



# Financial inclusion, operating costs, and entrepreneurial traits; Gender-based insights into MSME financial performance in Indonesia

*Inclusión financiera, costos operativos y rasgos empresariales; perspectivas de género sobre el desempeño financiero de las MIPYME en Indonesia*

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## Abstract

This study investigates the unique effects of financial inclusion, operating costs, and entrepreneurial characteristics on the financial performance of micro, small, and medium enterprises (MSMEs) in Indonesia, with a specific focus on gender-based analysis. Using a 2023 sample of 292 MSMEs across 29 Indonesian provinces, this research incorporates a diverse and extensive dataset to enhance the understanding of MSME dynamics. Structural Equation Modeling (SEM) was employed to analyze the relationships among the variables. The findings reveal that financial inclusion, operating costs, and entrepreneurial characteristics significantly enhance MSME financial performance, with no notable performance differences between male-led, female-led, or jointly managed businesses. These results provide insights into achieving equitable and optimal MSME financial performance and inform strategies to enhance women's roles in Indonesia's economy.

*JEL Code:* L26; G21; J16

*Keywords:* gender diversity; msme performance; financial inclusion; operational costs; entrepreneurial characteristics

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## Resumen

Este estudio investiga los efectos únicos de la inclusión financiera, los costos operativos y las características empresariales en el desempeño financiero de las micro, pequeñas y medianas empresas (MIPYMES) en Indonesia, con un enfoque específico en el análisis basado en el género. Utilizando una muestra de 2023 de 292 MIPYMES en 29 provincias indonesias, esta investigación incorpora un conjunto de datos diverso y extenso para mejorar la comprensión de la dinámica de las MIPYMES. Se empleó el Modelo de Ecuaciones Estructurales (SEM) para analizar las relaciones entre las variables. Los hallazgos revelan que la inclusión financiera, los costos operativos y las características empresariales mejoran significativamente el desempeño financiero de las MIPYMES, sin diferencias notables en el desempeño entre empresas lideradas por hombres, lideradas por mujeres o gestionadas conjuntamente. Estos resultados brindan información para lograr un desempeño financiero equitativo y óptimo para las MIPYMES e informan las estrategias para mejorar el rol de las mujeres en la economía de Indonesia.

*Código JEL:* L26; G21; J16

*Palabras clave:* Diversidad de género; desempeño de las MIPYMES; inclusión financiera; costos operativos; características empresariales

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## Introduction

The relationship between democracy and gender equality shows that the more democracy develops in a country, the greater the opportunity to achieve gender equality which can ultimately increase diversity in various sectors, including corporate leadership (Alonso & Lombardo, 2018). Gender diversity at the top of corporate leadership is currently a trend that continues to attract the attention of academics and policy makers (Moreno-Gómez et al., 2018). Based on research conducted in India by Ali & Shabir (2017), it was stated that companies owned by women tend to experience lower sales growth, job creation, and productivity compared to companies owned by men, while other research in Spain actually stated the opposite that gender diversity, especially the role of women, actually improves the company's financial performance (Reguera-Alvarado et al., 2017). Therefore, although gender diversity is very relevant in the ranks of directors and top management in developed countries, many studies have shown less convincing results regarding the relationship between gender diversity and business performance. (Tran et al., 2023). This condition is in contrast to developing countries which until now have not discussed much about the influence of gender diversity on business performance, however, research conducted in developing countries tends to support the influence of gender diversity on business performance, especially MSMEs (Tran et al., 2023).

In Indonesia, regulations regarding women's representation in the board of directors are regulated through Law No. 7 of 2017 concerning General Elections and the Regulation of the KPU (General Election Commission). Article 241 of Law No. 7 of 2017 states that political parties must ensure that at least 30% of their legislative candidates are women. This also occurs in the Netherlands with a

proportion of women's involvement of 30% and in Norway with 40% (Tran et al., 2023). Although there are legal provisions regarding women's representation, their implementation and achievements in the field often face challenges. Several studies have shown that despite an increase in the number of women elected, they often still face difficulties in obtaining higher and more influential positions of power in legislative institutions, one of the causes of which is gender stereotypes and social norms that still apply can limit women's opportunities to advance in leadership careers (Pham & Hoang, 2019). Therefore, gender equality activists expect equality to occur in all aspects of society, including the economic sector, especially the business sector (Ozili, 2024).

