

## THE RELATIONSHIP OF MSME OWNER'S FINANCIAL LITERACY SCORE AND MSME PERFORMANCE: CASE STUDY OF MSMEs IN SCHOOL OF BUSINESS AND MANAGEMENT BANDUNG INSTITUTE OF TECHNOLOGY

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**Abstract.** *In the era when Indonesia's entrepreneurship is growing and increasing, a proper assessment of financial literacy index among the MSMEs owner is very crucial because those index supposed to be one of the factors that determines the success of the business. In the case of MSMEs in School of Business and Management Institut Teknologi Bandung (SBM ITB), it was found that 8 out of 10 of SBM ITB students' small enterprises are running out of businesses just within 1 or 2 years after its establishment. It was also found that 9 out of 10 businesses in SBM ITB do not have a proper financial management system. Therefore, the researcher in this study wanted to measure the financial literacy score of those MSMEs owners aiming to see its relationship with the performance of the respective MSMEs. Additionally, research or study that sees financial literacy from the point of view of MSMEs owners in Indonesia is still quite low compared to those that see it from an individual/personal point of view. So, this research is also expected to be able to fill the gap. To achieve those goals, ordinal logistic regression analysis is used. The findings are indicative of a significant relationship between financial literacy score with MSME performance in term of managerial experience, expertise in customer service, enterprise culture, and innovation and learning process in term of investment and efficiency of new product development.*

**Keywords:** *Financial Literacy, MSME Performance, MSME Financial Literacy*

### Introduction

An interesting view was expressed by Altman and Sabato (2007, p.2) that "micro, small, and medium sized enterprises (MSMEs) are reasonably considered the backbone of the economy of many countries all over the world. For OECD members, the percentage of MSMEs out of the total number of firms is greater than 97%." In Indonesia, MSMEs was accounted for nearly 100% of the total number of enterprises. For example, a data from Indonesia's Central Bureau of Statistics (*Badan Pusat Statistik*, BPS) showed that the number of total firms in Indonesia after the economic crisis of 1997-1998 until 2012 was 56,539,560 units where 56,534,592 units or 99.99% of them was categorized as MSMEs showing that MSMEs have a very significant and strategic role on Indonesia's economic growth as an emerging country, even during the economic crisis. As Altman and Sabato (2007, p.2) also stated that the simple structure found in most of MSMEs enables them to quickly adapt to changing economic situations and fulfill local markets' needs. Furthermore, MSMEs are also playing a significant role on labor absorption. During the same years, MSMEs in Indonesia absorbed 85 million to 107 million workers proving the high dependency of the country on MSMEs.

However, despite of these crucial roles, MSMEs are still facing classic problems, such as low quality of human resources, unclear legal entity, lack of product innovation, capital issues, etc. that leads to high rate MSMEs failure. Additionally, a recent study stipulated that two of the principle reasons businesses suffer unexpected closures are in insufficient capitalization and lack of planning (Altman et.al 2008, p.8). In Indonesia these situations are further compounded by unstable condition of Indonesia's economy which results on high degree of MSMEs bankruptcy. In addition, the other reason behind this business failure is the fact that MSMEs owners' financial literacy is still low that also results on low financial inclusion and financial performance (Martowardjojo, 2016).

Lusardi et al. in 2012 (as cited in Sihombing 2016, p.1) stated that "financial decisions and economic activities are presumably different across different level of financial literacy. The low level of financial literacy reflects that money management and ability of people to save for long-term goals are low and the ineffectiveness can also result in consumers' behaviors, which are more fragile to severe financial crisis". In the case of MSMEs owner, financial literacy on a basic level reflects their ability to manage their business revenue, capital, profit, and others. While on more advance level, it reflects their understanding of the other alternatives of investment, such as bond, stock market, etc. and understanding of the concept of risk and return. Unfortunately, there is still inability and incapability among MSMEs owner to conduct those money management which are presumably will affect its business performance.

Regarding this issue, researcher in this study has a concern about the performance of Indonesia's MSMEs. Many problems that influence its performance have been identified, including classic problems particularly related to insufficient capitalization, lack of planning, and human resources capability. Furthermore, researcher of this study also has a strong inquiry about financial literacy as part of human resources capability that may or may not has a significant relationship with MSMEs' performance. Moreover, financial literacy itself has been seen as an important indicator of economic advancement of a country.

