely to engage in an entrepreneurship. Prior experience for starting a business may also be important in determining whether an individual feasible or capable to start a new enterprise. Dahl and Reichstein (2007) also argue that knowledge and experience in the same industry will motivate entrepreneurs to start-up a firm, because the knowledge and experience will help them to discover certain opportunities.

Table 1 also presents the result of path analysis of the effect of human capital on the entrepreneurs. competency (Hypotheses 1.2 and 1.3). The result indicates that there is a positive significant effect of motivation (X1) on the entrepreneurial competency (X3) ($p =2,834 <0.05$) and managerial competency (X4) ($p =2,562<0.05$). Also, there is a positive significant effect of the industry experience (X2) on entrepreneurial competency (X3) ($p = 1,741 <0.05$) and managerial competency (X4) ($p = 2,869 <0.05$). This result describes that human capital such as motivation to start a new business and industry experience in the same field drives both entrepreneurial and managerial competency. This finding supported by Rose, Kumar and LiYen (2006) who state that entrepreneurs with a high motivation to start a business will further enhance and improve their management skills and embark in a continuous learning and development of their entreprepreneurial competency. Industrial working experience in the same field can help them with information and understanding about the managerial skill and also assist them improving their entrepreneurial competency. However, after calculating the total effect of each variable, it was found that the effect of motivation to the entrepreneurial and managerial competencies tend to be larger than effect of the industry experiences (0,348 vs 0,273, Table 2). It indicates that the competencies of entrepreneurs are apparently formed by motivation and less reliant on their previous industry knowlegde and skills experience.

One potential reason for this result is that entrepreneurs from our sample are the people who started a firm naturally, their entrepreneurial mindset and attitude created by their cultural context such as hard working, dependency, social network, and strong commitment to achieve and maintain business success. It could be potentially drive them to seek and develop their competencies in order to make their firm able to survive and prospect. While, the previous skills and knowledge gained from industry experience such as working experience at small food processing firm only impact on the technical production side in running a business and less on management and entrepreneurship matters. This finding supported by Storey (1994) who argues that there is relatively a little empirical evidence that demonstrates that prior experience at start-up associated with future entrepreneurial activity and in a subsequent enterprise.

Politis and Gabrielsson (2009) conducted study from Swedish entrepreneurs and found that motivation seem to have developed cognitive skills that facilitate the development of entrepreneurial mindsets, while prior management experience provides the opportunity to cultivate functional management skills. Table 1 also presents the result of path analysis of the effect of human capital on the entrepreneurs. competency (Hypotheses 1.2 and 1.3). The result indicates that there is a positive significant effect of motivation (X1) on the entrepreneurial competency (X3) ($p =2,834 <0.05$) and managerial competency (X4) ($p =2,562<0.05$). Also, there is a positive significant effect of the industry experience (X2) on entrepreneurial competency (X3) ($p = 1,741 <0.05$) and managerial competency (X4) ($p = 2,869 <0.05$). This result describes that human capital such as motivation to start a new business and industry experience in the same field drives both entrepreneurial and managerial competency. This finding supported by Rose, Kumar and LiYen (2006) who state that entrepreneurs with a high motivation to start a business will further enhance and improve their management skills and embark in a continuous learning and development of their entrepreneurial competency. Industrial working experience in the same field can help them with information and understanding about the managerial skill and also assist them improving their entrepreneurial competency. However, after calculating the

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## THE EFFECT OF HUMAN CAPITAL ON ADAPTATION STRATEGY

Table 1 presents the results of path analysis of the effect of human capital on apatation strategy (Hypotheses 2). The result indicates that there is significant positive effect of motivation (X1) on the adapatation strategy (X5) ($p = 4{,}493 < 0.05$). Also, there is positive significant effect of the industry working experience (X2) ($p = 2.271 < 0.05$). This result describes that entrepreneur with a high starting business motivation and industry experience in the same field will enhance their knowledge, skill and vision to develop formulation strategy to survive under economic crisis. Majumdar (2011) conducted a study on strategic activity in small organisations and found that the formulation strategy to survive and growth is driven by the vision and motivation of the entrepreneurs themselves. Silineviča (2011) conducted study on strategic management in small business enterprises under economic crisis in Latvia found that the existence of the development strategy adaptation depends on personel motivation and work experience of managers. However, after calculating the total effect of each variable, it was found that the effect of motivation to adaptation strategy tend to be larger than effect of the industry experence (0,613 vs 0,576, Table 2). It indicates that the decision to adopt the adaptation strategy is apparently built by motivation and less reliant on their previous industrial knowledge and experience. The possible reason for this result is that the entrepreneurs from our sample had an industrial experience as profesional in production field. Thus, their knowledge and skill gained from experience may not benefit for decision makin and implementing adaptation strategy to adapt in an economic crisis situation. However, because they have never got the attention and support from the government at that time, they become motivated to work hard, full dedication and commitment, initiative and creative in finding the right strategy to keep his business and operation despite the difficult economic conditions. In connection with this finding, Verreynne (2005) conducted a study on small firms in New Zealand and concluded that an adaptation strategy of the small firm driven by the firm"s responsiveness to its stakeholders, i.e. suggestions from, for example customers and suppliers.

