



# THE EFFECT OF ENTREPRENEURSHIP CHARACTERISTICS, BUSINESS CAPITAL, AND TECHNOLOGICAL SOPHISTICATION ON MSME PERFORMANCE

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## Article History

Received

1 March 2021

Received in revised form

16 April 2021

Accepted

7 May 2021

Published Online

28 May 2021

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## Abstract

This study aims to analyze the influence of entrepreneurial characteristics, business capital, and technological sophistication on the performance of SMEs. The data collection method used in this study was a questionnaire. The number of respondents as a research sample was 291 MSME owners in Pekanbaru City. The analysis technique used is multiple regression analysis. The findings of this study are that entrepreneurial characteristics have a positive effect on MSME performance, venture capital has a positive effect on MSME performance and technological sophistication has no effect on MSME performance. Advice to MSME owners to consider aspects of technological sophistication in developing their business during the Covid-19 pandemic because using technology, especially in terms of marketing, can reduce direct contact so that human resources owned are protected from the risk of the Corona virus.

**Keywords:** Entrepreneurial Characteristics, Business Capital, Technological Sophistication, MSME Performance

## 1.0 INTRODUCTION

Performance (Putra & Renaldo, 2020) is a reflection of achievement or goals, implementation of programs, efforts, and policies that are attempted to realize the vision, mission, and goals within a group or organization (Mashun, 2006). An organization or company in maintaining a business is required to have a performance including Micro, Small and Medium Enterprises (MSMEs). (Wibowo, 2018) so that the performance of these MSMEs is good, so a measuring instrument is needed to determine the performance in the success of the MSMEs themselves. The economic crisis felt by MSMEs with the Covid-19 Pandemic is a problem in the continuity of their business, and this is a big threat to the national economy. According to the LIPI Rapid Assessment Survey of the Impact of the COVID-19 Pandemic on the Performance of Indonesian MSMEs carried out online from 1–20 May 2020, 94.69 percent of businesses experienced a decline in sales during the pandemic. According to (Hardilawati, 2020), (Alfrian & Pitaloka, 2020) to be able to survive in this covid condition, a strategy is needed for MSMEs by trading electronically, using digital marketing techniques, improving product quality, adding services and establishing and optimizing relationships customer marketing.

However, success in dealing with this depends on the characteristics of the entrepreneur. Personal uniqueness for MSME actors is a general description of entrepreneurial characteristics. The success of a business is also inseparable from entrepreneurial characteristics which are the key to maximizing efficiency because it allows MSMEs to think more positively to create creativity (Dhamayantie & Fauzan, 2017). According to (Purwanti, 2012), (Liñán et al., 2008), (Lüthje & Franke, 2003), (Shane et al., 2003), (Yusof et al., 2007), (Birdthistle, 2008), (Chen et al., 2010) that business development is influenced by entrepreneurial characteristics and venture capital. Nurhayati et al. (2011) the results of his research that the psychological characteristics of entrepreneurship significantly and positively affect entrepreneurial competence or business performance.

In addition to entrepreneurial characteristics, there are also problems determining the success factors of a business, namely in the form of capital support. An MSME actor is able to run his business if he has sufficient capital. If the amount of capital owned by each business actor is too little, it will complicate his business, especially

if the capital obtained or owned is not his own capital, it will increase the cost of financing, so that capital is absolutely needed to carry out his business. Listyawan (2011: 9) business capital is a partial fund that is used for the main expenses of starting a business to generate or increase wealth. According to research conducted by (Trisnawati & Utomo, 2018) that the results of venture capital research have a significant influence on the performance of MSMEs in Madiun City. Sunariani et al., (2017), (Purwanti, 2012) research results show that the inhibiting factors for MSMEs are capital, human resources, banking access, short-lived product characteristics, and limited market access in both national and international markets. Although MSMEs are recognized as having a role in the national economy, in improving performance there are several obstacles including limited capital, limited human resources and limitations (Utari & Dewi, 2014).