A recent collaborative study by DEFINIT ASIA, USAID, and OJK (*Otoritas Jasa Keuangan*) or Indonesia Financial Service Authority named The Support for Economic Analysis Development in Indonesia (SEADI) to investigate the level of Indonesians financial literacy index (2013) concluded that Indonesia's financial literacy index is quite low compared to the other countries. This definitely needs more serious concerns from every party in Indonesia's society, including academician, government, and the MSMEs owners themselves. Considering this situation, this study aims to measure the financial literacy index of MSMEs owners in Indonesia. An associated objective is to observe the relationship between this owners' financial literacy level on their MSMEs' performance.

Regarding these objectives, MSMEs owned by the students of School of Business and Management, Bandung Institute of Technology (SBM ITB), Bandung, West Java, Indonesia will be used as sample and population of this research. SBM ITB is one of the most prestigious business schools in Indonesia established in 2003. The school/faculty is developing itself to be the main actor that can contribute on achieving Bandung Institute of Technology (ITB)'s vision to be a top entrepreneurial university in Indonesia. In recent years, there have been many initiatives conducted by the school aiming to increase an entrepreneurial spirit among Indonesian university students. One of those initiatives is the establishment of Bachelor of Entrepreneurship program in 2014 which was started by trained and educated 40 selected students to becoming entrepreneurs from 2014 to 2016. From those 40 students, there were 27 business initiatives or brands were built. However, the success of this initiative is quite low proven by the fact that only 3 or 4 businesses from those 27 businesses that makes it to survive and grow until the end of the program. In the following year, from 2015 to 2017, another 40

selected students were also trained to becoming entrepreneurs. Unfortunately, there is no significance differences happened. Despite of the fact that there are more businesses that make it to survive until the end of the program compared to previous batch; it is actually difficult to find a business that perform really well.

A preliminary study which was held prior this research shown that 8 out of 10 of SBM ITB students' businesses is running out of businesses just within 1 or 2 years. Although there must be many reasons behind this problem, in this study, the researcher wants to dig more from the perspective of financial capability. The preliminary study also found that 9 out of 10 businesses in SBM ITB do not have a proper financial management system. The practice of book keeping and financial recording is very low proven by the unavailability of proper financial report or balance sheet in those small enterprises. Therefore, the researcher in this study wants to explore how the financial literacy score or index of these students is.

Financial literacy score or index is chosen because this score can be seen as a proper representative of an individual ability on managing his/her financial issues, both for personal and business needs. The Association of Chartered Certified Accountants in 2014 (as cited in Aribawa, 2016, p.2) formulated that financial literacy includes knowledge of financial concepts, the ability to understand the communication about financial concepts, the skills of managing personal finance/company, and the ability to make financial decisions in certain situations. In this case, MSMEs owner who has a proper financial literacy is supposed to be able to achieve his/her business goals and to have an orientation to develop the business and survive even during difficult economic situation.

### **Financial Literacy**

The Association of Chartered Certified Accountants in 2014 (as cited in Aribawa, 2016, p.2) formulated that financial literacy includes knowledge of financial concepts, the ability to understand the communication about financial concepts, the skills of managing personal finance/company, and the ability to make financial decisions in certain situations.

According to Xu in 2012 (as cited in Sihombing, 2016, p.6), it is a concept about financial awareness and knowledge (including financial products, institutions, and concepts); having the mathematical skills or numeracy necessary for effective financial decision making; and financial capability more generally in terms of money management and financial planning.

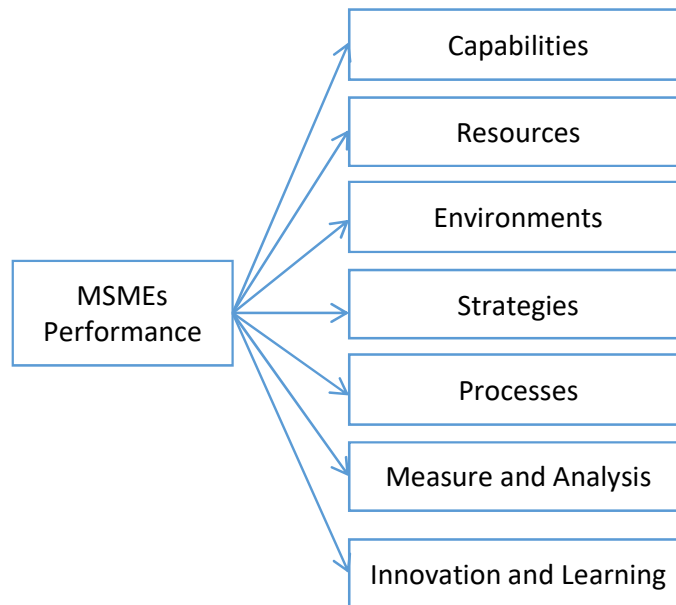
Based on *PISA 2012: Financial Literacy Assessment Framework* (OECD INFE, 2012), it was formulated that financial literacy is a fundamental factor for economic growth and financial stability. From a consumer's point of view, good financial literacy leads to a spending decision that puts quality first. This will result in competition in a healthy industry that will consequently put innovation forward in goods and services offered to consumers. In addition, good financial literacy can also minimize the occurrence of wrong decisions on emerging economic and financial issues. From a financial service provider's perspective, good financial literacy will provide adequate information about the product, an understanding of customer risk and cost efficiency. Meanwhile, from the government's point of view, good financial literacy in the community will help the government to obtain maximum tax revenue that can be used for infrastructure and public service facilities development.

