

## The Role of Competitive Advantage in Mediating the Causal Relationship Between Business Innovation, Entrepreneurial Orientation, And MSME Performance

F.X. Kurniawan Tjakrawala<sup>1,2</sup>, Kartini<sup>3</sup>, Sri Sundari<sup>3</sup>

<sup>1</sup>Faculty of Economic & Business, Tarumanagara University, Jakarta, Indonesia

<sup>2,3</sup>Doctoral Program in Accounting, Faculty of Economic & Business, Hasanuddin University, Makassar, Indonesia

**ABSTRACT:** In the Strategic Management Accounting paradigm, entrepreneurial orientation and innovation do not automatically translate into high financial performance; both must first be translated into a real competitive advantage. Management accounting validates this advantage by comparing competitor accounting—evaluating whether innovation has successfully positioned the MSME's cost structure lower than competitors' (cost leadership) or created unique value that justifies a premium price in the market. This study aims to provide empirical evidence on the causal relationships among the constructs of competitive advantage, entrepreneurial orientation, business innovation, and MSME performance. This research was conducted through a survey, with questionnaires distributed to respondents who met the purposive sampling criteria. The data used in this study are classified as primary data. The objects of this research are four latent variables/constructs, each with 20 reflective indicators. This study explores the perceptions of respondents, comprising MSME entrepreneurs at the managerial level (owners or managers) engaged in the culinary business, fashion, basic necessities, and household utensils. The survey was conducted on MSMEs operating in the provinces of Banten, Jakarta, West Java, Central Java, Yogyakarta, and East Java. A total of 88 valid data points were collected and are ready for processing. This research applies a structural equation model with partial least squares. MS Excel and SmartPLS-v. 3.29 applications were used in data processing and hypothesis testing. All hypotheses regarding the direct effect of exogenous constructs on endogenous constructs have been significantly supported. Regarding the mediating construct, the empirical findings in this study demonstrate that competitive Advantage mediates the causal relationship between entrepreneurial orientation, business innovation, and MSME performance.

**KEYWORDS:** Competitive Advantage, Entrepreneurial Orientation, Business Innovation, MSME performance

### INTRODUCTION

Micro small medium enterprises (MSMEs) in Indonesia have experienced rapid development, especially since the Covid-19 pandemic. Even the government released the results of the Indonesia Central Bureau of Statistics (BPS-Statistic) survey that MSMEs are such an important sector in building the national economy because their growth is increasing day by day (Herwiyanti, Pinasti, & Puspasar, 2020). Improving the performance of MSMEs can be done by utilizing social media. Various social media and available online stores can be utilized by MSMEs. Moreover, the progress of the current era is starting to show a change in the shopping style of customers who used to be offline now to be online (Ayodya, 2020). MSME are an important and strategic sector for national economic development However, the problems of MSME, both internal and external, have caused the potential of MSME to not be fully optimized (Herwiyanti, et al., 2020). In the Strategic Management Accounting paradigm, entrepreneurial orientation and innovation do not automatically translate into high financial performance; both must first be translated into a real competitive advantage (Ardia et al., 2025). Management accounting validates this advantage by comparing competitor accounting—evaluating whether innovation has successfully positioned the MSME's cost structure lower than competitors' (cost leadership) or created unique value that justifies a premium price in the market (Mandasari et al., 2024).

The COVID-19 pandemic has left a number of impacts that have certainly changed various aspects of human life, such as working from home patterns; consumer behavior; consumption behavior. Changes in these aspects will certainly be a challenge as well as an opportunity for business entrepreneurs to respond to it. Business innovation is an absolute thing to do in the business world. It is a must for every type of business, including: small, medium and large scale companies. So in order to continue to exist in business competition, a company must adapt to changes that are in line with the times. In fact, most companies ignore an

innovation, especially small-scale companies that still use conventional methods, namely everything that is done manually and does not keep up with current business developments that have used advanced technology for all parts of the company, such as marketing, operations, services and finance (Chang-Muñoz et al., 2023; Loon & Chik, 2019). Competitive advantage means a company does business better than its competitors. This concept closely aligns with established strategy theories. The advantage shows not only in operations but also in financial results; for example, the company earns higher-than-average profits across the industry (Maury, 2018). As such, competitive advantage is an important aspect of business theory and practice. Without it, companies will find it difficult to survive profitably (Nayak et al., 2022).

The turmoil in the industry originating from the external environment (eg information technology; digitalization) causes MSMEs to need to develop their dynamic capabilities through business innovation to strengthen the position of MSMEs (Cheah, Ho, & Li, 2018). MSME performance is an illustration of the level of success of MSMEs in achieving business goals and targets for a period (Mahmudova & Kovács, 2018). MSME performance is getting better through the entrepreneurial Orientation of MSME entrepreneurs which will encourage them to adopt certain strategies that allow MSMEs to innovate, be more proactive, and be more willing to take risks to create opportunities in the market (Kadam et al., 2019). MSME performance is influenced by competitive Advantage in order to obtain high profitability, where competitive Advantage can be achieved through the application of business innovation because it can reduce costs, create an image, improve reputation, and create unique value for the company (Anwar, 2018).

