

Assessing the Drivers of Financial Distress in Indonesian Rattan SMEs through Digital and Financial Perspectives

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ABSTRACT

This study's objectives are to ascertain the impact of variables that determine financial distress among Small and Medium-sized Enterprises (SMEs) during the COVID-19 pandemic and post-pandemic period, including the perception of SMS offenders, knowledge of digital marketing, and growth in net profits, as well as to offer solutions to the issues that SMEs face. **In Cirebon** a descriptive and verifying strategy is taken in the employment of quantitative methodologies in the research. Primary data were used. Gathering information from field-work and library research based on surveys distributed and previously published works on SMS's Rattan crimes registered with Cirebon's Micro & Medium Enterprises Cooperation Service. **Verification statistics** analysis procedures include the use of hypothetical testing with partial and simultaneous tests (f and t-test) as well as data analysis testing using double linear regression. One hundred respondents from SME victim Rattan Cirebon provided the sample data. IBM SPSS version 21.0 is the analytical program that was utilized to process the data. **According to some** of the research findings, financial distress is greatly impacted by the impression of SME offenders, is unaffected by knowledge of digital marketing, and is greatly impacted by an increase in net profit. **Simultaneous research findings** reveal that the perspective of SME offenders, comprehension of digital marketing, and growth in net profit have a noteworthy impact on financial Distress.

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1. INTRODUCTION

Small and Medium-sized Enterprises (SMEs) play a vital role in achieving the Sustainable Development Goals (SDGs), particularly Goal 8 on Decent Work and Economic Growth, Goal 9 on Industry, Innovation, and Infrastructure, and Goal 17 on Partnerships for the Goals. SMEs are essential drivers of job creation, income generation, innovation, and equitable economic growth. They contribute significantly to community

resilience by distributing goods and services, stimulating local markets, and strengthening regional economies [1, 2].

However, it is widely recognized that SMEs often encounter financial challenges and have a higher probability of experiencing bankruptcy, regardless of their business environment be it in terms of industry or country context [3]. One of the major obstacles SMEs face is obtaining access to credit or funding from financial institutions due to insufficient collateral, which hinders their ability to expand and sustain operations that contribute to local and regional economic development [4, 5]. Furthermore, financial distress experienced by interconnected enterprises can lead to downturns across specific industries or regions. When a company reports a negative net profit, it can be categorized as being in financial crisis [6].

In Indonesia, over the last three years, the COVID-19 pandemic has severely impacted Micro, Small, and Medium Enterprises (MSMEs), particularly in the Cirebon region. Many SMEs have faced significant marketing and financing challenges during this period [7, 8]. Financing is a crucial element in business sustainability, as it enables entrepreneurs to establish and expand their ventures. When faced with funding constraints, entrepreneurs can seek alternative solutions such as attracting investors or applying for government financial assistance programs [9]. Stable financial access provides SMEs with a stronger foundation to manage operations effectively and maintain resilience in the face of economic uncertainty [10].

The rattan industry in Cirebon historically one of the region's economic pillars has also experienced a notable decline due to global inflation and fluctuating demand in international markets [11]. Many rattan artisans (subcontractors) have declared bankruptcy, largely because production costs outweigh the global selling prices of rattan-based furniture [12]. In addition to financial constraints, SMEs face numerous structural challenges, including limited access to financial institutions, low-quality human resources [13], inadequate financial recording practices, weak marketing capacity, restricted access to information and technology, lack of strategic partnerships, and high operational costs arising from complex administrative and bureaucratic procedures [14, 15].

Aligned with the SDGs, particularly the commitment to promote sustainable and inclusive economic growth, this study aims to analyze the determinants of financial distress among SMEs during and after the COVID-19 pandemic [16]. Specifically, it examines the effects of SME owners' perceptions, understanding of digital marketing, and growth in net profits on financial distress [17, 18]. The study also seeks to propose strategic solutions to support SMEs in overcoming these challenges and to strengthen their contribution to sustainable economic recovery and local development [19].

2. LITERATURE REVIEW

Financial distress is characterized in a number of ways. A company is in financial distress when it is unable to pay off its current commitments. Alternatively, a company is in financial difficulty when it lacks the financial means to pay back its contractual obligations [20]. A company is in financial distress if it cannot pay its debts including alternatively, it can be defined as a situation when a company makes too little money to cover its expenses [21, 22]. Financially troubled businesses typically have low cash flow and incur losses but do not go bankrupt. Financial distress can also be described as a state in which interest payments Exceed profits Before Interest, Taxes, Depreciation, and Amortization (EBITDA) for a company. This is known as the firm's risk buffer [23].

