

# Supporting SDGs for Increase of the MSMEs Industry – A Prediction Using Correlation

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## ABSTRACT

**Objective** – The capacity of MSMEs in encouraging the Indonesian economy is undoubtedly after the economic recession caused by the monetary crisis in 1998. Therefore, we try to analyze the achievement of SDGs for the 2011-2019 period in relation to supporting MSMEs from the financial dimension.

**Methodology/Technique** – Several steps evaluate these actual conditions in the quantitative method. The relationship between total credit, value-added, and financial services is measured through parametric correlation and non-parametric correlation.

**Findings** – Overall exploration shows a strong and positive relationship of total credit, value-added, and financial services, which are components of the 8<sup>th</sup> pillar of the SDGs. With these findings, ~~we-the~~ offer an important idea through a scheme to revitalize the financial aspects to make it easier for MSMEs and important as an effort to encourage MSMEs to have a more maximum bargaining position.

**Novelty** – The novelty of this study with topics that apply to business development, especially from the principles of SDGs, is consistent with advancing MSMEs in Indonesia.

**Type of Paper:** Empirical

**JEL Classification:** E50; L11; G21 ; G28; C10

**Keywords:** Credit assistance; Industrial value added; Financial services; Parametric statistics; Non-parametric statistics, Indonesia.

## 1. Introduction

Sustainable development goals (SDGs) are a continuation of the Millennium development goals (MDGs) which were agreed upon by UN member countries in 2000 and ended at the end of 2015 (Suparjo et al., 2021). However, both have fundamental differences in terms of substance and planning them (Wahyuningsih, 2017). Therefore, the SDGs were agreed hoping to accommodate development problems more comprehensively, qualitatively, and quantitatively in order to target the complete resolution of each of its goals and objectives (Astuti et al., 2020). Based on this, ~~we hope~~ the SDGs will be able to synergize the parties that play a role in the sustainable development process for 2016-2030.

~~We-It~~ should note that the SDGs include 17 goals and 169 targets, which are global action plans for the next 15 periods to end poverty, reduce inequality and protect the environment (Trimulato & Nuringsih, 2019). SDGs involve all development actors, including government, civil society organizations (CSOs), the private sector, academics, and so on. In an effort to encourage community empowerment, especially those with lower middle income and micro, small and medium enterprises (MSMEs), comprehensive support from financial institutions is needed. So far, access has constrained MSMEs to funding for formal

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**Reply:** Has been revised.

**Comment [A2]:** Preamble of the paper is not appealing. Author should also develop the context of the study, the major contribution of the research. Motivation for the study should be extended.

Avoid using I, You, We, They  
Whole paper in passive voice.

**Reply:** Has been revised.

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financial institutions. To overcome this problem, many non-bank financial institutions have grown and developed business development and community empowerment services established by the government.

For Indonesia, ~~they~~ [Septiani et al. \(2020\)](#) have believed MSMEs to reduce the existence of inequality in terms of economic and social issues (~~Septiani et al., 2020~~). In addition, MSMEs are also the priority in Indonesia's development agenda, reflecting on the 1998 crisis phenomenon, where MSMEs are more able to survive when compared to other sectors (Muliadi et al., 2020). MSMEs are one of the [supporting bridge](#) pillars in supporting economic growth, the availability of job opportunities, and quality job opportunities. Lie & Kis (2008) emphasized that each MSMEs unit can create more labor absorption when compared to large industries, and contribute to gross domestic product (GDP).

United Nations (2018) noted that globally [MSMEs-SME](#) play a role in reducing poverty through job creation, wherein in 2013 at 11% of the world's population of around 783 million people were classified as 'extreme poverty'. Those who live below the poverty line in developing countries are those who do not have a job or do not earn enough to make ends meet. Job creation in the private sector (including MSMEs) is proven to have pushed to fight poverty.

A push to eradicate poverty through the SDGs offers new business opportunities and models aimed at the role of the private sector in MSMEs. Although the level of welfare and purchasing power of the poor is limited, ~~they~~ [the government](#) expect the multiplier effect to be quite large. Hammond et al. (2007) indicate that the large purchasing power intensity forms the base of the pyramid, which is the global consumer market reaching USD 5 trillion. There was an increase in market supply which was growing. The penetration of service commodities and the scale of the market provide services that will reduce poverty [levels](#).

