

The Impact Of Business Sustainability And Entrepreneurial Spirit On The Financial Performance Of Msmes: The Moderating Role Of Mental Accounting

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Abstract

Business sustainability and entrepreneurial spirit are two internal factors believed to play a crucial role in determining the financial performance of micro, small, and medium enterprises MSMEs, especially amid the economic challenges faced by business actors. Drawing on the resource-based view theory, this study develops a model to explore the impact of business sustainability and entrepreneurial spirit on the financial performance of MSMEs, while also examining the moderating role of mental accounting in these relationships. Data were collected from 223 MSME owners and analyzed using structural equation modeling with SmartPLS to test the proposed hypotheses. The results reveal that both business sustainability and entrepreneurial spirit have a significant positive effect on the financial performance of MSMEs. Furthermore, mental accounting is found to moderate the relationship between business sustainability and financial performance, whereas no moderating effect of mental accounting is observed on the relationship between entrepreneurial spirit and financial performance. These findings broaden the understanding of the importance of managing business sustainability and strengthening the psychological aspects of financial decision-making to enhance MSME financial performance, and provide practical implications for business practitioners and policymakers in the MSME sector.

Keywords: *Business sustainability, entrepreneurial spirit, financial performance, mental accounting, MSMEs.*

1. INTRODUCTION

MSMEs are recognized as engines of inclusive economic growth in emerging and developing economies. They also make a substantial contribution to job creation, poverty alleviation and the development of local economies. In Indonesia, MSMEs are estimated to reach up to 99.9% of all business units generating more than 60% of the national income which indicate its strategic position within macro and microeconomic sector. Especially in Kudus Regency, which is a leading productive and trading center in Central Java, MSMEs play a significant role in economic dynamism, in which they are spread in various sectors consisting of food and beverage, creative industry, and service. Despite their ubiquity and considerable potential for impact, numerous MSMEs continue to grapple with inadequate financial performance during the post-pandemic recovery period. This period is marked by inflationary pressures, volatile market conditions, and constrained access to working capital [1], [2].

The perennial financial vulnerability of MSMEs has received wide research consideration, especially in relation to the internal capabilities that can contribute to financial solidity and firm longevity. Two inner constructs deserving of further scrutiny are business sustainability and entrepreneurship. Based on the

resource-based view (RBV) theory [3], [4], which contends that firm level resources and capabilities are a crucial means of exploiting competitive advantage, the current study suggests that business sustainability and entrepreneurial orientation are valuable, rare, inimitable, and non-substitutable (VRIN) resources, which can affect MSME financial performance. The notion of business sustainability, within the context of MSMEs, is characterized by the extent to which these enterprises exhibit flexibility, innovation, and efficiency in their resource utilization in response to external challenges or shocks [5], [6]. On the other hand, entrepreneurial orientation ("EO") is regarded as the proactive tendencies, innovativeness motive, and calculated risk taking behaviour of entrepreneurs [7].

Although there are some individual studies that have empirically analyzed the influence of sustainability practices [8], and entrepreneurial orientation [9] on firm performance, their inconclusiveness is evident in the literature. There are contradictory findings between studies, some argue that there is a significant positive [10], [11], [12], impact, while others find there is no significant or contextual effect [13], [14]. The existence of these disparities suggests a compelling need for more sophisticated models to adequately represent the intricate relationships between internal firm characteristics and financial decisions [15], [16]. In order to address this void, our investigation also incorporates mental accounting as a psychological moderating variable, which extends the RBV framework with insights from behavioral finance. Mental accounting, a cognitive processing of individuals for classifying and making judgments on financial resources, may sometimes result in limited rational decision in financial domain [17]. Informal financial practices and nonprofessional bookkeeping are pervasive among MSME owners [18]. Research has demonstrated that these practices have the capacity to influence spending patterns, budgeting behavior, and investing decisions [19]. Recent studies in the field of psychology also suggest that mental accounting may influence how entrepreneurs allocate their funds across the firm and personal consumption, thereby moderating the effect of internal capability on firm performance [20], [21].

