**Financial Intermediation and Access Credit Micro to Improve the Performance of Indonesian Women-Owned Informal Enterprises**

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**Abstract**

**Background:**

Women's role in the informal business sector strengthens family, local, national, and global economic resilience. It is no secret that limited financial resources are their main problem. Not meeting banking requirements, such as lack of legality and credit collateral (Unbanked Group), is the reason for banks to deny credit access to them, so there needs to be a role for microfinance intermediation institutions to bridge the problem. In addition, providing access to microcredit with easy terms and affordable costs can be a solution to improve their business performance.

**Purpose:** This study aims to determine and analyze the effect of financial intermediation on cooperatives through microcredit access on the performance of women informal business owners.

**Method:** (Metode dasar, Respondent, penarikan sampel, Instrument, Procedure, analisis data)

The study is based on a primary survey of 161 women informal business owners who are members of cooperatives in Indonesia. Data has been collected through a structured questionnaire using a Likert scale of 1-5. The path analysis test was conducted to measure the direct and indirect influence of financial intermediation relationships on the performance of women informal business owners.

**Result and Conclusion:** Cooperatives as financial intermediation institutions have proven to be unable to affect the performance of women informal business owners directly, but indirectly can have a strong influence on improving the performance of women informal business owners, namely through access to microcredit. This provides evidence that the presence of financial institutions alone is insufficient because women informal business people have obstacles to accessing business capital credit even though almost all financial services they easily get, such as creating savings accounts, making transfer transactions, making insurance, and other financial services. Having limited resources is not an obstacle when joining a cooperative; in principle, they build intermediation institutions. They get access to microcredit without collateral from the cooperative so that their financial resources are met, and their business grows. In addition, cooperative financial intermediation support and access to microcredit for women's informal businesses are potential resources for them.

**Contribution:**

This research contribution provides broad insight into the function of microfinance intermediation, such as cooperatives and microcredit access, in improving the performance of women informal business owners in Indonesia. There is very little research on women's performance in the informal business sector. As far as the author knows, there has been no research linking cooperative financial intermediation and microcredit access to the performance of women informal business owners in developing countries such as Indonesia. The study fills that gap by investigating the relationship.

**Keywords:** **Financial Intermediation, Cooperative, Access Credit Micro, Performance of women's SMEs, Informal Enterprises.**

1. **Introduction**

SMEs play an important role in every country worldwide (Senapati &. SMEs are known to be resilient and proven to survive economic shocks, no matter how great (Sisharini et al., 2019). In Indonesia, the SME sector contributes 99.9% to the national economy, 97% absorbs employment, and 60.34% contributes to GDP (Wardaya et al., 2019). The majority of Indonesian SMEs are informal sector micro business owners. According to data from the Indonesian Statistics Agency (BPS), 51 percent of informal business owners are women (BPS, 2022). Women often work informally from their homes (Walker, 2017). This is because flexible business time is perfect for women with a family (Cook et al., 2021). Women are also required to be able to be in a competitive business environment (Díez-Martín et al., 2023). Thus, it is necessary to measure the performance of women-owned informal enterprises to reduce poverty and gender inequality (Melo, 2023).

Women and men have equal opportunities in doing business (Cook et al., 2021). Many countries still experience gender inequality problems, especially in developing countries (Klapper et al., 2021). Gender equality is a major concern for global sustainable development, as set out in the UN Agenda 2030 (Yu et al., 2023). Gender equality is also important for financial stability and economic performance (World Economic Forum, 2023). Performance can reflect how well a company can achieve its growth and financial goals (Susanti et al., 2023). Understanding the factors that influence the performance of women-owned informal enterprises is an important step in managing and avoiding the failure of women in the informal sector. The performance of SMEs is highly dependent on the resources owned by the company itself (Expósito et al., 2023). The condition of women informal business owners has limited resources (Csapi & Balogh, 2020). Many potentials have not been able to be maximized (Tumba et al., 2022). Women informal business owners tend to grow slower than male micro-entrepreneurs (Sherwani, 2023). Expósito et al. (2023) stated in their research that SMEs led by men are more likely to perform better than SMEs led by women.

Financial resources are widely recognized as one of the essential resources for entrepreneurial development and poverty alleviation in developing countries (Lwesya & Mwakalobo, 2023). The more resources owned by women informal business owners will add value and improve their performance (Orser et al., 2021). Financial resources can seek financial intermediation services and microcredit access for capital (Barney, 1991). Cheap, affordable, and effective financial services for women informal business owners can reduce gender inequality (Sakanko, 2020). Account ownership, savings, payments, credit facilities, and insurance can increase the role of women in business (Sakanko, 2020). SMEs cannot access formal credit because financial institutions do not extend credit due to information asymmetry, high processing costs, and insufficient collateral value (Merroun & Hamiche, 2023). However, in terms of banking financial intermediation, until now, there has been no specific financing strategy for women informal business owners (Bialus et al., 2022). This also causes them to face challenges accessing micro-credit banks (Tsai, 2017). Access to microcredit can solve capital needs that will increase the performance of women-owned informal enterprises (Haryanto et al., 2023).