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## THE EFFECT OF HUMAN CAPITAL ON THE SURVIVAL FIRM

Table 1 presents the results of path analysis of the effect human capital on the survival firms (Hypotheses 3). The result indicates that there is a significant positive effect of motivation (X1) on the survival of small scale food processing firms under economic crisis (X6) ($p = 2.143 < 0.05$), and also there is a positive significant effect on industry experience (X2) ($p = 1.800 < 0.05$) . This result describes that the background of the start-ups will enhance the probability of the firms to survive under economic crisis, because of the background of the start ups will support entrepreneurs to discover better solution to survive under economic crissis condition. This finding supported by Baron (2004) who argues that various individual experiences support the development abilities in using analogies, adeptness of signal detection and recognizing and framing current problematic situations to solve problems and find the solutions. Dahl and Reichstein (2007) empirically found that motivation and specific industrial experience in the same field positively affect the survival of a new firm. Silineviča (2011) explores the survival opportunities of the small firms in Latgale region and found that the existence of the development strategy depends on work experiences of managers and motivation should be main promotive factors. Lussiers an Pfeifer (2001) empirically found that human capital of individual entrepreneurs plays an important role to their successful. His study found that entrepreneur with industrial experience and start up business motivation has a greater chance to success than others with minimal industrial experience and less motivation. Study of entrepreneurial human capital determinants of small firm survival in Portugues, Baptista and Karaöz (2006) found that motivation factors significantly influence the chances of survival in the short term; for the business owners who started the firms out of its necessity, or as a "refuge" from unemployment, industry-specific experience that merely contributes significantly to enhance survival probabilities. However, after calculating the total effect of each variable, it was found that the effects of motivation to a survival firm tend to be larger than effects of the industry experience (0,731 vs 0,611, Table 2). It can be said that if the entrepreneur's reasons for starting the business originated from economic driven' motives such as the desire to increase income rather than non economic driven' motives such as unemployment then, the enterprise is more likely to survive. The economic motivation from the entrepreneurs seems to be better motive for effectively handling obstacles and uncertainties associated with the economic crisis, such as finding financial, building and having access to customer and supplier. Liedham (2010) empirically found that human factor, particularly start up motivation is a part from the inside of the owner/ manager to achieve the desired survival and growth potential. The other reason for the positive effect of human capital on the survival small food processing firm may also related with the length of time that the sample firms have been operating, which majority of the firms in this research have been operating for more than 21 years.

## THE EFFECT OF ENTREPRENEUR'S COMPETENCIES ON ADAPTATION STRATEGY

Table 1 presents the results of path analysis of the effect Entrepreneur"s Competencies on adaptation strategy (Hypotheses 4). The result indicates that there is a significant positive effect of the entrepreneurial competency (X3) and managerial competency (X4) on the adaptation strategy (X5) ($p = 4{,}636 < 0.05$ and $p = 3{,}90 < 0.05$). This result has described that under turbulent and uncertain environment such economic crisis, the entrepreneurs used both their entrepreneurial competency and managerial competency in choosing and implementing a strategy to adapt through controlling costs or efficiency and creating new market. This finding supported by Neneh and Vanzyl (2012) who conducted a study on SMEs in south Africa. They found that for the entrepreneurs who have an entrepreneurial competency and managerial competency have a high strategic decision making abilities. However, after calculating the total effect of each variable, it was found that the effect of entrepreneurial competency to adaptation strategy tend to be larger than ffect of the managerial competency (0,422 vs , 0,146, Table 2). The possible reason is that the entrepreneurs of our sample lack of management skills because they have lower levels of education and never got management training. So that, they often develop and implement astrategy based solely on experience and intuition. Majumdar (2011) conducted study on growth planning in small organization as entrepreneurial as well as strategic activity and concluded that the strategic formulation to survive and growth is driven by the vision and motivation of the entrepreneurs. Also the motivation of the entrepreneur governs the attitude and decision on survive and growth. According to Wiklund (1999) that entrepreneurial competence plays an influential role in organizational capability (strategy) because the entrepreneurial