Perception can be defined as the process by which humans select, arrange, and interpret sensory data to produce a meaningful understanding of the world [24]. It is the process through which an individual selects, arranges, and analyzes data. The process by which MSMEs actors use information obtained through the five senses to select, arrange [25], and interpret data in order to construct a meaningful picture of the world is thus referred to as their perception. In the context of SMEs, perception plays a crucial role in influencing decision-making, particularly in responding to market changes, managing financial challenges, and adapting to technological advancements. Digital marketing is the outcome of evolutionary marketing. When businesses primarily market through digital media platforms, evolution takes place [26]. This transition signifies a strategic shift from traditional to modern marketing approaches, allowing businesses to reach wider audiences efficiently and measure their marketing performance in real time. Digital media platforms can be utilized to facilitate ongoing, bidirectional, and intimate dialogues between customers and marketers [27, 28]. Digital marketing is a multi media marketing activity that includes branding. As an illustration [29], consider blogs, websites, email, adwords, and different social media platforms. The digital marketing sales dimension is described

as a component of the 4P marketing mix, which also includes product, price, location, and promotion [30]. Therefore, the integration of perception and digital marketing understanding among MSME actors becomes essential in shaping their business strategies and ensuring competitiveness in the digital era.

Net profit is the profit less all costs borne by the business within a given time period, such as taxes [31]. Net profit is determined by subtracting burdensome costs from gross profit, which includes taxes. The predicted net profit in this research is a rise in net profit itself [32]. To gather data on motivation, planning, and the anticipated growth in profit, direct interviews with SME actors are conducted to control the variable of growing net profit [33, 34].

2.1. Framework of Reference

The following is a framework research:

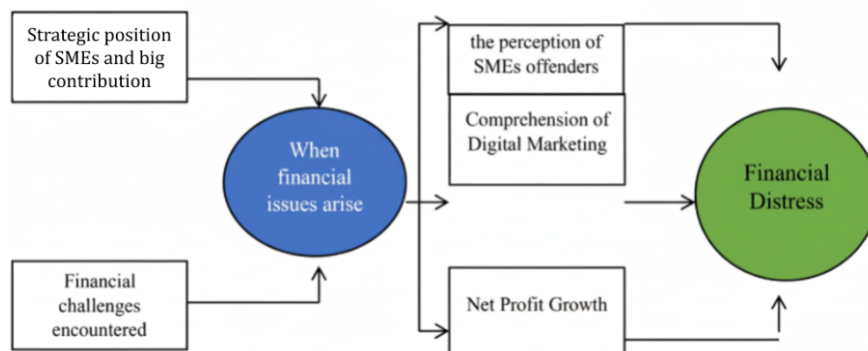


Figure 1. Framework Research

Figure 1 framework Research illustrates the conceptual framework that describes the relationship between the key variables analyzed in this study. The framework begins with the strategic position of SMEs and their significant contribution to the economy, which often faces various financial challenges when financial issues arise. These challenges are influenced by several factors, including the perception of SMEs offenders, comprehension of digital marketing, and net profit growth, which collectively affect the level of financial distress experienced by SMEs. This model explains that when SMEs encounter financial problems, managerial perception, digital capability, and profitability growth become critical determinants in mitigating or exacerbating financial distress.

The research hypotheses of this study are formulated as follows:

- **H1:** The perception of SME offenders has a positive and significant impact on Financial Distress.
- **H2:** The comprehension of digital marketing has a positive and significant influence on Financial Distress.
- **H3:** Net profit growth exerts a positive and significant effect on Financial Distress [35].
- **H4:** Financial Distress is affected by the perception of SME offenders, comprehension of digital marketing, and net profit growth simultaneously.

3. RESEARCH METHOD

The quantitative descriptive-verification strategy used in this study's research methodology included multiple linear regression and partial or simultaneous hypothesis testing [36, 37]. Specialized populations or samples are studied using quantitative research methodologies, which are based on the positivist notion [38]. To evaluate and characterize pre-existing hypotheses [39], research instruments are used to collect data, which is then processed quantitatively or statistically.