The motivation for the study refers to publications that discuss the contribution of the SDGs to the financial services industry reviewed by Jones et al. (2016), Gambetta et al., 2019, Chikalipah (2020), Andreoni & Miola (2016), and Lee (2020). Broadly speaking, the SDGs report addresses the role of the financial services industry in various countries to encourage business engagement. Although the SDGs document is widely adopted by countries that are members of the United Nations, the economic-environment-social problems affect developing and developed countries. In both the short and long term, it orients multidimensional equality towards the sustainable dimension. Regulations encourage competitiveness in synergy with increasing market share and productivity. Comprehensive external efforts, integrating the transition period of business opportunities of various scales to pursue sustainable trends. Although the future agenda considers not only economic growth but also social and financial aspects, the risk management system in financial institutions such as in Spain needs to be tested. Including financial institutions to continue to stimulate smaller investors, emphasizing business operations and the risks posed by society and the environment. In addition, the SDGs profile has implications for analysts, investors and shareholders, to express their commitment to a higher quality aim framework. In Zambia, it investigated empirically business strategy to see the factors that hinder the poor from adopting financial services. SDGs enable the development of financial and technology (FinTech) to imply digital services for users to make transactions (transfer funds) in developing a business. With financial governance, of course, this is also relevant to the SDGs in China. The connection of financial markets to the company's business model is expanded by diversifying concepts that prioritize taxonomy, transparency, and elements of sustainability. Institutional investors promote public-private partnerships, so that policy capacity towards professionalism.

The purpose of the paper is to investigate the relevance of SDGs that have been designed to [support save](#) the SME industry from the aspects of credit help, financial services, and value-added industry. In

**Comment [i-3]:** Main contributions and research context.

**Reply:** Developed constructively on 6<sup>th</sup> and 7<sup>th</sup> paragraphs.

addition, we also try to measure the extent to which it related these three aspects to an analytical tool. The essence of this study is to review the financial framework of lending institutions for the sustainability of MSMEs in Indonesia. As is known, the impact of regulatory changes, especially the SDGs which emphasizes the financial service sector (such as banking) to support the SME climate in order to compete and gain prosperity (e.g. Helble & Shepherd, 2017; Oosterhof, 2018; Ullah et al., 2021).

Referring to this issue, this paper continues at several stages. Part 1: explains the phenomena and problems related to the SDGs and their development efforts for MSMEs and focuses on the main objectives of the paper. Part 2: briefly describes the related literature. Part 3: needs to explain this work procedure through the methods and materials used. Part 4: interpretation of the results with data analysis to answer the purpose of the paper. Part 5: concentrating on the discussion. Part 6: is the final session to conclude and confirm the empirical findings.

## 2. Literature Review and Hypothesis Development

### 2.1. Sustainable Development Goals (SDGs): 8<sup>th</sup> Pillar Focus

The SDGs contain 17 goals covering sustainable development issues, including ending poverty and hunger, improving health and education, making cities more sustainable, fighting climate change, and protecting forests (BPS-Statistics of Indonesia, 2014). We-Fig. 1. present the 17 objectives proposed by these in Figure 1.

The objectives of the SDGs in Indonesia include several important points, especially in terms of efforts to play the role of several related parties in developing MSMEs (Rassanjani, 2018). Of the seventeen goals, the 8<sup>th</sup> pillar namely “decent work and economic growth” implies efforts to create jobs and increase national income as this is the most significant role and highlights the role of small and medium enterprises (SMEs) in a country’s economy so that it has a close economic and social impact (Timoti, 2018). Particularly in developing market countries, SMEs are a sector that contributes positively to GDP and employment. OECD (2017) also notes that the formal SME sector implies about 40% of GDP and 60% of employment in developing countries. This really allows SMEs to prosper and develop more rapidly to achieve global goals.

**Comment [A4]:** Literature review is narrow. It should be background for the hypothesis or scientific questions elaboration. Author should further develop.

**Reply:** Revised referring to relevant publications regarding variable components. The hypothesis has been formulated and addition of sub-chapter 2.2, 2.3, and 2.4.

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Figure 1. Pillars in the SDGs in the Efforts to Exist MSMEs



Source: Serajuddin & Scuriatti (2019).

Corporate social responsibility (CSR) can ~~support-elaboration~~ development initiated by entrepreneurs through innovative SMEs. Töniş (2015) informs that technology requires innovation to reduce the impact of ecology and naturally regenerate resources. This requires a long process so that the environment is not polluted and automatically saves costs incurred by the company rather than restoring environmental functions due to severe contamination. As such, the continuation of SMEs holds a vital principle and is also demonstrated by compensation for natural resources that is optimally combined with changes in capital, economies of scale, and changes in technology in the long term. The resulting economic growth is consistent with the low level of consumption of natural resources.