Despite the general nature of these results, they do not incorporate psychological constructs such as mental accounting in MSME, a subject that has received minimal attention in studies focusing on financial models for the latter, particularly in developing economies. This research addresses a significant gap in the current literature by empirically testing the direct effect of business sustainability and entrepreneurial spirit on the financial performance of MSME, as well as the role of mental accounting in these relationships. Consequently, this work provides a valuable contribution to the field, offering a more nuanced understanding of how cognitive abilities interact with financial practices, thereby impacting firm performance [22], [23]. The contributions of this study are threefold. First, it augments the RBV lens with behavioral mechanisms, thereby responding to calls for an interdisciplinary perspective within the context of entrepreneurship and SME research [24], [25]. Secondly, it is important to note that the text analyzes empirical data from a developing economy, namely Indonesia, in which financial management behavior is an under-explored phenomenon [26]. Thirdly, the study offers some practical implications for local governments, financial institutions, and stakeholders of micro, small, and medium-sized enterprises MSMEs seeking more targeted support in determining how to overcome the structural and cognitive obstacles that impede the achievement of business sustainability. Thus, the following research questions will guide this study: 1) How does business sustainability and entrepreneurship affect the financial performance of MSMEs? 2) Is there a moderation effect of mental accounting on the relationship between business sustainability and MSME's financial performance? 3) Does mental accounting moderate effect of the entrepreneurial spirit on financial performance of MSMEs? Through answering these questions, the paper contributes to the discourse on MSME resilience and moves a step further towards a more encompassing approach to financial performance in resource restricted contexts.

2. LITERATURE REVIEW

2.1. Resource-Based View Theory

[3] and extended [27], the resource-based view (RBV) represents a fundamental perspective on how companies can obtain and maintain competitive advantage by strategically deploying internal resources. RBV argues that companies have various resources both tangible and intangible that are rare, valuable, inimitable, and non-substitutable (VRIN). When utilized efficiently, these resources would serve as the foundation for sustainable competitive advantage of the firm [4].

In relation to micro small and medium-sized enterprises (MSMEs), internal resources including business sustainability actions and entrepreneurial orientation (EO) are antecedents of strategic performance. Business sustainability refers to a company's ability to adapt, respond, and exploit resources under changing environmental conditions [28], while entrepreneurial orientation encompasses innovation, risk-taking, and proactivity [29]. These assets are often absent from many MSME organizations, particularly those operating in emerging markets, yet they are critical to a firm's long-term economic success [30].

[17] professionalized the behavioral aspect of financial decision-making with his concept of mental accounting. For MSME owners who usually lack sophisticated accounting systems to maintain disciplined records, mental accounting for spending, allocating income, and investing is subconscious thinking that determines how to spend, allocate income, and invest. Complementing resource-based view (RBV) with mental accounting provides a more complete picture of MSME financial performance by taking into account both strategic resources and behavioral decision-making routines.

2.2. Business Sustainability and Financial Performance

Business sustainability is importantly a factor that contributes to longterm financial success through increasing the operational efficiency, decreasing costs and strengthening the faith of the stakeholders (De Matteis et al., 2023; Nawangsari et al., 2023). In the context of RBV, sustainability can be considered a strategic intangible asset through which resilience can be built against external shocks (pandemics, economic crises) (Setiadi, 2023).

MSMEs that can advocate for sustainable practices, including resource-efficient processes, ecosystem-based adaptation, and future-oriented decision making, are more likely to tolerate market vagaries as well as achieve financial security. The results of the literature show that sustainability is associated with enhanced firm reputation, access to finance and profitability (Gorlov & Molchanova, 2023; Giordino & Revello, 2023). But the adoption of sustainability depending on the region, and depending on where in the life cycle the company's biggest business might happen to be. In Kudus Regency, for example, a lack of knowledge and resources do not encourage most MSMEs to develop sustainable initiatives into their operations.

H1. Sustainability of business gives positive contribution to the financial performance of MSMEs.