According to Japhta et al. (2016), the number of MSMEs in Indonesia founded/managed by women is 64%. On the other hand, MSMEs are very important for the economic development of a country because they contribute 60.5% to Gross Domestic Product (GDP). Moreover, MSMEs also play an important role in absorbing labor. As much as 96.9 percent of the total absorption of labor in Indonesia comes from micro, small, and medium enterprises. Therefore, it can be said that the role of women in participating in efforts to improve the country's economy is very large (Rahman Bayumi et al., 2022).

Performance is a tool that is widely used to represent the level of business success (Kusuma Ningrum et al., n.d.). Business performance is divided into several perspectives such as financial perspective, customer perspective, internal business perspective, and learning & growth perspective (Herlinawati et al., 2019). However, in this study, the business performance measured focuses on the financial perspective which is described by the ability of MSMEs to generate business profits. The theory used to explain this phenomenon is the Resource Base View (RBV). RBV theory is used to explain the relationship or relationship between company resources and business performance (Konstantinos Kostopoulos et al., 2010). Based on RBV theory, this theory focuses on understanding the potential of resources and organizational capabilities. According to Konstantinos Kostopoulos et al. (2010) resource dimensions include tangible resources and intangible resources. The variables offered to represent this theory are financial resources represented by the variables of financial inclusion and operational costs, technical resources and intangible resources represented by the variables of entrepreneurial characteristics. Several previous studies also support the influence of the factors proposed by the theory. Research conducted by Octasyilva et al., (2022) and Ozili (2024) shows that financial inclusion or the level of access and use of financial products as a source of funding is an important factor that can influence business performance. Another factor that is also important in improving business performance is operational costs. Without targeted operational activities, the products produced will not be beneficial to the company. The increasing activity of the company will increase the costs incurred for the company's operations. If the company can reduce or minimize production costs and operational costs, there will be an increase in net profit which of course has an impact on business performance (Y. Casmadi & Azis, 2019). Other studies

suggest the influence of intangible resources defined by entrepreneurial characteristics variables on business performance. This was later proven by (Sari et al., 2016) who stated that entrepreneurial characteristics have a significant influence on MSME performance.

Many studies related to MSME performance have been conducted previously, both in provinces in Indonesia and MSMEs abroad. However, from the many studies that have been published, there are still several shortcomings related to the factors that influence MSME performance, including: limited data used in terms of quantity, quality, and diversity of data; limited context, some studies may only focus on MSMEs in certain regions or sectors, so that the generalization of findings to the MSME population as a whole can be limited; not many studies have specifically examined MSMEs founded/managed by women and less careful mixing variables which cause the research results not to fully reflect the impact of the factors studied (Benneth Uchenna et al., 2019). By recognizing these shortcomings, this study is expected to overcome the existing obstacles to provide a deeper and more accurate understanding of the factors that influence MSME performance and their implications for business practices and policies.

The purpose of this study is to identify factors that influence the performance of MSMEs, especially in generating profits. To achieve this goal, based on existing theories, researchers then try to apply and investigate whether the factors that have been selected as independent variables such as financial inclusion, operational costs and entrepreneurial characteristics have an influence on the performance of MSMEs in Indonesia based on gender groups. This research study is limited to data from MSMEs in Indonesia that are established and/or managed based on gender. Future studies can investigate this relationship with larger companies and in a wider geographical context. Therefore, it is hoped that this study can contribute by providing an in-depth study related to analyzing the factors that influence the performance of MSMEs as an effort to improve their capabilities. In addition, this study is also expected to be able to provide more contributions to the government as policy makers in making decisions as an effort to maximize the involvement of all genders fairly in improving the Indonesian economy.