In their study, Verboven & Vanherck (2016) emphasizes the SDGs compass with its role in the existence of SMEs in Europe. As a continuation, the SDGs focus on offering frameworks and methods that are translated by most of the major companies in order to align the SDGs for the progress of their business. In its implementation, the SDGs framework only fulfills some of the criteria for paying attention to the real-world impact of business. Priorities for SMEs in Europe do not have a positive correlation with travel and business processes so that SMEs lack the experience, incentives, and resources to support their existence. Even so, there remains the contribution and potential of SMEs for sustainable development in Europe.

Jaramillo et al. (2018) invest in barriers faced by SMEs when implementing initiatives for the SDGs. Identification of the most dominant barriers to SMEs is initial capital costs, lack of expertise and limited resources to implement sustainability measures. These problems are also classified based on internal and external factors for the increase of SMEs.

## 2.2. The Credit

Since the financial crisis, various banks are aware of how to operationalize crisis management and achieve optimal profit. Collectively, the banking system creates money through a 'money multiplier system', in which it loaned the collected deposits to customers via credit (Werner, 2016). To avoid a banking crisis, it gave economic capital to developing countries as investment treaties. Banks certainly expect interest rates to advance the monetary system (Werner, 2014).

Financial institutions also focus on limited capital markets, particularly small companies. Financial institutions that have high equity stakes offered for access to credit the trading sector. The comparative advantage of financial institutions is that they first get information from the borrower (Petersen & Rajan, 1997).

Aduba & Izawa (2021) analyze the impact of credit efficiency on the value creation of commercial banks in Japan. As a result, cost efficiency in gross value increases when bank intermediation learning is applied. Investment and total credit are created with the efficiency of the bank's economic value. Practical implications consider risk management, bank credit, and lending to the real sector in Japan. The financial system is like the heart of the national economy (Wang, 2011). Not only concerned with how to bear risk, but it must measure the value through the risk management of a bank. This is a valuable lesson for stakeholders.

Pratiwi (2019) examines the relationship between credit risk and financial services at commercial banks in Indonesia registered with the Financial Services Authority (OJK). The conclusion is that financial services actually decrease when credit risk increases. Interestingly, the key elements of economic development and growth in Romania are innovation skills and entrepreneurial productivity. The accessibility of production factors, such as the cost of capital, is growing, driven by technological

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sophistication. The performance of the financial sector is very important to support the banking sector (Paun et al., 2019). For this reason, alternative hypotheses are developed as follows:

H1 (hypothesis 1): an increase in total credit will significantly improve the value-added.

H2 (hypothesis 2): an increase in total credit will significantly improve financial services.

### 2.3. Industrial Value-Added

Specifically, the value added in this study is the proportional value of small industries. Botana & de Oliveira Costa (2014) define that the practice of the Micro and Small Business (UMK) industry depends on the management model and business feasibility. From a global scale perspective, the activities of the Small and Medium Enterprises (SME) industry are based on separate sides, where each pattern has limited knowledge and different explorations (Nimfa et al., 2021). O'Farrell & Hitchens (1988) understands that small industries must meet the conditions in market competition such as stochastic and growth models. From a different perspective, Wijaya et al. (2022) describe concrete evidence in Indonesia which has experienced a financial crisis. In 1998, Micro, Small and Medium Enterprises (MSMEs) remained strong even though the Indonesian economy was currently in a slump. In fact, MSMEs remain consistent in absorbing labor and giving birth to new business opportunities every period.

The added value of the industry has strengthened the openness of trade routes in Bangladesh. From 1981 to 2015, import substitution and export promotion showed a positive increase (Ali et al., 2016). After 'World War II', the credit system supported the industrialization of Italy's growth. The industrialization process benefits strong long-term prospects. Credit experience also encourages value added industry in Italy (Rota, 2013).

Svilokos et al. (2019) examines the determination of the financial sector towards industrialization in Eastern and Central European countries. Reindustrialization is a key policy to stimulate the growth of better living standards in the European Union. During the crisis in the last decade, it successfully improved the manufacturing sector through the role of the financial sector. In the case of developing regions such as Indonesia, the added value of the market in the industrial sector is also increasing rapidly because of the increase in the effect of financial services (Ali, 2018). Acuña-Opazo & González (2021) highlight the determinants of the direct impact on value added production and financial performance in home industries, where intellectual capital is a critical success element. The uneven allocation of capital in the industrial sector in China results from the emergence of new industries that have competitive differences. During the transition period, the new industry has a structural advantage. The promotion of financial credit, capital support, and technological innovation only pushes the manufacturing industry to financial agglomeration, but actually inhibits the 'reverse' degree of financial efficiency (Zhang et al., 2019). Nevertheless, it is logical and reasonable to propose the following hypothesis:

H3 (hypothesis 3): an increase in value-added will significantly improve the total credit.