Recent literature reviews identify entrepreneurial orientation, business innovation, and competitive advantage as three fundamental pillars that consistently influence MSME performance. Competitive advantage has been examined as a mediating variable in various structural model configurations, demonstrating both partial and full mediation. Despite substantial empirical research on the mediating role of competitive advantage, several gaps remain that require further investigation. First, most previous studies have tested mediation pathways separately, focusing either on the entrepreneurial orientation to competitive advantage to performance pathway or the innovation to competitive advantage to performance pathway. Few studies have examined both pathways simultaneously within an integrated structural model. This indicates that simultaneous testing of dual mediation within a single structural equation modeling (SEM) framework remains underexplored. Second, the application of rigorous partial least squares structural equation modeling (PLS-SEM) to test dual-mediator models in the MSME context is limited. Many prior studies continue to use multiple regression with the Baron-Kenny test (Nurlina et al., 2017) or the Sobel test (Danial et al., 2025), both of which have recognized limitations in accurately estimating indirect effects, particularly in non-normally distributed samples. Third, conceptual ambiguity persists regarding the distinction between business innovation as an independent construct and related constructs such as innovation capability, product innovation, and business model innovation. Positioning business innovation as a stand-alone, exogenous construct, equivalent to and parallel with entrepreneurial orientation, in a dual mediation model remains rare in the MSME literature.

Based on research gaps identified above, this study offers substantive and measurable novelty relative to previous work. The primary contribution is the treatment of competitive advantage as a dual, simultaneous mediator, mediating both the business innovation to MSME performance pathway and the entrepreneurial orientation to MSME performance pathway within a single integrated structural equation model. This parallel dual mediation model enables direct comparison of the magnitudes of indirect effects across the two pathways within the same sample. In doing so, it addresses a previously unexamined question: whether competitive advantage mediates the effect of entrepreneurial orientation or business innovation on MSME performance more strongly. Methodologically, the application of PLS-SEM with bootstrapping techniques represents a significant advancement over the Baron-Kenny regression (Nurlina et al., 2017) and the Sobel Test (Danial et al., 2025), as recommended by recent SEM researchers (Ngo, 2023; Otache, 2024). Additionally, positioning business innovation as an independent exogenous construct parallel to entrepreneurial orientation, rather than as a subdimension or antecedent in a serial chain, constitutes a conceptual contribution. This approach responds to Ngo's (2023) call for research exploring new configurations of variables and mediators in the literature on the relationship between entrepreneurial orientation and performance.

This research thus seeks to answer the following question: (a) How do entrepreneurial orientation, business innovation, and competitive advantage collectively influence the msme performance? (b) How do entrepreneurial orientation and business innovation collectively influence MSME performance when mediated by competitive advantage? This research aims to investigate and empirically validate: (a) the causal relationship between entrepreneurial orientation, business innovation, competitive advantage,

and MSME performance; (b) the role of competitive advantage in mediating the causal relationship between entrepreneurial orientation, business innovation, and MSME performance.

## THEORETICAL FRAMEWORK & HYPOTHESIS DEVELOPMENT

This study used resource-based view theory to understand how companies achieve performance and competitive advantage (Barney, 1991). First introduced by Wernerfelt in 1984, this theory emphasizes identifying, distributing, and developing tangible and intangible corporate resources to increase profits. To further enrich the analysis, this research also draws on Dynamic Capabilities Theory, which emphasizes the use of company-specific capabilities—such as management development and the integration of organizational, functional, and technical skills—to update competencies in response to changing business environments (Teece, Pisano & Shuen, 1997). Additionally, Social Capital Theory, as introduced by Bourdieu (1986), is incorporated to provide a basis for understanding enduring networks and the reciprocal relationships between organizations and individuals.

Building on these theoretical foundations, this research is also based on Signaling Theory (Spence, 1973), which explains that, in situations of information asymmetry, one party seeks to maximize the signal to convey information of interest to the other party. For context, MSME performance describes the level of success of MSMEs in achieving goals and the extent to which business targets set can be achieved within a given period. By assessing performance, businesses can determine strengths, make strategic decisions, and ensure long-term success (Mahmudova & Kovács, 2018). Competitive advantage results from an organization developing or implementing actions or adopting attributes that enable it to outperform competitors (Wang, 2014). In this context, business innovation refers to a company's efforts to update its system of activities and strategies to exploit opportunities, thereby providing strategic options (Cucculelli & Bettinelli, 2015).

Entrepreneurial Orientation can encourage MSME to use strategies that are appropriate to achieve increased performance. Entrepreneurial Orientation will encourage an individual's willingness to innovate, be proactive, and willing to take risks to manage a business, where these things will bring entrepreneurs to improve the performance of their MSME. Business innovation is the transformation of companies to achieve successful company performance by allocating more resources for experimentation and increasing capacity to innovate. Business Innovation helps MSME identify and capitalize on opportunities, and plays an important role in translating the recognition of these opportunities into superior performance.

Findings from Buli (2017), Prasetyo & Wijaya (2019), Suryana et al. (2019), Ie & Primary (2019), Fatima & Bilal (2019), Vaitoonkiat & Charoensuk-mongkol (2020), Ali et al. (2020), Dahana et al. (2021), Florentino & Tjakrawala (2021), Putri & Affandi (2024), Kusmayadi et al. (2025), Rahmi et al. (2025) show that entrepreneurial orientation has a positive effect on MSME performance. Research results from Ladib & Lakhali (2015), Afiyati et al. (2019), Tresna & Raharja (2019), Semaan et al. (2020), Dahana et al. (2021), Octavio & Tjakrawala (2022), Nuvriasari & Sari (2023), Yusnita et al. (2024), and Iqbal et al. (2025) show that competitive advantage has a positive effect on MSME performance. Findings from Ladib & Lakhali (2015); Djaja & Arief (2015); Pedersen et al. (2016); Guo et al. (2016); Anwar (2018); Dewi & Ahamat (2018); Nugroho et al. (2019); Smajlović, Umihanić & Turulja (2019); Clauss et al. (2019); Dahana et al. (2021); Octavio & Tjakrawala (2022); Anwar et al. (2023); Kusmayadi et al. (2025) show that business innovation has a positive effect on the performance of MSME.