2.3. Entrepreneurial Spirit and Financial Performance

The entrepreneurship (a strong passion for business both in act and thought, innovative and risk mentality) is the 6th dimension of success of an MSME (Lumpkin & Dess, 1996). According to RBV, entrepreneurial orientation acts as one of the most critical intangible assets, which affects the capability of the company to identify and take advantages of emergent market opportunities [31], [32]. Strong entrepreneurial spirit among companies, increases the likelihood of companies diversifying their sources of income, venturing into new markets, and quickly reacting to whatever form the consumer lifestyles adopt. Several studies have also found a positive association between entrepreneurial orientation and financial performance as measured by return on assets, profit margin, and sales growth [33], [34]. However, some authors claim that it could not be enough for better performance even the higher entrepreneurial spirit is not coupled with the effective financial decision-making or strategic focus [35]. Hence, it is crucial to analyze the mechanisms that either strengthen or weaken this correlation [36].

H2. Financial performance of MSMEs is positively influenced by entrepreneurial spirit.

2.4. Moderating Variable: the role of mental accounting.

Mental accounting is defined as how individuals assign, partition, and judge financial resources mentally [37], [38]. In MSME settings like India, where formal accounting is weak, mental accounting affects how owners control cash flows, savings, debts, and investments. The findings reported that mental accounting promote better financial management, priority for productive investment, and financial waste minimization [39], [40]. As a powerful lever it reinforce the pro of the business case for sustainability by aligning financial decisions with strategic priorities. Entrepreneurs, who use mental accounting, will allocate their funds more to strategic than immediate to consumption value, which can strengthen the influence of business sustainability on financial performance [41], [42].

Another analogy is that entrepreneurial spirit encourages innovation and risk a [43]. If this is not curtailed by structured financial cognition, a similar counter-intuitive result applies to investment. A good mental accounting practice helps curtail this impulsive investment and is the one which makes the

entrepreneurial act conform to long term financial well being [44]. Accordingly, MSMEs which are endowed with a high level of entrepreneurial spirit and a high degree of mental accounting are also assumed to possess a better financial performance than those which do not possess these aforementioned characteristics.

H3. Mental accounting mediates the relationship between business sustainability and financial performance of MSMEs.

H4. Mental accounting and the relationship between MSME entrepreneurs and the financial performance of MSMEs.

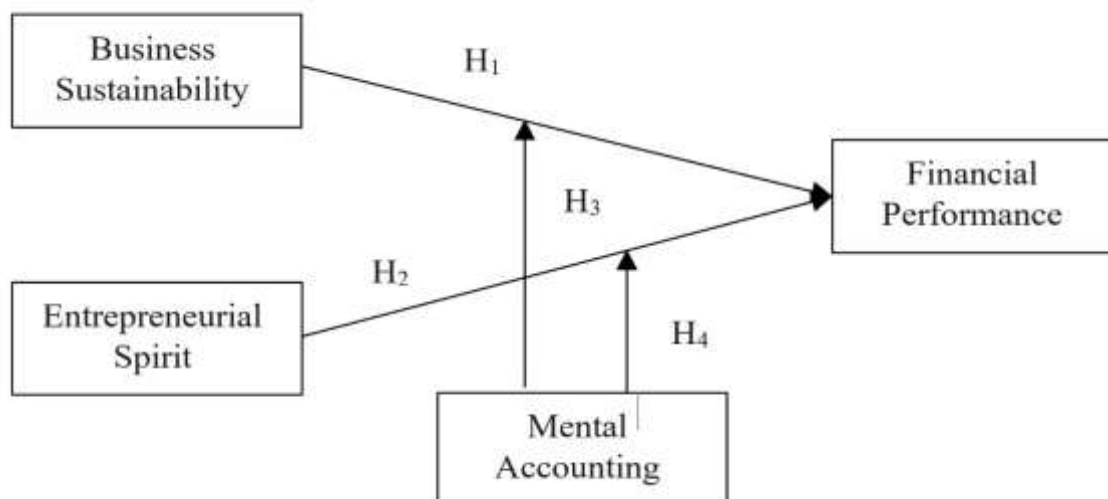


Figure 1. Conceptual model.