The failure of banks to serve all circles will reinforce a vicious cycle of economic and social structures that lead to poverty, including for women and informal business owners (Bettoni et al., 2023). Therefore, microcredit can improve household welfare and women's empowerment (Al-Shami et al., 2017). They are often denied loans by banks for various reasons (Dela Cruz et al., 2023). This limited access to microcredit impacts liquidity and can disrupt performance (Aristei & Gallo, 2023). Finally, women informal sector business owners tend to choose microcredit access from informal institutions with higher fees and interest rates (Sherwani, 2023). Cooperatives are considered the most friendly financial intermediaries for the weak. Haryanto et al. (2023) also said that obtaining microcredit from cooperatives is more beneficial than other informal financial sources. The presence of cooperatives as financial intermediation institutions can encourage the growth of the performance of women-owned informal enterprises (Abdi et al., 2023). Quality financial institutions provide sound financial services and products (Sherwani, 2023). They connect members with excess funds to flow to members needing capital credit (Boďa & Zimková, 2021). Yu et al (2023) revealed that cooperatives help informal business owners channel microcredit without collateral with easier terms (Kabeer, 2020) Thus, the access of micro microcredit for women informal business owners can encourage the financial intermediation function to improve their business performance.

Previous research on how the relationship between financial and microcredit intermediates to improve the performance of women-owned informal enterprises has been limited. Many studies in the world have discussed the performance of the informal sector in various points of view (Cardella, 2020). Including raising the issue of gender equality in economic activities is also still attracting attention (Díez-Martín et al., 2023). For example, gender relations in the business economy, as in corporate performance (Díez-Martín et al., 2023; Escamilla-Solano et al., 2022)the relationship of business performance through the introduction of innovation (Expósito et al., 2023)and the relationship of performance from the point of view of risk management of female CEOs (Kang et al., 2023). Bibliographic research has been carried out, on how the gender risk profile on the board of directors affects the company's financial performance (Díez-Martín et al., 2023). Chipfunde et al (2021) assessed the performance and participation of young male and female entrepreneurs in young agricultural entrepreneurs in Cameroon, the result is that both men and women have equal chances of success.

In addition, many previous studies have proven that financial intermediation can improve performance (Kreamer, 2022; Okello Candiya Bongomin et al., 2017; Samatas et al., 2019; Swamy, 2010). However, the research was mostly conducted in the banking sector, while financial intermediation research from the informal sector user side was still limited. Ribeiro et al (2022) also said that research on microcredit for society is still a marginal issue and is hardly discussed in the literature. Previously, Merroun & Hamiche (2023) examined the impact of microcredit for MSMEs through the Pustaka follow-up with biased research results. Then Ratnawati (2020b) examined how financial inclusion affects the performance of MSMEs in Indonesia mediated by financial intermediation and access to capital. However, the research is still too broad, not looking specifically at the point of view of users of intermediation institutions in the formal or informal sector in SMEs in general. Most women who participate in the Indonesian economy do so informally so that they are closer to the cooperative world (Walker, 2017) From the existing gap research, it is important to conduct research on the function of cooperative financial intermediation through access to microcredit in improving the performance of women business owners in the informal sector, both direct and indirect influences.

1. **Literature Review**
2. **Resource Based View Theory (RBV Theory)**

Resource Based View (RBV) as a conceptual framework used to explain the relationship between strategic resources and assets available to a company to influence its performance (Orser et al., 2021). Every corporate strategy must measure resources to achieve competitive advantage (Ristyawan et al., 2023). Managers can use RBV to create or utilize resource-based benefits. Resources describe specific managerial actions in using those resources to realize performance improvements (D'Oria et al., 2021). In the RBV concept, these valuable resources are not easily replicated or replaced, thus allowing them to provide a sustainable competitive advantage. RBV also analyzes the role of tangible and intangible resources in creating and maintaining competitive advantage (Zahra, 2021). One of the potential resources that companies must have is financial resources (Lwesya & Mwakalobo, 2023). Financial resources in this study are in the form of financial services obtained from financial institutions and access to microcredit provided in supporting the performance of informal business owners.

1. **Performance of women-owned informal enterprises**

Performance reflects how well the company is managed and what it provides for its customers and owners (Syahdan et al., 2020). Business performance can vary in measurement, performance is also the result of managing business resources through an efficient and effective strategy (Chandrayanti et al., 2020) Business performance shows the extent to which a company generates relative profit, return on investment, and total sales growth (Tumba et al., 2022). The definition of business performance can vary from one business to another. However, a simple measure of profit provides a more reliable measure than an attempt to record detailed income and expenditure streams (de Mel et al., 2009).

