The Influence Of Application Technology, Firms Size, and Strategy Of Operating Performance of Micro, Small and Medium Enterprises

Ratna Anggraini
Department of Accounting, Faculty of Economics, State University of Jakarta, Jakarta, Indonesia

Nuramalia Hasanah
Department of Accounting, Faculty of Economics, State University of Jakarta, Jakarta, Indonesia

Corresponding Author: Ratna Anggraini, Department of Accounting, Faculty of Economics, State University of Jakarta, Jakarta, Indonesia. Tel:+6221-4721227, Fax: +62214706285, E-mail: r.anggraini@unj@yahoo.com

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Abstract
This study aims to examine the factors affecting operating performance on micro, small, and medium enterprises (MSEMs) in East Jakarta, Indonesia. Using independent variables application of technology, firm size, strategy, and as dependent variable is operational performance. This research uses purposive sampling technique with total sample 33 MSEMs in East Jakarta. The data is collected through a survey instrument. The analytical method used is multiple linear regression. The results of this study indicate that the application of technology and firm size that affect the operational performance, while strategy has no influence on operational performance. The empirical contribution in MSEMs, in particular to improve their performance.

Key words: Application of Technology; Firm Size; Strategy; Operational Performance; MSEMs

INTRODUCTION

Contribution Small medium enterprises in Indonesia GDP about 60% (CNN Indonesia, 2016). As one of the existing business units, MSEMs should follow these developments immediately in order to compete even worldwide. MSEMs is a vital sector in the growth and economic development both in developed and developing countries because of its role in providing jobs. MSEMs have the ability to absorb labor and have a large number of total business units in Indonesia (Detik Finance, 2016). Hill [10] stated that MSEMs plays an important role in economic development in Indonesia.

Research on operational performance of SMEs conducted by Nehemiah [46] shows the supply chain management practices have a positive effect on SMES operating performance across the sectors of trade and information technology. Some studies that specifically discuss the operational performance of SMEs conducted by Njenga (2015) found that innovation was widely practiced in SMES. Some factors such as employee training programs, competitive pressures and market segments served were identified to have a large influence on adoption of innovation. The study also established that innovation discovered while improving operational performance in the practicing firms. While Hsueh and Tu stated that the innovation resulted in a positive relationship with operational performance of new enterprises. A study by Moorby et al., [45] shows that there is a positive and significant relationship between the use of marketing information and information technology applications to SMES performance. On the contrary, ineffective entrepreneurship and inappropriate human resource management (HRM) have a negative and significant influence on performance MSEMs. Meanwhile Ashrafi and Murtaza stated that the use of information communication technology can improve the performance of MSEMs.

Other ascendants affecting the performance of SMES are firm size. In previous studies Jung [26] has shown that firm size influences firm entrepreneurship and SMES longevity performance, but for firm entrepreneurship and SMES variable contribution or profitability performance have no effect against the size of the company in SMES. Other research Raziq [48] claimed that there was a positive relationship between company size and application of high performance management practices in Pakistani SMES.

Another aspect that supports SMES performance is business strategy. Basically, strategy has a positive relationship with business unit performance, however Gibcus and Kemp [21] claimed that strategy does not influence performance. On the other hand, a study by Leitner and Guldenberg [28] at SMES in Austria stated that there is a difference performance when distinct strategies were applied. MSEMs that follow a combination strategy outperform a company without generic strategy in terms of profitability and growth achieve a higher profit rate than companies that follow a differentiation strategy. Based on the background research on the performance of SMES above, it is very relevant in Indonesia, with many obstacles in developing its performance world bank and Hayashi, whereas the contribution of SMES in various sectors of the economy is quite high. The difference of this study with the previous one is by adding independent variables and changing the sample research[20-40].