The level of financial literacy from the point of view of individuals or families can have an impact on the ability to have long-term savings that can be used to own assets (such as land or houses), higher education, and pension funds, but ineffective money management will therefore have an impact on the family financial crisis (Braunstein and Welch, 2002). The findings can also be adapted for a company. In this case, MSMEs that have good financial

literacy will be able to achieve the goals of the company, have the orientation of business development, and be able to survive in difficult economic conditions (Aribawa, 2016, p. 3).

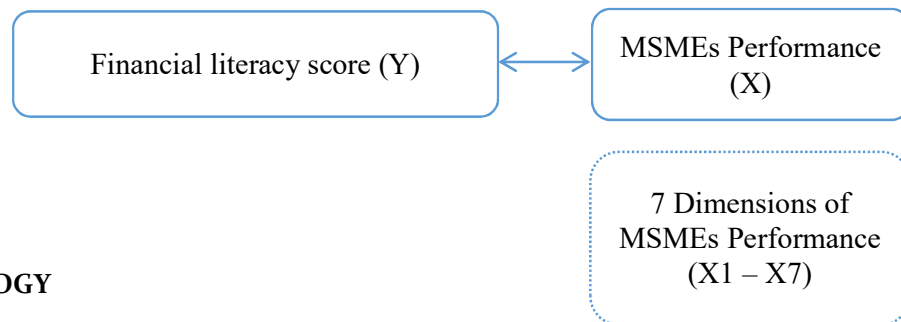
**MSMEs Performance’s Dimensions and Determinants**

Performance is a broadly used term in many areas. Most of the time, performance is a measuring how well a mechanism or process achieves its targeted – purposes. Moullin in 2003 (as cited in Wu, 2009, p.8) defines an organization’s performance as “how well the organization is managed” and “the value the organization delivers for customers and other stakeholders.” In this research, performance is defined as the extent to achieving targeted – objectives using MSME’s resources economically in the face of internal/external environment (consumers, competitors, and business environments). Also, the same dimensions and determinants resulted by a study titled *Measuring Performance in Small and Medium Enterprises in the Information & Communication Technology Industries* (Wu, 2009) is used. Therefore, the dimensions and determinants of MSMEs performance used in this research will be shown in this figure below:



**Financial Literacy Score and MSMEs Performance**

The research variables used in this study is shown in this figure below:



**METHODOLOGY**

*Questionnaire Development*

In developing the questionnaire, this study uses financial literacy measurement which has been used by The Financial Service Authority (*Otoritas Jasa Keuangan*, OJK) in collaboration with DEFINIT ASIA, and USAID named The Support for Economic Analysis Development in Indonesia (SEADI) in 2013 that consisted of basic and advance financial literacy variable, while

for MSME performance measurement this study uses MSME performance indicators used in a thesis published by RMIT University titled *Measuring Performance in Small and Medium Enterprises in the Information and Communication Technology Industries* (Wu, 2009). The performance indicators are represented in following dimensions: capability, resource, environment, strategy, internal process, and innovation and learning.

### Respondents

According to a data published by Central Bank of Indonesia, Indonesia's MSMEs can be categorized into seven major sectors; trade, processing industry, agriculture, plantation, animal husbandry, fishery, and service. Indonesia's government also clarified the number of Indonesia's MSMEs amounted to over 56 million units in 2012, which means 99.99% of total enterprises in Indonesia are MSMEs. However, this research will be carried out on Bandung-based MSMEs that are conducting their commercial activities on trade, processing industry, and service sectors only whose are represented by MSMEs owned by SBM ITB students.

As a way to make sure appropriate representation of the data from the population, purposive sampling technique is applied. The respondents of this research are SBM ITB students who possess sufficient understanding and are actively engaged in running MSMEs. Therefore, MSMEs owners or managers are the most appropriate respondents.