Based on Alannita & Suaryana (2014), the sophistication of technology in the current era has rapid growth, moreover it is able to create various kinds of technological systems designed to help humans work to create quality. Many technologies can facilitate users in their implementation. Industries that already use a lot of data technology that is always up-to-date (computerized and integrated) supported by modern technology applications with the hope of having a positive impact on the continuity of an industrial performance. Technological sophistication can change the habits of business actors. (Raymond & Paré, 1992) states that technological sophistication illustrates that information technology has been widely used by small businesses. The success of the actor's or personal performance is strongly influenced by aspects of technological sophistication to support businesses in obtaining accurate data for decision making (Ismail, 2009). Research conducted by (Ratnasih, et al., 2017), (Alannita & Suaryana, 2014), (Hamta & Putri, 2019) states that technological sophistication has a positive effect on performance.

## 2.0 LITERATURE REVIEW

### Characteristics of Entrepreneurs

Entrepreneurial characteristics are very important because business actors have behaviors (Renaldo, Andi, Nur, Junaedi, & Panjaitan, 2021) that can create innovative breakthroughs to maintain the stability of MSME performance (Jumaedi, 2012). In addition, entrepreneurs who have a passion for progress who have a creative and innovative spirit need to be owned by all business actors (Tanubrata & Gunawan, 2019).

### Business Capital

Some literature sourced from the Central Bureau of Statistics and Bank Indonesia as well as the Ministry of Cooperatives and SMEs that development related to the growth of SMEs in Indonesia is a lack of capital both in terms of quantity and sources (Suci et al., 2017).

### Technological Sophistication

The need for a company to assist group and individual performance is to apply information technology (Fani et al., 2015). Many benefits are obtained in implementing technological sophistication, namely: supporting the effectiveness of accounting information systems (Chandra, Renaldo, & Putra, 2018) (Aditya & Widhiyani, 2018).

### MSME Performance

Managing MSME resources owned by maintaining performance that has a positive impact on business development must be carried out. The dominant factor that can determine performance is MSME resources (Lanang et al., 2014). The performance of MSMEs must be given special attention if the company wants to develop and be competitive.

### Hypothesis Development

Based on the description of the phenomenon and theory, the following hypothesis is developed:

H1: Entrepreneurial characteristics have a positive effect on MSME performance

H2: Business capital has a positive effect on MSME performance

H3: Technological sophistication has a positive effect on MSME performance

## 3.0 METHODOLOGY

### Research design

The research was carried out in the city of Pekanbaru with the object of research on MSME business actors. This type of research is quantitative research. Questionnaires are used by researchers as a data collection tool. The technique for determining the number of samples is Non-Probability Sampling, namely: Purposive Sampling. The research sample consisted of 291 business actors. The Statistical Product and Service Solutions (SPSS) program was used by researchers to analyze the primary data obtained.

### Variable Measurement

Here are the variable measures, with the dimensions of the first measure, followed by the new measure.

Table 1. Variable Measurement

Variable	Attribute	First Dimension	New Dimension
Characteristics of Entrepreneurs (CE)	CE1	Internal locus of control	Internal locus of control
	CE2	Willing to take the risk	Willing to take the risk
	CE3	Creativity	Creativity
	CE4	Building social relationships	Building social relationships
Business Capital (SC)	SC1	Determination	Determination
	SC2	Experience	Experience
	SC3	Courage	Courage
	SC4	Knowledge	Knowledge
	SC5	Net work	Net work
	SC6	Money capital	Money capital
Technological Sophistication (TS)	TS1	Technology sophistication	Technology sophistication
	TS2	Information sophistication	Information sophistication
	TS3	Functional sophistication	Functional sophistication
	TS4	Managerial sophistication	Managerial sophistication
MSME Performance (MP)	MP1	Human Resources	Human resources aspect
	MP2	Financial aspect	Financial aspect
	MP3	Production technical aspects	Production technical aspects
	MP4	Marketing aspect	Marketing aspect
	MP5	Government policy	Government policy
	MP6	Social, cultural, economic aspects	
	MP6.1		Social aspects
	MP6.2		Cultural aspects
	MP6.3		Economic aspect
MP7	The role of government agencies	The role of government agencies	
MP8		Technology aspect	