The description of phenomena (problems) in a methodical, factual, and accurate manner concerning the obstacles SMEs encounter in averting the level of financial difficulties encountered by SMEs registered with the Cirebon SMEs Cooperative Service is the research's descriptive verification objective, which guided the choice of this approach [40].

Primary data were the type of data used in this inquiry [41]. The study's data originated from a questionnaire that was modified from previous research and distributed to respondents SMEs who were registered with the Cooperatives, Micro [42], Small and Medium Enterprises Service in Cirebon, as well as interviews with SMEs actors regarding their financial struggles [43]. While the secondary data that will be collected will be found in papers, reports, and journals that support research [44].

For this study, one hundred participants were given a Likert scale model questionnaire, which was used to collect data [3]. In this study, probability sampling was employed as the sampling technique, which offers each element (member) in the population an equal chance of being selected as a sample member [45]. Simple random sampling is the approach used, which involves selecting sample members at random from a population without taking into account the strata within that group [46]. The strategic position of SMEs and their big contribution highlight the financial challenges encountered when financial issues arise, as well as the perception of SME owners and their comprehension of digital marketing, net profit growth, and financial distress [47, 48].

4. RESULT AND DISCUSSION

4.1. Multiple Linear Regression

Multiple linear regression was conducted to provide an in depth evaluation of the relationship between the dependent variable [49], Financial Distress, and the independent variables Perception of SMEs offenders, Understanding of Digital Marketing, and Net Profit Growth. The results of the regression analysis are presented below [50].

Table 1. Multiple Linear Regression Results

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.333	1.564	-	0.852	0.396
	The perception of SMEs Offenders	0.278	0.072	0.354	3.845	0.000
	Comprehension of Digital Marketing	-	0.298	-0.298	-1.156	0.250
	Net Profit Growth	1.284	0.353	0.850	3.641	0.000

a. Dependent Variable: Financial Distress

Table 1, multiple Linear Regression Results shows the influence of three independent variables on financial distress. The results indicate that the perception of SMEs offenders has a positive and significant effect on financial distress (Sig. = 0.000), comprehension of digital marketing has a negative but not significant effect (Sig. = 0.250), and net profit growth has a positive and significant effect (Sig. = 0.000). The resulting regression equation is:

$$Y = 1.333 + 0.278X_1 - 0.344X_2 + 1.284X_3$$

This means that the perception of SME offenders and net profit growth increase financial distress, while comprehension of digital marketing tends to reduce it, although the effect is not statistically significant.

4.2. Coefficient Determination Test (r^2)

A useful metric for assessing how well a model can account for variations in the dependent variable is the determination coefficient test [51, 52]. The following are the outcomes of the SPSS 21 determination coefficient test:

Table 2. Coefficient Determination Test Result (r^2)

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.857 ^a	0.734	0.725	1.66013	1.867
<i>a. Predictors: (Constant), Net profit growth, the perception of SMEs, Digital Marketing</i>					
<i>b. Dependent Variable: Financial Distress</i>					

Table 2, the coefficient of determination value is obtained to be as high as 0.734, or 73.4%, indicating that a simultaneous link (together) of 73.4% to financial challenges is provided by the perception of SME offenders [53], comprehension of digital marketing, and net profit growth. Although additional factors not included in the study have an impact on the remaining 26.4%.

4.3. Hypothesis Partial Testing (t-test)

To examine whether Financial Distress is affected by the perceptions of SME offenders [54], the understanding of digital marketing, and net profit growth, the t-value is computed based on the distribution. For a two tailed test, the critical t-value is 1.985 with $\alpha = 0.05$ and degrees of freedom (df) = $n - k - 1 = 100 - 4 - 1 = 95$ [55, 56]. The results of the partial hypothesis testing are presented as follows:

Table 3. Partial Test Calculation Results (t-test)

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.333	1.564	-	0.852	0.396
The perception of SMEs Offenders	0.278	0.072	0.354	3.845	0.000
Comprehension of Digital Marketing	-	0.298	-0.298	-1.156	0.250
Net Profit Growth	1.284	0.353	0.850	3.641	0.000
<i>a. Dependent Variable: Financial Distress</i>					

Table 3 presents the partial test calculation results (t-test), showing the effect of each independent variable on financial distress. The perception of SME offenders has a t-value of 3.845 and a significance level of Sig. = 0.000 (< 0.05), indicating a positive and significant effect on financial distress. The comprehension of digital marketing has a t-value of -1.156 with a significance level of Sig. = 0.250 (> 0.05), meaning it has a negative but not significant effect. Meanwhile, net profit growth has a t-value of 3.641 and a significance level of Sig. = 0.000 (< 0.05), showing a positive and significant effect on financial distress. This implies that perceptions of SME offenders and net profit growth significantly contribute to changes in financial distress, while comprehension of digital marketing does not have a significant influence.