### Logistic Regression

Collected data is analyzed using ordinal logistic regression to capture the relationship among variables that consists of financial literacy index and MSMEs' performance. In this study there are seven models of logistic regressions aiming to see the relations between one dependent variable (financial literacy) and seven independent variables (performance determinants). Ordinal logistic regression is used because both of dependent and independent variables were measured in ordinal scale, which are:

Y: Financial literacy score. It was measured from scale 1 up to 5.

Y = 1, if financial literacy score of the respondent falls on 0 – 20 out of 100.

Y = 2, if financial literacy score of the respondent falls on 21 – 40 out of 100.

Y = 3, if financial literacy score of the respondent falls on 41 – 60 out of 100.

Y = 4, if financial literacy score of the respondent falls on 61 – 80 out of 100.

Y = 5, if financial literacy score of the respondent falls on 81 – 100 out of 100.

X: MSMEs performance variables that consist of 7 determinants (X<sub>1</sub> – X<sub>7</sub>). They were measure from scale 1 up to 5.

X = 1, if the respondent considers that the importance of one particular indicator of MSMEs performance determinants as “low”.

X = 3, if the respondent considers that the importance of one particular indicator of MSMEs performance determinants as “medium”.

X = 5, if the respondent considers that the importance of one particular indicator of MSMEs performance determinants as “high”.

Therefore, the basic model for logistic regression is:

$$\ln Odds(E) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + \varepsilon$$

Where

$$Odds(p) = \frac{p}{1-p}$$

While the simple model for logistic regression for the tested variables are as follow:

1. Financial literacy and capabilities

$$\ln Odds(\text{financial literacy}) = \beta_1(\text{capability}_1) + \beta_2(\text{capability}_2) + \beta_3(\text{capability}_3) + \beta_4(\text{capability}_4) + \beta_5(\text{capability}_5)$$

2. Financial literacy and resources

$$\ln Odds(\text{financial literacy}) = \beta_1(\text{resource}_1) + \beta_2(\text{resource}_2) + \beta_3(\text{resource}_3) + \beta_4(\text{resource}_5) + \beta_6(\text{resource}_6) + \beta_7(\text{resource}_7) + \beta_8(\text{resource}_8) + \beta_9(\text{resource}_9) + \beta_{10}(\text{resource}_{10}) + \beta_{11}(\text{resource}_{11}) + \beta_{12}(\text{resource}_{12})$$

3. Financial literacy and environments

$$\ln Odds(\text{financial literacy}) = \beta_1(\text{environment}_1) + \beta_2(\text{environment}_2) + \beta_3(\text{environment}_3) + \beta_4(\text{environment}_5) + \beta_6(\text{environment}_6) + \beta_7(\text{environment}_7) + \beta_8(\text{environment}_8) + \beta_9(\text{environment}_9) + \beta_{10}(\text{environment}_{10}) + \beta_{11}(\text{environment}_{11}) + \beta_{12}(\text{environment}_{12})$$

4. Financial literacy and strategies

$$\ln Odds(\text{financial literacy}) = \beta_1(\text{strategy}_1) + \beta_2(\text{strategy}_2) + \beta_3(\text{strategy}_3) + \beta_4(\text{strategy}_5) + \beta_6(\text{strategy}_6) + \beta_7(\text{strategy}_7)$$

5. Financial literacy and processes

$$\ln Odds(\text{financial literacy}) = \beta_1(\text{process}_1) + \beta_2(\text{process}_2) + \beta_3(\text{process}_3) + \beta_4(\text{process}_4) + \beta_5(\text{process}_5)$$

6. Financial literacy and measurement and analysis

$$\ln Odds(\text{financial literacy}) = \beta_1(\text{measure}_1) + \beta_2(\text{measure}_2) + \beta_3(\text{measure}_3) + \beta_4(\text{measure}_5) + \beta_6(\text{measure}_6) + \beta_7(\text{measure}_7)$$

7. Financial literacy and innovation and learning

$$\ln Odds(\text{financial literacy}) = \beta_1(\text{innovation}_1) + \beta_2(\text{innovation}_2) + \beta_3(\text{innovation}_3) + \beta_4(\text{innovation}_4) + \beta_5(\text{innovation}_5)$$

### Reliability Test

Table 1: Reliability Test Results  
Reliability Statistics

Cronbach's Alpha	N of Items
.842	22

Each respond in the questionnaire is categorized as reliable if its Cronbach's Alpha score is more than 0.6. The value Cronbach's Alpha score in this study is 0.842. Therefore, the questionnaire is also reliable.