The findings of Zaini et al. (2014), Mohammad et al. (2016), Mahmood & Hanafi (2018), Rua et al. (2018), Dahana et al. (2021), Sukmamedian (2021), Alves et al. (2022), and Seo et al. (2023) show that entrepreneurial orientation has a positive effect on competitive advantage. Meanwhile, research results from Permatasari & Dwanto (2013); Desyllas & Sako (2013); DaSilva & Trkman (2014); Purkayastha & Sharma (2016); Bashir & Verma (2017); Cheah et al. (2018); Anwar (2018); Khan et al. (2019); Dahana et al. (2021); Octavio & Tjakrawala (2022); Farida & Setiawan (2022); Soegihono & Yuniawan (2023); Baskara et al. (2025) show that business innovation has a positive effect on competitive advantage. The findings of Zaini et al. (2014), Mohammad et al. (2016), Mahmood & Hanafi (2018), Rua et al. (2018), Dahana et al. (2021), Sukmamedian (2021), Kaniawati et al. (2024), Murniningsih et al. (2024), and Danial & Nurmala (2025) provide statistical evidence that competitive advantage mediates a causal relationship between entrepreneurial orientation and msme performance. The results of Anwar's research (2018), Dahana et al. (2021), Octavio & Tjakrawala (2022), Murniningsih et al. (2024), Nasir et al. (2024), and Danial & Nurmala (2025) show that competitive advantage mediates a causal relationship between business innovation and SME performance. Thus, the proposed hypotheses are as follows:

- H1. Entrepreneurship Orientation has a positive effect on MSME Performance.
- H2. Competitive Advantage has a positive effect on MSME Performance.
- H3. Business Innovation has a positive effect on MSME Performance.
- H4. Entrepreneurship Orientation has a positive effect on Competitive Advantage.
- H5. Business Innovation has a positive effect on Competitive Advantage.
- H6. Competitive Advantage mediates the causal relationship between Entrepreneurial Orientation and MSME Performance.
- H7. Competitive Advantage mediates the causal relationship between Business Innovation and MSME Performance.

## METHODOLOGY

### Operational Constructs

The objects of this research are four latent variables (Entrepreneurship Orientation; Business Innovation; Competitive Advantage; MSMEs Performance) and 20 reflective indicators that will represent latent variables. Indicators are measured using a Likert scale instrument with a score range of one to five. A score of one represents the perception of Strongly Disagree; a score of two represents the perception of Disagree; a score of three represents the perception of Neutral; a score of four represents the perception of Agree; and a score of five represents the perception of Strongly Agree. With reference to Hair, et al. (2014) and McBride (2010), this study assumes the measurement of the Likert scale instrument is included in the interval scale category.

The following is an operational description for each of these types of variable:

- 1) Entrepreneurial Orientation (ENTOR) refers to the methods, practices, and models of decision-making in Entrepreneurial, including conducting technological experiments, willingness to seek opportunities in the market, and the courage to take risks (example: organizations try to innovate their products and dare to take risks). existing risk). this variable is an exogenous construct which is represented by five manifest variables/reflective indicators coded ENTOR1, ENTOR2, ENTOR3, ENTOR4, ENTOR5. The reflective indicators used in this study refer to Parveen et al. (2016); Schillo (2011).
- 2) Business Innovation (INNOV) refers to whether or not the company takes action in creating, delivering, and capturing value in its efforts to compete with competitors and improve company performance. This variable is an exogenous construct represented by five manifest variables/reflective indicators coded INNOV1, INNOV2, INNOV3, INNOV4, INNOV5. The reflective indicators used in this study refer to Clauss (2016)
- 3) Competitive Advantage (COMAD) refers to the ability or Advantage that the company has compared to competitors in its efforts to create business value in the eyes of consumers. For example: the products offered are unique and have their own characteristics so that consumers are interested in buying these products. This variable is an endogenous construct represented by five manifest variables/reflective indicators coded COMAD1, COMAD2, COMAD3, COMAD4, COMAD5. The reflective indicators used in this study refer to Khan, et al. (2018).
- 4) MSMEs performance (SMEPR) in this study refers to the condition of the company's performance after implementing business innovation, entrepreneurial Orientation, and competitive Advantage owned by the company. This variable is an endogenous construct represented by five manifest variables/reflective indicators coded SMEPR1, SMEPR2, SMEPR3, SMEPR4, SMEPR5. The reflective indicators used in this study refer to Anwar & Shah, 2020.

### Population and Sample

The population used in this study is the msme owners and managers in Java. The sample was selected using a purposive sampling technique on MSME entrepreneurs with the following criteria: The respondents consist of owners or managers of micro, small, and medium enterprises (MSMEs). These MSMEs operate in the culinary, fashion, basic necessities, and household equipment and supplies sectors. MSMEs included in the study are not credit unions or foundations and may operate both offline and online. Eligible MSMEs utilize product applications accessible via mobile phones, including iOS-based platforms. The MSMEs are located in the provinces of Banten, Jakarta, West Java, Yogyakarta, Central Java, and East Java.