Problem statement:
The companies have different activities in order to compete with competitors and generate optimal returns, this will optimize the performance of MSEMs. There are still few MSEMs who apply technology and serious business strategy design that can lead to success. If MSEMS business units have realized the importance of strategy and technology implementation, they will have a better company performance. The study of the application of technology, firm size and strategy of MSEMS will confirm that it improves the performance.

Objectives:

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In general, the purpose of this study is to determine the impact of technology implementation, firm size and strategy on MSMEs performance. Specific objectives of this research are as follow:  
1. Knowing the effect of application of technology on MSMEs operational performance.  
2. Knowing the effect of firm size on MSMEs operational performance.  
3. Knowing the effect of strategy on MSMEs operational performance.

In the business world, it is stated that a firm's performance is a description of the level of achievement of the implementation of an activity / program / policy in realizing the goals, objectives, mission, and vision of the organization contained in the formulation of strategic scheme (strategic planning) of an organization. Firm performance indicators can be measured by financial and non-financial. The previous studies about financial performance by pervan and visic, and about operational performance. The use of subjectively performance assessment is better than performance indicator which only measured from the finance report.

One way performance measurement in addition to look at the financial aspect is by measuring operational performance. Operational performance can be defined as the performance derived from the activities of creating goods and services offered by consumers Cristianto et al., [5]. In measuring operational performance can be done through multiple measurement dimensions. Measurement of operational performance is measured by some dimensions of measurement, ie cost per unit products, product quality, quality processes, the ability to handle changes in numbers demand, ability to meet cell changes customer era, timely delivery, and delivery capability before time specified Leong et al., [29]. Another study conducted by Prabowo et al., [2] measures operational performance with the objectives, motives of support facilities, competencies, opportunities, standards, and feedback. This study uses operational performance as a measure of company performance, since financial measures can obscure the signs associated with improved performance and innovation activities Kaplan and Norton [27], Rita [33].

Technology:  
Technology can be defined as a collection of devices consisting of machines used as tools, modifications, arrangements, specific skills or procedures used to assist human activities. In applied science, the notion of technology refers to tools and machines that can be utilized to solve real-world problems. The ability of using technology is one factor that can affect the performance of MSMEs Bayarcelk, et al. The application of technology is carried out to develop new products, facilitate planning, process and evaluate the implementation of production factors. As a result, companies seek to reconcile their shared resources and competencies and combine them to accelerate product development and product development tasks or unique technologies. Although according to Gynawali and Park, this is not that easy and involves high costs and risks.

Firms Size:  
Firm size is a value that shows the size of the company. There are various proxies typically used to represent firm size, such as number of employees, total assets, total sales, and market capitalization Ayyagari et al. The size of the company only divided into three categories, namely large companies (large firm), medium companies (medium size) and small firms (small firm). The size of the firm in veronica and utama (2005) is measured from the natural logarithm of the firm’s equity market value at the end of the year, for example the number of shares outstanding at the end of the year multiplied by the year end stock market price. In contrast, Nuryaman measures the size of a company using the total log value of the company’s sales at the end of the year. In this study, however, firm size was measured using the logarithm of total assets. Total assets are used as a proxy of firm size with the consideration of total company assets which relatively more stable than the amount of sales and market capitalization value. Assets are benchmarks of a scale or scale of a company. Large companies usually have large assets and values. Companies with large assets has reached the maturity stage where the company's cash flow has been positive and is considered to have a good prospect in relatively long period of time, but it also reflects that the company is relatively more stable and able to generate profit compared to companies with a small total of assets.

Strategy:  
According to Stephanie K. Marrus in Husein uumar strategy is a process of determining the plans of top leaders that focus on the long-term goals of the organization, accompanied by the preparation of a way or effort how to achieve that goal. Strategy (strategy) can be defined as "objectives" Reich & Benbasat, [4], "plan" or "planning". While porter declares business strategy, as the main choices that determine the company’s position in the business area. Hamel and prahalad in Husein uumar say that strategy is an incremental (constantly increasing) and continuous action and is done based on the viewpoint of what is expected by the customers in the future.