H4 (hypothesis 4): an increase in value-added will significantly improve financial services.

### 2.4. Financial Services

Given that service companies' compliance in saving money is higher in regulations, tightening financial services helps international finance to be competitive (Michael et al., 2021). In the 'traditional theory of intermediation', financial services are based on asymmetric information and transaction costs. Financial institutions channel funds to companies, take deposits, and issue insurance policies (Allen & Santomero, 1997). Given its very potential role, Song et al. (2020) pays attention to the difficulties faced by SMEs in terms of capital. Financial service providers as a crucial tandem for SME financing through

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the main capital channel. From the context of ‘expectancy theory’, a strategic framework for credit operations is proposed. In the regional context, the existence of the industry is bridged by the inclusion of financial services (Jaya, 2019).

Bilan et al. (2019) summarize the interactions between market participants and the nature of finance on a global scale. Loans, development of alternative finance, and raising money through online platforms are possible because of the impact of virtualization. The investigation resulted in an important finding that financial inclusion directly supported the volume of alternative financing. Regulations and modern information technology support the progress of alternative financial markets. In his most recent publication, Murray et al. (2017) emphasized that financial executives created a moral hazard. A key factor during the Great Recession that rocked the US resulted in a crisis of confidence in the financial services industry. In addition, macroeconomic risks to the sensitivity of the banking industry on the US financial market stem from the construction of uncontrolled risks. Basically, the banking industry knows the risk delinquency it faces (Nugroho, 2011). Bank credit losses during 2005-2008 also weakened the industrial sector.

Of the ten developing countries in Asia, industrial growth depends on the structure of financial markets. Comparison of alternatives from structural and non-structural approaches emphasizes that bank concentration can slow down industry growth. In summary, careful consideration of endogeneity, financial dependence, and institutional factors to merge regulatory authority (Khan et al., 2016). For countries in the OECD and the European Union, the probability model is that a banking crisis will occur based on the experience of added tax on value added financial services (Peña, 2020). Alagidede et al. (2020) conclude that twenty-eight countries in sub-Saharan Africa are integrating finance and trade to significantly spur value added in the financial services sector. In fact, structural transformations complement each other between the financial and trade dimensions. According to Daway-Ducanes & Gochoco-Bautista (2019), during 1984-2013, the growth of the industrial sector advanced because of the invasion of financial development in seventy-seven developing countries. It should be noted, however, that financial measures and manufacturing services experienced a crisis of financial scale, where financial expansion weakened investment in the long term. It stated the next hypothesis orientation:

H5 (hypothesis 5): an increase in financial services will significantly improve total credit.

H6 (hypothesis 6): an increase in financial services will significantly improve the value-added.

### 3. Method and Measurement

To measure the intensity of the MSME industry in the credit, financial, and added value sectors of the SDGs, we used a quantitative approach with time-series data collected through performing the Indonesian government in developing MSMEs during the 2011-2019 period. ~~We~~The focus on these data on the achievement of the SDGs, especially on the 8<sup>th</sup> pillar “enhancing inclusive and sustainable economic growth, productive, comprehensive employment opportunities, and decent work for all”. To avoid multiple interpretations, ~~we~~Table 1 defined the 3 aspects ~~shown in Table 1~~.

Table 1. Explanation of the Data

Goal	Definition	Specificity of indicators	Function	Role	Effort
The proportion of MSME credit to total credit.	MSME credit is all provision of money or equivalent bills in	According to Bank Indonesia regulations, the	The MSMEs affordability proxy for	Republic of Indonesia Presidential	Business support system