1. **Financial intermediation**

Financial intermediation can minimize transaction costs arising from lack of information in live trading. Financial intermediation such as banks can improve the fulfillment of the financial service needs of the community (Okello Candiya Bongomin et al., 2020a). Increasing financial access for MSMEs followed by increasing financial intermediation in the form of a financial service approach to MSMEs will improve MSME performance (Ratnawati, 2020b) The financial intermediation perspective is divided into two, namely the functional perspective and the institutional perspective (Merton, 1995) The functional perspective considers the economic functions performed by financial intermediaries and what institutional structures are best to perform those functions. While the institutional perspective emphasizes the structure of existing financial intermediary institutions and views the purpose of public policy is to help existing institutions to survive and develop. Most developing countries implement dual financial systems, namely informal and formal financial sectors. Low-income people will be excluded from the formal financial system, so the choice is to access informal finance through Microfinance Institutions (MFIs) that provide savings and credit facilities (Suprabha, 2014) The previous objective of microfinance institutions was to meet the financial needs of low-income and marginalized communities, such as women, through increased service coverage, and sustainability of microfinance institutions (Lwesya & Mwakalobo, 2023)

Strong financial intermediation drives economic growth (Saleem et al., 2021). These institutions provide a wide range of services, including loans, savings, insurance, and remittances, to the rural and urban poor through cooperatives, credit unions, specialty banks, commercial banks, and other institutional (Lwesya & Mwakalobo, 2023). Financial institutions must have a decision-making mechanism on fast resources, because the financial system tends to be more sensitive to changes in the external environment (Ristyawan et al., 2023)

1. **Access of micro credit**

Microcredit is often based on a group lending model, in which individuals borrow and repay the loan. Group lending methodology remains an efficient instrument to overcome lack of access to financial resources by building social networks, thus creating peer pressure and community support to ensure repayment (Ribeiro et al., 2022). Microcredit arises due to the formal financial sector's failure to serve affordable credit to micro communities and informal businesses (Bettoni et al., 2023). Access to credit can be improved by ownership of collateral. In general, financial institutions require collateral when approving credit, but women informal business owners often lack marketable collateral, such as physical assets, and are therefore often excluded from traditional financial markets (Merroun & Hamiche, 2023) The concept of unsecured microcredit was originally introduced by economist Muhammad Yunus, who founded the Grameen Bank in Bangladesh in 1983 to provide microcredit services. This practice has been widely adopted in developing countries and is considered to help alleviate poverty and encourage entrepreneurship in Indonesia.

Microcredit in Indonesia, with the same concept as Grameen Bank is adopted in cooperatives. Microcredit helps people experiencing poverty to manage financial resources better and protect themselves so many government policies consider microcredit as a strategic tool for vulnerable people (Tria et al., 2022) Microcredit access aims to provide small loans to low-income individuals who are often excluded from the traditional banking system (Bettoni et al., 2023). Easy and affordable access to microcredit is expected to be a capital solution for entrepreneurs in the informal sector. They tend to have difficulty finding other financial sources besides relying on their capital or loans from family and friends. Even the detrimental, taking from high-cost informal financial resources circulate massively in the community.

1. **Hypothesis Development**
2. **Financial Intermediation and Performance**

The role played by microfinance is critical for socio-economic transformation, public policies that support financial performance individually, locally and globally (Ribeiro et al., 2022). Performance in women's entrepreneurship highly depends on financial factors (Mashapure et al., 2023). Providing financial resources for micro-communities to start their businesses can help them increase income (Ribeiro et al., 2022). According to RBV theory the role of financial intermediation institutions is very important to improve the finances of every business (Barney, 1991). One is to get financial services to add performance and value (Orser et al., 2021). Thus, financial intermediation can improve performance and can be formulated the first hypothesis as follows:

H1: Financial intermediation has a positive and significant effect on the performance of SMEs.

1. **Financial Intermediation and Microcredit Access**

The limitations of formal financial institutions in providing credit to low-income groups such as in the informal business sector have given rise to microfinance programs (Merroun & Hamiche, 2023). Over the past three decades, there has been widespread recognition of the emergence of Microfinance Institutions (MFIs) and increased provision of microcredit services in developing countries in almost all sectors of the economy (Lwesya & Mwakalobo, 2023). Microfinance intermediaries such as cooperatives can provide microcredit to unbanked microcommunities, this can increase their limited financial resources (Tria et al., 2022). Thus, financial intermediation can increase access to microcredit so that the second hypothesis can be formulated as follows:

H2: Financial intermediation has a positive and significant effect on access of micro credit

1. **Microcredit Access and Performance**

Access to financial services brings so many benefits (Widarwati et al., 2022). Women who participate in microfinance increase their business income in the informal economy. Merroun & Hamiche's research, (2023), shows that microcredit access can improve SME performance by increasing sales and increasing the number of workers. Research Aslam et al., (2020), our qualitative analysis shows that microfinance makes positive changes in the process of borrowers lives observed through financial and activity diaries of the borrowers. Tria et al.'s research, (2022), proves that access to microcredit significantly impacts women and microenterprise income in the informal sector. Thus, access to microcredit can improve performance and can be formulated the third hypothesis as follows:

H3: Access of micro credit has a positive and significant effect on performance

1. **Financial Intermediation, Microcredit Access and Performance**

Microfinance institutions must focus on the characteristics of borrowers so that the microcredit provided is useful and does not make things worse due to the problem of excess debt (Ribeiro et al., 2022).  The role of financial intermediation is needed in intervening in microcredit and involving them in education and training programs to develop their businesses. Research Bettoni et al.(2023) proves that access to credit can increase revenue and have a stronger impact on women-led businesses. In addition, businesses with funding constraints will further worsen performance such as pressure on liquidity and other financial problems (Aristei & Gallo, 2024). The presence of financial intermediation can encourage increased access to microcredit in the informal sector so that they can overcome capital needs to develop their business. Thus, financial intermediation can improve the performance of SMEs through access to microcredit and the fourth hypothesis can be formulated as follows:

H4: Financial intermediation has a positive and significant effect on SME performance mediated by access of micro credit

1. **Research Methodology**

The research sample was taken based on purposive sampling technique. The target of this research is female micro business actors who meet several criteria, namely (1) have their own business (maximum assets of IDR 50,000,000 and maximum turnover of IDR 300,000,000), (2) have been running a business for at least 3 years, (3) never had access to capital from banking, (4) access business capital from non-bank financial intermediaries (Indonesian cooperative) and joined a microfinance institution (cooperative) minimum 1 years.

Determining the sample size uses the Hair formula because the population size is uncertain. According to Hair et al.,(2019) the number of representative samples depends on the number of indicators multiplied minimal by 5 to 10. In this research, the number of indicators (35 indicators) was multiplied by 5, so the research sample was 170 people. The questionnaires were distributed through Google Form and collected data that 161 respondents could be processed by while 9 respondents could not because the data was incomplete.

The research method used is explanatory with questionnaires and cross-sectional data. sample determined using purposive techniques and processed using the help of Smart PLS. Structural equation modeling (SEM) to analyze cause-and-effect relationships between latent constructs (Hair et al., 2011) . Multivariate analysis has been confidently conducted along with Structural Equation Model Partial Least Square (SEM PLS) model-inner model test and outer model test-in analyzing data collected. This research developed a structured questionnaire for this study, incorporating existing scales and verified techniques that previous research had utilized. Those existing research variables have been gauged through delivering questionnaire with a scheme of Likert scale scoring of 1 to 5, where; scale 1 responded as "completely disagree", scale 2 responded as "disagree", scale 3 responded as "undecided", scale 4 responded as "agree", and scale 5 responded as "strongly agree". The questionnaire items in this study developed the research questionnaire Ratnawati, (2020) which previously examined the financial intermediation of banking customers and cooperative members was the subject of research, while this study was only aimed at women informal business people and aimed specifically at those who get access to microcredit at cooperatives.

Financial intermediation is measured through indicators of Market penetration, quality responsive, quality relevance, quality assurance, quality tangibility (Okello Candiya Bongomin et al., 2020b; Ratnawati, 2020b), access of micro credit is measured through Amount received, Frequency of access (Chandrayanti et al., 2020) and formal credit procedures as well as cost of access to capital (Ratnawati, 2020b) and performance of women-owned informal enterprises are measured through increased number of workers, profit growth, increased marketing and increased sales (Chandrayanti et al., 2020; Ratnawati, 2020a)