## **Literature review and hypotheses development**

### *MSME performance*

Performance is one of the indicators used to determine the level of achievement of results from an organization which is of course related to the vision and mission of the organization (Octasyilva et al., 2022). According to Anastasya (2023) performance is the result of work both in terms of quality and quantity which has been achieved by an employee in carrying out their duties and responsibilities. Business performance is included in the components of organizational effectiveness, including market

and financial indicators (Srhoj et al., 2021) The performance of MSMEs in Indonesia can be seen based on added value, business units, productivity, workforce, and export value (Mohammad et al., 2019). Added value is the performance of the Indonesian economy generated by small and medium enterprises this year compared to last year. The business unit is the sum of the business units they have and are spread throughout Indonesia. In addition, the workforce is the sum of the workforce, productivity, or performance available in a business unit and finally MSME exports refer to products exported abroad and the comparison of the number of exports from year to year which is of course expected to continue to increase.

According to Herlinawati et al. (2019) business performance is measured using the Balanced Scorecard concept which includes four perspectives, namely financial perspective, customer perspective, internal business perspective, and learning & growth perspective. In this study, the performance measurement perspective used is the financial perspective where performance is measured using the profitability generated by MSMEs in the form of gross profit and net profit and their ability to meet their obligations to pay their liabilities. According to Fitriati et al. (2020) good business performance is expressed in three main dimensions, namely sales value indicated by unit profit, sales growth indicated by increased product sales, and market share indicated by product contribution to market dominance which will ultimately generate profits for the company.

Based on several opinions that have been explained, it can be concluded that business performance, especially MSMEs, is the result of the parties involved in management consistently and is the result of decisions by many individuals to achieve common goals.

### *The influence of financial inclusion on MSME performance*

Financial inclusion is a concept that has now been recognized by many countries as a form of effort to stimulate growth and reduce poverty levels (Rini & Rahadiantino, 2023). Financial inclusion in particular plays an important role in efforts to improve the performance of Micro, Small, and Medium Enterprises (MSMEs). MSMEs that have strong financial inclusion can certainly access many financial services such as savings, insurance, banking services, loans, and other financial transactions (Asuming et al., 2019). When financial access increases, such as the amount of access or the frequency of funds that can be obtained, it can support the creation of opportunities in the form of increased value creation from these MSMEs (Purwanto et al., 2022). This certainly provides opportunities for MSMEs in the process of developing their businesses, increasing production, and the ability to create new jobs.

Financial inclusion can also certainly help in managing financial risks that arise in their business. The better access that MSMEs have to financial sources can provide opportunities for MSMEs to invest, innovate, improve technology, carry out employee training, where these efforts need to be made to

improve the competitiveness and long-term performance of MSMEs. Based on previous researchs (Febriana, 2021; Hilmawati & Kusumaningtias, 2021; Ratnawati, 2020; Sanistasya et al., 2019; Septiani & Wuryani, 2020; Zulkieflimansyah et al., 2020) it is stated that there is a positive influence between financial inclusion and MSME performance and financial inclusion acts as a catalyst for MSME growth, so the hypothesis we propose is:

H1: Financial inclusion has a significant positive effect on MSME performance.

### *The influence of costs on MSME performance*

The relationship between costs and performance of Micro, Small, and Medium Enterprises (MSMEs) is a crucial aspect that can affect the competitiveness and sustainability of a business. Operational costs, which include expenses such as raw material costs, labor wages, rent, and utilities, play a key role in determining the efficiency and profitability of a business (Y. Casmadi & Azis, 2019). In the context of MSMEs, good operational cost management is expected to increase business efficiency, optimize production, and ultimately increase profitability. Conversely, uncontrolled or excessively high operational costs can reduce profit margins, reduce competitiveness, and reduce the overall financial performance of MSMEs. Therefore, the relationship between operational costs and MSME performance is important to understand empirically.