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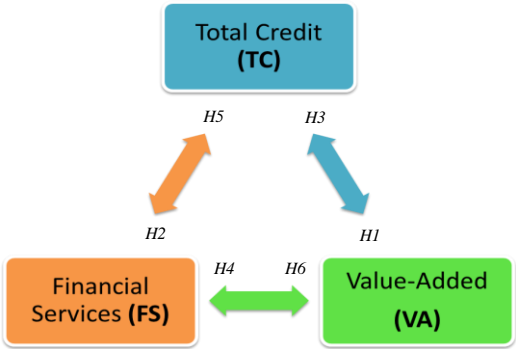
	Rupiah (IDR) and foreign currency, based on loan agreements or agreements between reporting banks and banks and non-bank third parties that meet business criteria under applicable MSME regulations. Credit with certain guarantees is part of MSME credit. Credit with certain guarantees is credit or financing or equivalent claims based on the loan and loan agreement between the bank and the debtor that is guaranteed by the guarantee company with certain criteria.	MSME credit ratio is required to be at least 20% of total credit. The higher the ratio, the better the assessment.	access to finance.	Regulation No. 59 of 2017 concerning "increasing the expansion of access to capital and financial services through strengthening financial services until 2019".	development program for MSMEs.
Percentage of MSME access to financial services.	Financing facilities that MSMEs can access, especially those with decent but not bankable businesses. It is intended for those who have good business prospects and can return. MSMEs are expected to access credit that is engaged in productive business sectors such as agriculture, fisheries and marine, industry, forestry, and savings and loan financial services. Something can do directly lending, meaning that MSMEs can directly access loans at branch offices or executing bank offices.	Growth of the MSME class level.	To get closer to the service to small businesses, <del>they</del> <u>entrepreneurs</u> can also do indirectly MSME credit distribution. This means that <del>they</del> <u>entrepreneurs</u> can access MSME credit through Microfinance Institutions (LKM), cooperatives, and through other linkage program activities in collaboration with implementing banks.	Access to formal financial services for MSMEs is 25% in 2019 (2014: 17.8%).	Creative economy development program.
The proportion of value-added of small	The small industry is a processing industry business that has a	Development of added value and production	This is to determine the contribution	Nothing	Industrial technology capability

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industries to total industrial added value.	workforce of 5 to 19 people, including owners and family workers. The added value of small industries is the total value of final goods and services (reduced output with intermediate inputs) produced by small industries.	chain of regional manufacturing industries (small, medium, and large industries).	of small industries to the total contribution of industrial added value.		improvement program.
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Source: BPS-Statistics of Indonesia (2020a, b) and Bank of Indonesia (2020).

Figure 2. Steps of the Proposed Model



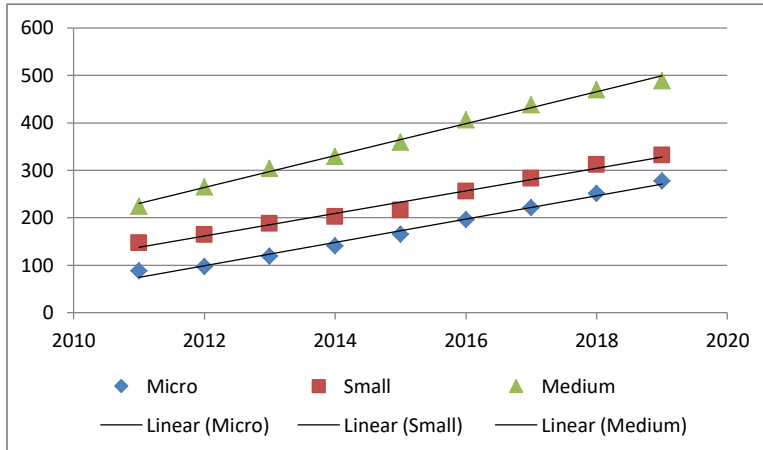
Note: hypothesis-1 and hypothesis-2 (H1, H2) are thought to have a positive correlation between TC against VA and FS, hypothesis-3 and hypothesis-4 (H3, H4) are thought to have a positive correlation between VA against TC and FS, then the hypothesis-5 and hypothesis-6 (H5, H6) presumably there is a positive correlation between FS against TC and VA.

Objectivity in answering the paper's objectives and hypotheses is by adopting basic statistics from Gujarati (2012) so that we concentrate on looking at the influence between total credit (TC), added value (VA), and financial services (FS). Three analytical tools highlighted the attainment of the relationships between these variables based on parametric correlation methods (Bayesian, Pearson, and one-sample tests) and non-parametric correlation (Kendall's and Spearman's). In order to facilitate the presentation of the analysis, we presented it through the SPSS 25 software. Figure-Fig. 2 summarizes the framework for the research model. This series of explanations is translated through the process of data used from related sources. The data set in the paper is determined by the value of each variable in Figure-Fig. 3, Figure-Fig. 4, and Figure-Fig. 5.