- H1 According to the tcount calculation above, the perception of SMEs offenders has a tcount value of 3.845 and a t-table value of 1.985 with a sig value of $0.000 < 0.05$ [57]. the perception of SMEs offenders has an effect and significant on Financial Distress because the tcount value $>$ t-table, rejecting H0 and accepting H1 [58].
- H2 Based on the tcount calculation above, the t-table value is -1.156 with a sig value of $0.250 > 0.05$, and the tcount value for Comprehension of Digital Marketing is -1.985 [59]. H2 is rejected and H0 is accepted since the -tcount value $<$ -t-table, indicating that Comprehension of Digital Marketing has no effect on Financial Distress [60].
- H3 According to the tcount calculation above, net profit growth has a tcount value of 3.641 and a t-table value of 1.985 with a sig value of $0.000 < 0.05$. net profit growth has an effect and significant on Financial Distress because the tcount value $>$ t-table, rejecting H0 and accepting H3 [61].

4.4. Hypothesis Simultaneous Testing (F-test)

To determine whether Debt to Asset Ratio, Company Size, Institutional Ownership, and Earnings Management collectively affect Accounting Conservatism, the F-test is performed using the distribution table. The calculated F-table value is 2.45 at a significance level of $\alpha = 0.05$, with degrees of freedom $V_1 = 3$ and $V_2 = 96(n-k)$. The outcomes of the simultaneous hypothesis testing are presented below:

Table 4. Simultaneous Test Calculation Results (F-test)

ANOVA ^a						
	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	729.180	3	243.060	88.192	0.000 ^b
	Residual	264.580	96	2.756	-	-
	Total	993.760	99	-	-	-
<i>a. Dependent Variable: Financial Distress</i>						
<i>b. Predictors: (Constant), net profit growth, the perception of SMEs, comprehension digital marketing</i>						

Based on the findings presented in Table 4, the computed F-value (F_{count}) is 88.192, with a significance level (p-value) of 0.000. The critical F-value (F_{table}) is 2.45, with degrees of freedom $V_1 = 95$, $(n - k - 1)$ and $V_2 = 4$, at a significance level of $\alpha = 0.05$. The variables perception of SME offenders, comprehension of digital marketing [62], and net profit growth collectively exert a significant effect on Financial Distress, as the calculated F-value (88.192) exceeds the critical F-value (2.45) and the significance level of 0.000 is below 0.05 ($0.000 < 0.05$). Therefore, hypothesis H4 is accepted, while the null hypothesis (H_0) is rejected [63].

5. MANAGERIAL IMPLICATION

The findings of this research offer several managerial implications for SME owners, policymakers, and stakeholders, particularly in the rattan industry in Cirebon. The notable impact of SME offenders' perceptions on financial distress highlights the importance of improving managerial awareness and financial literacy. SME owners are encouraged to take a proactive role in identifying early signs of financial distress, managing financial resources effectively, and enhancing their ability to make strategic financial decisions. Continuous development of training programs, workshops, and mentoring activities related to financial management and risk assessment is essential to strengthen managerial competence and resilience.

Although the comprehension of digital marketing did not have a statistically significant impact, it remains a strategic component in enhancing business performance and competitiveness. Managers should continue to integrate digital marketing practices into their business operations, as consistent use of digital platforms can increase brand visibility, strengthen customer relationships, and expand market reach. Therefore, capacity-building programs focusing on digital literacy and technological adaptation should be prioritized to foster long-term business sustainability.

Furthermore, the significant relationship between net profit growth and financial distress implies that maintaining profitability is crucial for financial stability. Managers should emphasize cost control, innovation, and effective pricing strategies to improve financial performance. Regular financial monitoring and reinvestment of profits into productive activities can enhance business continuity and competitiveness.

For policymakers, the findings highlight the necessity of establishing integrated financial and digital empowerment programs for SMEs. Collaborative partnerships between government agencies, educational institutions, and financial organizations can provide holistic support to SMEs through access to funding, business training, and digital transformation initiatives. Such synergy will strengthen the financial resilience and competitiveness of SMEs, particularly in traditional sectors such as the rattan industry, ensuring their contribution to regional economic recovery and sustainable growth.