### Data Collection Methods

This study seeks to obtain primary data obtained through surveys by distributing questionnaires to sample respondents. This research questionnaire consists of two main parts. The first part is related to the demographics of the respondents and the characteristics of the companies where the respondents work. The second part is related to respondents' perceptions of a number of

statements that represent operational variables in this study. The number of samples required in this study relates to the data analysis technique that will apply latent-path modeling. Because this study will implement a structural equation modeling, with reference to Hair, Black, Babin, & Anderson (2010), the minimum sample that must be obtained is five to 10 times the total number of indicators that reflect the research construct. The reflective indicators in this study amounted to a total of 20 units. Thus, if using a limit of 10, the minimum number of samples that must be obtained is 200 units. The questionnaire will be sent to the sample respondents using a google form via the link: <https://forms.gle/zEhXqz4USrGqtsdx6>. The online questionnaire form was addressed to the respondents through email. Email data is supported from the dataumkm.com and smesco.go.id website. The dataumkm.com is a relatively complete online service provider platform for data collection, mapping, classification and validation related to the profile of MSMEs in Indonesia. Meanwhile Smesco.go.id is a website for the brand of the Cooperative and MSME Marketing Service Agency from the Ministry of Cooperatives and MSMEs of the Republic of Indonesia. Questionnaires that have been designed using google form were sent to 200 email addresses of respondents who have met the criteria for sample collection. The email address is obtained from the MSME profile which is publicly listed on the dataumkm.com page and also on the smesco.go.id page. There were 122 non-return questionnaires. There were 88 respondents who had filled out the questionnaire and resubmitted it, and to be processed. Thus the usable response rate in this study is 44%.

### Measurement Model Test (Outer Model Test)

Outer model test takes place using the PLS Algorithm menu and will test the quality of data in the form of validity and reliability tests. Discriminant validity criteria, namely the value of cross-loadings by comparing the results of loading the intended construct with the results of loading other constructs. The targeted indicators and constructs can be considered good if the correlation between the targeted indicators and constructs is higher than the other indicators and constructs. In addition, the validity test uses convergent validity, where a reflective indicator is considered valid to explain a construct if it has an outer loading greater than 0.7 (Ghozali, 2015). In fact, the outer loading has the same magnitude as the cross loading value. In addition, there are also criteria for the Average Variance Extracted value with a threshold value greater than 0.50 (Hair, Hult, Ringle, & Sarstedt, 2017). The reliability test takes place using the Composite Reliability, where a construct is said to be worth good if the Composite Reliability is greater than or equal to 0.70 (Hair et al., 2017). In addition to composite reliability, reliability testing is also carried out by measuring the value of Cronbach alpha where a construct is said to be worth good if the Cronbach alpha value is greater than or equal to 0.70 (Hair et al., 2017).

### Structural Model Test (Inner Model Test)

In the structural model test (inner model test), according to Hair, Hult, Ringle, & Sarstedt (2017), it is evaluated by observing the value of the coefficient of determination (R-sqr) threshold value such as 0.75; 0.50; 0.25, each of which indicates that the proportion of endogenous construct variance that can be explained by exogenous constructs is substantial, moderate, weak. The value of the R-sqr is displayed in the PLS Algorithm menu of the SmartPLS. Inner model test F-sqr effect size (with threshold values of 0.35; 0.15; 0.02, each of which indicates that the exogenous construct has a large; medium; or small effect on the endogenous construct). F-sqr effect size is a measure to assess the relative impact of exogenous constructs on endogenous constructs (Hair et al. 2017). F-sqr effect size is displayed through the blindfolding menu of the SmartPLS. Inner model test will also measure Stone-Geisser's Q-sqr value used to assess predictive relevance of exogenous constructs to an endogenous construct. Stone-Geisser's Q-sqr value in the inner model test is obtained through menu Blindfolding of the SmartPLS, which is indicated by the estimated value of the Construct Crossvalidated Redundancy. The threshold value for Q-sqr is greater than zero to indicate that there is predictive relevance of exogenous constructs to endogenous constructs (Hair et al. 2017).

### Mediating Role Testing Method

A common technique widely used in testing the mediating effect in a causal relationship is to use the Sobel-test (Helm et al. 2010). However, Hair et al. (2017) argues that the use Sobel-test relies on the assumption of a normal distribution. Meanwhile, PLS-PM does not require the normality aspect. In addition, the Sobel-test tends to produce statistical power an inadequate. Hair et al. (2017) applied a special procedure to examine the effect of mediation in causal relationships in PLS-PM. The method was adopted from Zhao, Lynch, & Chen (2010). Based on the method, it might be clear that if the indirect effect is significant and the direct effect is also significant, then the type of mediation effect is partial mediation. Partial mediation with a positive sign is classified as complementary mediation. Meanwhile, if the sign is negative, it will be included in competitive mediation. However,

if the indirect effect is significant but the direct effect is not significant, then the type of mediation becomes full mediation. Measurement of the significance of direct and total effects on PLS-PM using bootstrapping.

**RESULTS**

**Descriptive Statistics of Respondents Demographics**

Exhibit 1 displays descriptive statistics tabulations on the demographics of the respondents being sampled, with regard to data: MSME area, line of business, estimated annual sales turnover, number of employees, form of business entity, gender, latest education, position/position, age, and years of service. With an N number of 88, the survey found that the majority of respondents were male (53%) and most were in the age range of 21-30 years (51%). Most of the respondents have diploma education (41%). The majority of respondents are MSME owners (78%), with the highest working period of six to 10 years (51%). The survey also obtained data that the majority of MSME respondents came from Jakarta Province (31%). When referring to Law no. 20 of 2008, it is known that the majority of respondents run micro-scale businesses (67%) with an estimated annual sales turnover of under Rp. 300 million, and small-scale MSMEs (33%). Most MSME respondents run culinary businesses (65%). Respondents who returned the questionnaire turned out to be the majority of SMEs with individual business entities (91%). And because the majority of respondents answered that the workforce is below five people, which indicates that it is classified as a micro-scale when referring to Indonesia Central Bureau of Statistics.