3. METHODS

3.1. Questionnaire development: three-pronged approach

To develop a valid and reliable research instrument that is more relevant to the condition of MSMEs in Kudus Regency, Indonesia, this study used a three-way method. First, we developed the preliminary items of the questionnaire by reviewing, in depth, the business sustainability, entrepreneurial spirit and mental accounting and MSME financial performance literatures. They were developed from established scales that have been applied in previous empirical works to guarantee the theoretical validity and the consistency of measurement [17], [39], [45]. Second, to confirm the relevance of the item to the Indonesian MSME context, we held discussions with subject-matter experts, consisting of the MSME practitioner, accounting and entrepreneurship lecturers, and policy-making authorities of local government institutions such as the Kudus Office of Cooperatives and MSMEs. The feedback provided by these experts was crucial to revisions made concerning the clarity, cultural appropriateness, and possible bias in item wording. Pilot test is carried out on 30 MSME players generation of industry in Kudus Regency to test the reliability of research instruments and the understandability of the raise in the research. The comments were employed to modify a number of the survey items, particularly those that seemed to be ambiguous or repetitive in nature. The tool was developed in English and then translated into Bahasa Indonesia by employing the forward-backward translation method so as to achieve linguistic and conceptual equivalence. The survey instrument had two sections in its final form . The first part assessed demographic and business-related variables, and the second part measured the key variables with multiple items on a five-point Likert scale that ranged from 1 strongly disagree to 5 strongly agree [46], [47].

3.2. Measurement items

The first part of the questionnaire included demographic and business-related information of the participants such as gender, age, educational background, type of industry, length of time of conducting the business and turnover per year. The second section comprised construct-level items and utilised a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Table 1 provides an overview of the constructs, sample items, and mother instruments for developing and validating the scales.

Table 1. Measures All measures were built upon literature, and refined via expert consultation and pilot testing.

Construct	Sample Items
Business Sustainability (BS)	BS1: Our business adapts effectively to market changes [48]. BS2: We prioritize innovation in our operations [49]. BS3: We manage resources efficiently for long-term goals. [50]
Entrepreneurial Spirit (ES)	ES1: I actively seek new business opportunities [51]. ES2: I take calculated risks in business decisions. ES3: I am proactive in responding to change. ES4: I introduce new ideas regularly.
Mental Accounting (MA)	MA1: I mentally allocate money for different business purposes. MA2: I track business income and expenses regularly in my head. MA3: I plan purchases and investments based on separate mental budgets [52].
Financial Performance (FP)	FP1: My business revenue has increased over the past year. FP2: We maintain profitability despite external challenges [53]. FP3: Our financial management supports sustainable growth.

Source; author 2025

Each item of measurement was examined in terms of construct clarity, scale consistency, and contextual relevance. The survey employed randomization of questions (questions from different constructs) to minimize response bias and common method variance (Podsakoff et al., 2003).

3.3. Data collection

A research environment in Kudus Regency, Indonesia, a place famous for its dense of MSMEs reaching for 55% share in GRDP and more than 60% employer of the workforce (Ula, 2023). A purposive sampling was used to select owners and managers MSMEs that registered in Office of Cooperatives and MSMEs in Kudus. The target groups in this study were MSMEs of culinary, fashion, handicraft and metal products situated in sub-districts of Kota Kudus, Jati, Bae and Kaliwungu. Data were collected in January – March 2024. Respondents were reached through offline and online techniques. Paper surveys were hand out during field work in central business districts and online google forms were shared through email and WhatsApp with a focus on reaching MSMEs located in the peri-urbans. Informed consent and confidentiality were secured before data were gathered. In all 250 questionnaires were administered, 223 valid returned without 27 waste polls due to incompleteness or ineligibility (e.g., those of the nondecision-makers). The ultimate size of the sample, which consisted of 615 participants, complied to the rule of thumb for PLS-SEM analysis 10 size per path (Hair et al., 2014). The final model comprised 10 paths and at least 100 cases are recommended for each path.

Variable	Category	Frequency	Percentage (%)
Gender	Male	108	48%
	Female	115	52%
Business Sector	Handicrafts	42	19%
	Fashion	63	28%
	Metal	67	30%
	Culinary	51	23%
Education Level	Elementary School	51	23%
	Junior High School	99	44%
	Senior High School	46	21%
	Bachelor's Degree	27	12%
Annual Revenue	< 2 billion IDR	218	98%
	2-15 billion IDR	3	1%

Variable	Category	Frequency	Percentage (%)
Business Duration	15–50 billion IDR	2	1%
	3–5 years	93	42%
	5–10 years	86	38%
	10–15 years	44	20%

Table 2. Demographic characteristics of respondents.