6. CONCLUSION

The verification analysis, which was primarily done using the partial hypothesis testing *t*-test method, yielded the following results the perception of SME offenders has an effect and significant to Financial Distress. Comprehension of digital marketing has no effect on Financial Distress; net profit growth has an effect

and significant Financial Distress. The perception of SMEs offenders, comprehension of digital marketing and net profit growth were found to have a simultaneous effect on Financial Distress based on the results of simultaneous hypothesis testing (F-test).

As this study still has several limitations concerning sample selection, theoretical framework, and problem analysis, the author suggests that future researchers investigating financial distress in SMEs as a dependent variable should consider adopting more contemporary theories, enlarging the sample size, and substituting the current indicators and independent variables with alternative ones that could provide a more comprehensive explanation of financial distress.

7. DECLARATIONS

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7.2. Author Contributions

Conceptualization: DH; Methodology: SS; Software: YS; Validation: NA and SS; Formal Analysis: DN and NA; Investigation: YS; Resources: SS; Data Curation: NA; Writing Original Draft Preparation: YS and DN; Writing Review and Editing: NA and DH; Visualization: ; All authors, YS, DH, NA, DN, and SS, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

REFERENCES

- [1] L. Anatan and Nur, "Micro, small, and medium enterprises' readiness for digital transformation in indonesia," *Economies*, vol. 11, no. 6, p. 156, 2023.
- [2] M.-S. Jameaba, "Improving the quality of economic development to reverse rising income inequality: Why financial inclusion may not be the magic bullet for indonesia," *Available at SSRN 3962144*, 2021.
- [3] R. Anindita, V. H. Prastowo, and J. Parker, "Reinforcing the role of cyber village in improving indonesia msme through an exploratory study," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 7, no. 3, pp. 726–737, 2025.
- [4] T. Tambunan, "Success factors for the development of micro, small, and medium industrial clusters in indonesia," *Journal of Asian Development Studies*, vol. 12, no. 1, pp. 7–25, 2023.
- [5] A. T. Ferdinand and S. Zuhroh, "A study on socio-aesthetic value accentuation and marketing performance: an sdl perspective," *International Journal of Innovation Science*, vol. 14, no. 2, pp. 213–229, 2022.
- [6] M. D. Revindo, C. Gan, and S. Hambali, "Sme's export intensity: enhancers, inhibitors and firm characteristics," *Journal of Small Business & Entrepreneurship*, vol. 37, no. 2, pp. 267–293, 2025.
- [7] O. Jayanagara and A. Patricia, "Analyzing healthpreneur determinants for low-socioeconomic ethnic families," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 7, no. 3, pp. 738–750, 2025.