Based on the literature review and financial management theory, the hypothesis that can be developed is that operational costs have a significant influence on MSME performance. Specifically, this hypothesis can be developed in two directions: first, that increasing operational costs that are managed effectively can improve the quality of production, services, and business growth, which ultimately improves MSME performance. Second, inefficient or excessively high operational costs can hinder business growth and reduce profitability. Thus, empirical testing is needed to determine whether there is a significant positive or negative influence between operational costs and MSME performance, and how MSMEs can manage these costs to achieve optimal performance. Based on previous researchs (Afiani & Wijaya, 2024; Aprilyana & Nugroho, 2020; Ismail, 2023; Y. Casmadi & Azis, 2019; Zandra, 2016) it was revealed that there is a positive influence between operational costs and business performance which is described through the increase in profits generated. However, research conducted by (Badriah, 2020) actually has the opposite opinion, namely that operational cost efficiency does not have a significant effect on operating profit. With the gap between several studies, but when viewed based on several previous studies, the Resource Base View (RBV) theory and cost theory emphasize that there is an intrinsic relationship between effective cost management and MSME performance, so the hypothesis we propose is:

H2: Costs have a significant positive effect on MSME performance.

### *The influence of entrepreneurial characteristics on MSME performance*

Entrepreneurial characteristics have a significant influence on MSME performance.

Entrepreneurship is often identified through dimensions such as innovation, proactivity, and risk-taking. Previous research shows that the stronger the entrepreneurial characteristics possessed by MSME owners or managers, the greater their chances of driving better business performance, especially in facing market challenges. This is supported by the resource-based theory of the firm, which states that competitive advantage and superior performance come from the firm's specific resources and capabilities.

Entrepreneurial characteristics certainly have a significant impact on the performance of Micro, Small, and Medium Enterprises (MSMEs). These entrepreneurial characteristics include the number of workers and especially the number of experts owned by MSMEs, which will certainly have an impact on risk management, creating innovation, and reading market opportunities, all of which have an important role in efforts to improve MSME performance. Workers or experts who are proactive, adaptive, and persistent are certainly more capable of overcoming various forms of business challenges, developing products, and of course expanding market share. In addition, recent research has also found that entrepreneurial characteristics play an important role in increasing the capacity to absorb innovation and new knowledge (absorptive capacity), which in turn strengthens MSME performance. This ability allows MSMEs to assimilate and apply new information quickly, which is very important in a competitive business environment (Octasyilva et al., 2022). Based on previous researches (Dhamayantie & Fauzan, 2017; Iskandar et al., 2020; Kasanah & Franksiska, 2017; Ludiya et al., 2020; Octasyilva et al., 2022; Sari et al., 2016) suggest that there is a positive influence between entrepreneurial characteristics described by business characteristics and business management characteristics on MSME performance. Thus, the hypothesis we propose is:

H3: Entrepreneurial characteristics have a significant positive effect on MSME performance.

## **Research method**

The research design used in this study is a quantitative method that is associative causal, namely research that aims to determine the relationship between two or more variables (Sugiyono, 2017). This study also conducted a multigroup analysis to determine the differences in the influence of each variable based on gender. The data we use is secondary data obtained from the results of a survey by the PT. Indonesian Credit Guarantee (Jamkrindo) institution on MSMEs in Indonesia in 2023.

In this study, two control variables were used, namely business scale and business sector. These control variables are used to control other factors that can affect the results, so that it can ensure that the measured influence comes from the independent variable, not from other factors.

The population in this study was Micro, Small, and Medium Enterprises (MSMEs) owned and/or managed by women in Indonesia. The sample in this study was taken using the purposive sampling method. The number of samples used in this study was 292 MSMEs with various business fields. This study uses the Structural Equation Modeling (SEM) method and the resulting data is then processed using SmartPLS with a formative model. The following is an explanation of the variables used in the study.