Source; author 2025

3.4. Data analysis

The processing of data in this study was done by using Partial Least Squares Structural Equation Modeling (PLS-SEM) by PLS version 4.0 (SmartPLS4), which is appropriate for models with more relations and a small to medium sample size. The analysis was conducted in a two-step process: the first step estimated the measurement model and tested for construct reliability and validity (Cronbach's Alpha, CR, AVE and discriminant validity Fornell-Larcker criterion and Homt-Monotrait (HTMT) ratios. After a good empirical fit was found, the structural model was tested multicollinearity [VIF] checks, path coefficients, R^2 , f^2 , and predictive relevance Q^2) with bootstrapping (5,000 resamples) once measurement qualities were adequate. A path was considered statistically significant if t-values were > 1.96 and p-values were < 0.05 . This method made it possible to test direct, indirect, and moderation effects simultaneously which, according to Hair et al. (2021) and Sarstedt et al. (2022).

4. RESULTS

4.1. Measurement model

The data analysis began with the assessment of the PLS outer model to ensure the reliability of the instruments involved. The model was considered reliable when the composite reliability (CR) and Cronbach's Alpha values exceeded the threshold (0.70) (Hair et al., 2021). In this study, the CR values for each construct ranged from 0.853 to 0.903, indicating satisfactory reliability (see Table 3). Following the reliability analysis, convergent validity was examined by assessing the average variance extracted (AVE), which should be greater than 0.5. The results showed that all AVE values for each construct exceeded 0.5, ranging from 0.556 to 0.699, thus meeting the criteria for convergent validity. In addition to convergent validity, discriminant validity was assessed using cross-loading coefficients. Table 3 shows that the cross-loading values for all variables (BS, ES, FP, and MA) ranged from 0.746 to 0.836, which are above the 0.70 threshold, indicating that the variables meet the criteria for discriminant validity.

Construct	Items	λ	α	CR	AVE
Entrepreneurial Spirit (ES)	ES1	0.808	0.746	0.853	0.659
	ES2	0.846			
	ES4	0.78			
Mental Accounting (MA)	MA1	0.747	0.802	0.862	0.556
	MA2	0.815			
	MA3	0.733			
	MA4	0.712			
	MA5	0.716			
Financial Performance (FP)	FP1	0.851	0.857	0.903	0.699
	FP2	0.856			
	FP3	0.826			
	FP4	0.81			
Business Sustainability (BS)	BS1	0.746	0.832	0.882	0.598
	BS2	0.798			
	BS3	0.789			
	BS4	0.769			
	BS5	0.765			

Table 3. Measurement of outer model

Source; author 2025

4.2. Discriminant validity

Data analysis began by evaluating the measurement model (outer model) to test the reliability and validity of the constructs. Reliability of internal consistency was examined through Cronbach's Omega Coefficients and Composite Reliability (CR). As recommended by Hair et al. (2021) demonstrated that reliability is adequate when both α and CR are greater than 0.70. In the present investigation, CR values varied between 0.853 to 0.903, and α values varied from 0.746 to 0.857 for all constructs suggested adequate reliability. The Average Variance Extracted (AVE) demonstrated the convergent validity of the measure and all constructs are higher than the recommended value of 0.50. The AVEs varied between 0.556 and 0.699, suggesting that every factor accounted for a substantial amount of the variance in its measurement items.

Table 4. Measurement of outer model

Construct	Construct	ES	FP	MA
BS	0.774			
ES	0.565	0.812		
FP	0.403	0.376	0.836	
MA	0.610	0.508	0.319	0.746

Source; author 2025

4.3. Collinearity testing

The Variance Inflation Factor (VIF) was used to check for multicollinearity between the independent variables. According to Hair et al. (2021), VIF greater than 5 signifies the presence of multicollinearity. For all the predicting variables, the VIF coefficients were between 1.262 to 2.137, suggesting no multicollinearity, and thus supporting the independence between the predictor constructs.