Table of Questionnaire

| No | Variabel | Dimension | Question | |
| --- | --- | --- | --- | --- |
| 1 | Financial intermediation  (Okello Candiya Bongomin et al., 2020b; Ratnawati, 2020b) | Market penetration | X.1 | Cooperatives reach out to women informal businesses |
|  | X.2 | Cooperatives have a clear market segment for savers and borrowers |
|  | X.3 | Cooperatives have always been in the form of creating bonds and loyalty of members |
|  | X.4 | Cooperatives add service branches or service facilities |
| quality relevance | X.5 | Cooperatives provide competitive financial products (savings and credit products) |
|  | X.6 | Cooperatives collaborate with communities and organizations to help their members |
| quality assurance | X.7 | The cooperative office has a clean and comfortable service room |
|  | X.8 | The service of cooperative officers is very friendly |
|  | X.9 | Cooperative offices are within easy reach |
|  | X.10 | The appearance of cooperative employees is good and neat |
|  | X.11 | Cooperatives provide services precisely and accurately |
| quality tangibility | X.12 | Field officers at the cooperative can be contacted easily |
|  | X.13 | Cooperative employees are happy to help members |
|  | X.14 | Cooperative officers have good knowledge to answer members' questions |
|  | X.15 | Cooperatives guarantee transaction security |
|  | X.16 | Certainty of handling complaints and complaints |
| 2 | Access of micro credit  (Chandrayanti et al., 2020; Ratnawati, 2020b) | Amount received | Z.1 | As an informal business person, I have received microcredit capital from cooperatives |
|  | Z.2 | Before accessing microcredit, I was explained the need for microcredit and the ability to pay |
|  | Z.3 | The amount of loan received is by the number of applications |
| Credit procedure | Z.4 | As an informal business person, I can access micro credit from cooperatives on easy terms |
|  | Z.5 | I obtained a guarantee of credit procedure security by the agreement at the cooperative |
| Cost of credit | Z.6 | The interest rates charged by cooperatives are usually lower compared to other informal sources of finance |
|  | Z.7 | The financial costs charged are still very reasonable |
| frequency | Z.8 | As a female informal businesswoman, I get the opportunity to apply for credit again after repayment |
|  | | |
| 3 | Performance of Women owner-business informal  (Chandrayanti et al., 2020; Ratnawati, 2020b) | Market share growth | Y.3 | Increase in customers this year |
|  | Y.4 | New market growth this year |
| Sales growth | Y.5 | I produce more goods and services than last year |
|  | Y.6 | Sales this year have increased compared to last year |
| Capital growth | Y.7 | Have capital reserves for increased sales |
|  | Y.8 | Assets increased compared to last year |
| Profit growth | Y.9 | increase in profit growth every year |
|  | Y.10 | Cash or business liquidity improves |

1. **Research Results**
2. **Respondent Descriptions**

The subjects of this study were women micro-entrepreneurs who had received business capital from financial intermediation institutions in cooperatives. The number of respondents who have filled out the questionnaire completely is 161 respondents. Here is a picture of respondent characteristics data:

|  |  |  |
| --- | --- | --- |
| Table 1. Respondent characteristics |  |  |
| Respondent characteristics | **Total** | **Percentage** |
| Age |  |  |
| < 25 year | 6 | 3,73% |
| 25 – 34 year | 58 | 36,02% |
| 35 – 44 year | 60 | 37,27% |
| 45 – 54 year | 30 | 18,63% |
| > 54 year | 7 | 4,35% |
| Total | 161 | 100,00% |
| Education |  |  |
| Diploma / Bachelor (S1) | 5 | 3,11% |
| Senior High School | 60 | 37,27% |
| Junior High School | 54 | 33,54% |
| Elementary School | 42 | 26,09% |
| Total | 161 | 100,00% |
| Business |  |  |
| Service | 14 | 8,70% |
| Trading | 141 | 87,58% |
| Other | 6 | 3,73% |
| Total | 161 | 100,00% |
| Asset and Omset |  |  |
| asset < Rp. 50 million and omset < Rp. 300 million | 146 | 90,68% |
| asset > Rp. 50 million and omset > Rp. 300 - 500 million | 15 | 9,32% |
| Total | 161 | 100,00% |

1. **Outer Model**
2. **Validitas Konvergen**

Convergent validity testing can be assessed based on outer loadings, loading factor, and Average Variance Extracted (AVE). The indicator can be declared to meet convergent validity and has a high level of validity when the outer loadings value > 0.70, while the Average Variance Extracted (AVE) value > 0.50 (Shela et al., 2023). Here are the results of outer loadings data:

**Table 1. Convergent Validity Test Results**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Average | Validity | Result |
| Financial Intermediation | |  |  |
| X1 | 4,30 | 0,783 | Valid |
| X2 | 4,17 | 0,809 | Valid |
| X3 | 4,15 | 0,802 | Valid |
| X4 | 4,16 | 0,809 | Valid |
| X5 | 4,15 | 0,749 | Valid |
| X6 | 4,28 | 0,759 | Valid |
| X7 | 4,31 | 0,827 | Valid |
| X8 | 4,30 | 0,823 | Valid |
| X9 | 4,28 | 0,74 | Valid |
| X10 | 4,51 | 0,789 | Valid |
| X11 | 4,41 | 0,841 | Valid |
| X12 | 4,46 | 0,783 | Valid |
| X13 | 4,49 | 0,779 | Valid |
| X14 | 4,45 | 0,815 | Valid |
| X15 | 4,53 | 0,813 | Valid |
| X16 | 4,43 | 0,73 | Valid |
| Access of Micro Credit | |  |  |
| Z1 | 4,41 | 0,772 | Valid |
| Z2 | 4,27 | 0,864 | Valid |
| Z3 | 4,12 | 0,745 | Valid |
| Z4 | 4,18 | 0,864 | Valid |
| Z5 | 4,18 | 0,779 | Valid |
| Z6 | 4,04 | 0,815 | Valid |
| Z7 | 4,04 | 0,732 | Valid |
| Z8 | 4,02 | 0,822 | Valid |
| Performance of Women-Owned Informal Enterprises | | | |
| Y1 | 3,81 | 0,780 | Valid |
| Y2 | 3,67 | 0,872 | Valid |
| Y3 | 3,94 | 0,818 | Valid |
| Y4 | 3,83 | 0,841 | Valid |
| Y5 | 3,97 | 0,893 | Valid |
| Y6 | 4,04 | 0,882 | Valid |
| Y7 | 4,06 | 0,866 | Valid |
| Y8 | 3,86 | 0,845 | Valid |