Table 1  
Variable and Measurement

No	Latent Variables	Indicators	Penelitian Terdahulu
1	MSME's Performances	Net profit (Y1.1) Gross profit (Y1.2) Profits are used to increase capital (Y1.3)	(Octasyilva et al., 2022; Rita et al., 2021, 2022)
2	Financial Inclusion	Number of credit cards (X1.1) Account ownership (X1.2) Loan (X1.3)	(Dharmawan Buchdadi & Sholeha, 2020; Martono & Febriyanti, 2023a; Maulana et al., 2022; Rita et al., 2021)
3	Operational Cost	Cost of goods sold (X2.1) Operating costs (X2.2)	(Afdhal Chatra Perdana et al., 2023; Martono & Febriyanti, 2023b; Meafrida et al., 2021; Pasaribu & Hasanuh, 2021)
4	Entrepreneurial Characteristics	Number of experts (X3.1) Total manpower (X3.2) Business age (X3.3)	(Dhamayantie & Fauzan, 2017; Iskandar et al., 2020; Ludiya et al., 2020; Sari et al., 2016)
5	Business Scale Business Sector	Control Variables	

### *Validity and reliability test*

Table 2  
Validity and reliability test

Item	Loading Factor	Average variance extracted	Composite reliability	Cronbach's alpha
X1.1	0.884			
X1.2	0.828			
X1.3	0.820	0.713	0.813	0.799
X2.1	0.912			
X2.2	0.929	0.847	0.826	0.820
X3.1	0.847			
X3.2	0.898			
X3.3	0.849	0.749	0.835	0.832
Y1.1	0.868			
Y1.2	0.913			
Y1.3	0.861	0.776	0.857	0.855

Table 2 shows the results of the validity and reliability test of the research instrument. Based on the loaded factors, all research items, including financial inclusion, operational costs, entrepreneurial characteristics, and MSME performance, are declared valid and meet the minimum requirements, namely the loaded factor is equal to or more than 0.7 (Hair, 2019). If the loading factor is less than 0.7, then the item must be removed from the data analysis. In addition, the average variance extracted also illustrates that all variable indicators meet the convergent validity criteria and are also concluded to be reliable based on the Cronbach's alpha value and composite reliability.

### **Result and discussion**

In this study, the analysis was conducted on two groups based on gender, namely MSMEs owned and/or managed by women, men, and managed jointly by both men and women in Indonesia. Based on the data analysis, this study revealed that there is a significant positive correlation between financial inclusion, operational costs, and entrepreneurial characteristics on MSME performance.