4.4. Structural model and hypothesis testing

A bootstrapping (5,000 samples) was performed to check the inner or structural model. The estimates of Hypothesised paths are reported in Table 4 along with T-values and P-values. As can be seen, three of the four hypotheses resulted as significant at the 5% level. The findings indicate that Business Sustainability (BS) and Entrepreneurial Spirit (ES) have a significant positive effect on Financial Performance (FP). Mental Accounting (MA) was a significant moderator between BS and FP but did not moderate the relationship between ES and FP.

Table 5. Hypothesis Testing

Hypotheses Relationship	T-value	P-values	Decision
BS → FP	2.578	0.005	Confirmed
ES → FP	2.260	0.012	Confirmed
BS → FP*MA	1.666	0.048	Confirmed
ES → FP*MA	0.640	0.261	Confirmed

Source; author 2025

4.5. Model fit and predictive power

Several indicators were used to test the overall fit of the model. For SRMR, the value is.071, which is less than the cut-off value of.08, suggesting a good model fit. The Normed Fit Index (NFI) was 0.823, also acceptable (>0.80). The R^2 for FP was 0.247, suggesting that BS and ES combined explain about 24.7% of the variance in FP. This is in line considers a low but satisfactory predictive value for exploratory social science models. Finally, f^2 values were computed to determine the unique contribution of each exogenous

construct to the endogenous construct. It is indicated in the findings that the constructs do contribute significantly to FP and therefore, there is a need for further research into this in future.