Source: Recapitulation of previous research, 2021

For the MP6 dimension, an expansion of the measurement dimension is carried out, initially the social, cultural and economic aspects are combined, each of which will be separated into three dimensions. The argument for this division is that these three aspects are different things, so if they are separated they will provide a better measurement. Then the addition of the MP8 dimension, namely the technological aspect, because the performance of the technological aspect is assessed from the performance support of technology utilization. It is hoped that MSMEs that utilize technology can provide better performance.

#### Validity and Reliability Test

Researchers first tested the primary data before testing the effect. Validity indicates the quality of the data covering the actual area of investigation. The critical item in validity is a loading factor above 0.40, which is the minimum value suggested in this study. The second test is reliability which involves the extent to which a measurement of a phenomenon gives stable and consistent results. The Cronbach's Alpha coefficient is the most commonly used measure of consistency. Reliability is recommended at or above 0.60 (Renaldo, Sudarno, & Hutahuruk, 2020a; Taherdoost, 2016).

#### Classic Assumption Test

There are several assumptions of multiple linear regression (Lind, Marchal, & Wathen, 2018), namely linear, homoscedasticity, residual distribution following normal distribution, no multicollinearity, and no autocorrelation. All tests in this analysis use the Microsoft Excel and SPSS applications (Hafni, Renaldo, Chandra, & Thaief, 2020).

#### Regression Test

The multiple regression model can be seen in the following equation.

$$MP = a + b_1CE + b_2BC + b_3TS + e$$

Information:

- MP : MSME Performance
- CE : Characteristics of Entrepreneurs
- BC : Business Capital
- TS : Technological Sophistication

a : Constant  
 b<sub>1...3</sub> : Regression coefficient  
 e : Error

#### Determination Coefficient Test

The coefficient of determination is used to see how much influence the independent variables have on the dependent variable. The bigger means the stronger the influence.

#### Hypothesis Testing

The hypothesis test is based on the sig. which is smaller than the set alpha. This study uses alpha values of 1%, 5%, and 10%.

## 4.0 RESULTS AND DISCUSSION

#### Results Validity and Reliability

Validity analysis is presented to provide information on the validity of the questionnaire instrument used in obtaining information related to entrepreneurial characteristics, business capital and technological sophistication as well as MSME performance. In addition to validity, the questionnaire instrument used must meet the reliability criteria in collecting data. The results of the analysis are presented as follows.

**Table 2. Results of Data Validity and Reliability**

Attribute	First Loading Factor	New Loading Factor	First Cronbach's Alpha	New Cronbach's Alpha
CE1	0.722		0.701	
CE2	0.959		0.962	
CE3	0.806		0.946	
CE4	0.774		0.927	
BC1	0.966		0.796	
BC2	0.784		0.920	
BC3	0.965		0.770	
BC4	0.886		0.929	
BC5	0.843		0.978	
BC6	0.743		0.801	
TS1	0.924		0.886	
TS2	0.952		0.727	
TS3	0.708		0.725	
TS4	0.860		0.717	
MP1	0.716	0.722	0.734	0.741
MP2	0.861	0.865	0.926	0.933
MP3	0.863	0.868	0.710	0.711
MP4	0.855	0.858	0.886	0.889
MP5	0.938	0.943	0.915	0.918
MP6	0.789		0.716	
MP6.1		0.794		0.718
MP6.2		0.928		0.801
MP6.3		0.859		0.768
MP7	0.954	0.958	0.829	0.829
MP8		0.883		0.962

Source: Processed data, 2021

The loading factor value with a total of 291 respondents is known to be above 0.7. The results of the reliability test have also fulfilled all the provisions. All statement instruments can be trusted in obtaining information. After this, it can proceed to the classical assumption analysis.