competency related with perception or beliefs about the environment which are likely to affect the firm.s formation of strategy. Woods and Joyce (2003) argue that small entrepreneurial firms often used intuition in developing strategy. Thus, their success lay on the reality that confirming the intuitions about the opportunities (and that it seeks to exploit by virtue of flexibility). Gibbons and O.Connor (2005) conducted a study on Irish SMEs concluded that the entrepreneurs did not have adequate understanding of strategic management terms and were less equipped by strategic management tools. The possible reasons were centralised decision making by the entrepreneur or difficulty in prioritizing the development of their managerial skills. Morris, Altman and Pitt (1999) identified entrepreneurial competency (personality trait) to adapt in an environment, and concluded that personality traits as risk taking, innovative, internal locus of control, innovate, recognize opportunity are associated with the tolerance for ambiguity and self-esteem that affect ability or willingness to adapt in an environment. Moreover, Schindehutte and Morris (2001) who examined the concept of adaptation as it relates to the start-up and survival of small businesses over time, found that entrepreneurial competency and levels of environmental change are especially important determinants of the three components of adaptation: the firm.s capacity to adapt, how much it actually adapts, and the strategies it relies upon to adapt. Those levels and strategies for adapting are related to the organizational performance.

## THE EFFECT OF ENTREPENEURS COMPETENCY ON FIRM SURVIVAL

Table 1 presents the results of path analysis of the effect entrepreneur"s competencies on the survival of small food processing firms under economic crisis (Hypotheses 5). The result indicates that there is a significant positive effect of entrepreneurial competency (X3) and managerial competency (X4) on the survival of small scale food processing firm under economic crisis (X6) ($p = 3{,}266 < 0.05$ and $p = 1{,}977 < 0.05$). This result has illustrated that under turbulent and uncertain environment such economic crisis, the entrepreneurs use both their entrepreneurial competency and managerial competency to survive. This finding supported by Neneh and Vanzyl (2012) who conducted a study on SMEs in South Africa and found that combination of factors of entrepreneurial competency (entrepreneurial mindset and characteristics) and managerial competency (business practices) have a strong positive relationship with the business survival. Ligthelm (2010) conducted study on small scale firms in South Africa also found that entrepreneurial acumen and business management skills classified as the strongest predictors of small business survival. However, after calculating the total effect of each variable, it was found that the effect of entrepreneurial competency to the survival of small scale firm tend to be larger than effect of the managerial competency (0,606 vs 0,240, Table 2). Sánchez (2012) empirically also indicate that entrepreneurial competency plays an influential role in organizational capability and competitive scope and also has a direct effect on the firm performance. Then, Smith et.al., (2003) who studied small firm in the United Kingdom, expolored the relationship between managerial competencies and entrepreneurial competency, and sales growth performance. The result of this study is the entrepeneurial competency was associated positively with the probability that a firm would be a high growth type.

## THE EFFECT OF ADAPTATION STRATEGY ON FIRM SURVIVAL

Table 1 presents the results of path analysis of the effect adaptation strategy on the survival of the small firm (Hypotheses 6). The result indicates that there is significant positive effect of adaptation strategi (X5) on the survival of small scale food processing firms under economic crisis (X6) ($p = 5{,}188 < 0.05$). This result has illustrate that under turbulent and uncertain environment such economic crisis, adaptation strategy with controlling costs/ efficiency and creating new market were essential for small scalefood processing firm to survive. Olusola (2012) conducted study on strategic entrepreneurial skills that needed a better performance of SMEs operating in Nigeria and found that strategic skill has impacts on the firm performance: improved sales, better management efficiency, service delivery and increased profit, customer satisfaction and sustainability in manufacturing industry. Neneh and Vanzyl (2012) conducted a study on SMEs in South Africa, and found that for entrepreneurs who have high strategic decision making abilities demonstrate a high probability in achieving a long term survival. Sánchez (2012) found that organizational capabilities affects the firm

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performance positively and it partially mediates the relationship between the entrepreneurial competence and the firm performance.