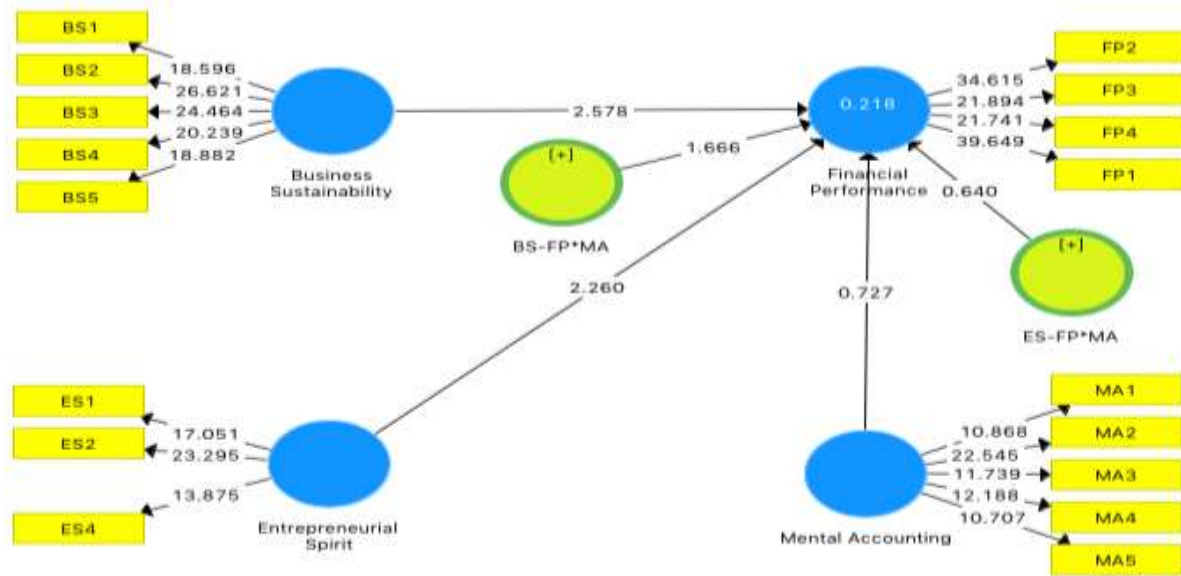


Figure 2. PLS-SEM bootstrapping model

5. DISCUSSION

This study provides strong evidence of the positive and significant relationship between BS and FP among MSMEs, thereby supporting H1. This finding is consistent with the allegations of the resource-based view (RBV) theory [4], that sustainable practices (i.e., innovation, environmental adaptability, efficient use of resource) create opportunities for MSMEs with high level of internal capability to generate operating efficiency and long-run profitability. This is in line with the research study of [54], [55], who maintain that sustainability strategies constitute a bulwark for SMEs in turbulent markets. In an MSME (micro-small-medium enterprises') setting in Kudus Regency, this finding indicates that the long-term orientation in doing business is not only a strategic decision, but also a factor that determines their financial resilience [56]. Besides, H2 is supported since entrepreneurial spirit (ES) has significant relationship with MSMEs financial performance. Highly innovative, proactive and calculated risk-taking entrepreneurs - three of the dimensions in entrepreneurial orientation literature [57], [58], will essentially be more prepared to explore untapped opportunities, adapt to changing customers' needs, and reduce uncertainty. These results coincide with studies of [59], [60], who highlight internal entrepreneurship, are relevant for promoting MSME growth in dynamic and competitive settings, such as Indonesia.

Importantly, we show in the present study that mental accounting (MA) moderates the relationship between business sustainability and financial performance such that their positive relationship is enhanced when mental accounting H₃ is supported. It implies that 3Ms that mentally classify-allocate and punish their spendings: separating operational and emergency funds, is better able to harness sustainability strategies. This behavioral approach also supports [39], theory of mental accounting, implying that individual and small firm's use cognitive processes to simplify financial decisions. In the context of Indonesian MSMEs, mental accounting acts as a cognitive device which helps to encourage frugality and supports long term strategic goals [61], [62]. But, contradictorily to our expectations, the moderating effect of mental accounting in the relationship between entrepreneurial attitude and financial performance is not significantly H₄ is not supported. One possible explanation might be that whilst entrepreneurial orientation is an internal resource, the effect to financial performance might depend more on the external environment that entrepreneurs can tap on in terms of markets, business networks and capital [63], [64], [65]. That is, even if MSME drivers are characterized by a strong entrepreneurial drive, this driver's consequences are not necessarily realized unless coupled with other structural or contextual determinants. This observation also adds to the ongoing debate that psychological drivers, while essential, may not universally increase all relationship between business behavior and outcomes.

Specific policy implications These results provide nuanced aspects of the heterogeneous impact of mental accounting on various MSME capabilities [66]. In particular, it implies that cognitive financial practices (i.e., fund compartmentalization, budget discipline and expense evaluation) are more likely to advance performance under structured strategic behaviors e.g., sustainability but not under abstract behaviors e.g., entrepreneurial spirit). This differentiation is indispensable for the MSME support institutions, which want to develop interventions to specific capability gaps [67]. From a theoretical perspective, the research contributes to the RBV by incorporating behavioral finance accents and fills a void by the gap between concrete firm capabilities and cognitive level financial behaviors. In terms of practical implications, these findings imply that MSME training development programs and interventions should concentrate more on not only the technical or strategic training but also on the financial behavioral training. Interventions aimed at the application of mental accounting principles e.g., adopt a separation between the funds owned by the business and personal funds, regular control of the budget, setting goals related to the business could be serve to increase the effectiveness of strategic practices including sustainability.

To wrap up, the empirical results are evidence to the intricate, yet reinforcing linkage between the relationship of business sustainability and entrepreneurial orientation and mental accounting. Although both business sustainability and entrepreneurial orientation contribute positively to financial performance, mental accounting reinforces the effect of business sustainability only. These findings emphasize the value of combining strategic competencies with psychological resources that have the potential to lead to greater performance in MSMEs in emerging economies.