#### Classic Assumption Test

**Table 3. Regression Test Results**

Variable	B	t	Sig.1	VIF	Sig.2
Constant	7.172	1.371	0.087		0.858
Characteristics of Entrepreneurs	0.637	1.916	0.029	1.190	0.170
Business Capital	0.366	2.317	0.011	1.331	0.664
Technological Sophistication	0.079	0.348	0.364	1.439	0.879
Adjusted R Square	0.577	OS Kolmogorov Smirnov test			0.942
F test	12.884	Run Test			0.621
F Sig	0.000				

Sig.1 = Signification of one-tailed t test

Sig.2 = Signification of glejser test

Source: Processed data, 2021

The results of the analysis show that the linearity test through the F test meets the requirements. The normality test through the Kolmogorov Smirnov test has complied with the provisions. The multicollinearity test through the VIF test has complied with the requirements. The heteroscedasticity test through the Glejser test complies with the provisions. The autocorrelation test through the run test has fulfilled the requirements.

### Regression Test

Based on the test results, it appears that the characteristics of entrepreneurs, business capital, and technological sophistication each have a positive influence on the performance of MSMEs. However, only the characteristics of entrepreneurs and business capital variables are significant.

### Determination Coefficient Test

Based on the results of the regression test, the value of the adjusted R square is 0.577. This means that 57.7% change in the MSME performance variable is influenced by the characteristics of entrepreneurs, business capital, and technological sophistication, while the rest is influenced by other factors.

### Hypothesis Testing

Based on the results of the regression test, it appears that only the first and second hypotheses are accepted. While the third hypothesis is rejected. This means that only the characteristics of entrepreneurs and business capital have a strong impact on the performance of MSMEs, while technological sophistication does not.

### Discussion

#### The Effect of Entrepreneurial Characteristics on MSME Performance

Based on the results of this study, it can be seen that the performance of MSMEs during the Covid-19 Pandemic can be maintained and even improved by maintaining entrepreneurial characteristics and business capital. Efforts made to maintain entrepreneurial characteristics are determined by internal factors such as locus of control (Renaldo, Sudarno, & Hutahuruk, 2020b), (Liñán et al., 2008), (Lüthje & Franke, 2003), (Shane et al., 2003) is the personality of business owners where they believe they can improve the performance of MSMEs. (Helmawati et al., 2017) said that the performance of MSMEs depends on whether the performance of individual business owners is good or not, one of the factors is locus of control. Every business owner who is ready to take risks shows performance to face the market (Lüthje & Franke, 2003), (Yusof et al., 2007). Creativity (Birdthistle, 2008) and building social relationships (Chen et al., 2010) are social capital to survive the Pandemic Period. Research finds the same results as (Kusmintarti, 2016), (Sumantri et al., 2013), (Vijaya & Irwansyah, 2018) that the performance of MSMEs can be influenced by entrepreneurial characteristics.

#### The Effect of Business Capital on MSME Performance

Business capital is also very important for MSMEs in improving performance (McCormick et al., 1997), (Zhang, 2000) this is in accordance with the findings of this study where business capital consisting of determination, experience, courage, knowledge, networking and money capital has an important role in determining the performance of MSMEs which the results of this study agree with (Purwanti, 2012). Business capital that is easily accessible by MSMEs can boost performance (Lanang et al., 2014). The importance of maintaining the performance of MSMEs, of course, must know the important factors that can determine this performance. The strong determination possessed by business owners to develop their business can connect MSMEs with business

investors (Ags, 2020). High determination for MSMEs is not enough to maintain performance. Having experience and knowledge is the main key in maintaining performance. Through increasing knowledge of human resources is the key in improving the performance of MSMEs (Widjaja et al., 2018). Have a fighting mentality and courage in entrepreneurship including initial business capital. (Nury Ariani Wulansari et al., 2015), (Oktavia, 2018) stated that courage can open potential opportunities for MSMEs to penetrate the global market. Networking with the market is very important for business owners, this is an important indicator because it can increase the competitiveness of Indonesian MSMEs (Sudayanto, Ragimun, and Rahma, 2011). (Subroto et al., 2016) and (Wahyudiati & Isroah, 2018) state that the financial aspect is an important factor in improving performance.