## DIRECT AND INDIRECT EFFECTS OF HUMAN CAPITAL ON SURVIVAL OF SMALL SCALE FIRMS

Tabel 2 clearly depicts that the three variables related with human capital have significant indirect effect on the survival of small scale food processing firms, i.e entrepreneurial competency, managerial competency and adaptation strategy. Especially, entrepreneurial competency variable give its significant indirect effect through four paths and the total effect is 0.607. Among the different paths, the greatest indirect effect comes through path X3 via X5 to X6 The effect of these variable is 0.308, implying the increase of entrepreneurial competency and having skill and understanding in implementing adaptation strategy tools lead to enhance a high probability of the small scale food processing firms in achieving a long term survival under economic crisis condition. Entrialgo, Fernandez, and Vazquez (2000), empirically found that entrepreneurial competency (personality traits) such as locus of control, risk taking, and recognizing opportunity 21 influenced the business success directly and the business process indirectly. The second highest significant indirect effect coming from path X3 via X4 and X5 to X6. Its effect is 0.085, implying that the increase of both entrepreneurial competency and managerial competency lead to an enhancing skill and understanding of the strategic management terms and will more equipped with strategic adaptation tools. Finally, the small scale food processing firms could achieve the long term survival under economic crisis condition.

## CONCLUSION

This study has attempted to examine the determinants of the survival of small scale food processing firms under global economic crisis, focusing particularly on the effect of spesific human capital, entrepreneur"s competencies and adaptation strategy on the survival of firms both directly and indirectly. Using path analysis, therefore, it can be concluded that ; (a) human capital (spesific human capital) namely motivation start ups and industry experience in the same field have positive effects on the entrepreneurial competency, managerial competency and adaptation strategy toward the survival of the firms. However, the contribution effect of motivation tend to be larger than industry experience; (b) Entrepreneur"s competencies have positive effects on the adaptation strategy and the survival of the firms. However, contribution effect of the entrepreneurial competency tend to be larger than managerial experience; (c) adaptation strategy has positive effect on the survival of firms; and (d) human capital have effects on the survival of the firms through entreprenerur"s competencies (entrepreneurial and managerial competencies) and adaptation strategy.

## LIMITATIONS OF THE STUDY AND IMPLICATION

Empirical study presented here were small scale food processing firms with sample firms which producing tradional Jerked beef and Beef Floss located in central Java and the ability to generate the issues of the survival of small food processing firms undder economic crisis is still limited. Next stages of the study will further investigate across different traditional processing food products and other region and coutries in Indonesia. In addition, this study is a cross sectional quantitatif study involving entrepreneur"s competencies and adapting strategy as moderating or intervening variables. In improving this study, it is important to conduct a longitudinal quantitative and qualitative studies including more moderating variable such as social capital and competitiveness . Furthermore, this study is important to enrich theory about the entrepreneurial human capital, management strategic and survival firms. Also, it will help entrepreneurs to enhance their ability in operating the small scale firms successfully. To increase the entrepreneur"s human capital and competencies, the government need to provide supporting policy to develop competitiveness of the small scale food processing firms and improving human resources development through intensive training on entrepreneurship and management strategic.

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**Table 1. Path Analysis Effect Human Capital on the Survival of Small Food Processinf Firm Under Economic Crisis in Indonesia**

| Struktur Parameter | Path Koeficient | Direct Effect (%) | Counted t. | t.Table |
|---|---|---|---|---|
| X2 terhadap X1 | 0,350 | 12,25 | 2,437* | 1.6602 |
| X1 terhadap X3 | 0,354 | 12,53 | 2,834* | 1.6602 |
| X1 terhadap X4 | 0,297 | 8,82 | 2,562* | 1.6602 |
| X2 terhadap X3 | 0,151 | 2,28 | 1,741* | 1.6602 |
| X2 terhadap X4 | 0,390 | 15,21 | 2,869 * | 1.6602 |
| X1 terhadap X5 | 0,512 | 26,01 | 4,493* | 1.6602 |
| X2 terhadap X5 | 0,282 | 7,95 | 2.271* | 1.6602 |
| X1 terhadap X6 | 0,165 | 2,72 | 2.143* | 1.6602 |
| X2 terhadap X6 | 0,096 | 0,92 | 1.800* | 1.6602 |
| X3 terhadap X5 | 0,526 | 27,67 | 4,636* | 1.6602 |
| X4 terhadap X5 | 0,382 | 14,59 | 3,90* | 1.6602 |
| X3 terhadap X6 | 0,407 | 16,56 | 3,266* | 1.6602 |
| X4 terhadap X6 | 0,128 | 1,64 | 1,977 | 1.6602 |
| X5 terhadap X6 | 0,585 | 34,22 | 5,188 | 1.6602 |
| Counted F | | | F.Table | |
| R2 X6 (X5..X1) | 0,819 | 67,15 | 28,91 * | 2.31 |
| Residu path | 0.573 | | 32,85 | |