Figure 3. Proportion of MSMEs to Total Credit in Indonesia, 2011-2019 (IDR Trillion)

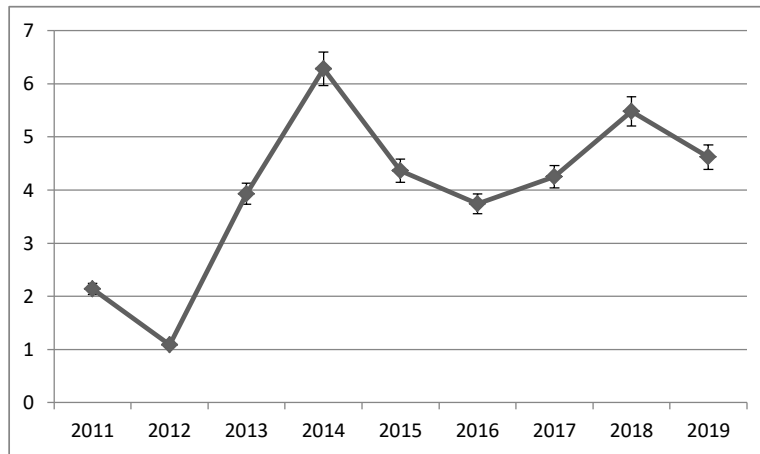
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Source: BPS-Statistics of Indonesia (2020a).

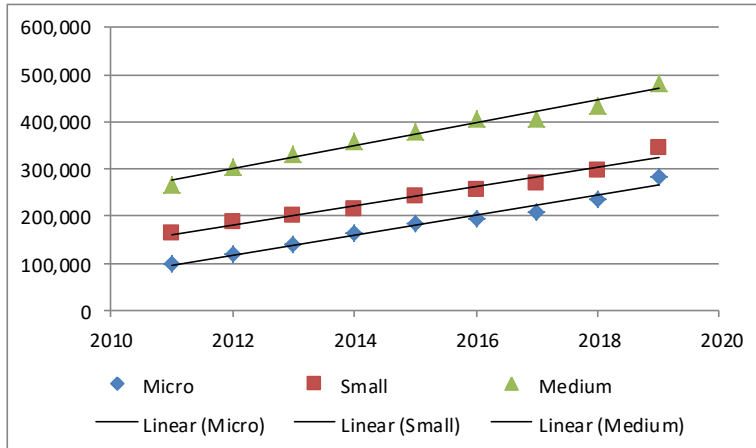
Figure 4. Proportion of Value-Added of Small Industries to Total Industrial Value-Added in Indonesia, 2011-2019 (%)



Source: Bank of Indonesia (2020).

Figure 5. Position of Access to MSMEs Credit at Banks in Indonesia, 2011-2019 (IDR Billion)

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Source: BPS-Statistics of Indonesia (2020b).

#### 4. Results

Table 2 shows the comparison of the TC, VA, and FS variables, which have a different minimum, maximum, mean, standard deviation, skewness, and curve scores. Of the three, FS was the most dominant, but the kurtosis value was negative and skewness was negative. Conversely, VA had a negative skewness gain, but specifically for kurtosis, it was the highest (positive). The TC, where the skewness value is positive, also showed another diversity, but the kurtosis result is the lowest or minus value among the others.

Table 2. Descriptive Statistics (n = 9)

Var.	Min.	Max.	Mean	Std. dev	Skewness	Kurtosis
TC	458.16	1098.14	770.6878	225.46143	.120	-1.359
VA	1.09	6.28	3.9878	1.57972	-.610	.372
FS	526397.00	1107240.00	796352.66	181771.99	.211	-.379

Source: analyzed by SPSS.

Descriptive statistics aim to provide information about the performance of a process. Statistical information that summarizes as a whole with quantitative data describes and presents the features of a collection of information (Hussain, 2012). At least, the results in this descriptive statistic are considered ideal.

Table 3 clearly details the parametric correlation to determine how much influence the variables that have been determined through Pairwise or Bayes, Pearson, and the one-sample test. Generally, Hopkins et al. (2018) explained that this correlation can show the strength of a linear relationship between two variables. In practice, sometimes the data used will produce a high correlation, but the relationship is not linear, or vice versa, the correlation is low but the relationship is linear. The correlation characteristics range from 0 to 1, so the correlation can be classified as a positive slope position or a negative slope.

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Table 3. Resume of Pairwise and Pearson Correlations (n = 9)

Var.	Explanation	TC (Model-1)	VA (Model-2)	FS (Model-3)
TC	Bayes factor	.	.989	.000
	Pearson	1	.589*	.984**
	Sig. (1-tailed)	.	.048	.000
	Covariance	50832.855	209.733	40338558.43
VA	Bayes factor	.989	.	.915
	Pearson	.589*	1	.602*
	Sig. (1-tailed)	.048	.	.043
	Covariance	209.733	2.496	172721.798
FS	Bayes factor	.000	.915	.
	Pearson	.984**	.602*	1
	Sig. (1-tailed)	.000	.043	.
	Covariance	40338558.43	172721.798	3.304E+10

Source: analyzed by SPSS, Standard errors: \*p<0.01, \*\*p<0.05.