- [8] M. Adistia and S. Sanaji, "Influence of social media marketing, e-commerce, and product innovation on marketing performance (study on food and beverage smes in surabaya)," *Journal of Business and Management Review*, vol. 3, no. 7, pp. 453–469, 2022.
- [9] F. Junita, I. I. Soeparna, R. Kesumawardhani *et al.*, "Internationalization of small and medium enterprises in indonesia: Towards integrative policy approach of competitiveness and connectivity," *Yuridika*, vol. 38, no. 2, pp. 333–370, 2023.
- [10] A. L. Paulus and Y. B. Hermanto, "The competitive advantage of furniture smes in east java: The role of aggressiveness in entrepreneurship orientation," *Economies*, vol. 10, no. 6, p. 139, 2022.
- [11] U. Rahardja, M. Miftah, M. Rakhmansyah, and J. Zanubiya, "Revolutionizing financial services with big data and fintech: A scalable approach to innovation," *ADI Journal on Recent Innovation*, vol. 6, no. 2, pp. 118–129, 2025.
- [12] A. M. A. Ausat and S. Suherlan, "Obstacles and solutions of msme in electronic commerce during covid-19 pandemic: evidence from indonesia," *BASKARA: Journal of Business and Entrepreneurship*, vol. 4, no. 1, pp. 11–19, 2021.
- [13] P. Pandey, S. Chaudhary, and X. Nie, "Technopreneurial filtering technique for speckle noise reduction in ultrasound imaging of polycystic ovary syndrome," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 7, no. 3, pp. 713–725, 2025.
- [14] T. T. H. Tambunan, *Development of small-scale industries during the new order government in Indonesia*. Routledge, 2024.
- [15] L. Limajatini, S. Suhendra, G. A. Pangilinan, and M. G. Ilham, "Integration of artificial intelligence in the financial sector innovation, risks and opportunities," *International Journal of Cyber and IT Service Management*, vol. 5, no. 1, pp. 58–70, 2025.
- [16] Y. Soesetio, D. A. Rudiningtyas, A. A. N. Rakhmad, and R. Wiliandr, "Entrepreneurial orientation, innovation, competitiveness, and performance of ultra-micro and micro enterprises in indonesia," *Global Business & Finance Review*, vol. 29, no. 10, p. 55, 2024.
- [17] F. Widyawati, I. Soemaryani, and W. O. Z. Muizu, "The effect of social capital and organizational health on competitive advantages of culinary and craft smes in samarinda city," *Sustainability*, vol. 15, no. 10, p. 7945, 2023.
- [18] M. L. Siraj, S. Syarifuddin, A. C. T. Tadampali, H. Zainal, R. Mahmud *et al.*, "Understanding financial risk dynamics: Systematic literature review inquiry into credit, market, and operational risks:(a long-life lesson from global perspective to indonesia market financial strategy)," *Atestasi: Jurnal Ilmiah Akuntansi*, vol. 7, no. 2, pp. 1186–1213, 2024.
- [19] D. Nugroho and P. Angela, "The impact of social media analytics on sme strategic decision making," *IAIC Transactions on Sustainable Digital Innovation (ITS DI)*, vol. 5, no. 2, pp. 169–178, 2024.
- [20] A. Charina, G. Kurnia, A. Mulyana, and K. Mizuno, "The impacts of traditional culture on small industries longevity and sustainability: A case on sundanese in indonesia," *Sustainability*, vol. 14, no. 21, p. 14445, 2022.
- [21] Q. Aini, D. Manongga, U. Rahardja, I. Sembiring, and Y.-M. Li, "Understanding behavioral intention to use of air quality monitoring solutions with emphasis on technology readiness," *International Journal of Human–Computer Interaction*, vol. 41, no. 8, pp. 5079–5099, 2025.
- [22] R. Hidayati and M. Muslikh, "Improve marketing performance through marketing relationships and sustainable competitive advantage," *Research of Business and Management*, vol. 1, no. 2, pp. 67–76, 2023.
- [23] S. Bagade, S. S. Chitta, R. K. Jain, V. Padmavathi, and K. Prasad, "Association between financial efficiency and credit risk of smes—a study using dea and altman z-score," *Fiib Business Review*, p. 23197145231177182, 2023.
- [24] A. Novandalina, F. Y. Ernawati, and A. T. Adriyanto, "Risk attitudes, mental accounting and overconfidence in investment placement decision during and post covid-19," *International Journal of Economics, Business and Accounting Research (IJE BAR)*, vol. 6, no. 1, pp. 498–506, 2022.
- [25] A. Kristian, A. Supriyadi, R. Sean, A. Husain *et al.*, "Exploring the relationship between financial competence and entrepreneurial ambitions in digital business education," *APTISI Transactions on Management*, vol. 8, no. 2, pp. 139–145, 2024.
- [26] F. Sampe, A. Haryono, D. L. Pakiding, N. Norvadewi, and M. Yusuf, "Analysis of typical capabilities and entrepreneurial orientation against competitive advantage in bandung traditional foods msme," *Jurnal Ekonomi*, vol. 11, no. 03, pp. 940–944, 2022.