**Exhibit 1. Demographic Characteristics of Respondents**

Characteristics of Respondents		Freq	%
MSME Region	Banten	23	0.26
	Jakarta	27	0.31
	West Java	10	0.11
	Central Java	11	0.13
	Yogjakarta	8	0.09
	East Java	9	0.10
	Total	88	100.00
Estimated annual sales turnover	≤ Rp. 300 million	59	0.67
	> Rp. 300 million to Rp. 2.5 billion	29	0.33
	> Rp. 2.5 billion	0	0.00
	Total	88	100.00
business	Culinary	57	0.65
	Fashion business	18	0.20
	Basic food business	6	0.07
	Household appliances/equipment	7	0.08
	Total	88	100.00
Number of employees	< 5	46	0.52
	5–19	42	0.48
	20–99	0	0.00
	> 100	0	0.00
	Total	88	100.00
Form of business entity	Individual	80	0.91
	Firm	3	0.03
	Partnership	5	0.06
	Limited Company	0	0.00
	Total	88	100.00
Gender	Male	47	0.53

Characteristics of Respondents		Freq	%
	Female	41	0.47
	Total	88	100.00
Education	Elementary & equivalent	0	0.00
	Junior high school & equivalent	0	0.00
	High school & equivalent	21	0.24
	Diploma	36	0.41
	Undergraduate	24	0.27
	Postgraduate	7	0.08
	Total	88	100.00
Position	Owner	69	0.78
	Manager	19	0.22
	Total	88	100.00
Age	20 years	1	0.01
	21– 30	45	0.51
	31-40	37	0.42
	> 40	5	0.06
	Total	88	100.00
Work tenure	5 years	42	0.48
	6-10 years	45	0.51
	>10 years	1	0.01
	Total	88	100.00

**Result Testing of the Measurement Model (Outer Model Test).**

The results of the validity test with discriminant validity are reflected in the value of the cross loadings as shown in **Exhibit 2** and also **Exhibit 3**. All reflective indicators have good validity with values above 0.7 and significant at p less than 0.01 after going through the bootstrap. It appears that the entire cross-loading each indicator can explain each construct (ENTOR, INNOV, COMAD, and SMEPR) significantly, as shown in **Exhibit 2** and also **Exhibit 4**. Value of cross-loadings indicate that the correlation between each indicator and its construct has a greater value than the correlation with other constructs. test are convergent validity indicated by the Average Variance Extracted (AVE) value for each construct with a value above 0.5, which indicates that each construct (ENTOR, INNOV, COMAD, and SMEPR) can be explained validly by their respective reflective indicators. **Exhibit 2** also shows that the results of the composite reliability on all constructs in this study have high reliability with a value of more than 0.70. Likewise, the value of internal consistency represented by Cronbach's Alpha of each construct also shows high reliability for each construct.

**Exhibit 2. Summary of Data Measurements**

Constructs	Indicators	Cross Loadings	t-stat ***	Cronbach's Alpha	AVE	Composite Reliability	R-sqr	Q-sqr
COMAD	COMAD1	0.737	9.537	0.839	0.609	0.886	0.614	0.330
	COMAD2	0.850	15.578					
	COMAD3	0.777	13.947					
	COMAD4	0.763	11.098					
	COMAD5	0.769	11.858					
SMEPR	SMEPR1	0.752	16.113	0.852	0.631	0.895	0.806	0.461
	SMEPR2	0.873	28.243					
	SMEPR3	0.833	22.721					

Constructs	Indicators	Cross Loadings	t-stat ***	Cronbach's Alpha	AVE	Composite Reliability	R-sqr	Q-sqr
ENTER	SMEPR4	0.742	11.407	0.835	0.603	0.884	—	—
	SMEPR5	0.763	11.506					
	ENTOR1	0.790	15.242					
	ENTOR2	0.798	17.913					
	ENTOR3	0.779	16.452					
INNOV	ENTOR4	0.727	9.979	0.823	0.587	0.876	—	—
	ENTOR5	0.786	18.960					
	INNOV1	0.738	11.060					
	INNOV2	0.739	10.762					
	INNOV3	0.804	14.841					
COMAD	INNOV4	0.730	11.925	0.614	0.587	0.876	—	—
	INNOV5	0.815	16.516					
	COMAD1	0.737	11.925					
	COMAD2	0.850	16.516					
	COMAD3	0.763	11.925					
	COMAD4	0.769	11.925					
	COMAD5	0.777	11.925					

Note: \*\*\* t-stat > 2.58, sig. at p < 0.01

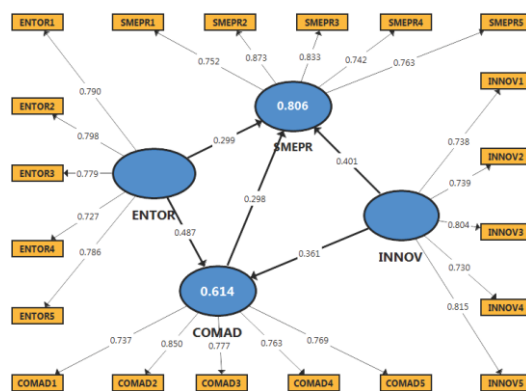


Exhibit 3. Visual Chart of PLS Algorithm Measurement Results of SmartPLS-v.3.29

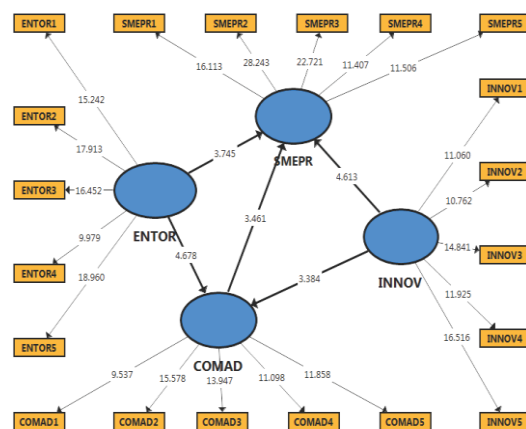


Exhibit 4. Visual Chart of Bootstrapping Measurement Results of SmartPLS-v.3.29

Result Testing of Structural Model (Inner Model Test).