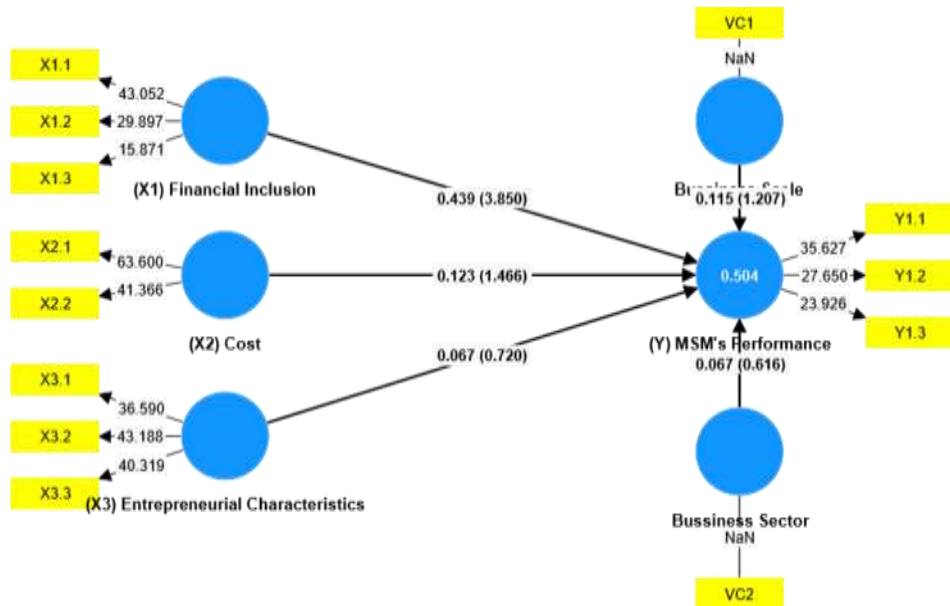


Figure 1. Inner model

Table 3  
 Research findings

	All	Group 1 (Male)	Group 2 (Female)
Direct effect of Financial Inclusion on MSME Performance			
Path coefficient	0.486	0.306	0.439
t-statistics	5.413	4.812	3.850
p-value	0.000	0.000	0.000
Sample size	584	292	292
Direct effect of Operational Cost on MSME Performance			
Path coefficient	0.172	0.003	0.123
t-statistics	3.692	2.320	2.466
p-value	0.011	0.034	0.014
Sample size	584	292	292
Direct effect of Entrepreneurial Characteristics on MSME Performance			
Path coefficient	0.282	0.317	0.067
t-statistics	2.115	3.168	2.072
p-value	0.034	0.002	0.047
Sample size	584	292	292
R-square		0.601	

Considering all the available samples, the path coefficients are all positive approaching 1, with a p-value of less than 0.05 (refer to Table 3), which illustrates that all hypotheses are acceptable. Figure 1 shows the conceptual framework that was then developed to answer the research gap, namely analyzing

the influence of financial inclusion, operational costs, and entrepreneurial characteristics on the performance of MSMEs in Indonesia, both in MSMEs founded and/or managed by men, women, or a mixture. The model fit is described by the R- square value of 0.601 or 60.1%, which means that the strength of the independent variable in explaining the dependent variable is 60.1%; the rest is explained by other variables and models that can be developed in further research.

### *The influence of financial inclusion on MSME performance*

Based on Table 3, it can be seen that the original sample estimate value of the financial inclusion variable on the MSM's performance variable is positive, which is 0.486 in the mixed group. Then, the t statistic is  $5.413 > 1.96$  (Ghozali, 2021) so that it can be said to have a significant effect. Thus, Hypothesis H1 in this study is declared accepted. However, when compared based on gender, the path coefficient value produced in the female group is greater, namely 0.439 ( $0.439 > 0.306$ ). Based on these results, the management of financial inclusion carried out by women in the MSMEs they manage has certainly succeeded in improving their performance. Micro, Small, and Medium Enterprises (MSMEs) that have a higher level of inclusion certainly have more access to financial services where this access can help MSMEs in the aspect of financing or capital which is the most important indicator in efforts to improve MSME performance by increasing business profits. This is in line with previous research (Susilo et al. 2022) which states that financial inclusion can improve the performance of MSMEs by reducing economic inequality in society through equal access to financial products and services.

To continue to encourage the quality of MSMEs, the level of financial inclusion must continue to be improved. In addition, financial inclusion in each province must also be evenly distributed. According to Jiang et al. (2019) efforts that can be made as a form of support for financial institutions in increasing financial inclusion in MSMEs are by overcoming credit constraints better, presenting more innovative loan mechanisms, minimizing loan costs and procedures. The results of this study are also supported by (Purwidianti & Tubastuvi, 2019; Sanistasya et al., 2019; Zulkieflimansyah et al., 2020) who stated that financial inclusion has a positive influence on MSME performance.

### *The influence of cost management on MSME performance*

Based on Table 3, it can be seen that the original sample estimate value of the operational cost variable on the MSM's performance variable is positive, which is 0.172. Then, the t statistic is  $3.692 > 1.96$  (Ghozali, 2021) so that it can be said to have a significant effect. Thus, Hypothesis H2 in this study is accepted. In conclusion, operational costs have a positive and significant effect on MSM's performance.

However, when compared based on gender, the path coefficient value produced in the female group is greater, namely 0.123 ( $0.123 > 0.003$ ). Efforts to manage costs, especially in MSMEs owned and/or managed by women in Indonesia, can be done by optimizing expenses to increase profitability which will also increase competitiveness in the market. When the costs that support MSME operations are managed properly, it will certainly help the business in achieving the desired financial goals which of course have an impact on the performance of the MSME. In addition, good cost management also allows MSMEs to provide more competitive price offers to consumers, increasing profit margins, providing ample investment space in improving product quality, innovation, and of course business expansion which is expected to help MSMEs face financial problems and strengthen their financial position in the long term.