The result can be described as the strength of the relationship between the two variables and see the direction of the relationship. Based on the Bayes factor and Pearson correlation, TC and VA are very strong and unidirectional. Meanwhile, the relationship between TC and FS is less strong but still unidirectional. The two relationships that address the VA and TC are very strong and unidirectional. Between VA and FS is also similar which is shown by very strong and unidirectional results. Then, the FS against the TC results are less strong, but still in the same direction. Then, FS and VA are very strong and unidirectional.

Table 4. One-Sample Test (df = 8)

Var.	t	Sig. (2-tailed)	Mean Difference	Lower	Upper
TC	10.255	.000	770.68778	597.3828	943.9928
VA	7.573	.000	3.98778	2.7735	5.2021
FS	13.143	.000	796352.5556	656630.2338	936074.8773

Source: analyzed by SPSS, Standard errors: p<0.05.

The provision of the one-sample test (t-test method) is an important procedure for a single sample so that the average of these three variables can be compared with a certain constant value (e.g. Gerald, 2018; Cicchitelli, 1989). This requirement is necessary because the observation data in this paper are below thirty. Identification of the one-sample test requirement because the data is quantitative data and fulfills assumptions that are normally distributed. The calculation of the two-way relationship between TC, VS, and FS is significant and the data is spread normally, where the p-value of these three variables is more than 5% or p < 0.05 (see Table 4).

Furthermore, a non-parametric statistical test with Kendall correlation and Spearman correlation is required. According to Fan et al. (2013), the function of the two correlations is similar, namely to analyze data that has ordinal scale characteristics, the hypothesis proposed by the associative hypothesis, and the data do not have to be normally distributed, so it is very suitable for this study.

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Table 5. Resume of Kendall and Spearman correlations (n = 9)

Var.	Explanation	TC (Model-1)	VA (Model-2)	FS (Model-3)
TC	Kendall's tau_b	1.000	.444*	1.000**
	Sig. (1-tailed)	.	.048	.
	Spearman's rho	1.000	.617*	1.000**
	Sig. (1-tailed)	.038	.	.038
VA	Kendall's tau_b	.444*	1.000	.444*
	Sig. (1-tailed)	.048	.	.048
	Spearman's rho	.617*	1.000	.617*
	Sig. (1-tailed)	.038	.	.038
FS	Kendall's tau_b	1.000**	.444*	1.000
	Sig. (1-tailed)	.	.048	.
	Spearman's rho	1.000**	.617*	1.000
	Sig. (1-tailed)	.	.038	.

Source: analyzed by SPSS, Standard errors: \*p<0.01, \*\*p<0.05.

In Kendall's and Spearman's test in parametric correlation, the conclusion is that there is a fairly close relationship and delivery between TC to VA and FS. Likewise, for VA, the TC and FS are quite close and submissive. The successes of FS against TC and VA are presented in Table 5 on their perfect and delivery relationships.

## 5. Discussion

The achievement of these positive results is certainly inseparable from the MSME sector in Indonesia which plays an important role in absorbing labor. In addition, MSMEs also support the welfare of the middle and lower-income population, so that efforts to avoid unemployment and poverty levels can be pursued with long-term development plans in the SDGs document. Assistance to access to capital, such as access to loans and credit with low-interest rates, is the key to consistently generating added value to the industry. Explicitly, Table 6 illustrates the tremendous impact of the growth of MSMEs by type on the increase in the labor force in Indonesia over 4 periods. The average number of micro-businesses in 2015-2018 reached 61,210,672 units, while small businesses were 726,948, and medium enterprises were 58,786. The types of MSMEs that open the most jobs on a small scale are 6,061,288 workers.

Table 6. MSMEs and Labor Absorption in Indonesia, 2015-2018 (Units and People)

	Micro	Small	Medium	LB_1	LB_2	LB_3
2015	58,521,987	681,522	59,263	110,807,864	7,307,503	5,114,020
2016	60,863,578	731,047	56,551	103,839,015	5,402,073	3,587,522
2017	62,106,900	757,090	58,627	107,232,992	5,704,321	3,736,103
2018	63,350,222	738,132	60,702	107,376,540	5,831,256	3,770,835
Average	61,210,672	726,948	58,786	107,314,103	6,061,288	4,052,120

Source: Ministry of Cooperatives and SMEs of Republic of Indonesia (2020), Note: LB is labor force.