- [27] U. B. Yousaf, K. Jebran, and M. Wang, "Can board diversity predict the risk of financial distress?" *Corporate Governance: The International Journal of Business in Society*, vol. 21, no. 4, pp. 663–684, 2021.
- [28] D. Dellyana and B. Hardjakaprabon, "Co-creation framework in cluster industry with limited resources," *International Journal of Business and Globalisation*, vol. 29, no. 2, pp. 178–197, 2021.
- [29] S. Nelly, "Digitalization as a strategy for the revitalization of micro, small and medium enterprises (msmes) during the covid-19 pandemic," *Annals of the Romanian Society for Cell Biology*, vol. 25, no. 6, pp. 384–392, 2021.
- [30] A. Erica, L. Gantari, O. Qurotulain, A. Nuche, and O. Sy, "Optimizing decision-making: Data analytics applications in management information systems," *APTISI Transactions on Management*, vol. 8, no. 2, pp. 115–122, 2024.
- [31] D. Gumulya, J. Purba, E. Hariandja, and R. Pramono, "The emergence of innovation capability during firms' early stage: Cases from indonesian creative social enterprise," *International Journal of Sustainable Development and Planning*, vol. 17, no. 7, pp. 2153–2164, 2022.
- [32] I. Awaluddin, W. Hamid, and C. Abady, "The model of consumers' intention to purchase smes' green products in indonesia: Study case of smes in makassar, south sulawesi, indonesia," *Quality-Access to Success*, vol. 22, no. 184, 2021.
- [33] S. Tirtayasa, H. Khair, R. Kartaatmaja *et al.*, "Analysis of resilience priorities for micro, small and medium enterprises (msmes) in deli serdang district," *Jurnal Manajemen & Agribisnis*, vol. 18, no. 2, pp. 215–215, 2021.
- [34] J. M. Fernandez Mendoza, "Circular economy in latin america and the caribbean: Drivers, opportunities, barriers and strategies," 2024.
- [35] J. M. S. Guzman and J. M. Apritado, "Product innovation, marketing strategies and local government support to handicraft industry in ilocos region: Inputs for local product development framework," *International Journal of Research*, vol. 12, no. 7, pp. 153–166, 2024.
- [36] U. Heriqbaldi, M. A. Esquivias, B. R. Samudro, and W. Widodo, "Do national export promotion programs in indonesia support export competitiveness?" *Heliyon*, vol. 9, no. 6, 2023.
- [37] S. Purnama, C. S. Bangun, and E. P. Mahadewi, "Predicting consumer purchase intention in personal shopper services using big data analytics and sem," *International Journal of Cyber and IT Service Management (IJCITSM)*, vol. 5, no. 1, pp. 105–119, 2025.
- [38] V. Verawaty, "The accessibility determinants of internet financial reporting of local government: Further evidence from indonesia," *The Accessibility Determinants of Internet Financial Reporting of Local Government: Further Evidence from Indonesia*, 2022.
- [39] D. D. Utami, W. Dhewanto, and Y. D. Lestari, "Rural tourism entrepreneurship success factors for sustainable tourism village: Evidence from indonesia," *Cogent Business & Management*, vol. 10, no. 1, p. 2180845, 2023.
- [40] R. G. Munthe, Q. Aini, N. Lutfiani, I. Van Persie, and A. Ramadhan, "Transforming scientific publication management in the era of disruption: Smartpls approach in innovation and efficiency analysis," *APTISI Transactions on Management*, vol. 8, no. 2, pp. 123–130, 2024.
- [41] R. M. Uday, S. Salman, M. R. Karim, M. S. Ar Salan, M. Islam, and M. Shahriar, "Assessing the barriers to lean manufacturing adoption in the furniture industry of bangladesh: a fuzzy-dematel study," *International Journal of Industrial Engineering and Operations Management*, vol. 7, no. 1, pp. 44–67, 2025.
- [42] R. H. A. Nasution, L. Deswindi, and D. Indrajaya, "Identification of factors affecting the productivity of medium small micro enterprises (msmes)," *International Journal Of Economics Development Research*, vol. 3, no. 3, pp. 227–35, 2022.
- [43] R. R. Putra and S. N. Khalisa, "The effect of accounting knowledge and education level on msme performance with the application of accounting information systems and understanding of sak emkm as intervening variables," *Owner: Riset dan Jurnal Akuntansi*, vol. 7, no. 4, pp. 3741–3758, 2023.
- [44] D. Sartika, F. Tan, A. Adrimas, and A. Warokka, "Development of financial technology (fintech) in indonesia and its affecting factors," *Journal of Positive*, vol. 5, no. 4, pp. 469–483, 2021.
- [45] K. Kussudyarsana, M. H. Maimun, H. K. Maulana, M. T. Nugroho, and B. Santoso, "Family business resilience in crisis: study case analysis in a collectivist society," *Business: Theory and Practice*, vol. 25, no. 1, pp. 308–320, 2024.
- [46] R. Aprianto, C. Lukita, A. Sutarman, R. A. Sunarjo, R. N. Muti, and E. Dolan, "Facing global dynamics with effective strategy: A tasted organizational change management approach," *International Journal of*