To achieve high business quality, of course, one must be able to manage finances well, thus the issue of costs must be a concern for all parties which must then be resolved to support the performance of MSMEs so that they can continue to operate and expand their market. The results of this study are certainly supported by previous studies by Martono & Febriyanti, (2023a), Purwidianti & Tubastuvi, (2019), and Sanistasya et al. (2019) which stated that financial management in this case operational costs has a significant positive effect on MSME performance.

### *The influence of entrepreneurial characteristics on MSME performance*

Based on Table 6, it can be seen that the original sample estimate value of the entrepreneurial characteristics variable on the MSM's performance variable is positive, which is 0.282. Then, the t statistic is  $2.115 > 1.96$  (Ghozali, 2021) so that it can be said to have a significant effect. Thus, Hypothesis H3 in this study is accepted. In conclusion, entrepreneurial characteristics have a positive and significant effect on MSM's performance. However, when compared based on gender, the path coefficient value produced in the male group is greater, namely 0.317 ( $0.317 > 0.067$ ). These results are in line with research conducted by Sari et al. (2016) which states that entrepreneurial characteristics have a significant effect on MSME performance. Thus, entrepreneurial characteristics such as human resource management which are reflected in the number of workers, the number of experts, and the age of the business itself are often associated with the success of a business, this study shows that these factors have a role in improving MSME performance such as financial management, operational strategies, and also market conditions.

In addition, research by Iskandar et al. (2020) and Sari et al. (2016) found that entrepreneurial characteristics also act as important mediators in the relationship between competitive advantage and MSME performance. This strengthens the understanding that entrepreneurship not only affects direct performance but also contributes to how MSMEs build the strategic advantages needed to survive and thrive in a dynamic business environment. These findings suggest that efforts to improve MSME

performance must involve systematic development of entrepreneurial skills, both through training and increasing innovation capacity.

### *Business scale can control financial inclusion, operational costs, and entrepreneurial characteristics in influencing MSME performance*

The results of the hypothesis test show that business scale as a control variable has a positive but insignificant effect on MSME performance. Business scale acts as a control variable that can affect various performance factors of Micro, Small, and Medium Enterprises (MSMEs), such as financial inclusion, operational costs, and entrepreneurial characteristics. In this study, business scale was shown to have a positive effect on MSME performance, although the results were not statistically significant. Several factors may cause this relationship to be insignificant, such as the large internal variability within MSMEs that is not well controlled, such as differences in management, resources, or strategies implemented by each business. In addition, external factors such as market conditions, access to financing, and government policies may also have a greater influence on MSME performance than just the size of the business itself. This finding is consistent with previous studies showing that business scale can indeed play a role in increasing access to financial services and managing operational costs, but its impact on financial performance often depends on other factors, such as managerial efficiency and innovation (Tran et al., 2023; Zulkieflimansyah et al., 2020). In this context, the business scale variable remains relevant to consider in the analysis of MSME performance, although its influence tends to be insignificant.

### *The business sector can control financial inclusion, operational costs, and entrepreneurial characteristics in influencing MSME performance*

The business sector plays an important role as a control variable that can influence various factors such as financial inclusion, operational costs, and entrepreneurial characteristics in determining MSME performance. Based on the results of the hypothesis test, the business sector is proven to have a positive and significant influence on MSME performance. This shows that the type of business sector that MSMEs are engaged in can directly affect their access to financial services, efficiency in managing operational costs, and the application of different entrepreneurial characteristics according to the nature of each industry. Certain business sectors, such as the creative or technology industries, tend to have better access to capital and innovation, thus providing a more significant positive impact on MSME financial performance. This finding is in line with research stating that the business sector plays an important role

in shaping the internal dynamics of a company which ultimately affects overall performance (Ismail, 2023; Purwanto et al., 2022). Therefore, it is important to consider the business sector in developing strategies to improve MSME performance.