Outer model testing can be done by looking at each indicator's minimum cross loading value requirement of 0.7. Based on the measurement model, the correlation value between the indicator and its variables, two indicators do not meet the validity requirements because the loading factor value is below 0.7, namely Y1 (0.622) and Y2 (0.680). Thus, the two questionnaire items were not used in this study. In addition to Y1 and Y2 have outer loadings values > 0.70, so it can be concluded that all indicators have met convergent validity and have high values.

Furthermore, to assess the instrument's reliability seen from the Cronbach Alpha and composite reliability value. The requirement is that the Cronbach Alpha and composite reliability value is at least 0.7. Higher values indicate a better level of reliability. Discriminant validity serves to measure the accuracy of reflective models and for the Average Variance Extracted (AVE) value of discriminant validity is pegged at a minimum of 0.5 and the higher the value, the better (Hair et al., 2019; Shela et al., 2023) While composite reliability is used to assess the stability and internal consistency of good indicators.

Tabel 2. Construct Reliability and Validity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cronbach's Alpha | rho\_A | Composite Reliability | Average Variance Extracted (AVE) |
| Financial Intermediation | 0,960 | 0,962 | 0,964 | 0,626 |
| Access Micro Credit | 0,919 | 0,923 | 0,934 | 0,641 |
| Performance Of Women-Owned Informal Enterprises | 0,945 | 0,946 | 0,954 | 0,723 |

The value of Cronbach Alpha and composite reliability is above 0.7 so that these indicators have high reliability. Furthermore, the Average Variance Extracted (AVE) value also has a value above 0.5 so that all indicators meet the requirements of convergent validity.

1. **Discriminant Validity**

The assessment of reflective measurement models also includes discriminant validity. The Fornell-Larcker criterion can be used to check the validity of discriminants. According to traditional discriminant validity assessment methods (cross-loadings and Fornell-Larcker criterion). In addition, the square root of each construct's AVE must be higher than the highest correlation with the other construct (Fornell-Larcker criterion).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Access Micro Credit | Financial Intermediation | Performance of Women-Owned Informal Enterprises |
| Access Micro Credit | **0,801** |  |  |
| Financial Intermediation | 0,756 | **0,791** |  |
| Performance of Women-Owned Informal Enterprises | 0,783 | 0,620 | **0,850** |

The outer loadings value of the indicator on the construct is higher than all its cross-loadings with other constructs so that this model meets the discriminant validity requirements. The following are the results of testing the research model using smartPLS

A diagram of a diagram

Description automatically generated

Figure 2. Model Test Results (SmartPLS)

1. **Inner Model**
2. **R Square**

R Square, known as the coefficient of determination, is a statistical measure representing the proportion of variance of a dependent variable described by an independent variable or set of independent variables in a regression model. The value ranges from 0 to 1, with higher values indicating a stronger relationship between the independent and dependent variables. An R Square value of 100% means that the independent variable fully describes all movements of the dependent variable, while a value of 0% means that none of the movements are described.  The R Square value measures the rate of variation of the independent variable change against the dependent variable. The effect can be seen from the magnitude of the R Square value; if the value is 0.25 - 0.49, then the effect is weak; if the value is 0.5 - 0.75, then the effect is moderate, and if the value is above 0.75, then the effect is strong.

Table 3. R Square

|  |  |  |
| --- | --- | --- |
|  | **R Square** | **R Square Adjusted** |
| Access to Micro Credit | 0,572 | 0,569 |
| Performance of Indonesian Women-Owned Informal Enterprises | 0,615 | 0,611 |

From the table above, the R Square Adjusted value for the microcredit access variable is 0.569. This means that the diversity of financial intermediation can affect access to microcredit by 56.9 percent. Meanwhile, the R Square Adjusted value of 0.611 in the Performance of Indonesian Women-Owned Informal Enterprises means that 61.1 percent of financial and microcredit intermediation diversity can affect performance. Both values are above 0.5 so that it can be concluded that exogenous variables affect endogenous variables with moderate categories.