- Cyber and IT Service Management*, vol. 5, no. 1, pp. 1–11, 2025.
- [47] T. Sendjaja, D. J. Rachbini, R. Astini, and D. Asih, “Driving socialpreneurship and diving into digital transformation to enhance donation intentions in indonesia,” *Aptisi Transactions on Technopreneurship (ATT)*, vol. 7, no. 3, pp. 687–700, 2025.
 - [48] U. Jaroenkietkajorn, S. H. Gheewala, R. Mungkung, N. Jakrawatana, T. Silalertruksa, N. Lecksiwilai, J. Prasara-A, and P. Nilsalab, “Challenges and opportunities of bio-circular-green economy for agriculture,” *Circular economy and sustainability*, vol. 4, no. 3, pp. 1729–1750, 2024.
 - [49] A. Charina, G. Kurnia, A. Mulyana, and K. Mizuno, “Sustainable education and open innovation for small industry sustainability post covid-19 pandemic in indonesia,” *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, no. 4, p. 215, 2022.
 - [50] S. Zuhroh and G. P. Rini, “Product innovation capability and distinctive value positioning drivers for marketing performance: a service-dominant logic perspective,” *International Journal of Innovation Science*, 2024.
 - [51] A. S. Arief, P. J. Pattiasina, and S. P. Remus, “Relevance of human resource management on small business objective in digital era: A critical review of research evidence,” *International Journal of Social Sciences and Humanities*, vol. 5, no. 2, pp. 79–91, 2021.
 - [52] G. A. K. G. Suasana, G. Riana, and G. Suparna, “The role of business learning as moderating the influence of entrepreneurship orientation on business innovation and performance,” *Calitatea*, vol. 26, no. 204, pp. 203–216, 2025.
 - [53] L. P. Dewanti, L. Sitoayu, and A. Idarto, “Digital tele-counseling for sustainable maternal health services in indonesia focus on telelactation,” *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, vol. 6, no. 1, pp. 10–20, 2024.
 - [54] V. Gaffar, T. Koeswandi, and U. Suhud, “Has the covid-19 pandemic accelerated the digital transformation of micro, small and medium-sized enterprises in indonesia?” *Teorija in praksa*, vol. 59, no. 3, 2022.
 - [55] Y. Yanti, T. Ismail, I. A. Hanifah, and M. Muschlish, “Bibliometric analysis of the concept of using enterprise resource planning in the micro, small and medium enterprises (msme) sector,” *TEM Journal*, vol. 11, no. 3, pp. 1229–1234, 2022.
 - [56] M. T. Al Makmun, *Globalization and the Changing Cultural Landscape of an Indonesian City: Street Vending Cultural Practices and Spatiotemporal Politics in Solo City (1980s-2020s)*. Bowling Green State University, 2024.
 - [57] T. Raharjo, “Indonesian new exporter (ine) as a training and development model micro small and medium enterprises (msmes) in the field of handicrafts,” *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, vol. 12, no. 3, pp. 5063–5071, 2021.
 - [58] I. W. Widnyana, I. Wijaya, and A. Almuntasir, “Financial capital, constraints, partners, and performance: An empirical analysis of indonesia smes,” *JEMA: Jurnal Ilmiah Bidang Akuntansi dan Manajemen*, vol. 18, no. 2, pp. 210–235, 2021.
 - [59] W. Kosasih, I. N. Pujawan, P. D. Karningsih, and H. Shee, “Integrated lean-green practices and supply chain sustainability framework,” *Cleaner and Responsible Consumption*, vol. 11, p. 100143, 2023.
 - [60] C. Aurora and T. Mauritsius, “Creation of rag chatbot in answering queries related to banking terms using microsoft azure,” *International Journal of Cyber and IT Service Management (IJCITSM)*, vol. 5, no. 2, pp. 144–155, 2025.
 - [61] M. Martini, D. Setiawan, R. T. Suryandari, R. K. Brahmana, and A. Asrihapsari, “Determinants of digital innovation in micro and small industries,” *Economies*, vol. 11, no. 6, p. 172, 2023.
 - [62] S. Miko, A. W. T. Atmaja, R. Mawardah, S. D. Zulfa, F. Siboro, and A. Marjuki, “The impact of competitiveness, information technology, risk perception, and financial literacy on the intention to invest in cryptocurrency,” *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, vol. 5, no. 1, pp. 1–7, 2023.
 - [63] T. Tambunan, “Factors influencing the resilience of mses to the covid-19 pandemic crisis in indonesia,” *Journal of Management and Science*, vol. 12, no. 4, pp. 92–103, 2022.
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