To analyze the impact of financial inclusion, operational costs, and entrepreneurial characteristics on the performance of MSMEs in Indonesia in each gender group, a multigroup analysis was conducted by dividing the sample into two groups. The findings revealed that financial inclusion, operational costs, and entrepreneurial characteristics have an impact on the performance of MSMEs in Indonesia in all groups, both male, female, and mixed groups. The following are the results of the multigroup hypothesis test conducted:

Table 4  
 Multigroup hypothesis test

	Difference (Male-Female)	1-tailed (Male-Female) P Value	2-tailed (Male-Female) P Value
(X1) Financial Inclusion -> (Y) MSM's Performance	-0.133	0.843	0.315
(X2) Cost -> (Y) MSM's Performance	-0.126	0.851	0.298
(X3) Entrepreneurial Characteristics -> (Y) MSM's Performance	0.250	0.036	0.072

Based on Table 4 above, it can be seen that all research hypotheses related to the variables of financial inclusion, cost, and entrepreneurial characteristics on MSME performance do not show significant differences between men and women. The difference value of each variable on MSM performance varies, with financial inclusion of -0.133, cost -0.126, and entrepreneurial characteristics 0.250, and all have p-values greater than 0.05. Thus, it can be concluded that there is no significant influence of gender differences on the impact of each of these variables on MSME performance in Indonesia.

## Conclusions

This study examines the influence of financial inclusion, operational costs, and entrepreneurial characteristics on the performance of MSMEs based on gender groups in Indonesia. The results of the study suggest that there is no significant influence of gender differences on the impact of each independent variable on the performance of MSMEs in Indonesia, therefore both men and women have a very

important role in improving the economy in Indonesia. This study found that: First, financial inclusion has been shown to have a significant positive impact on the performance of MSMEs, because access to formal financial services provides support in terms of funding and capital. Second, effective management of operational costs also has a positive effect on the profitability of MSMEs, which allows businesses to increase their competitiveness in the market. Third, entrepreneurial characteristics, including innovation capabilities and human resource management, also play a role in improving the performance of MSMEs.

Structural Equation Modeling (SEM) with Smart-PLS was used to examine the effect of financial inclusion, operational costs, and entrepreneurial characteristics on MSME performance based on gender groups in Indonesia. The results of this study indicate several important implications related to MSME performance. First, the study reinforces the argument that gender equality not only benefits society at large but also plays a crucial role in enhancing MSME performance by improving financial inclusion, cost management, and human resource management. Second, these findings highlight the significant role women play in maintaining the financial stability and growth of MSMEs. Therefore, policymakers are urged to continue evaluating financial inclusion and gender equality policies, ensuring these policies promote equitable access to resources for both male- and female-led MSMEs. Additionally, the study suggests that other key stakeholders, such as NGOs and educational institutions, should also contribute to advancing these initiatives. NGOs can support women entrepreneurs by providing training and access to networks, while educational institutions can offer programs that foster entrepreneurial skills and gender-sensitive leadership. This broader approach can help create a more inclusive and supportive environment for the growth of MSMEs across gender groups.

One of the limitations of this study is the choice of indicators for financial inclusion and MSME performance. While general measures are used to describe MSME financial performance, specific indicators such as access to credit or use of financial technology are not included. The narrow coverage of financial inclusion indicators is due to data availability and methodological constraints, as detailed information on these aspects may not be readily accessible, especially for smaller businesses or in regions with less developed financial systems. Furthermore, this study focuses only on MSMEs in Indonesia, limiting the generalizability of the findings to other sectors or regions with different market conditions. Expanding the study to cover different contexts or larger firms may pose challenges, such as variations in resources, market conditions, and institutional frameworks. Furthermore, reliance on macro data may not fully capture micro-level issues, such as wage gaps or access to training and capital, faced by women in the small business sector. These limitations suggest the need for future research to explore these factors in greater depth and in a broader context.

Future studies can replicate this study using more developing and developed countries. Future studies can also assess the impact of micro-level gender equality indicators on financial stability and

financial inclusion. Furthermore, future studies can expand this study to include other countries, additional measures of gender equality, and analyze in more depth other factors that may affect MSME performance.

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