1. **Significance Test**
2. **Path Coefficients Direct Influence**

Table 4. Direct Influence Test Results

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (|O/STDEV|) | P Values | Result |
| Financial Intermediation -> Performance of Women-Owned Informal Enterprises (H1) | 0,064 | 0,057 | 0,098 | 0,657 | 0,512 | Rejected |
| Financial Intermediation -> Access Micro Credit (H2) | 0,756 | 0,762 | 0,058 | 12,989 | 0,000 | Accepted |
| Access Micro Credit -> Performance of Women-Owned Informal Enterprises (H3) | 0,735 | 0,744 | 0,089 | 8,255 | 0,000 | Accepted |

The direct influence test processing results can be said to have an effect if the P Values value is below 0.05. Based on the table above, of the three hypotheses tested for direct influence, there are 2 accepted hypotheses, namely hypotheses 2 and 3, but hypothesis 1 is rejected. The test results resulted in hypothesis 1 being rejected, meaning that financial intermediation did not directly affect the performance of women informal business owners. Hypothesis 2 is accepted; namely, financial intermediation has a positive and significant effect on the performance of women-owned informal enterprises with a P-value of 0.00 (below 0.05), which means hypothesis 1 is accepted. The direct effect of financial intermediation on micro-credit access is 0.304, which means that if X1 increases by one unit, Y can increase by 30.4%. This influence is positive.

Hypothesis 3 is also accepted, where financial intermediation has a positive and significant effect on access to microcredit with a significance value of 0.00 (below 0.05), so hypothesis 3 is accepted. Hypothesis 3, access to microcredit, has a significant effect on the performance of women-owned informal enterprises as evidenced by a P-value of 0.00 (below 0.05). So, this study proves that financial intermediation and access to microcredit affect the performance of women-owned informal enterprises.

Table 5. Indirect Influence Test Results

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Original Sample (O)** | **Sample Mean (M)** | **Standard Deviation (STDEV)** | **T Statistics (|O/STDEV|)** | **P Values** |
| Financial intermediation -> Access of micro credit -> Performance of women-owned informal enterprises | 0,556 | 0,570 | 0,092 | 6,059 | 0,000 |

The results of testing the indirect effect of financial intermediation on the performance of women-owned informal enterprises through the access of microcredit obtained a P-Value of 0.00 (below 0.005), which means that there is an indirect influence so that financial intermediation can intervene in the effect of financial intermediation on the performance of women-owned informal enterprises (hypothesis 4 is accepted).

1. **Effect Size**

The second test was conducted to see which exogenous latent factor had the greatest influence on endogenous variables. F Square aims to see the influence of weak, medium, or strong (Hair et al., 2011). Effect measurement is assessed from 0.02 – 0.15, which means the effect is weak. 0.15 – 0.35 has a moderate effect, while 0.35 has a strong effect (Cohen, 1988; Hair Jr. et al., 2019). The following table shows the test results.

Table 6. Effect Size

|  |  |  |
| --- | --- | --- |
|  | F Square | Result |
| Access Micro Credit > Performance of Women-Owned Informal Enterprises | 0,601 | Strong |
| Financial Intermediation > Performance of Women-Owned Informal Enterprises | 0,005 | Not Significant |
| Financial Intermediation > Access Micro Credit | 1,334 | Strong |

1. **Result**

This study provides evidence that financial intermediation cannot directly affect the performance of women informal business owners (H1 rejected). However, financial intermediation can affect the increase in microcredit access (H2 received), and microcredit access has been proven to improve the performance of women informal business owners (H3 received). In addition, in testing the mediation effect, it can be implied that access to microcredit fully mediates the relationship of financial intermediation to the performance of women informal business owners (H4 received). However, the results of the direct influence of financial intermediation on performance were stated to have no effect and were different from the study (Okello Candiya Bongomin et al., 2018; Ratnawati, 2020). However, it can be concluded that to support the business performance of women informal sector owners, a special strategy is needed in financial intermediation institutions, namely through access to microcredit, because significantly independent variables cannot influence dependent variables without going through mediator variables.

The performance of women informal business owners, of course, has certain problems and conditions that require different approaches to improve their performance. They are faced with uncertain business conditions with modest resources and capabilities. When the conditions of banking financial institutions limit credit, only MSMEs that they consider feasible and able to meet collateral requirements are allowed. On the other hand, many informal sector entrepreneurs are not touched by bank credit, especially women. His business is considered not to guarantee creditworthiness even if legality is no longer in their criteria. If we look at it from a different lens, the large need for microcredit access among women in the informal sector can be an opportunity. Therefore, there is a need for a role in financial intermediation that can see this potential and provide further understanding of how to channel microcredit safely. As we know from the results of this research, financial intermediation alone is not enough to improve their performance unless there is support for the access to microcredit they need. In the end, microfinance institutions such as cooperatives actively answer these needs with various approaches, one of which is providing microcredit with an unsecured group loan system.