Data processing using the PLS Algorithm menu shows the determination coefficient of competitive advantage construct (COMAD) of 0.614 and the MSMEs Performance construct (SMEPR) of 0.806 as presented in Exhibit 2. It can be interpreted that:

a) the constructs of Entrepreneurial Orientation (ENTOR) and Business Innovation (INNOV) are able to explain moderately and strongly tend to the variability of the endogenous COMAD construct; b) the constructs ENTOR, INNOV, and COMAD were able to strongly variability of the endogenous construct of SMEPR. **Exhibit 2** also presents the calculation results of Stone-Geisser's Q-sqr—with menu blindfolding which shows that there is predictive relevance between the exogenous constructs ENTOR and INNOV to the endogenous COMAD construct (Q-sqr = 0.330). Another predictive relevance also exists between the constructs ENTOR, INNOV, and COMAD to the endogenous construct of SMEPR (Q-sqr = 0.4641). The test results on how strong the causal relationship between exogenous constructs and endogenous constructs are answered by calculating the effect size (F-sqr). The value of F-sqr from the exogenous construct INNOV to the endogenous construct COMAD has medium effect-size tends to be large (F-sqr = 0.173); The exogenous ENTOR construct also has medium effect size which tends to be large (F-sqr = 0.314) on the COMAD endogenous construct. The value of F-sqr from the exogenous construct of ENTOR to the endogenous construct of SMEPR has effect-size tends to be large (F-sqr = 0.180); the endogenous construct INNOV has a large effect-size (F-sqr = 0.362) on the endogenous construct of SMEPR. The F-sqr of the COMAD endogenous construct to the SMEPR endogenous construct has medium effect size tends to be large (F-sqr = 0.177).

The final part of testing the structural model is testing the research hypothesis. The summary of all the results of hypothesis testing in this study can be seen in **Exhibit 5**. The results of testing the seven research hypotheses are as follows:

- 1) **Hypothesis One.** The path coefficient of 0.299 indicates that predictive causality between constructs is positive. The t-statistic value of 3.745 was significant at  $p < 0.01$ . Statistically, this study succeeded in rejecting H0. With the support of H1, this study succeeded in significantly predicting that ENTOR has a positive effect on SMEPR.
- 2) **Hypothesis Two.** The path coefficient of 0.298 indicates that predictive causality between constructs is positive. The t-statistic value of 3.461 was significant at  $p < 0.01$ . Statistically, there is sufficient evidence to reject H0. With the support of H2, this study is able to predict significantly that COMAD has a positive effect on SMEPR.
- 3) **Hypothesis Three.** The path coefficient of 0.401 indicates that predictive causality between constructs is positive. The t-statistic value of 4.613 was significant at  $p < 0.01$ . Statistically, this study succeeded in rejecting H0. With the support of H3, this study succeeded in significantly predicting that INNOV has a positive effect on SMEPR.
- 4) **Hypothesis Four.** The path coefficient of 0.487 indicates that predictive causality between constructs is positive. The t-statistic value of 4.678 was significant at  $p < 0.01$ . Statistically, there is sufficient evidence to reject H0. With the support of H4, this study is able to predict significantly that the ENTOR has a positive effect on COMAD.
- 5) **Hypothesis Five.** The path coefficient of 0.361 indicates that predictive causality between constructs is positive. The t-statistic value of 3.384 was significant at  $p < 0.01$ . Statistically, there is sufficient evidence to reject H0. With the support of H5, this study is able to predict significantly that INNOV has a positive effect on COMAD.
- 6) **Hypothesis Six.** The path coefficient of 0.145 indicates that the mediating variable has a positive and significant indirect effect on the predictive causal relationship between constructs. The t-statistic value of 2.858 was significant at  $p < 0.01$ . Statistically, there is sufficient evidence to reject H0. With the support of H6, this study is able to predict significantly that COMAD mediates the causal relationship between ENTOR and SMEPR.
- 7) **Hypothesis Seven.** The path coefficient of 0.108 indicates that the mediating variable has a positive and significant indirect effect on the predictive causal relationship between constructs. The t-statistic value of 2.249 is significant at  $p < 0.05$ . Statistically, there is sufficient evidence to reject H0. With the support of H7, this study is able to predict significantly that Competitive Advantage mediates the causal relationship between INNOV and SMEPR.

**Exhibit 5. Hypotheses Testing Results**

Hypothesis	Relationship	Direct Effect	t-Statistic	Indirect Effect	t-Statistic	Decision
H1 <sup>a</sup>	ENTOR → SMEPR (+)	0,299	3,745 ***	—	—	supported
H2	COMAD → SMEPR (+)	0,298	3,461 ***	—	—	supported
H3 <sup>b</sup>	INNOV → SMEPR (+)	0,401	4,613 ***	—	—	supported
H4	ENTOR → COMAD (+)	0,487	4,678 ***	—	—	supported

Hypothesis	Relationship	Direct Effect	t-Statistic	Indirect Effect	t-Statistic	Decision
H5	INNOV → COMAD (+)	0,361	3,384 ***	—	—	supported
H6	ENTOR → COMAD → SMEPR (+)	—	—	0,145	2,858 ***	supported
H7	INNOV → COMAD → SMEPR (+)	—	—	0,108	2,249 **	supported

Note:

\*\*\* t-stat > 2.58, sig. at p < 0.01

\*\* t-stat > 1.96, sig. at p < 0.05

a. Total effect = 0.444; t-statistic= 6.314 (t-stat > 2.58) sig, at p < 0.01

b. Total effect = 0,509; t-statistic = 6.773 (t-stat > 2.58) sig, at p < 0.01

DISCUSSION

- (a) **Hypothesis One.** The results of the H1 test are consistent with the results of the Buli research (2017); Prasetyo & Wijaya (2019); Suryana et al. (2019); Ie & Primary (2019); Fatima & Bilal (2019); Vaitoonkiat & Charoensuk-mongkol (2020); Ali et al. (2020); Dahana et al. (2021); Florentino & Tjakrawala (2021); Putri & Affandi (2024); Kusmayadi et al. (2025); Rahmi et al. (2025). The results of this study indicate that if Entrepreneurial Orientation will be able to support the performance of MSME because the entrepreneurs who have a high entrepreneurial orientation will also show a high desire to be more innovative, more proactive, and also have the courage to take risks. In addition, entrepreneurial orientation is also able to encourage MSMEs to use the right strategy to achieve increased performance (Kadam et al., 2019). This presentation is relevant to social capital theory, where MSME entrepreneurs will later make it possible to take advantage of their existence in a social network to analyze available opportunities to support MSME performance.
- (b) **Hypothesis Two.** The results of the H2 test are consistent with the results of the research by Ladib & Lakhali (2015); Afyati et al. (2019); Tresna & Raharja (2019); Semaan et al. (2020); Dahana et al. (2021); Octavio & Tjakrawala (2022); Nuvriasari & Sari (2023); Yusnita et al. (2024); Iqbal et al. (2025). The results of this study indicate that SMEs that apply competitive advantage in their business can improve the performance of SMEs in both financial and non-financial performance. MSME that have strong and effective competitive advantages can produce high productivity so that they contribute to improving MSME performance (Khan, et al., 2018). The competitive advantage of MSMEs creates unique value through the implementation of differentiation and cost-leadership strategies, ultimately improving MSME performance. This is relevant to the resource-based view, which states that competitive advantage arises from resources that are valuable, rare, and nonimitable and nonsubstitutable, thereby increasing MSME performance. The results of the hypothesis testing are also relevant to signaling theory, which holds that, by having a competitive advantage, MSMEs signal to internal and external parties that they are superior to competitors. For internal parties, this information can inspire them to keep trying and maximize their capabilities. For external parties, this information can serve as a reference when choosing this MSME over others, given its advantages. This information or signal can ultimately improve MSME performance, both financially and non-financially.
- (c) **Hypothesis Three.** The results of the H3 test are consistent with the results of the research by Ladib & Lakhali (2015); Djaja & Arief (2015); Pedersen et al. (2016); Guo et al. (2016); Anwar (2018); Dewi & Ahamat (2018); Nugroho et al. (2019); Smajlović, Umihanić & Turulja (2019); Clauss et al. (2019); Dahana et al. (2021); Octavio & Tjakrawala (2022); Anwar et al. (2023); Kusmayadi et al. (2025). The results of this study indicate that if MSMEs apply business innovation to their businesses, they can improve the performance of MSMEs, both financial and non-financial. Business innovation is a tool that can help MSMEs to recognize, exploit, and translate opportunities to create strategies so as to improve MSME performance (Guo, et al., 2016). The application of business innovation can help MSMEs stay abreast of changing technological developments and community needs, enabling them to continue competing in the existing market and generate profits by shifting the form, proportion, creation, and capture of business value. This aligns with the resource-based view, which holds that MSMEs' resources can create distinct value, thereby improving their performance. In this case, the resources in question are the outcomes of business innovations, creating valuable, rare, and hard-to-imitate and substitute resources that, in turn, can improve MSME performance. This aligns with dynamic capabilities theory, which holds that by innovating business models, you can modify existing resources to enable MSME to continue adapting to environmental changes. MSME use their capabilities to update their

competencies, compete, and improve performance. This aligns with signaling theory, which holds that MSMEs signal to the community when their businesses are responsive and innovative to environmental changes, enabling people to access information about MSME, which in turn can improve MSME performance by fostering trust in these MSME.