At least, the success for MSMEs in Indonesia is indicated by dependence on the micro-scale, now it has shifted to the small and medium scale. This positive transformation is also driven by government

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**Comment [A5]:** Results discussion should be extended with some more foreign comparison.

**Reply:** Corrections are accepted by the authors by extending and comparing previous publications in 5<sup>th</sup> – 8<sup>th</sup> paragraphs.

programs that have direct contact to facilitate MSME actors with the conveniences of financial services available through effective and efficient regulations.

The concept of linking the commercial process of risk management to the competitiveness of SMEs that considers innovation and potential contribution to the SDGs is of the utmost importance. This commercial procedure is a prerequisite for managing any risks faced by SMEs. Žigiene et al. (2019) added that a rigorous evaluation is needed for commercial risks so that technology can also be maintained as an external service for SMEs. Having the benefits and costs gained allows them to prioritize a framework based on data sources, phases of work, and commercial risks.

Provisions for the implementation of the United Nations' universal 2030 agenda to move the business forward based on an economic model that must think about sustainable growth. The need for human survival cannot be met with "macroeconomics" by focusing only on "macroeconomic" issues but must consider and be oriented towards social welfare and individual welfare (Valero-Matas & De la Barrera, 2020). Rubio-Mozos et al. (2019) prioritize all changes in SMEs with transition period management and several innovative movements. Without any significant difficulties, entrepreneurs have provided outputs from the perspective of driving the SME sector. By involving the "ecosystem", of course, can build SMEs and contribute significantly to the SDGs.

In Brazil, the national tax balance capital has implications for supply chain credit for informal enterprises. The collective growth of the company's production depends on sources of capital, such as credit (de Paula & Scheinkman, 2010). On the other hand, Ekinici & Poyraz (2019) found that performing foreign banks, private banks, and state-owned banks operating in Turkey is determined by credit risk. The impact in the last thirteen periods has been negative, where credit risk management can be minimized by financial aspects such as Return on Equity (ROE) and Return on Assets (ROA).

Fisman & Love (2013) commented that financial markets are more effective for economic growth. It allocated an alternative source of funds for less developed financial markets through implicit loans as trade credits. In countries that have weak financial institutions, it shows a high dependence on credit financing. The inflow of foreign investment (FDI) in Indonesia during 2015-2019, played a dual function to grow the added value of the industry. Simultaneously, capital accumulation increases. However, the added value of the micro industry is still small because of the low level of competitiveness (Canes et al., 2021).

Ozili (2018) discusses the financial literature for stabilizing financial inclusion that is beneficial for governments and financial providers. The security of digital-based financial services can have fatal consequences if monitored by regulations.

Regulations for the opening of the financial services industry influenced the volume of domestic exports in the manufacturing industry in China. Since investment in services by foreign finance entered China, manufacturing industry exports have continued to transform and expand the domestic export market (Wang & Fu, 2021).

## 6. Conclusion

This paper has presented an excellent projection based on statistical methods with parametric and non-parametric correlation tests to compare the relationship between total MSME credit, industrial value-added, and financial services for MSME loans in one direction and two directions. As a result, the three variables are closely related or have a positive correlation. In addition, the one-sample test also tests the

**Comment [A6]:** In the conclusion section. The author should add practical recommendations, study limitations, and future study directions.

**Reply:** Practical recommendations, study limitations, and future study directions have been comprehensively expanded.

feasibility of the values of TC, VA, and FS significantly with the specified number of samples, so that the basic assumptions are fulfilled and the data is normally distributed.

The 8<sup>th</sup> pillar in SGDs allows these three indicators to increase the role of MSMEs. Of course, adequate support from the government, the private sector (including entrepreneurs), and the banking sector is a fantastic frame of reference regarding financial aspects (capital assistance, access to credit, and added industrial value), making it easier for MSMEs to receive guarantees. Practical recommendations require coordination among various financial instruments in Indonesia to explore and place great attention on the independence of MSMEs. The government must also be involved in improving the performance of MSMEs through comprehensive policy responses.

There is no similar study that discusses the determination of SDGs in encouraging the progress of MSMEs in Indonesia empirically. Of course, it is hoped that researchers who concentrate on the development of MSMEs, to make these findings a reference for future studies. This expectation is also in line with correcting deficiencies in this paper limitations, so it is necessary to expand the method by adding observations, considering analysis tools, and the various components used to make it more varied. Future studies need to highlight aspects of financial services outside of banking in their role in stimulating capital credit.

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**Acknowledgements and Funding:** The authors received no specific grant for this study.

**Contribution:** The authors contributed significantly to this study.

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