## 4. RESULTS

### 4.1 Hypothesis Testing Result

The summary of seven tested models is shown in the following table:

Table 2: Hypothesis Testing using Prob > Chiz

Hypothesis (Ha)	Prob > chiz	Pseudo R <sub>2</sub>	Result	Conclusion
There is a significant relationship between financial literacy score with capabilities (H1).	0.2596	0.0915	Ho rejected	Not Significant

There is a significant relationship between financial literacy score with resources (H2).	0.0335	0.3145	Ho accepted	Significant
There is a significant relationship between financial literacy score with environments (H3).	0.0643	0.2832	Ho rejected	Not Significant
There is a significant relationship between financial literacy score with strategies (H4).	0.9029	0.0306	Ho rejected	Not Significant
There is a significant relationship between financial literacy score with processes (H5).	0.2672	0.0903	Ho rejected	Not Significant
There is a significant relationship between financial literacy score with measure and analysis (H6).	0.5703	0.0807	H6 rejected	Not Significant
There is a significant relationship between financial literacy score with innovation and learning (H7).	0.0468	0.1580	H7 accepted	Significant

#### 4.2 The Financial Literacy Score

Table 3: The Financial Literacy Score

Basic Financial Literacy Score		Advanced Financial Literacy Score	
Variable	Simple Weight	Variable	Simple Weight
Requirement of ID	0.090	Interest rate and bond price	0.090
Minimum amount of money	0.090	Risk of putting investment into more than one asset	0.090
Minimum amount of money to open saving account	0.090	Highest fluctuation on investment return	0.090
Deposit guaranteed by government	0.090	The knowledge of retirement plan	0.090
Simple interest	0.090	Function of stock market	0.090
Compounded interest	0.090	Returns on stock versus bond	0.090
Calculate interest on loan	0.090	The meaning of buying stock	0.090
Interpret simple inflation concept	0.090	The meaning of buying bond	0.090

Interpret the amount of discount	0.090	Penalty when selling bond before maturity	0.090
Time value of money	0.090	Highest return on investment	0.090
Money illusion.	0.090	The knowledge of investment instrument for emergency fund	0.090
Average Basic Financial Literacy Score	69.00	Average Advance Financial Literacy Score	52.36
<b>AVERAGE OF OVERALL FINANCIAL LITERACY SCORE</b>			<b>60.68</b>

OJK in 2013 stated that the average financial literacy score of Indonesian population is 39.42 far below the ideal score (60.00). In the table above, the average of overall financial score of MSME owners in SBM ITB is 60.68 which are slightly higher than the ideal score and far above Indonesian population average. However, for the advance financial literacy score, MSME owners in SBM ITB scored only 52.36 which are still quite far from the ideal score 60.00.

### 4.3 Logistic Regression Results

#### 4.3.1 Financial Literacy Score (Y) and Capabilities (X1)

Table 4: Ordinal Logit Regression Results of Financial Literacy Score and Capabilities

Ordered logistic regression	Number of obs	=	30
	LR chi2(5)	=	6.51
	Prob > chi2	=	0.2596
Log likelihood = -32.325432	Pseudo R2	=	0.0915

FL_Score	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
capability_1	.8988956	.5430093	1.66	0.098	-.1653831 1.963174
capability_2	.4666437	.7110141	0.66	0.512	-.9269183 1.860206
capability_3	-.2593796	.7676982	-0.34	0.735	-1.76404 1.245281
capability_4	-.3856114	.6295735	-0.61	0.540	-1.619553 .84833
capability_5	.3899184	.748902	0.52	0.603	-1.077903 1.857739
/cut1	3.74732	4.020915			-4.133528 11.62817
/cut2	5.235081	4.078251			-2.758144 13.22831
/cut3	7.900889	4.180193			-.2921376 16.09392

In the first model, this study wants to see the relationship between financial literacy score with the first determinant of MSMEs performance which is capabilities. Referring to the result in Table 11 below, it is shown that there is no significant relationship between financial literacy score with the first determinant of MSME performance (capabilities). This is proven by the value of Prob > chi2 = 0.2596 (more than 0.05).