Influence of technology on performance:  
Earlier researchers have found empirical evidence to corroborate that firms which use technology performed better than firms that do not use technology. Technology can affect processes, methods, modifications, settings, and solve business problems of MSMEs. Based on empirical study, the researcher tries to focus on operational performance, so this research proposes the first hypothesis as follows:
HI : Application of technology affects MSMEs operational performance

Influence of company size on performance:  
Past researchers have found empirical evidences to corroborate that firm size affects performance. Monteiro et al., [30] states the size of the company has a significant influence on export performance. Other researchers Pervan and Visic stated that firm size has a weak and positive effect on the profitability of the company. Based on empirical study, the hypothesis as follows:
HI : Firm size affects MSMEs operational performance

The Influence of strategy on performance:  
Company strategy becomes important enough to improve performance, the empirical evidence can be seen from Maluu and Jakesa which states that high performance is based on a strategy that will strengthen the dynamics of the company. This strategic capability is a critical mechanism between business activity and performance. Strategy can affect processes, methods, modifications, settings, and solve business problems of MSMEs. Based on empirical study, this research proposes the hypothesis as follows:
HI : strategy affects MSMEs operational performance

Methodology:  
Based on research objectives, framework and hypothesis, this study used a quantitative approach. This research uses quantitative descriptive method, which is done by using certain ways in collecting data, processing and analyzing data with statistical techniques, and taking conclusions with generalizations. The data of this study were obtained by using a questionnaire focused on testing the relationship between the dependent variable and the independent variable. The data obtained will be analyzed by using SPSS with multiple regression analysis (Multiple Regression Analysis), before processed all the data in transformation to the natural logarithm (Ln), so that the data processed number is not too far away. The sample of this research is MSMEs in East Jakarta. The reason for choosing the sample is because there are many MSMEs in East Jakarta. Determination of sample in this research using purposive sampling method.

The sample criteria that will be used are:  
1. The companies are classified as MSME according to the qualification pursuant to the law of the republic of Indonesia number 20 of 2008.  
2. The companies have completed the data on application of technology, firm size and strategy and also the data needed to detect MSMEs operational performance.  

The sample companies are selected among them obtained 33 samples. The data obtained is limited because some respondents do not use technology in their business units. Operational performance is measured by objectives, motives of support facilities, competencies, opportunities, standards, and feedback [2]. Application of technology is measured from three dimensions: efficiency, effectiveness and flexibility [2]. Firm size can be expressed by using the logarithm of
Data Analysis and Empirical Result:

Classic assumption test:

For normality, this research uses P-Plot test. In normality test, it is using plot, showing pattern of dispersion of dots around diagonal line, following diagonal line direction indicating regression model to fulfill assumption of normality test Ghozali; [8], graphic image can be seen figure 1.

Fig. 1: Normality.
Source: Data processed by researcher.

Multikolinearity test result using Variance Inflation Factor (VIF), where there are no variables that produce VIF values greater than 10. Were, the VIF values for the application of technology, firm size, strategy, are 1.044, 3.805 and 3.867, respectively. So it can be concluded that the points do not form a clear pattern it can be concluded that the regression model in this study does not occur heteroscedasticity [8].

Fig. 2: Heteroscedasticity.

The statistic test is done to determine the influence of each independent variable (individually) to the dependent variable. Based on the test above, it can be concluded as follows:

Table 1: Hypothesis Testing.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>1,201</td>
<td>295</td>
</tr>
<tr>
<td>LNIT</td>
<td>0,773</td>
<td>123</td>
</tr>
<tr>
<td>LNFS</td>
<td>0,014</td>
<td>005</td>
</tr>
<tr>
<td>LNSTRA</td>
<td>1,121</td>
<td>147</td>
</tr>
</tbody>
</table>

Table 1. The equation from the data is:

\[ OP = 1,201 + 0,773IT + 0,014FS - 0,121ST \]

Information:

OP= Operating Performance  
IT= Application Technology  
FS= Firm size  
ST= Strategy

The table also shows shows the significance value of application variables of technology (IT) is smaller than 0.05, and has a positive direction, this is in accordance with the hypothesized direction. Therefore, this results indicates that H1 is accepted. The table shows that the firm size variable (FS) shows a probability significance number above 0.05 which means that firm size variables have a positive relationship to operational performance. In other words, the hypothesis H2 is accepted. In hypothesis 3 the table shows that the no significance value of strategy variables because the number is greater than 0.05, which means that the strategy has no effect on the operational performance of MSMEs. This shows that H3 hypothesis is not accepted. The results of research showsthe proxy application of technology and firm sizewhich can be proven empirically have the direction of influence according to the hypothesized, strategy is in the contrary to the hypothesized. For Determination Coefficient Test indicates that the adjusted value of R2 is 0.856 or 85.6%, which that 85.6% dependent variable of operational performance is influenced by independent variables; application of technology, firm size and strategy. While the rest is explained by other variables that are not included in the study.

5. Discussion:

Influence Variable Application of Technology to Operating Performance:

Hypothesis 1 stated that the application of technology has an influence on the operational performance of MSMEs. Based on the results of questionnaires, on average of 33 respondents who applied technology on business activities produce high operational performance of the business. This can be seen from the total score for the application of technology which has a maximum score of 4.15 and the minimum score is 3.76. This indicates that investment in technology is a difference of 0.39 resulting in a small score difference, so investment in technology has an influence on the operational performance of MSMEs in East Jakarta. this result is supported from the data of respondents who have been mostly used the technology of computers, and from the analysis of the answers note that the
A second hypothesis which stated that firm size has an effect on operational performance is accepted. Therefore, it can be concluded that the partial variable firm size (X2) affect the variable operational performance. Based on the data that has been obtained, it is known that from 33 respondents has the total score 20.296 for the maximum company size and 14.91 for the minimum score. This indicates that there is a margin of 5.38 the range is small, so the firm size has effect on the operational performance of MSMEs in East Jakarta. This result is supported from the average data of assets owned by respondents that is about IDR 142,424,242, but with the limited asset they can optimized operational performance among others to achieve the company's goals, to get high profit. This research is in line with the research of Moomty et al. [45] and Ashrafi and Murtaza (2008) which claimed that there is a relationship between the application of technology to performance.

**Influence of Strategic Variables on Operational Performance:**

The third hypothesis in this study is the strategy affect the operational performance. Based on the results of research that has been done, it is proved that this hypothesis is not accepted. Therefore, it can be concluded that partially there is no positive and significant influence between strategy variable (X3) on operational performance variable (Y). Based on the data that has been obtained, it is known from 33 respondents with above average strategies such as high performance of business operations and the rest have low performance. Based on the calculation results shows the total score for the maximum strategy is 4.24 and the minimum score is 3.82. This indicates that the investment in technology is 0.42 difference which resulted in the difference of score which is not too big and gives negative result relation to operational performance, so the strategy has on effect to the operational performance of MSMEs in East Jakarta. From previously distributed questionnaires, it is known that the majority of respondents have shown the implementation of strategy in MSMEs in East Jakarta. They agreed that operational performance could be accomplished by decreasing costs, improving product quality, increasing customer preference and raising competing quality, but in fact it provides value in the opposite direction to theory and does not show the relationship between strategy and operational performance. This is possible because of the implementation of the strategy can be less precise, so there is needs to be assisted to implement the business strategy, in a way to improve the accountability of performance variable of MSMEs, for example understanding to system accounting, access to working capital, etc. Furthermore, it is also expected to develop the use of proxy that exist in this research, both dependent and independent variables, such as proxy for firm size replaced by other proxies, such as the number of employees.

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[19] Author Links Open Overlay Panelerkanbayraktarunmetedemirbaghs. C. Lennykohbekemtatoilogulasitalian