### The Influence of Technological Sophistication on MSME Performance

Technological sophistication in this study shows different results, technological sophistication consisting of technological sophistication, information sophistication, functional sophistication and managerial sophistication (Al-Eqab & Adel, 2013) has no effect on MSME performance. The technological sophistication in question is the use of modern technology that is currently developing to make it easier for MSME business owners to work both in terms of the production process, managerial and even to obtain information related to the right market share for MSMEs. The findings of the study are that there are still many business owners who are not technologically proficient in using technology, both technology as an information tool as well as functional and managerial use so that business owners in the city of Pekanbaru as research respondents have not felt the value of the benefits of this technological sophistication. In addition, the use of technology also requires substantial costs so that business owners do not consider technological sophistication as an effort to increase performance (Akhmad, 2015). Different results by (Ratnasih, Komang Septi. Sujana, Edy. Sinarwati, 2017), (Alannita & Suaryana, 2014), (Hamta & Putri, 2019), ("COVID-19 and its implications for micro, small and medium enterprises," 2020) that technological sophistication does not affect group performance but can affect individual performance.

Table 4. Sensitivity Test Table

Variable	B	t	Sig.1	VIF	Sig.2
Constant	7.174	1.377	0.086		0.864
Characteristics of Entrepreneurs	0.641	1.926	0.028	1.198	0.178
Business Capital	0.372	2.325	0.011	1.332	0.669
Technological Sophistication	0.088	0.358	0.361	1.441	0.883
Adjusted R Square	0.569		OS Kolmogorov Smirnov		0.944
F Hitung	12.883		Run Test		0.625
F Sig	0.000				

Sig.1 = Signification of one-tailed t test

Sig.2 = Signification of glejser test

Source: Processed data, 2021

The results of the sensitivity test show that the results of the study are consistent, whether it has a significant or not significant effect. As for the Adjusted R Square, it can be seen that the measurement with the new indicator shows a higher coefficient of determination, which means that this research model can better explain the performance of SMEs.

## 5.0 CONCLUSION

The research objective was to determine the performance of MSMEs during the Covid-19 Pandemic as assessed by entrepreneurial characteristics, business capital, and technological sophistication on MSME performance. The research findings that the characteristics of entrepreneurship and business capital are important factors that must be considered in improving the performance of MSMEs, because each has a positive influence on the performance of MSMEs. But not with the variable technological sophistication which does not have a significant effect on the performance of MSMEs. The biggest influence is provided by business capital, which means that MSMEs must still have strong capital so that their business performance remains good.

The results of this study provide advice to MSME owners to consider aspects of technological sophistication in developing their business during the Covid-19 pandemic because using technology, especially in terms of marketing, can reduce direct contact so that human resources owned are protected from the risk of the Corona virus. For the government, it can pay attention to the need for business capital as the sustainability of

MSMEs, and understand the characteristics of entrepreneurs in the city of Pekanbaru as the basis for MSME assistance.

There are several limitations of this research, namely: the variables used in measuring the performance of MSMEs are only assessed from the entrepreneurial characteristic variables owned by MSMEs, their business capital and technological sophistication. Then the results of testing technological sophistication are not yet significant, where many other studies have provided significant results. Then, there are many factors that can determine the performance of MSMEs, including marketing strategies, social networks, business plans, legality, access to capital, business plans and other factors that can still strengthen MSME performance.

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