4.3.2 Financial Literacy Score (Y) and Resources (X<sub>2</sub>)

Table 5: Ordinal Logit Regression Results of Financial Literacy Score and Resources

Ordered logistic regression	Number of obs	=	30
	LR chi2(12)	=	22.38
	Prob > chi2	=	0.0335
Log likelihood = -24.392081	Pseudo R2	=	0.3145

FL_Score	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
resource_1	1.456852	.8431584	1.73	0.084	-.1957078	3.109412
resource_2	1.883027	.9140821	2.06	0.039	.0914589	3.674595
resource_3	-2.247185	.9511709	-2.36	0.018	-4.111446	-.3829244
resource_4	-.3236728	.4321999	-0.75	0.454	-1.170769	.5234235
resource_5	.2626019	.7909519	0.33	0.740	-1.287635	1.812839
resource_6	-.2592928	1.205349	-0.22	0.830	-2.621734	2.103148
resource_7	-3.833194	1.48136	-2.59	0.010	-6.736608	-.9297813
resource_8	4.161988	1.57753	2.64	0.008	1.070087	7.253889
resource_9	-.0096572	1.289246	-0.01	0.994	-2.536532	2.517218
resource_10	-.1199665	.7360926	-0.16	0.871	-1.562682	1.322748
resource_11	-1.664509	.7622525	-2.18	0.029	-3.158497	-.1705219
resource_12	.120802	.8086308	0.15	0.881	-1.464085	1.705689
/cut1	-7.316834	6.284667			-19.63456	5.000887
/cut2	-5.482907	6.306324			-17.84308	6.87726
/cut3	-1.481364	6.23173			-13.69533	10.7326

In the second model, this study wants to see the relationship between financial literacy score with the second determinant of MSMEs performance which is resources. Referring to the result in Table 12 below, it is shown that there is significant relationship between financial literacy score with the second determinant of MSME performance (resources). This is proven by the value of Prob > chi2 = 0.0335 (less than 0.05). Also, the value of Pseudo R<sub>2</sub>, 0.31445 (31.54%) informs that 31.54% of MSMEs performance in term of resources can be explained by financial literacy. Furthermore, from the value of P > | z |, it is found that resource\_2, resource\_3, resource\_7, resource\_8, and resource\_11 (P > | z | less than 0.05) have significant relationship with financial literacy score. This means MSMEs performance in term of managerial experience (resource\_2), access to overall low cost factors of production (resource\_3), expertise in marketing (resource\_7), expertise in customer service (resource\_8), and enterprise culture (resource\_8) as resources has a very significant relationship with financial literacy. Therefore, the ordinal logistic equation for this model is:

$$\ln Odds = 1.883027 (\text{resources}_2) - 2.247185 (\text{resources}_3) - 3.833194 (\text{resources}_7) + 4.161988 (\text{resources}_8) - 1.664509 (\text{resources}_{11})$$

Also from the result, it can be seen that managerial experience and expertise in customer service has positive coefficients. It means MSMEs owner in SBM ITB consider that managerial experience and expertise in customer service are very important resources and already put concerned on to help them achieve good business performance. On contrary, access to overall low cost factors of production, expertise in marketing, and enterprise culture have negative coefficients. This means MSMEs owner in SBM ITB who has high financial literacy score has already realized that those aspects are important to make their business performance better. However, they have not applied it in their current business.

4.3.3 Financial Literacy Score (Y) and Environment (X<sub>3</sub>)

Table 6: Ordinal Logit Regression Results of Financial Literacy Score and Environment

Ordered logistic regression	Number of obs	=	30
	LR chi2(12)	=	20.15
	Prob > chi2	=	0.0643
Log likelihood = -25.505401	Pseudo R2	=	0.2832

FL_Score	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
environment_1	5.28976	1.884897	2.81	0.005	1.59543	8.984091
environment_2	-4.756562	1.585148	-3.00	0.003	-7.863395	-1.649729
environment_3	-5.704129	2.016396	-2.83	0.005	-9.656193	-1.752065
environment_4	3.402256	1.682126	2.02	0.043	.1053489	6.699162
environment_5	-1.605184	1.103409	-1.45	0.146	-3.767826	.5574584
environment_6	.1453163	1.885927	0.08	0.939	-3.551032	3.841664
environment_7	1.758305	1.186332	1.48	0.138	-.5668629	4.083474
environemnt_8	-1.193038	.8329353	-1.43	0.152	-2.825561	.4394857
environment_9	-2.714063	1.190932	-2.28	0.023	-5.048246	-.379879
environment_10	5.649011	2.117314	2.67	0.008	1.499151	9.798871
environment_11	-2.437648	1.447265	-1.68	0.092	-5.274235	.3989399
environment_12	1.903656	1.001229	1.90	0.057	-.0587169	3.866029
/cut1	-6.024706	5.497663			-16.79993	4.750515
/cut2	-4.09768	5.461898			-14.8028	6.607443
/cut3	-.0553328	5.32109			-10.48448	10.37381

In the third model, this study wants to see the relationship between financial literacy score with the third determinant of MSMEs performance which is organizational agility to environment. Referring to the result in Table 13 below, it is shown that there is no significant relationship between financial literacy score with the third determinant of MSME performance, organizational agility to environment (environment). This is proven by the value of Prob > chiz = 0.0643 (more than 0.05).