- (d) **Hypothesis Four.** The results of the H4 test are consistent with the results of Zaini et al. (2014); Mohammad et al. (2016); Mahmood & Hanafi (2018); Rua et al. (2018); Dahana et al. (2021); Sukmamedian (2021); Alves et al. (2022); Seo et al. (2023). The results of this study indicate that the entrepreneurial orientation allows MSME entrepreneurs to have the organizational capability to manage strategic resources that will provide a competitive advantage for MSMEs entrepreneurial orientation gives the spirit to manage resources better and this is certainly a competitive advantage. This presentation is relevant to social capital theory, where MSME entrepreneurs have the capability to take advantage of their presence in a social network to analyze available opportunities to gain competitive advantage.
- (e) **Hypothesis Five.** The results of the H5 test are consistent with the results of the research conducted by Permatasari & Dwanto (2013); Desyllas & Sako (2013); DaSilva & Trkman (2014); Purkayastha & Sharma (2016); Bashir & Verma (2017); Cheah et al. (2018); Anwar (2018); Khan et al. (2019); Dahana et al. (2021); Octavio & Tjakrawala (2022); Farida & Setiawan (2022); Soegihono & Yuniawan (2023); Baskara et al. (2025). The results of this study indicate that MSMEs that implement business innovation will have the opportunity to increase their competitive Advantage. Business innovation can create a competitive advantage by making changes to activities and ways of doing business so as to create differences and advantages from competitors. Business innovation helps SMEs to change strategies that are still abstract to be more specific so that they can create a competitive advantage for SMEs (Sorescu, et al., 2011). Relevant to resource-based view theory which states that competitive advantage can be achieved when MSMEs have resources that have valuable, rare, cannot be imitated and substituted characteristics. Resources with these characteristics can be achieved through the development of resources through business innovations owned by MSMEs. This is in line with dynamic capabilities theory which states that competitive advantage can be achieved when MSMEs exploit and explore MSME competencies and capabilities and modify their resources by innovating business models that have been used by MSMEs with the aim of being able to compete and adapt to their needs. dynamic environment. This is in line with signaling theory which states that changes in business model innovation in terms of updating the activity system and business rationale can give signals to employees or MSME internal parties if MSMEs have a goal to continue to be superior compared to competitors so that all parties have enthusiasm and participate. participate in order to continue to innovate so as to achieve competitive advantage.
- (f) **Hypothesis Six.** H6 test results are consistent with the research results of Zaini et al. (2014); Mohammad et al. (2016); Mahmood & Hanafi (2018); Rua et al. (2018); Dahana et al. (2021); Sukmamedian (2021); Kaniawati et al. (2024); Murniningsih et al. (2024); Danial & Nurmala (2025). The results of this study indicate that if MSMEs are managed with a high entrepreneurial orientation, they will become a competitive advantage which in turn can improve the performance of MSMEs, both financial and non-financial. Because the role of competitive advantage as a mediator in this study is statistically proven to be complementary, it actually indicates that (1) competitive advantage can be a factor that complements the entrepreneurial orientation so that performance (financial and non-financial) gets better, because the entrepreneurial orientation raises the sensitivity of the entrepreneurs. MSMEs to capture every business opportunity in order to get new customers; maintain customer loyalty, and of course the potential to become a competitive advantage for MSMEs; (2) competitive advantage itself is essentially able to play a role in improving the performance of MSMEs. This finding is also relevant to the Resource-Based View theory.
- (g) **Hypothesis Seven.** The results of the H7 test are consistent with the results of Anwar's research (2018); Dahana et al. (2021); Octavio & Tjakrawala (2022); Murniningsih et al. (2024); Nasir et al. (2024); Danial & Nurmala (2025). The results of this study indicate that business innovation has the potential to help MSMEs in reducing costs; improve the company's reputation and build a good image; enable value creation through unique business processes (eg: delivery options and postage) where MSMEs will gain a sustainable competitive advantage. Meanwhile, competitive advantage through differentiation options or lower prices than competitors will provide benefits in improving financial and financial performance. Because the role of competitive advantage as a mediator in this study is statistically proven to be complementary, it actually indicates that MSMEs that always implement business innovation will eventually have better performance (financial and non-financial because

business innovation creates uniqueness that has the potential to become competitive advantage for SMEs. This finding is in line with the Resource-Based View theory.

## CONCLUSION

The coefficient of determination obtained in this study indicates that the ENTOR and INNOV constructs moderately explain the variability of the endogenous COMAD construct, while the ENTOR, INNOV, and COMAD constructs strongly explain the variability of the endogenous SMEPR construct. The predictive power of these causal relationships is reflected in the Q-sqr value, which is greater than zero, indicating that the constructs studied are statistically predictive of one another. The strength of the causal relationship between exogenous and endogenous constructs is clarified by the F-sqr calculation. Specifically, ENTOR has a medium effect size on SMEPR and a large effect size on COMAD. INNOV has a large effect size on SMEPR and a medium effect size on COMAD. COMAD, as an endogenous construct, has a medium effect size on SMEPR.

The analysis conducted using SmartPLS-v. 3.29 provides sufficient evidence to support all seven hypotheses in this study. The findings demonstrate that ENTOR, COMAD, and INNOV each have a positive effect on SMEPR, and that both ENTOR and INNOV positively influence COMAD. The results further indicate that COMAD significantly mediates the relationship between ENTOR and SMEPR, as well as between INNOV and SMEPR. Collectively, these findings confirm all seven hypotheses and verify the problem statements and research objectives.

Several limitations are present in this study: a) The analysis is restricted to the causal relationships among four constructs: ENTOR, INNOV, COMAD, and SMEPR; b) As the partial least squares method does not require normality, the data may not conform to a normal distribution; c) Verification of the authenticity of questionnaire responses was not possible; d) Credit unions and foundations were excluded from the sample selection criteria; e) The survey sample is confined to MSMEs operating on Java island; and f) The study specifically targets MSMEs in the culinary, fashion, necessities, and household appliances or equipment sectors.

The results of this study contribute to expanding the body of knowledge in management accounting and behavioral accounting. For MSME entrepreneurs, the results of this study serve as a reference for consistently pursuing business innovation, prioritizing entrepreneurial orientation, and maintaining and improving competitive advantage in a sustainable manner, as it has been empirically proven to positively impact MSME performance. There are relatively few publications on similar topics in Indonesia, giving flexibility in research through replication and adaptation while still using PLS-Path Modeling and/or structural equation modeling (SEM) techniques. To get a more comprehensive picture of perceptions of MSMEs, the next survey can be expanded to include cooperatives and/or foundations in the criteria for MSMEs that will be the target for sampling.

Subsequent research can expand the field of the MSME sector to include agriculture & fisheries, transportation & warehousing, hospitality, etc., and the questionnaire distribution area can also be expanded to MSME entrepreneurs beyond Java island. Because the status of MSME bodies is a primary concern for most individuals, the next study could include indicators of personal wealth in the performance construct of MSMEs. The entrepreneurial orientation construct can also be extended by including learning orientation. Further research can add organizational culture constructs and environmental dynamics as antecedents of MSME performance.

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