For women informal sector business owners, microcredit is a solution for their business growth. Microcredit designed specifically for them is to provide flexibility (flexibility), easy terms, and affordable costs. The uniqueness is that financial intermediation institutions usually wait for the community to come, in contrast to microfinance institutions such as cooperatives, which provide financial services directly to women informal business people from their homes or the homes of one of their financing groups. The cooperative also functions as a micro-sector financial intermediation institution that connects members with excess funds (creditors), which will be channeled back to members needing loans (debtors) by cooperative rules. In addition, in cooperatives, they are not only users of financial services, but they also become owners and controllers of the cooperative. Not only are they considered objects of credit users, but they also get more benefits, such as financial literacy training, business coaching, and policies that are more humane than those of other microfinance intermediation institutions. The cooperative will also connect members with other formal institutions to improve the skills, marketing, and business income of its members (Walker, 2017).

Cooperatives such as financial intermediation institutions and microcredit distributors are specifically designed to be friendly to women informal business owners. Although they have various limited resources, it is not an obstacle because this business relationship remains promising with great opportunities and correct procedures. Research by Ribeiro et al. (2022) also states that microfinance institutions reach poor customers more and prove to be more profitable, especially in countries where access to the banking financial system is still limited. Furthermore, the results of this study underscore the importance of microcredit to improve the performance of women informal business owners. Access to microcredit is still difficult for large financial intermediaries such as banks. However, some financial services are also very easy for anyone to do, such as access to open accounts and savings, including access to transfer transactions. Without microcredit, the presence of financial intermediation institutions is considered not to have any impact, especially for the development of women's performance in the informal sector, because the need for capital credit as an additional financial resource is not met and as if its presence is not to help their businesses which until any time are considered unbankable. Therefore, the importance of microfinance intermediation institutions such as cooperatives that are present provide microcredit for women informal business owners to improve their business performance.

1. **Research Implications**

**Practical Implications**

The practical implications of this research, especially for policymakers in supporting the improvement of women's performance in the informal sector, especially in developing countries, must use microfinance intermediaries such as cooperatives that are proven to encourage accelerated access to microcredit in the community. This can be achieved because cooperatives exist as capital solutions that are close to the community but have a clear work system. Unlike other informal financial sources that provide high-cost interest loans and unclear regulations that even tend to harm their users, in Indonesia, it is known as "loan sharks." On the other hand, there are formal financial institutions with cheaper costs but more difficult requirements, namely "banking" with various People's Business Credit (KUR) products. Banking access is suitable for people and business people who have levelled up, namely, already have assets that can be guaranteed. Thus, cooperatives fill the gap by providing access to unsecured microcredit to their members, including women informal business owners in Indonesia. So, the government must fully support how cooperatives can continue to survive and compete in serving finance in informal businesses. In addition, it can also involve other MFIs to distribute microcredit to the community, which, of course, must be supervised and must follow local government regulations to provide guarantees of security procedures, ease of requirements, and affordable costs.

**Theoretical Implications**

This study also provides empirical evidence that financial intermediation has a strong effect on increasing microcredit, and microcredit has been proven to have a strong influence on improving the performance of women informal business owners. In addition, microcredit has also proven successful in providing a full mediating effect in financial intermediation relationships on the performance of women informal business owners. This means without microcredit, financial intermediation cannot affect performance. Increasing the number of branches and services at financial intermediation institutions will not have any effect if they do not channel microcredit to women informal business owners. In essence, microcredit is their main need in developing their informal business, which often experiences constraints in the capital because of other types of financial services such as saving; the majority of them can also get these financial services from any financial intermediation institution in contrast to microcredit, which has more complicated requirements than when they want to save or transfer.

1. **Limitations and areas for future study**

The results of this study came from data collected through a cross-sectional research design to produce bias, and future studies can use longitudinal data. This research is also limited to cooperative microfinance intermediation institutions, and future research can involve several MFIs and compare their impact on performance. In addition, other variables can also be considered to improve the performance of women informal business owners, such as financial literacy and debt behaviour as exogenous variables and mediators. Furthermore, gender theory can be considered to strengthen the findings.

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**Ethical Statement/Approval**

Ethical review and approval were waived for this study because this research project does not involve animal or human subjects. The data collected and analyzed in this research were obtained solely from questionnaire sources, with explicit consent obtained from the participants, and did not contain sensitive information. Therefore, the execution of this research did not necessitate any specific ethical approval.

**Authorship contribution statement**

Andini Ekasari: Conceptualization, Writing – original draft preparation, Methodology, data collection, Project administration, Funding acquisition. Meutia: Conceptualization, Writing – review and editing, Validation, Visualization, Formal analysis, Supervision. Lia Uzliawati: Conceptualization, Writing – review and editing, Methodology, Investigation, Supervision. Windu Mulyasari: Conceptualization, Writing – review & editing, Methodology, Validation, Supervision.

1. **Conflict of interest statement**

This scientific article is an original article to complete the requirements for doctoral graduation at Untirta Postgraduate, which must be published, and I chose this publisher. If there are costs the author must meet, please inform us that we are willing to comply with the publication regulations. The author is fully responsible for this article's manuscript if things happen after this manuscript is published.

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