4.3.3 Financial Literacy Score (Y) and Strategy (X4)

Table 6: Ordinal Logit Regression Results of Financial Literacy Score and Strategy

Ordered logistic regression	Number of obs	=	30
	LR chi2(6)	=	2.18
	Prob > chi2	=	0.9029
Log likelihood = -34.493154	Pseudo R2	=	0.0306

FL_Score	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
strategy_1	-.0300671	.4610865	-0.07	0.948	-.9337799	.8736458
strategy_2	.8112855	.7859662	1.03	0.302	-.72918	2.351751
strategy_3	-.2036651	.4397853	-0.46	0.643	-1.065629	.6582983
strategy_4	.0000602	.6773623	0.00	1.000	-1.327546	1.327666
strategy_5	-.851697	.6930167	-1.23	0.219	-2.209985	.5065908
strategy_6	.6643646	.7127649	0.93	0.351	-.7326288	2.061358
/cut1	-.1653178	3.967855			-7.942171	7.611535
/cut2	1.075259	3.964599			-6.695213	8.845731
/cut3	3.632738	4.005739			-4.218365	11.48384

In the fourth model, this study wants to see the relationship between financial literacy score with the fourth determinant of MSMEs performance which is appropriate strategy. Referring to the result in Table 14 below, it is shown that there is no significant relationship between financial literacy score with the fourth determinant of MSME performance in term of appropriate strategy. This is shown by the value of Prob > chi2 = 0.9029 (more than 0.05).

4.3.4 Financial Literacy Score (Y) and Processes (X5)

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Table 7: Ordinal Logit Regression Results of Financial Literacy Score and Processes.

Ordered logistic regression	Number of obs	=	30
	LR chi2(5)	=	6.42
	Prob > chi2	=	0.2672
Log likelihood = -32.369351	Pseudo R2	=	0.0903

FL_Score	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
process_1	1.241584	.8966591	1.38	0.166	-.515836	2.999003
process_2	-.0721393	.8560752	-0.08	0.933	-1.750016	1.605737
process_3	.2097409	.6755086	0.31	0.756	-1.114232	1.533713
process_4	-.147005	.4924353	-0.30	0.765	-1.11216	.8181505
process_5	-1.733446	.8611574	-2.01	0.044	-3.421284	-.0456088
/cut1	-5.695146	3.852604			-13.24611	1.855818
/cut2	-4.352939	3.806158			-11.81287	3.106992
/cut3	-1.476588	3.696013			-8.720639	5.767464

In the fifth model, this study wants to see the relationship between financial literacy score with the fifth determinant of MSMEs performance which is internal business processes. Referring to the result in Table 15 above, it is shown that there is no significant relationship between financial literacy score with the fourth determinant of MSME performance in term of internal business processes. This is shown by the value of Prob > chi2 = 0.2672 (more than 0.05).

4.3.5 Financial Literacy Score (Y) and Measure and Analysis (X6)

In the sixth model, this study wants to see the relationship between financial literacy score with the fifth determinant of MSMEs performance which is company ability to do essential measurement and analysis of the company and industry where they belong. Referring to the result in Table 16, it is shown that there is no significant relationship between financial literacy score with the fourth determinant of MSME performance in term of measure and analysis. This is shown by the value of Prob > chi2 = 0.5703 (more than 0.05) as shown in the table below:

Table 8: Ordinal Logit Regression Results of Financial Literacy Score and Measure and Analysis

Ordered logistic regression		Number of obs	=	30
		LR chi2(7)	=	5.74
		Prob > chi2	=	0.5703
Log likelihood = -32.710604		Pseudo R2	=	0.0807

FL_Score	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ma1	-.4022477	1.036146	-0.39	0.698	-2.433057	1.628561
ma2	-.2161883	.8365884	-0.26	0.796	-1.855871	1.423495
ma3	-1.345625	.7922623	-1.70	0.089	-2.898431	.2071808
ma4	1.701769	1.021053	1.67	0.096	-.2994588	3.702997
ma5	-.9739834	.7900889	-1.23	0.218	-2.522529	.5745625
ma6	.7888533	.9465267	0.83	0.405	-1.066305	2.644011
ma7	.3586169	.7450139	0.48	0.630	-1.101584	1.818817
/cut1	-3.076852	4.237861			-11.38291	5.229204
/cut2	-1.757783	4.200642			-9.99089	6.475324
/cut3	1.042929	4.167188			-7.12461	9.210468