6. CONCLUSION AND IMPLICATIONS

This paper contributes to empirical work that explores the relationship between business sustainability and entrepreneurial orientation to financial performance among MSMEs, with mental accounting as the psychological moderating variable. Performed among MSMEs in Kudus Regency, Indonesia, results indicate that business sustainability and entrepreneurial orientation are positively associated with financial performance, indicating that internal capabilities are critically important to realize superior business success. In addition, mental accounting also moderates the effect of business sustainability on financial performance, suggesting financial behavior as such as is practiced by the MSME owner in managing, allocating, and then mentally categorizing the financial resources that can strengthen the business strategy. Several practical implications arise from the results of this study. Contributions Firstly, theoretically, this study contributes to the enrichment of the Resource-Based View (RBV) by including psychological dimensions, specifically mental accounting, in the MSME resource optimization framework. The research indicates that the impact of instrumental economic resources, including sustainability practices and entrepreneurial acts, may be enhanced by the financial minds. This extends the established knowledge in behavioral finance [39] and MSME strategic management [27], and enables organizations to more fully comprehend MSMEs' performance. Second, being practically-oriented, this study emphasizes the importance for MSME development programs to focus aside on "real" business practices but on "how" individuals are being trained to think and feel with their money. It is thus advisable for policy makers, local government and MSME supporting institutions to develop training modules which have mental accounting principles such as separating personal and business expenditure, streamlining of revenue, being disciplined in planning, revenue budget planning because they can improve the implementation of sustainability strategies. Lastly, the validation of the positive influence of entrepreneurial spirit on financial performance provides further evidence for the increasing demand of entrepreneurship education on MSME policy interventions. Programs should be designed by government bodies and support agencies to create a proactive, innovative and risk managing attitudes among MSME stakeholders. Programs like entrepreneur bootcamps, peer mentoring and innovation labs have proven particularly effective in developing these skills. Fourth, the nonsignificant moderation finding of the mental accounting on entrepreneurial spirit–financial performance relationship suggests that while psychological discipline might strengthen concrete strategies (e.g., sustainability), it may not strongly boost abstract personal attributes like entrepreneurial spirit. This implies that the entrepreneurial motive should be enabled by environment factors (like access to finance, information networks and market links) if its effect on financial performance is to (fully) manifest.

Finally, there are important policy implications for this study. Local government may provide assistance for the resilience of MSMEs through subsidy training on sustainability strategies and the management of financial behavior. Banks are recommended to have MSME credit analysis that not only considers financial ratios but also incorporates the analysis of BM readiness like entrepreneurial orientations and financial discipline. Furthermore, financial education drives should incorporate attention-based workshops on mental accounting, so as to empower MSME agents in resource-constrained settings.

In sum, this study provides a multi-level integrated model which combine strategic, entrepreneurial, and psychological determinants to explain MSME financial performance. These dynamics imply that creating robust and competitive MSMEs in developing economies is not only a result of the mutually reinforcing interaction among innovation, environment, and sound financial management. These learnings are intended to help shape future academic works, and may also be used to drive the design of holistic support programs that are meant to increase the growth happenance, and survival of MSMEs, and contribute towards meaningful economic development and progress in delivering on national productivity targets.

6.1. Limitations and future research direction

There are some limitations of this research such as the research respondents which only covers MSMEs in Kudus Regency; and may influence the generalization of research results. Future work should explore other territories for better generalization. Furthermore, the cross-sectional nature failed to capture the time dimension and follow-up studies are suggested. The bias of self-reported data should be concerned; financial reports or interviews could be combined in the future study. Additional behavioral factors, such as financial literacy or risk aversion, were not considered and should be further examined. Finally, future research can explore gender and sector differences in the analysis.

CRedit authorship contribution statement

Sri Murni, S.E., M.Si., Ak.: Conceptualization, Methodology, Writing – Original Draft, Supervision. **Prof. Dr. Rahmawati, M.Si., Ak., CA:** Validation, Formal Analysis, Review & Editing. **Ari Kuncara Widagdo, S.E., M.B.A., Ph.D., Ak.:** Data Curation, Visualization, Writing – Review & Editing. **Dr. Sri Hartoko, M.B.A., Ak., CACP:** Investigation, Resources, Writing – Review & Editing. **Dr. Sri Mulyani, S.E.I., M.Si.:** Software, Project Administration, Validation. **Agus Dwianto, S.E., M.Ak., (Asist., Prof):** Data Analysis, Mendeley citation, Citation Elsevier refrence, Literature Review, – Original Draft.

Data availability statement

The data that support the conclusions of this study are available from the corresponding author upon request.

Ethical statement

No experiments were performed in humans or animals for this study. The information was gathered through a questionnaire that was designed to comply with the Declaration of Helsinki's recommendations, and confidentiality was respected following internal- institutional rules.

Declaration of the use of AI

Conflict of Interest the authors have not used generative AI tools for either writing of the article or the analysis of the data. All writing was directly authored by humans, except for editorial suggestions such as those (e.g., grammar) of automated proofreading tools.

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Declaration of competing interest

The authors confirm that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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