Notes : *Significant P < 0,05

**Table. 2. The Decomposition of Effects of the Human Capital on Survival Small Food Processing Firms Under Economic Crisis in to Direct and Indirect Effects**

| Independent Variable | Description of Paths | Direct Effect | Indirect Effect | Total Effect |
|---|---|---|---|---|
| Motivation (X1) | | | | |
| X1 to X3 and | | | | |
| X4 | X1 ke X3 | 0.125 | | |
| | X1 ke X4 | | 0.088 | |
| | X1 ke X3 ke X4 | | 0.135 | **0.348** |
| X1 to X5 | X1 to X5 | 0.262 | | |
| | X1 via X3 to X5 | | 0.186 | |
| | x1 via X4 to X5 | | 0.113 | |
| | X1 via X3 and X4 to X5 | | 0.051 | **0.613** |
| X1 to X6 | X1 to X6 | 0.027 | | |
| | X1 via X5 to X6 | | 0.3 | |
| | X1 via X4 to X6 | | 0.038 | |
| | X1 via X3 to X6 | | 0.144 | |
| | X1 via X3 and X4 to X6 | | 0.017 | |
| | X1 via X4 and X5 to X6 | | 0.066 | |
| | X1 via X3 and X5 to X6 | | 0.109 | |
| | X1 via X3.X4 and X5 to X6 | 0.03 | | |
| | | | 0.704 | **0.731** |
| Industry Experience (X2) | | | | |
| X2 t0 X3 and | | | | |
| X4 | X2 to X3 | 0.023 | | |
| | X2 to X4 | 0.152 | | |
| | X2 via X2 to X4 | | 0.098 | **0.273** |
| X2 to X5 | X2 to X5 | 0.08 | | |
| | X2 via X1 to X5 | | 0.169 | |
| | X2 via X3 to X5 | | 0.079 | |
| | X2 via X4 to X5 | | 0.149 | |
| | X2 via X1 and X4 to X5 | | 0.037 | |
| | x2 via X1 and X3 to x5 | | 0.061 | **0.576** |
| X2 to X6 | X2 to X6 | 0.038 | | |
| | X2 via X1 to X6 | | 0.071 | |
| | X2 via X4 to X6 | | 0.05 | |
| | X2 via X4 and X5 to X6 | | 0.087 | |
| | X2 via X3 to X6 | | 0.061 | |
| | X2 via X3 dan X5 to X6 | | 0.046 | |
| | X2 via X1dan X5 to X6 | | 0.129 | |
| | X2 viaX1 and X3 to X6 | | 0.062 | |
| | X2 via X1.X3 and X5 to X6 | | 0.047 | |
| | X2 via X1.X3 and X4 to X6 | | 0.007 | |
| | X2 via X1.X3.X4 and X5 to X6 | | 0.013 | **0.611** |

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| | | | | |
|---|---|---|---|---|
| Entrepreneurial Competencies (X3) | | | | |
| X3 to X5 | X3 to X5 | 0.277 | | |
| | x3 to X4 to X5 | | 0.145 | **0.422** |
| X3 to X6 | X3 to X6 | 0.166 | | |
| | X3 via X4 to X6 | | 0.049 | |
| | X3 via X5 to X6 | | 0.308 | |
| | X3 via X4 and X5 to X6 | | 0.085 | **0.607** |
| Managerial Competency (X4) | | | | |
| X4 to X5 | X4 to X5 | 0.146 | | |
| X4 to X6 | X4 to X6 | 0.016 | | |
| | X4 via X5 to X6 | | 0.223 | **0.240** |
| Adatation Strategy (X6) | | | | |
| X5 to X6 | X5 to X6 | 0.342 | | **0.342** |