## 4.3.6 Financial Literacy Score (Y) and Innovation and Learning (X7)

Table 17: Ordinal Logit Regression Results of Financial Literacy Score and Innovation and Learning

Ordered logistic regression	Number of obs	=	30
	LR chi2(5)	=	11.24
	Prob > chi2	=	0.0468
Log likelihood = -29.959399	Pseudo R2	=	0.1580

FL_Score	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
il1	1.326639	.6318788	2.10	0.036	.0881793	2.565099
il2	-2.17158	1.028599	-2.11	0.035	-4.187598	-.1555627
il3	.793183	.5204524	1.52	0.128	-.226885	1.813251
il4	-.0018444	.8071186	-0.00	0.998	-1.583768	1.580079
il5	.1755257	.6156579	0.29	0.776	-1.031142	1.382193
/cut1	-2.551944	3.770781			-9.942539	4.838651
/cut2	-.9199015	3.753577			-8.276778	6.436975
/cut3	2.053161	3.772654			-5.341104	9.447427

Referring to the result in Table 17, it is shown that there is significant relationship between financial literacy score with the third determinant of MSME performance (innovation and learning). This is proven by the value of Prob > chi2 = 0.0468 (less than 0.05). Also, the value of Pseudo R2, 0.1580 (15.80%) informs that 15.80% of MSMEs performance in term of innovation and learning can be explained by financial literacy. Furthermore, from the value of P > | z |, it is found that il1 and il2 (P > | z | less than 0.05) have significant relationship with financial literacy score. This means MSMEs performance in term of investment in new product development (il1) and efficiency of new product development process (il2) as innovation and learning ability has a very significant relationship with financial literacy. Therefore, the ordinal logistic equation for this model is:

$$\ln Odds = 1.326639 (il1) - 2.17158 (il2)$$

Also from the result, it can be seen that investment in new product development has a positive coefficient. It means MSMEs owner in SBM ITB consider that investment in new product developmet are very important term of innovation and learning for the company and already put concerned on to help them achieve good business performance. Unfortunately, they are still lacking of efficiency of new product development process proven by the negative coefficient.

## 5. CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

This chapter summarizes the results of this study on financial literacy level of ITB students and its relationship with MSMEs performance that they are working on. By distributing financial literacy questionnaire that consist of basic and advance financial literacy measurement, it is found that:

- The average of overall financial literacy score of MSME owners in SBM ITB is 60.68. It is far beyond the average of Indonesian population score 39.42, but only slightly higher than the ideal score of financial literacy according to OJK which is 60.00.
- Despite of the fact that the overall financial literacy score of MSME owners in SBM ITB has already met the ideal score, the advanced financial literacy score of this sample is still need to be improved because it is only scored 52.36 then can be categorized as low. However, overall financial literacy level of MSME owner in SBM ITB can be categorized as moderate.

Furthermore, MSMEs owner's perception toward the importance of seven determinants in MSME performance and its relationship with financial literacy score has been measured. The results are:

- There is a significant relationship between financial literacy score with MSME performance in term of resources, especially managerial experience, expertise in customer service, and enterprise culture.
- There is a significant relationship between financial literacy score with MSME performance in term of innovation and learning process within an enterprise, especially investment and efficiency of new product development.

## 5.2 Recommendation

Based on the finding in this research, here are some recommendations the author could provide:

- Since there are significance relationship between MSME owners' financial literacy score with MSME performance in term of resources and innovation and learning process, it is recommended that MSME owners enhance the improvement of their financial capability, especially in term of advance financial literacy score. In this study, it is found that the advanced financial literacy score of MSME owners in SBM ITB is still below the ideal score which might be one of the reasons of low performance in this sample. Therefore, improving the score of advanced financial literacy score might be result in better business performance in MSME.
- Future research can broaden the context of this study by expanding the respondent. It will be better if the sample comes from different background, such as education level, race, etc. so that the result between each sample's backgrounds can be compared.
- Future research can also deepen the study by comparing the MSME owner's financial literacy score with failed MSME and success MSME.
- Lastly, for the context of MSME SBM ITB, future research can be also focusing on exploring the reasons of MSME failure in SBM ITB.
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